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INCORPORATING ACADEMIC SERVICE-LEARNING INTO ZOOLOGY: A COMMUNITY-UNIVERSITY PARTNERSHIP

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ABSTRACT

Tertiary education institutions are being challenged to improve students' learning experiences. These institutions have the potential to enhance their students' learning and their performances by engaging in community-based service-learning projects. Situational constraints hinder students at some tertiary institutions from doing significant animal behavioural studies. To overcome this obstacle, a community-based service-learning component was incorporated into an existing second-year zoology course. Zoos, as community partners, can provide exciting educational opportunities for students to do animal behavioural studies. A sample of 105 prospective biology teachers from a South African university completed a questionnaire on their animal behavioural studies. The incorporation of the service-learning component into the zoology course was done in three consecutive phases: the pre-service, service, and post-service phases. The community-university partnership revealed that not only the students, but also the lecturer and the community had benefited. This innovative service-learning project developed the students' teaching, learning and research skills, and deepened their own understanding of complex social issues and community needs within a zoo environment. Furthermore, the partnership gave the conservation staff of the zoo better understanding of the behaviour of some animals and therefore helped in their management and husbandry. The service-learning project also presented the university with opportunities to integrate research, teaching, learning, and outreach to a community, as well as intensifying the social purpose of higher education.

Keywords: service learning, student teachers, zoo, zoology

Main Conference Topic: Education, Teaching and Learning

INTRODUCTION

Globally, service-learning may still be considered a relatively underdeveloped and new pedagogical tool. In South Africa, it is expected from tertiary institutions not only to become socially responsive with regard to community development, but also to produce new knowledge and graduates who are responsive citizens. One method of achieving this is through service-learning initiatives (Alperstein, 2007). Service-learning is a teaching strategy increasingly used within higher education e.g. United States, South Africa, Australia, Egypt, Ireland, Japan, Mexico and South Korea (Hatcher and Erasmus, 2008).

It is generally accepted that service-learning's key component is its explicit link to academic coursework. This is reflected in Bringle and Hatcher's (1995: 112) definition of service

learning as a "course-based, credit-bearing educational experience in which students participate in an organised service activity that meets identified community needs and reflect on the service activity in such a way as to get further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility". According to this definition, service learning is an academic enterprise (Bringle and Hatcher, 2005). In service-learning, Furco (1996: 5) emphasises that service must be provided and learning must occur. Thomson *et al.* (2010) makes the important point that in addition to 'serving to learn', service learning intentionally focuses on 'learning to serve'. Community-based service learning values the principle of tertiary institutions working in partnership with communities to develop education programmes for students. Through collaborative engagement in developing these programmes, the assumption is that not only will professional, academic, and discipline needs be met, but that members of the community will benefit and gain new knowledge (Alperstein, 2007).

Gannon (2005) suggests that service-learning can provide a compelling and broadening context for the transformation of teacher learning, leading to new understanding of ways of connecting with students at the margins of society. It can also foster student teachers' engagement with the profession, enhance their leadership, their mentoring ability, their self-esteem, and increase their respect for and understanding of diverse communities (Shimmons-Torres *et al.*, 2002).

Globally, tertiary education institutions are being challenged to improve students' learning experiences. These institutions have the potential to enhance their students' learning and their performances by engaging in community-based service-learning projects. Roos *et al.* (2005) suggest that experiential learning projects should be a necessary component of formal instruction at tertiary level. Van Staden *et al.* (2010: 66) point out that "These projects are the 'vehicles' through which students may become more fully engaged with academic material whilst concomitantly having the opportunity to apply theoretical knowledge in practice". Service-learning pedagogy challenges tertiary institutions and their academic staff to reconceptualise not only their curricula but also their disciplinary training and their roles as educators.

Service-learning is not often associated with science courses (Haines, 2003). Most students earning an education qualification are usually extensively trained in formal classroom teaching methodology but receive little, if any, training in informal education (Haines, 2003). Consequently, I found it necessary to incorporate a service-learning and a research component in an existing zoology module. This module which includes the theme 'ethology' is being offered for second-year, pre-service biology teachers. Henson (2008) defines ethology as the study of genetically programmed, instinctive animal behaviours. Situational constraints e.g. laboratory facilities and suitable animals hinder students at tertiary institutions from doing significant animal behavioural studies. Moreover, conducting an observational study of animals in the wild would be most inviting to many but it is not often feasible. However, zoos can provide exciting educational opportunities for students to learn about a wide range of science subject matter, including animal behavioural studies. The main aim was to incorporate a community-based service-learning project into an existing zoology course to develop the students' teaching, learning and research skills as well as to create innovative teaching possibilities for the lecturer.

THEORETICAL FRAMEWORK

This article uses David Kolb's (1984) Experiential Learning Theory as the theoretical basis for applying learning style theory to community-based service learning. Kolb (1984: 38) believes "learning is the process whereby knowledge is created through the transformation of experiences". Kirschner *et al.* (1997: 160) in Roakes and Norris-Tirrell (2000) define Kolb's stages as follows: *Concrete experience* where the learner/student "experiences the results of his or her active experimentation and stands open for these new experiences"; *Reflective observation* where the learner/student "is able to see different perspectives relating to the situation and to reflect on them"; *Abstract conceptualisation* where the learner/student "integrates the perceptions into logical theories"; and *Active experimentation* where the learner/student "tests the theories in practice by problem-solving".

Kolb's (1984) Experiential Learning Theory highlights the importance of both reflection and active experimentation, for each is a bridge between practice (concrete experience) and abstract theory (conceptualisation). According to Kolb's Experiential Learning Theory, learning is considered to be an uninterrupted process in which knowledge is created by transforming experiences into existing cognitive frameworks.

RESEARCH QUESTIONS

The following research questions were addressed in the study:
- How can studies of animal behaviour be incorporated as a community-based service-learning project in a zoo setting?
- What is the incorporated community-based service-learning project's contribution to the development of the students, lecturer and staff of the zoo?

RESEARCH DESIGN AND METHODOLOGY

Both quantitative and qualitative approaches (QUAN + qual) were employed to describe the trends or explain the relationships between variables. Most of the items included in the instrument were quantitative in nature. Some questions were open-ended and therefore qualitative in nature.

Sample and participants: A purposeful sampling strategy was used. Baccalaureus Educationis (BEd), full-time, pre-service teachers at a semi-urban university in South Africa participated in this study. The intended sample (population size) was 120 students (n=120). A realised sample of 105 students (n=105) participated in this study. Students enrolled for the

second year zoology module (JDK 220: Ethology) were selected for the study. The study was conducted over two years and involved the only two zoology classes for those years.

Instrument: The research met the ethical guidelines of the Animal Use and Care Committee at the Faculty of Veterinary Sciences, and the zoo's Ethics and Scientific Committee. The research further met the ethical guidelines laid down by the Faculty of Education Research Ethical Committee with humans involved, including voluntary participation, informed consent, confidentiality, anonymity, trust and safety in participation. The survey instrument was in the form of a questionnaire and the zoo's staff was involved in designing this questionnaire. The 46 item questionnaire (written in English) contained both open-ended and closed-ended questions. The responses yielded demographic data as well as information on students' personal experiences of the whole service-learning project, and the educational value of academic service learning. The demographic items had bearing on gender and culture groups.

Data collection strategies: After the students' presentations, single questionnaires were completed voluntarily during their free time. Respondents did have a choice as to whether they wanted to submit the completed questionnaire or a blank form. The questionnaire took about 40 minutes to complete. The zoo's manager of Conservation Education and Public Engagement in Science gave feedback with regard to the service-learning project. The incorporation of the service-learning component into the zoology course was done in three consecutive phases: the pre-service, service, and post-service phases.

Data analysis procedure: The responses to the open-ended questions were analysed both qualitatively and quantitatively. In the case of qualitative analysis, open-ended questions were analysed by means of open-coding (Strauss and Corbin, 1990). The responses to the closed-ended questions were analysed only quantitatively by using frequency counts. Descriptive statistics (frequencies, percentages, mean scores) of the survey data were used to elaborate and enhance the discussion. Only answers to some of the questions and statements are reported here.

Validity and reliability: The questionnaire was pilot-tested with fifteen students enrolled in the third year of the zoology course. Based on the feedback of the pilot study, the questionnaire was revised. Redundancies and ambiguities were removed to improve the clarity in the formulation of certain questions in the questionnaire. The instrument was not designed as a dichotomous or multi point questionnaire. Cronbach alpha reliability tests are more suitable for scales in a questionnaire. Consistency was not expected with most of the questions, therefore it was not necessary to test for reliability.

FINDINGS AND DISCUSSION

Biographical profile of the students

One hundred and twenty questionnaires were handed out and 105 (88%) were returned. More than two-thirds of the students (71%) were female. The students' ages ranged between 19 and 22. The majority (70%) were 'African' (Sepedi, Siswati, Zulu, Swazi, Xhosa, Setswana, Ndebele, Tsivenda, Tsonga), 25% were Afrikaans and 5% English. Most of the students indicated that they had visited the zoo before this project: 1-3 times (63%), 4-6 times (16%) and more than six times (10%). Eleven per cent of the students indicated that it was the first time they had visited the zoo.

Experiences of students

In response to the question "Do you think animals should be kept in a zoo?", most (72%) of the students were in agreement that it is not wrong to keep animals in a zoo. Some students wrote more than one comment. Their positive comments were clustered into two categories: educational opportunities (30%), animal protection/ conservation (41%). A very high percentage (98%) of the students found the lecturer's instructions for the animal behavioural study clear and easy to follow. The vast majority (82%) of the students indicated that they got valuable guidance from the zoo staff and that they were treated well. Forty per cent (40%) of the students were not in favour of the zoo as an environment for doing effective animal behavioural studies. The main reason for their negativity was that zoos are not the natural habitat of animals.

The most common responses when the students were asked to identify difficulties that they had were making animal behavioural observations (69 students) followed by the construction of an ethogram of the most common animal behaviours (30 students) and then presenting the results as a pie chart (26 students). Environmental obstacles, inactive animals and visitors were the main concerns of the students when doing behavioural observations at the zoo. The following comments reflect some students' negative reactions concerning making behavioural observations: "Visitors obscuring our view, and disturbing the animals"; "The fencing of the cages was a problem"; "The animals were not very active"; "Animals were too far, so it was difficult to properly see their behaviour" and "The animals would hide making it hard to observe". Some students found it difficult to summarise the most essential information on a poster in a creative way and to calculate the behavioral activities' percentages in the ethogram.

Almost all the students (99%) agreed that the literature study to some degree helped them in planning and implementing the behavioural study. One student commented: "The literature study broadened our knowledge and formed the basis of our research about the animals allocated to us.

In response to the question "Which group of animals would you prefer in an animal observational study?" the vast majority of students (76%) indicated mammals. The preferences that followed were for reptiles (11%), fish (5%), birds (4%), insects (3%) and amphibians (1%). More students (44%) have indicated that they would prefer to study animals at game reserves. The preferences that followed were for zoo animals (28%), pets (16%) farm animals (10%) and pond animals (2%).

In response to the question "Describe the ethology project as a learning experience" most students chose more than one statement (Table 1). There were 105 students who participated in the study. The animal observation activity was found to be very instructive (by 86 students), followed by the writing of a coherent literature study (71 students) and recording data in an ethogram (62 students).

Table 1: Students' learning experience of the service-learning project

Categories elicited from students' comments	Responses (n= 590)	Percentages (%)
Doing meaningful animal behavioural observations	86	15
Writing a coherent literature study	71	12
Recording data in an ethogram	62	10
Designing a good poster or slide show	61	10
Conducting research according to the scientific method	54	9
Cooperative, co-learning experience	54	9
Enhancement of presentations skills	47	8
Developing organization and planning skills	45	8
Designing a pie chart or histogram	35	6
Learning to respect animals	33	5
Enhancement of critical thinking skills	24	4
Assessing fellow students	18	3

This study draws mainly on Kolb's (1984) Experiential Learning Theory as theoretical underpinnings. Firstly, zoology students were given an opportunity to apply their theoretical knowledge practically in a variety of learning contexts, for example observing animal behaviours; writing a coherent literature study; designing a good poster; recording data in an ethogram; preparing good presentations; writing a scientific research report; and assessing fellow students (concrete experiences).   Secondly, they reflected on these experiences through end-of-study questionnaires and presentations (reflective observation).   Thirdly, these reflective discussions provided the students with the opportunity to strengthen their learning; they draw conclusions and integrated their perceptions into logical theories (abstract conceptualisation).   And fourthly, the insight and experiences gained by the students gained through community-based service-learning, guided their actions, leading to other concrete experiences (active experimentation).   The students tested these theories in practice during their teaching practice at several schools.

The contribution of the service-learning project to the development of the participants

- *Students*

Students became interested in how biological issues connected to their specific project.   In addition, they were given the chance to apply biological principles to real-world experiences (see Table 1). One student said: "The practical study of animal behaviour is one of the ways of making content alive".   Furthermore, service learning helped students appreciate the interdisciplinary nature of academic knowledge and the diverse career opportunities related to zoology.   This study mirrors Kennell's (2000) view that students better recognise the significance of civic responsibility as a result of service-learning experiences in biology. After completing their studies, they (as responsible citizens) may bring their future careers to the community to help add value and solve problems. Service-learning provides students with opportunities to experience, question, and construct a personal framework in which they can understand learned animal behaviour.

This service-learning project helped some of the students to sharpen their organising and planning skills (see Table 1). According to Roakes and Norris-Tirrel (2000), service learning

is particularly suitable for applied disciplines, such as planning. They contend that effective professional practice involves more than a conceptual understanding of skills and knowledge; it also requires an operational understanding. Many students learned to think critically, solve problems, and practice higher-level thinking skills (see Table 1). This project placed the students in a community environment, giving them the opportunity to interact with persons who are different from themselves in terms of religion, culture and social background. It also enhanced the students' sense of worth by allowing them to make a difference in the community through their active and meaningful participation.

For the first time during their academic training at the university, the students experienced not only doing scientific research, but also doing research in partnership with a community, the zoo. Community-based research that encompasses service-learning allowed students to be participants in the development of collaborative research in ways that strengthened both their academic learning and civic competencies. The project highlighted the importance of both reflection and active experimentation, for each is a bridge between concrete experience (practice) and abstract conceptualisation (theory). Thus, for them it was not only the thinking about an experience, but the thinking about an experience in a systematic way that allowed practice to influence theory and theory to inform practice.

- *The lecturer*

During this community-based service-learning project, students and the lecturer at the university learned to work with a community and similarly, the community also learned to work with university staff. This service-learning presents the academic participant (the lecturer teaching the zoology module) with opportunities to integrate research, teaching, learning, and outreach to a community, along with intensifying the social purpose of higher education (see also Castle and Osman, 2003). This is in tandem with the notion that universities should build relationships within the community and attempt to integrate aspects of their teaching and research agendas more relevantly with community-service functions. The lecturer benefited from seeing how the research informed the discipline and the profession's knowledge based in scholarly ways. Academics at tertiary institutions should build relationships within the community and attempt to integrate aspects of their teaching and research agendas more relevantly with community service functions.

- *The zoo staff*

The results of the experiential learning experience demonstrated that giving students the chance to apply their theoretical knowledge in practice benefited not only the students themselves but also the zoo. During this community-based service-leaning project, the students, the conservation staff of the zoo and the lecturer developed a mutually beneficial relationship during which they learned to work with each other. The zoo staff was able to offer critical information about contextual knowledge as well as expertise. They also gained the opportunity to participate in an educational partnership. According to the zoo's manager of Conservation Education and Public Engagement in Science, the findings of this study gave the conservation staff of the zoo a better understanding of the behaviour of some animals and will therefore help in their management and husbandry. This project provided the zoo, as the community, with substantial human resources to meet its educational and environmental needs. Furthermore, it is predicted that many students will commit to a lifetime of volunteering after this service-learning experience.

CONCLUSIONS

This study had demonstrated the effectiveness of a service-learning project in a zoology course. The students, the lecturer and the community (zoo) all benefited. The students viewed this service-learning project as a positive experience. The study mirrors Kennell's (2000) view that students better understand the importance of biological principles when given the chance to apply these principles to real-world experiences; and they learn more academic content because they become interested in how biological issues connect to their specific project. Service-learning projects also help students appreciate the diverse career opportunities related to the zoological sciences and the interdisciplinary nature of academic knowledge. Zoos have the advantage of getting students out of the classroom or laboratory and into another environment, demonstrating that science learning can take place anywhere and not only in formal tertiary institution settings. Zoo animals are living in captivity, and therefore, zoos are more suitable for studying learned animal behaviours.

This service-learning project allowed students to experience zoology in real-world settings. It also offered insight into concepts that underlie zoological phenomena faced by our society in ways that cannot be adequately provided in the classroom. Incorporating a service-learning component into any zoology course can be an effective learning tool. The incorporation of the service component into the zoology course led to the students' personal and professional development and insights into the ways in which communities operate.

The value of this project lay partly in the fact that the students could apply the knowledge and skills gained through the act of service learning to other contexts, for example, during teaching practice or as professionals upon completion of their studies. Societies with deep-rooted cultural, social and economic problems can benefit from universities that can provide community-based service learning. The interdependent relationship between teaching and learning, research and community engagement brought 'books to life and life to books'.

Biography of the author

Rian de Villiers is an Associate professor in the Department of Science, Mathematics and Technology Education in the Faculty of Education. He teaches pre-service life sciences and natural sciences teachers. He is a South African National Research Foundation (NRF) –rated researcher and he was involved in various international collaborative research projects from 2002 to 2015. His expertise is in the fields of inter- and intra-continental teacher migration, teacher training in life sciences education, controversial topics in life sciences, and community-based service-learning.

REFERENCES

1.   Alperstein, M. (2007). Getting closer to the community voice in curriculum development: an exploration of the possibilities. *Education as Change,* 2(3), 59-67.
2.   Bringle, R. & Hatcher, A. (1995). A service learning curriculum for faculty. *The Michigan Journal of Community Service Learning*, (2), 112-122.
3.   Bringle, R. & Hatcher, J. A. (2005). Service-learning as scholarship: why theory-based research is critical to service-learning. *Acta Academica Supplementum,* (3), 24-44.
4.   Castle, J. & Osman, R. (2003). Service learning in teacher education: an institutional

model for an emerging practice. *South African Journal of Higher Education*, 17(1), 105-111.

5.   Furco, A. (1996). Service-learning: a balanced approach to experiential education. In. Expanding boundaries: Serving and learning (Ed.), *Corporation for National Service* (pp 2-6). Columbia, MD: The Cooperative Education Association.

6.   Gannon, S. (2005). I'll be a different sort of teacher because of this. Creating the next generation. Paper presented at the Australian Association for Research in Education Conference, Parramatta, NSW, 2-4 December.

7.   Hatcher, J. A. & Erasmus, M. A. (2008). Service-learning in the United States and South Africa: a comparative analysis informed by John Dewey and Julius Nyerere. *Michigan Journal of Community Service Learning*, Fall: 49-61.

8.   Kennell, J. C. (2000). Educational benefits associated with service-learning projects in biology curricula. In *Life, learning and community: concepts and models for service-learning in biology*, edited by Brubaker D. C. & Ostroff, J. H. pp17-28. Washington, DC: American Association for Higher Education.

9.   Kirschner, P., Van Vilsteren, P., Hummel, H. & Wigman, M. (1997). The design of a study environment for acquiring academic and professional competence. *Studies in Higher Education* 22(2), 151-171.

10. Kolb, D. A. (1984). Experiential learning: experiences as the source of learning and development. Prentice-Hall: New Jersey.

11. Roakes, S. L. & Norris-Tirrell, D. (2000). Community service-learning in planning education: a framework for course development. *Journal of Planning Education and Research*, (20), 100-110.

12. Roos, V., Temane, Q. M., Davis, L., Prinsloo, C. E., Kritzinger, A., Naudé, E. & Wessels, J. C. (2005). Service-learning in community context: learners' perceptions of a challenging training paradigm. *South African Journal of Psychology*, 35(4), 703-716.

13. Shimmons-Torres, C., Drew-Cates, J., Johnson, J. & Overbeek, D. (2002). Community-driven partnership: a unique RN-to-BSN clinical experience. *Journal of Nursing Education*, (41), 544-561.

14. Strauss, A. & Corbin, J. (1990). Basis of qualitative research: grounded theory, procedures and technique. Newbury Park: Sage.

15. Thomson, A. M., Smith-Tolken, A. R., Naidoo, A. V. & Bringle, R. G. (2010). Service learning and community engagement: a comparison of three national contexts. *Voluntas* (22), 214-237.

16. Van Staden, A. (2010). Enhancing educational performance: relating the experiences of postgraduate support teaching students involved in a community service project. *Journal of Education* (4), 65-89.

Computer Literacy Teaching Using Peer-Tutoring: The Macao, China, Experience

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Abstract

Nowadays, university students in Macao are required to attend computer literacy courses (CLCs) to develop their basic skill levels and knowledge as part of their computer foundation requirements. To be effective, such courses which are very staff intensive require high levels of individual teaching. Evidence gathered in Macao at IFT (Instituto de Formação Turística) and USJ (Universidade de São José) during this research, strongly suggests that many students are not benefiting sufficiently from their CLCs. Additionally, other subject's teachers frequently complain about the weak IT skills of their students. This research scans a model for designing and delivering CLCs based on constructivist principles, using peer-tutoring and blended learning, to increase cost effectiveness and to improve student outcomes. An action research approach was used at MIS (Management Information Systems) and CA (Computer Application) modules to monitor the implementation and evaluate its effectiveness. Both planned phases used questionnaires to survey the knowledge and skill transfer to students and tutors' learning progress where most respondents had a Confucian Heritage Cultural (CHC) background. According to this experience, students' learning motivation and self-efficacy increased significantly as a result of using peer-tutoring with a marked shift from surface to deep knowledge, indicating that students are interested and enjoying the sessions and are able to relate computer literacy subjects to their personal circumstances.

Keywords: Macao, Confucian Heritage Cultural, Computer Literacy Courses, Peer-tutoring, Cooperative Learning.

Main Conference Topic: Effective Teaching Pedagogies

Preamble

General speaking, computer literacy encompasses all knowledge and skills needed to use computers to accomplish daily tasks to achieve goals. This includes a deeper knowledge such as how to use word processing and video software. Spreadsheets and databases, websites construction and online activities are also components of any typical computer literacy syllabus (Wong, Neves & Negreiros, 2016).

Over the past decade, there have been an increase number of secondary school graduates entering higher education, particularly in Macao, and this trend will not cease in the near future. Nearly all subjects require skills of CLCs. However, students frequently show difficulties in computer literacy matters including confusion, misconceptions, boredom and lack of confidence that greatly vary among students (Graesser & Olde, 2003). At IFT, for instance, computer classes usually comprise over 40 students so that very little individual attention can be given to each student to address his/her problem. Moreover, best practice

strongly urges the need to change to a more fully competency-based and focused curriculum, so that students can develop real world computer skills effectively.

Table 1: The traditional pedagogy versus the adult learning model in terms of learning difficulties experienced by respondents (Wong, Neves & Negreiros, 2016).

Traditional Learning Model	Adult Learning Model
Learning Concept	
The teacher has full responsibility for making all decisions about what, how and when it should be learned.	The adult learner is considered a self-directing and independent one.
Orientation to Learning	
Learners are subject-oriented and the curriculum is organised according to topics.	Learning experiences need to be oriented to life rather than to subject matter.
Motivation to Learn	
External pressures from parents and teachers and global competition for grades.	Although external motivators exist, the main stimulus is internal, including self-esteem, better quality of life and greater self-confidence.
Readiness to Learn	
Learners mature from grade to grade. Essentially, readiness is largely a function of age.	Adults become ready to learn when they experience a need to know or to do something.
Learner's Experience	
Learners enter with little previous experience.	Adults enter into the educational activity with different background experiences.

One way of providing this high level of individual discovering is through the introduction of peer-tutors, which provides successful graduates from previous courses as instructors for the successive cohorts of students. This framework would significantly reduce the professor's workload. Moreover, the opportunity to become a course teacher in the future would be a strong incentive for students to work hard in a successful way. By becoming an instructor, the earlier stage of learning may be reinforced and, in doing so, this can raise the overall performance of CLCs.

In the particular case of Macao, the increasing of student's enrollment yearly can partially solve the problem of the insufficient high-skilled human resources by peer-tutors. It is just hoped that as more students participate in this peer-teaching technique, both peer-tutors and apprentices can study in a cooperative learning environment.

Many studies on cooperative learning and its effects on student achievements have taken place at various grade levels in numerous countries (De Smet, Van Keer & Valcke, 2008). Indeed, research shows that cooperative learning is one of the most effective ways for students to maximize their own learning and the academic accomplishments of their peers (Slavin *et al.*, 2003). It also allows to raise the bar on students' academic performance as well as to improve their social-emotional skills (Davison, Galbraith & McQueen, 2008). Still, little research has been done in Macao. The introduction of this approach may require students to hold a significant re-understanding of teaching under the CHC community.

The present working research is trying to investigate two aspects of the teaching process in Macao: (A) Reassignment of the instructor's role with the introduction of peer-tutors; (B) Understanding on how computer literacy can be learnt in a CHC environment. Peer-tutoring is a novelty within IFT and USJ. It is expected that the result data provided by this research will deliver accounts of first-hand experience on specific issues of peer-based learning. Hopefully, this experience will make a substantial contribution to nowadays' limited literature on peer-assisted teaching in Macao. Certainly, the primary aim is to provide an

improved and alternative approach to achieve a better quality teaching of computer literacy skills, allowing the professor to facilitate the learning process and allowing peer-tutors to engage in discussions with the group (although it is known that CHB students have a predisposition of working alone).

This article is organized in five additional sections: (A) Brief description of the Macao education settings; (B) Pilot study held during November and December 2013; (C) Second cycle of the action research held between November and December 2014; (D) Qualitative analysis of results; (E) Further considerations.

Macao, China, Environment

Macao is a special administrative region of China, which has risen to the world stage in economic terms with its remarkable growth rate. The city has a long history of trading cooperation between China and the West that has prevailed up to the present. However, few material goods are being traded nowadays and somehow they have been replaced by services in terms of tourism and gambling. In fact, commenting on this imbalance, the former Chinese President Hu Jintao advised Macao to diversify its economy.

Macao has few natural resources but its population does hold a significant proportion of young people in school (15% of the total population, that is, 80.000 students). According to (DSEC, 2010), the official law of Macao preserves the right of all youngsters to access basic education through either government (15) or private schools (65). Although Macao was under the Portuguese rule for more than 400 years, which represents a historical contribution to its culture, the traditional CHC background of learning and social values remained embedded within this community.

In Macao, there is no common curriculum for computer literacy courses. Different schools teach them based on their own established traditions within their institutional culture. This becomes problematic when evaluating pupils' computer literacy skills, for instance. Yet, a common pattern can be found among them: Macao teachers typically use the force-feeding approach to teach their learners so that teaching staff and institutions can easily claim that students have acquired plenty of knowledge and skills.

By definition, force-feeding is a teaching method in which students are deluged with content and exam-requirements to strengthen their abilities in answering exam questions during several weeks, in which students are then required to undertake quizzes. Quite often, students feel tired and reluctant to learn and, hence, they can be easily recognized as cognitively overloaded. This might be a possible explanation why Macao students do not apply computer skills in real life and why they have lost interest in CLCs. According to our experience, other subject teachers repeatedly report that students' computer skills are not transferable to their subject because students are unable to apply their computer abilities to perform tasks in other subject lessons or in real life. Some teachers even testify that students have totally forgotten much of what they had learnt in CLCs (Wong, Neves & Negreiros, 2016).

Regularly, computer classes comprise, at least, 30 students, thus very little individual attention can be drawn to each student to address their own problems. Moreover, best practice strongly points out the need to change to a more skill and competency-based curriculum, so that pupils develop real world computer skills effectively, including problem-based teaching methods that require significantly more individual teaching by the instructor.

One way of overcoming all these issues relies on the introduction of peer-tutors, which calls upon successful graduates from prior courses as instructors for the subsequent cohorts of students. Most probably, this approach would significantly reduce the teacher's workload by

employing less expensive workforce. By making use of a peer-instructor at an earlier stage of the learning process, the latter may be reinforced and, if so, a raise of the overall performance may be achieved.

Pilot Study: Cycle 1

This pilot study gathered comparative data between November and December 2012 from respondents attending two universities in Macau: IFT and USJ. Most respondents who participated in the survey were of Chinese ethic origin and had studied computer literacy earlier at their secondary school. The 7 students of USJ were attending a course on Management of Information Systems (MIS, year 3) while 123 students were taking Computer Applications (CA, year 1) at IFT. Concerning their technological background, most of them had already been exposed to MS-Office and Internet applications previously.

Table 2: Major key learning difficulties of cycle 1

Lack of response and feedback by the participants/ stakeholders.
Learning problems always appear in the end of the semester.
Little discussion on the covered topic even when the lecturer encouraged doing so.
Feeling of exhaustion among teachers after lectures while many students were still unsatisfied with the help provided.
Learners felt bored or unwilling to attend classes.

From the teachers' perspective, the learning difficulties experienced by students and identified by their lecturers were quite consistent. Teaching objectives were unmet, professors failed to motivate their students and the quality of the teacher-student interaction was unsatisfactory. From the learner's perspective, motivation to study was low, instructors were unresponsive to students' needs, provision of computers was inadequate and levels of interpersonal communication between students and teachers were poor. Differences in the use of English and Cantonese created problems for learners, as well. Still, it is crucial to stress the particular situation of the evening USJ classes because its students had a full-time job during the day. As expected, high levels of tiredness were inevitable.

Pilot Study: Cycle 2

During this second phase carried out from November until December 2013, a set of tutors was used on the same lessons in a flexible and peer-mediated strategy. In this particular case, the tutor's selection was based on the highest-ranking students of the previous academic year. Cognitive scaffolding and cooperative learning were also applied in the classes. In addition, human-computer interface software was also involved on a web-based platform.

Cognitive scaffolding provides guidelines and exercises with a particular piece of software. Once a learner has the ability to identify an issue, a human-computer interface can provide an effective help to resolve it. Scaffolding was designed to support the "learning by doing" so that learners gain experience while they learn using the software (Anderson, Corbett, Koedinger & Pelletier, 1995). Basically, it guides students to follow a step-by-step procedure from the beginning to the end.

In theory, scaffolding is a concept closely related to the idea of zone of proximal development (ZPD) of the Vygotskian analysis. According to this researcher, ZPD was conceptualized as the distance between the actual developmental level, as determined by

independent problem solving, and the level of potential development, as determined by problem-solving skills under adult guidance or in collaboration with more capable peers.

On the other hand and according to Johnson, Johnson & Smith (2007), cooperative learning is being used increasingly in post-secondary education. These authors believe that students who learn in cooperative groups can engage in discussions in which they construct and extend conceptual understanding of what is being learnt. Students learning within a peer-group can hold another liable item: to provide feedback on how well they are doing and give support and encouragement for further attempts to learn. To accomplish this objective, cooperative learning requires teaching teams, task forces and initiatives by decision-making groups within the teaching organization, whereas it is central that students are being motivated by both educators and tutors.

Qualitative Analysis of Results

From the initial self-efficacy and motivation data grouped before and after the first pilot study, the present authors had closely monitored students' learning behavior via questionnaires and semi-structured interviews. Using the typical Likert 1-5 scale, the mean score for self-efficacy in cycle two became higher than the previous one (3.04 versus 2.17), meaning that students had gained confidence on their capabilities to learn the content material. This reflection is confirmed by the motivation factor (mean=3.36 versus mean=1.98), showing that many students had found purposes with clearer expectations towards their classes. It also reveals that tutors help learners to find their learning reasons and encouraged them when facing difficulties. The motivation scores for problem solving (mean=3.61) and collaborative work (mean=3.41) significantly increased, in average, by 42%, too.

Twenty-two students and two tutors agree that "respecting teachers and their authority (the face concept)" is a major CHB feature. In this cultural environment, it is crucial for students to remain silent as well as giving honor (face) to the person who teaches, a countersense attitude for collaborative learning where discussion is expected. Although the peer-tutoring approach is not new to a few set of students, the majority confirmed this experience with a "like mindset". During the interviews, they stressed the difficulty of acceptance that the teacher had shifted his role away from the traditional information conveyer.

Statistically, this approach increased motivation to learn among students (mean=4). However, its high standard deviation of 2.762 means that not all learners agreed on the importance of the learning enjoyment for these teaching approaches. It seems that students' intrinsic motivation for problem-solving relies on their relationship to instructors. As well, students preferred email to communicate with the lecturer rather than dialog with him/her directly. After all, traditional methods or ways of learning are to be respected and should be followed under the CHB tradition. Undoubtedly, CHB might become a barrier for this strategy. Two other obstacles were raised with this experiment: training and language competence. Peer-tutors should be pre-trained in English language as this is the main communication medium. This is still an issue on a land where Mandarin and Cantonese are the main spoken languages.

Suggestions on improvement were collected and categorized into five areas: relevance, language, peer-tutoring, assessment and class structure. Peer-tutoring was the most pleasant novelty from the students' perspective and it holds a positive influence on students' adoption of a deep learning approach. According to Watkins, Salili & Hoosan (2003), before that happens, this new community (student groups and tutors) must develop a deeper internal

relationship. Tutors mentioned that they could handle the group of students better, if they had had a previous common experience. Other than that and although Wikipedia is not considered to be a good reference by research scholars, students consider this online source the safest choice as far as computer security and reliable content is concerned.

The collaborative work among students has been promoted. In cycle 1, student-to-student and instructor-to-student relationship was quite loose. Reflecting ideas and assessment were the lowest of the three categories at that particular cycle or point in time. In the second cycle, better relationships were established whilst collaborative work was fully supported by students. However, learning through assessment became the least welcome factor.

From the financial perspective, hiring tutors requires funding from other extra resources. Questions were asked to students regarding whom the funding should come from, how much tutors should be paid and by whom, how many students should be embraced by a single tutor and what kind of extra rewards should be given to the tutors. Students mostly assert that it is up to the university to hire tutors whose earnings should vary between 2000 MOPs and 3000 MOPs per course (three weekly hours). Considering today's economy of Macao, 50 MOPs per hour is the average earning of a young tutor at the tertiary level. Considering a fourteen-week session of three hours each, an estimated total cost per semester per course would be of 2100 MOPs. Another appealing reward to tutors, according to tutees, might be an additional mark on their practical internship by fulfilling this sort of positions.

The categories illustrated on Table 3 focus on the different learning situations for this two-cycle experiment, based on software, quizzes, individual and team projects, peer-tutor's help, teacher's feedback, web resources, reflective work and teaching materials. Categorically, we can put forward that students showed a significant improvement by receiving peer-tutoring during classes, particularly on the development of understanding content and on the knowledge acquired. These items emphasized the nature of the environment in which students were continually interacting. These elements were hence considered as broadening and deepening factors on the learning process with personal understanding.

Table 3: Overall effectiveness for a set of learning items

Category of learning	Cycle 1	Cycle 2
Content	68.52%	71.43%
Assessment	41.20%	57.14%
Experience	48.41%	71.43%
Reflection	39.58%	63.49%
Peer-tutoring	73.61%	57.14%
Relationship to teacher (or tutor)?	42.86%	79.05%
Scaffolding	43.33%	60.71%
Collaborative	23.89%	60.95%

Further considerations

With the population explosion and the rapid development transformations in Macao, there are an increasing number of students entering universities. This increase of demand for computer literacy skills requires a consequent demand for more computer classes, more staff and specialized equipment, creating further pressure on the current university's budget. To avoid this endless cycle, students should use their own private laptops. The use of free software such as Open Office, OpenStat, Linux or Java is another opportunity to avoid

software license costs. The financial savings resulting from these actions could be shifted to the hiring of tutors in order to enhance teaching quality and to sponsor marketing campaigns, particularly in recruiting new students. By providing peer-tutoring, universities gain more freedom to hire local tutors in a more flexible and less costly manner. Meanwhile, computer literacy professors would have extra time for extra projects and research, which would improve the university ranking in this competitive world.

References

[1] Anderson, J. R., Corbett, A. T., Koedinger, K. R. & Pelletier, R. (1995). Cognitive tutors: Lessons learned. Journal of the Learning Sciences, 167–207.

[2] De Smet, M., Van Keer, H. & Valcke, M. (2008). Blending asynchronous discussion groups and peer tutoring in higher education: An exploratory study of online peer tutoring behavior. Computers & Education, 50(1), 207–223.

[3] Davison, L., Galbraith, I. & McQueen, M. (2008). Cooperative learning: a partnership between an EPS and a school. Educational Psychology in Practice, 24(4), 307–317.

[4] Direcção dos Serviços de Estatística e Census (DSEC). (2010). Principal Statistical Indicators of Macao, 1st Quarter, 2010. Macau: Direcção Dos Serviços de Estatística E Census.

[5] Graesser, A. C. & Olde, B. A. (2003). How does one know whether a person understands a device? the quality of the questions the person asks when the device breaks down. Journal of Educational Psychology, 95(3), 524-536.

[6] Johnson, D. W., Johnson, R. T. & Smith, K. (2007). The state of cooperative learning in postsecondary and professional settings. Educational Psychology Review, 19(1), 15–29.

[7] Slavin, R. E., Hurley, E. A., & Chamberlain, A. (2003). Cooperative learning and achievement: Theory and research. Handbook of Psychology.

[8] Watkins, Salili, F. & Hoosan, R. (2003). Teacher Thinking and Practice from a Chinese Cultural Perspective. Teaching, Learning, and Motivation in a Multicultural Context, 3, 243.

[9] Wong, K, Neves, A. & Negreiros, J. (2016). Peer-Tutoring for Computer Macao Literacy Courses: A Research Proposal. Canada International Conference on Education, Toronto (to be published).

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Born in Hong Kong, Mr. Kelvin just got his PhD in Education from the University of Saint Joseph, Macao. He taught for seven years at Instituto Formação Turistica in a wide range of subjects with success. Currently, he pursues a research career in technology for education.

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Teaching methods and Integrative lesson

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Abstract

Reform of the education system turned out to be one of the most painful and difficult to be implemented in reality, since the part of the society met the changes sceptically. Nevertheless, some progress has really been made and positive steps have been carried out in this regard. Teachers' professional training, enhancement of qualification and promotion of new teaching methods are the most important part of the reform which should be reflected on learning/teaching outcomes. I think that nowadays most of the problems in this point of view are manifested in the teaching process of humanities. In new era, Sciences of Nature and Life quickly adapted to the information – communication technologies because they need to be used for teaching of some subjects. As for the humanities, particularly language and literature, the process of teaching is still carried out with old methods which are also depicted in students' academic results. The reason for the lack of interest in this subject is the fact that the majority of young people are focused on to choose such sphere as a profession which meets the requirements of the century. Therefore, this article aims to share some experiences and recommendations with the teachers who work in schools and teach language and literature. The main emphasis will be on teaching literature because the latter one makes the greatest influence on a person's psycho-social development.

Key Words: teaching; training; tolerant; method.

Introduction

XXI century challenges and achievements showed that the progressive development of individuals, their worldview formation, moral principles should be the strengthening of secondary school. School education to develop the knowledge and skills independently teenager acquisition of skills to be able to place in the public life of their own. The issue has led to the fact that the last few years at the education system in the country, which implies that

teachers' professional training, professional development, new technologies and their practical implementation.

Educational system, which has worked in the Soviet Union, in the modern world is not eligible. The successful experience of foreign countries must adopt, adapt it to their own culture and strengthen. Especially taking into account the experience of countries which have psycho-socio-political environment similar to ours. Conventional teaching methods and improved perspective.

Main Issue

American educational philosopher John Dewey said, the child life should see the importance of education.

The main goal of education reform in an active, critically-minded, law-abiding, tolerant citizens and chamoqlibdes brought up in the school, which will have developed different skills. Communication skills (writing, reading, fluent speaking, reading). In the new millennium, the school and expect a lot of news. An interesting and varied ways of unity, therefore, have a special teachers, a lot of things to be enhanced and improved. They are to provide the student with the new information, consider that his intellect, mental abilities and skills. The school, the main backbone of the education system, which members of the public in the future growth. Healthy, critically thinking about the creation of new values and the achievements will improve.

Teachers must pupils from an early age to develop the creative and intuitive thinking. The learning process should be dynamic. Jacob Gogebashvili wrote: "the memory training and distressed mind, there's not even a foothold formal knowledge". I think that is not necessary for students to teach grammar rules . I think, more interesting and attractive is concrete example when a pupil has established rules themselves. Thinking independently. There are occasions when the child knows what is theoretically a noun, but in the proposal did not find him. To prevent such a mistake, it is better to have a rule from examples. Teacher's task is to teach not only what is the noun, but most importantly, the students will be able to use theoretical knowledge in practice. This is a method that is focused on learning. In this case study is understanding. The process should be pleasant and not "bitter". Such an approach and a method to raise the students' intelligence.

Teachers can help pupils to gain new information and give instructions. In this case, the lesson will be much more attractive. The nature of the child can not stand fake, so the teacher live impressions, obvious facts, skhvasadkhva presentations and dialogue, questions and answers have to tell him her story. There is no need to exaggerate the reality (historical facts), and exceeded the criticism. The history of evidence-based information, so the children will have to make a logical conclusion. It is very important for emotional material, it is desirable to show the photographs, old manuscripts, (take a lesson from the community Manuscripts Museum) because of the adolescent mind, easily absorbed by the memory of what a strong impression. Violence is not required, knowledge-pressures are normal. Such an approach would make the teaching process interesting and wide-ranging. Increase students' involvement.

Integrated lessons, as a method that facilitates the absorption of several subjects at the same time awake and a variety of student interest in the issue.

Recomendations

    Above have been discussed several methods of teaching the humanities, in particular the teaching more effective. I think that one of the important issue of integrated training as an effective method. Integration - the Latin word is derived from the interaction of one of its definitions. Therefore, we can talk about the effect of this or that subject, event, or other related science. Today is a very timely question things and to integrate them into a whole discussion. Humanities between the common line by not difficult, but impossible to literature, language, history or art to teach the student so that the common signs and topics Do not talk. All in literature, historical aspects of the art, and of course, the relationship between cultures and influence. Art history is a mirror, a reflection of the era, a reflection of his works of art and the work takes place, we will discuss only these two sciences.

Conclusion

 School function is to purpose of teaching the students various skills, develop talent covered. In my opinion, the teacher's goal is for the child to understand the language of coercion and without the extra supply of material, which will enrich the knowledge of adolescent. Georgian culture, literature, art history and creates a single integrated system, separate core incomplete. I would also like to point out also that the literature discussing important paralalebi for foreign literature. And show the child's distinctive characteristics in common, which is characterized by the literature with respect to other cultures. Students' knowledge and analytical skills needed for this method is the most effective.

Reference List

[1].   ჯანაშია, ნ, იმედაძე, ნ. ; (2011) განვითარებისა და სწავლების თეორიები; მასწავლებელთა პროფესიული განვითარების ეროვნული ცენტრი; pp.182-194

[2].   Noddings, N. ; (2007) ; Philosophy of Education; Colorado; Westview Press. p.196

[3].   Kyriacou, C. ; (1998); Effective Teaching in school; (2nd.ed.); Cheltenham; ledge; Falmer ; pp 31-35

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The Life and Death of Prince:
A Topical Approach to Introducing Business Law

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Abstract

Law plays a critical business role. In the U. S., law courses are a mainstay in higher education business programs. Challenges faced by law teachers include: negative beliefs about law study; unawareness of the pervasiveness of law; disassociation of law from ethics and environmental context; failure to associate events and the course; and lack of facility in applying the whole of course content. A traditional course beginning does not address these challenges. The authors propose a multi-faceted current event approach. This approach involves an overview of law covered, a current topic involving many legal issues with relationships among these issues, and ensuing discussion. The current event technique lends itself to many variations, teaching styles, platforms, time constraints, events, and legal systems. One topic receiving ongoing media attention concerns Prince, an internationally renowned musician well known to students. The life of Prince, and his recent death, involve a multiplicity of legal issues relevant to a business law course. The authors, using the example of Prince, demonstrate how the current event teaching technique can introduce students to most of the subject matter covered, engage them with an interactive, multimedia introduction to a law course, and address current educator challenges.

Keywords: Higher Education, Pedagogy, Effective Teaching Pedagogies
Main Conference Topic: Education, Teaching, and Learning

Introduction

Law plays an extensive role in business operations worldwide. Consequently, business programs in United States colleges and universities include law courses. Despite the importance of law, faculty teaching it consistently confront certain barriers. While each institution of higher learning has its own challenges, the following are common. One of the most familiar is an initial lack of interest in the course. Students may approach it with, at worst, dread, but, more commonly, apathy. This is due to preconceived concepts about the study of law, in particular that it is dry, dull, and involves much memorization. If the course is required, students are even less enthusiastic when they begin it. Lack of interest in the material in turn affects motivation to learn and the learning process itself.

Lack of interest is not the only issue faced by educators. Students come to the course unaware of the major role of law in the business world and in ordinary life. They tend to look at law in isolation, without considering the importance of such concepts as ethics or the broad environmental context in which law operates. Students often fail to make the connection between external events and the subject matter of the course. And, students have difficulty understanding how course material fits together as a whole when they are confronted with a particular situation involving a number of legal topics.

Failure to overcome these barriers has negative consequences. Student understanding of the importance of law in their work and personal lives is critical for success. An awareness of the interplay between law and ethics, and the influence of such factors as politics, technology, and demographics on the law, is important for students to understand the business world. An ability to spot the legal significance of an external event, the recognition that several areas of law may be applicable in a particular situation, and the facility to know which ones apply are essential for students to take effective action in their lives.

A traditional approach to beginning a new law course in the U. S. is for educators to review course requirements with students on the first day. Then, for the remainder of the semester, the instructors and students sequentially cover the course topics. This approach has drawbacks when the above challenges are considered. While an educator can relate the importance and relevance of the law to students on the first day, and can attempt to generate enthusiasm for the course, students are not usually engaged in experiential learning on that first day. And, the first day can set the tone for the remaining days.

The authors propose a different approach to beginning a business law course—one that is topical and multifaceted. At the outset of the course, students are presented with a brief overview of the areas of law covered in the course. Then, students are given information about a prominent current topic involving multiple legal issues. Finally, students are engaged in discussion relating the various areas of law to the current event.

This approach has the goal of addressing the major teaching challenges discussed above from the very beginning of the business law course. Application of this technique can be as simple or as complex as the professor desires. The framework can be modified to meet the particular needs of the professor. It lends itself well to diverse teaching styles, different teaching platforms, varying time constraints, a range of topics, and varied legal systems.

This paper first discusses the proposed introductory teaching technique in the context of the business program of the University of West Georgia. It then provides an illustration of its application to a topic receiving a considerable amount of media attention—the life and death of Prince Rogers Nelson, an internationally renowned musical artist familiar to students worldwide. Finally, the authors discuss the implementation of this technique, and its results.

Context and Model

At the University of West Georgia, all students seeking a business-related degree are required to take the Legal and Ethical Environment of Business course. It is part of the core business curriculum and is taken primarily by those in their first two years of undergraduate study. The following is a description from the University of West Georgia Undergraduate Catalog (2016, p. 308): "An introduction to the legal, regulatory, and ethical environment of business, considering the interrelationship and impact of political, social, cultural, environmental, technological, international, and diversity issues."

In the Richards College of Business, this course is taught with a law focus. The textbook consists of 28 chapters covering the following material: law in general and legal reasoning; U. S. Courts; alternative dispute resolution; ethics; the U. S. Constitution; administrative agencies; criminal law; international law; contracts; torts; intellectual property; Internet/social media and privacy; creditor-debtor relations; types of business organizations; legal relationships among employers and employees; property law; and a variety of regulated

areas. Coverage of this quantity of material in a single semester is a daunting task and may seem overwhelming to students at the outset of the course.

Two faculty members are the primary instructors, although from time to time adjunct professors may be used. One of the faculty members teaches in a traditional face-to-face platform. The other teaches in that format and in an on-line platform. While both faculty members use the same textbook and resources, they teach the content in any way they choose.

One of the advantages of the introductory current teaching technique is that it can be adapted to different teaching styles and time constraints. For example, one professor may choose to devote an entire face-to-face class to the presentation and discussion. Another may choose to produce a video of the material and assign it to students to view outside of class. Students may then discuss the issues in class, in paper submissions, or on-line. The structure of the discussion is determined by the individual faculty member.

While the authors anticipate using this technique to begin the course, the current event topic can be introduced briefly at the beginning of the course as part of a recurrent theme throughout the semester. The legal issues may then be discussed throughout the term in connection with the particular chapter assigned. Or, a combination of the two approaches can be used. This is particularly useful when there are ongoing developments.

Selection of a Current Topic

There is no limit to the type of topics that can be used with this technique. For example, a natural disaster such as Hurricane Katrina, a major sporting event such as the World Cup, or a political event such as a Presidential election all involve numerous areas of law with many business implications. To illustrate this approach as a means of introducing law to business students, the authors will use the life and death of Prince as the current event topic.

Prince Rogers Nelson, most often known as "Prince," an unpronounceable glyph, or "the artist formerly known as 'Prince,'" was born in 1958 and became a globally successful and prolific musical artist for over four decades. Prince's life involved numerous legal issues. His death in April 2016 has involved even more legal issues. Because of the notoriety of Prince, the number of legal issues surrounding him, and the extensive media coverage, his life and death provide an ideal topic for introducing students to business law.

In discussing this topic, numerous resources are available. These include photographs, song lyrics, music videos, news videos and articles, made for television programs, legal documents, and interviews with Prince and others. The diverse resources provide for a multimedia approach that can both inform and entertain students. It is an approach much more likely to generate interest in the subject matter than a traditional introduction.

Implementation—A Sample Class

The following is a sample introductory class for business law.

The Life and Death of Prince: An Introduction to Business Law

Pre-Class
Posting of module online for review by the students before and after the class presentation (optional).

Prince Module Introduction
Statement of module purpose and class format.

Who Is Prince? An Introduction to the Artist
Although students know who Prince is, they may not be well-informed about his life and his music. A sample of his music can be played, as well as a brief biography.
Resources: 2 videos: (Nahuelan, 2016); (BIO, 2016)

"Let the Baker Make the Bread" - Prince's Recording Contract Dispute with Warner Bros.
Among the most well-known of the legal issues involving Prince is his lengthy contractual dispute with Warner Brothers. The contract required Prince to produce a certain number of recordings for them and gave the company the rights to the masters and to the name "Prince." Prince chafed under the restrictions and wanted control over his music, but was stymied by the contract terms. During the dispute, Prince would sometimes appear in public with the word "slave" written across his cheek. It was also during this time period that he ceased referring to himself as "Prince" and legally changed his name to an unpronounceable glyph. New typeset had to be developed to depict the glyph. Journalists began calling him "the artist formerly known as Prince." It is speculated that Prince took this action in the hopes that he could produce his own music without legal interference from Warner Brothers, because they had legal rights only to the name "Prince."
Resources: 2 videos: (iconic, 2008); (wochit Entertainment, 2015)
Legal Topics: Contracts, Ethics, Intellectual Property

Prince the Plaintiff: Copyright Suit against 22 Fans
The artist was also involved in other legal disputes involving his music. At one point he sued 22 fans for downloading his music. He alleged that the downloading violated copyright law and sought damages of approximately one million dollars per fan. Many defendants were identified only by their online user names. Prince subsequently dropped the lawsuit.
Resources: video: (SourceFed, 2014)
Legal Topics: Court System, Ethics, Intellectual Property, Internet/Social Media

Fair Use of Prince's Intellectual Property
Prince was not the only party to become involved in legal action over his music. In what is called the "Dancing Baby" case, Universal Music Publishing Group became embroiled in litigation with a mother who posted a 29 second video of her toddler dancing to Prince music on YouTube. Universal attempted a takedown of the video based on alleged violations of intellectual property law. The mother sued based on fair use of the intellectual

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property. The litigation continued for a number of years, until an appellate court ultimately ruled for the mother.

Resources: video: (ABC News, 2016)
Legal Topics: Court System, Ethics, Intellectual Property, Internet/Social Media

Prince the Explicit: Tipper Gore's War against Darling Nikki

The music created by Prince did not just involve contractual and intellectual property issues. It also triggered a move to put warning labels on music and led to Senate hearings. The dispute began when Tipper Gore, wife of then-Senator Al Gore, became outraged when she heard the lyrics of a Prince song being listened to by their 11-year old daughter. The song was "Darling Nikki," which contained sexually explicit lyrics. It became one of what was referred to as the "Filthy Fifteen." This was a list of songs that the Parents' Music Resource Group believed should feature warning labels based on sexual explicitness, violence, drugs and alcohol, or the occult. The hearings that took place featured testimony by varied musical artists. It led to a voluntary compliance agreement to place Parental Guidance Warning labels on recordings and to musical reactions by artists worldwide.

Resources: lyrics document: (Metrolyrics, 2011); and video (fuzzymalaga, 2012)
Legal Topics: Law in General, Ethics, Constitutional Law, Intellectual Property, International

Canceled Concerts and Aftermath

On April 7, 2016, Prince canceled two musical performances in Atlanta, Georgia, supposedly because of a flu-like ailment. Ticket-holders, some of whom had taken vacation and flown across country for the concerts, were promised refunds of their tickets or the opportunity to attend the rescheduled concerts. The concerts were rescheduled and performed on April 14. That night, the plane carrying Prince back to one of his estates made an emergency landing for treatment of an unresponsive passenger. The passenger was Prince. Due to privacy laws and professional confidentiality requirements, information was scarce about that situation. Much later it was learned that he had suffered an opiate drug overdose.

Resources: video: (Jensen, 2016); and article: Eldred & Eligon (2016)
Legal Topics: Contracts, Law in General, Ethics, Privacy

Opiate Addiction and Liability

Prince was found dead in an elevator on his Minnesota estate on April 21, 2016. An autopsy later determined that his death was caused by an accidental opiate overdose. Information came to light that Prince was addicted to opiates, and that efforts were being made to obtain treatment for him in the days before his death. The circumstances surrounding Prince's death are part of an ongoing criminal investigation by state and federal law enforcement entities, in which the behaviors of pharmacies providing Prince with narcotics, doctors prescribing narcotics, doctors and other individuals providing medical attention without state licensing, emergency callers, staff members, and others are being analyzed by federal, state, and local entities. Evidence is being accumulated. Mislabeled prescription bottles found at the estate of Prince have raised additional civil and criminal questions.

Resources: video: (TMZLive, 2016); and article: (TMZ Staff, 2016)
Legal Topics: Law in General, Criminal Law, Administrative Agencies, Court System, Constitutional Law, Ethics, Torts, Product Liability

Right of Publicity: The Proposed "PRINCE Act"

After the death of Prince, legislation referred to as the "PRINCE Act" was rapidly introduced in Minnesota. This legislation involved the "right of publicity." In this context, it refers to the right of the heirs of a deceased individual to control the use of that individual's likeness and name or symbols, among other things. Although a number of states recognize such a right, many do not. Minnesota does not. Immediately after Prince's death, businesses rushed to produce memorabilia in remembrance of the artist. Ford aired a tribute commercial featuring a red Corvette, a vehicle that figured prominently in one of Prince's songs. The legislation could make such practices unlawful and actionable by the heirs. It was temporarily shelved due to concerns about its breadth, with the intent to revive it.

Resources: 2 videos: (LPTV, 2016); (Kessler, 2016); and 2 articles: (Harris, 2016); (Weiss, 2016)

Legal Topics: Law in General, Constitutional Law, Ethics, Intellectual Property, Privacy

Battle over Prince's Estate

A number of ongoing legal issues involve the disposition of Prince's estate, which has an estimated value of $300 to $500 million. Prince apparently died without a spouse or a living child. He also appears to have died without a will specifying what was to happen to his property upon his death. This property includes the following: real property; tangible personal property; and intangible property rights. Over 30 claimants have emerged, including full and half-siblings, purported children, and an imprisoned felon, all of whom claim to be related. Additionally, creditors have filed claims against the estate for such alleged debts as studio fees. Other parties with a financial interest are the Internal Revenue Service and the corresponding state tax agency. Estate taxes could consume approximately half of the value of the estate. A trustee has been appointed to handle the estate while claims are being processed. The court administering distribution of the estate has been addressing various legal issues, ranging from the appropriateness of DNA tests to prove a familial relationship with Prince to whether documents and proceedings should be available and open to the press and the public.

Resources: 6 videos: (Trial and Heirs, 2016); (ABC News, 2016); (wochit Entertainment, 2016); (WCCO, 2016); (Ed Skott and Company IRAtv, 2016); (MSNBC, 2016)

Legal Topics: Law in General, the Court System, Alternative Dispute Resolution, Criminal Law, Administrative Law, Debtor/Creditor Relations; Real and Personal Property Law, Ethics, Intellectual Property, Torts

Defamation Suit: Arsenio Hall v. Sinead O'Connor

The emotionally charged aftermath of Prince's death led to a defamation suit over one celebrity (Sinead O'Connor) blaming another (Arsenio Hall) for giving Prince illegal drugs.

Resources: video: (Oberg, 2016)

Legal Topics: Law in General, the Court System, Criminal Law, Ethics, Torts

Results

The sample class with the life and death of Prince as the current event topic was used by the authors in three face-to-face business law classes at the beginning of fall semester 2016. Students were informally surveyed before and after the presentation. The survey questions were designed to elicit information about student interest in the course, awareness of the course content, and knowledge about the subject matter. The post-presentation surveys indicated more student interest, awareness, and knowledge. The authors intend to use formal

evaluation and data methodology in the future to quantitatively illustrate the value of this approach in introducing law to business students.

On a qualitative level, both authors observed a marked difference in student participation and engagement with this approach as opposed to a traditional introduction. Student participation and engagement were present early on in the module and geometrically increased as the class period progressed. This level of student involvement traditionally does not appear until significantly later in the course. Additionally, students on their own initiative have come forth since the presentation with developments on the topic.

Conclusion

Due to the success of the Prince current topic teaching module, the authors anticipate using this and other current events topics to introduce business law to students in future semesters. The technique is flexible and lends itself well to many formats, topics, and legal systems. The approach addresses the challenges educators confront in teaching law to business students. Interesting students in the subject matter of a course at the outset increases their desire and motivation to learn. Through analyzing topics, students become better at identifying the legal implications of external events. They become more adept at applying the various material covered in the course and considering the ethical aspects of any actions. And, ideally, students come away from the course viewing the legal environment of business holistically as well as with particularity, and more equipped to succesfully use the information in business and in life.

References

[1] [ABC News]. (2015, September 15). *Mom v. Universal Music: Battles with Label Over Viral YouTube Video.* [Video File]. Retrieved from https://youtu.be/dpN5y3NB1PI.

[2] [ABC News]. (2016, June 28). *Prince: New Details His Estate Battle.* [Video File]. Retrieved from https://youtu.be/-vPzVElJH8k.

[3] [BIO]. (2016, April 21). *Prince: A Mini Biography.* [Video File]. Retrieved from https://youtu.be/rwzjAnrlKS0.

[4] [Ed Skott and Company IRAtv]. (2016, May 11). *Jeffrey Levine Discusses Prince's Estate Tax Problem.* Fox Business. [Video File]. Retrieved from https://youtu.be/44UyW3mGTY0.

[5] Eldred, S. M. and Eligon, J. (2016, May 10). Prince's Doctor Arrived With Test Results Only to Find Him Dead. *New York Times.* Retrieved from http://www.nytimes.com/2016/05/11/arts/music/princes-doctor-arrived-with-test-results-only-to-find-him-dead.html?_r=1.

[6] [fuzzymalaga]. (2012, March 14). *Music Censorship in America.* [Video File]. Retrieved from https://youtu.be/1wk5hkN0H_M.

[7] Harris, K. (2016, May 5). Why media law experts have some serious problems with the Legislature's PRINCE bill. *MinnPost.* Retrieved from https://www.minnpost.com/politics-policy/2016/05/why-media-law-experts-have-some-serious-problems-legislatures-prince-bill.

[8] [iconic]. (2008, November 8). *Prince on Record Labels.* [Video File]. Retrieved from https://youtu.be/itsRvRvfG4Y.

[9]   Jensen, H. (Updated 2016, April 7). *Prince cancels Thursday night shows at Fox Theatre.* [Video File]. Retrieved from http://www.wsbtv.com/news/local/atlanta/prince-cancels-thursday-night-shows-at-fox-theatre/200987919.

[10]   Kessler, P. (2016, May 10). *'Prince Act' Moves Unusually Fast in Deadlocked Session.* CBS Local News. [Video File]. Retrieved from http://minnesota.cbslocal.com/2016/05/10/prince-act/.

[11]   [LPTV – Lakeland Public Television]. (2016, May 9). *State House Committee to Consider 'Prince Act' Proposal.* [Video File]. Retrieved from https://youtu.be/d1TUekL1AoU.

[12]   Metrolyrics. Darling Nikki Lyrics. Songwriter: Prince Rogers Nelson. Published by Warner/Chappell Music, Inc., Universal Music Publishing Group. Retrieved from http://www.metrolyrics.com/darling-nikki-lyrics-prince.html.

[13]   [MSNBC]. (2016, May 2). *Battle Over Prince's Estate Begins: MSNBC.* [Video File]. Retrieved from https://youtu.be/l9AuGxfBTJ4.

[14]   Nahuelan, E. (2016, April 21). *Prince Live—Purple Rain (halftime show Super Bowl 2007).* [Video File]. Retrieved from https://www.youtube.com/watch?v=CEFyP-Q7CVE.

[15]   Oberg, E. (2016, May 6). *Arsenio Hall Sues Sinnead O'Connor for Saying He Gave Drugs to Prince.* Complex News. [Video File]. Retrieved from https://youtu.be/d2cb-mPXn5Q.

[16]   [SourceFed]. (2014, January 27). *Prince Sues Facebook USERS for Piracy?* [Video File]. Retrieved from https://youtu.be/JGzu3TQTloQ.

[17]   [TMZLive] (2016, May 2). *Prince Drugs Came From 'Friendly' Doc (TMZLive).* [Video File]. Retrieved from https://youtu.be/mE7xK8WQseQ.

[18]   TMZ Staff. (2016, May 10). Prince—DEA Raids Paisley Park…Feds Launch Criminal Investigation. Retrieved from http://www.tmz.com/2016/05/10/prince-dea-feds-criminal-investigation-search-warrant-video/.

[19]   [Trial and Heirs]. (2016, May 3). *Prince Estate on NBC Nightly News.* [Video File]. Retrieved from https://youtu.be/DRychc1helA.

[20]   University of West Georgia Undergraduate Catalog 2016-2017 (2016), p. 308.

[21]   [WCCO – CBS Minnesota]. (2016, June 28). *Judge Setting Up DNA Testing to Determine Prince Estate Heirs.* [Video File]. Retrieved from https://youtu.be/yGBVUq2cZ_U.

[22]   Weiss, D. (2016, May 19). Minnesota's Proposed PRINCE Act Has Been Retracted. Retrieved from http://www.spin.com/2016/05/prince-act-minnesota-bill-nope/.

[23]   [wochit Entertainment]. (2015, August 9). *Prince Warns Young Artists: Record Contracts are 'Slavery.'* [Video File]. Retrieved from https://youtu.be/IAw7i26VSzQ.

[24]   [wochit Entertainment]. (2016, May 3). *Are Prince's Siblings Preparing For An Estate War* [Video File]. Retrieved from https://youtu.be/snU-OFVveKw.

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School programmes for the talented learners in European, and in it Polish schools - practical guidelines for the teachers to create own and original programmes

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Abstract

In that article the author has drawn out very significant topic that is the programmes for the talented learners. The fact is that the quality of the programmes is important feature to create effective teaching process. The article describe some quite famous, especially Polish, Russian, Slovakian, British and American, teaching programmes for the talented learners. They are taken by the author of that article as the example for the teachers to both enhance them to implement the ideas into they daily teaching practice and construct their own – authorial and interesting programmes for that group of learners. Moreover, the Autor of the article analyzes and indicates some important and characteristic aspects of suitable and adequate programmes for the talented learners to share them with the teachers. That`s why the article contains some important guidelines for the teachers how to create some modern and useful programmes for that group of learners.

Keywords: school programmes for talented learners, planning effective school programmes for the talented, individual approach towards programmes for the talented, programmes for the talented based on the modern strategies;

Main Conference Topic: Education, teaching and learning

Introduction

The planning education – doing some educational programmes, even when they are schedules, is integral part of didactic process. It is very important and useful for the teachers to do it regularly. The teaching process without planning would be incoherent and even

harmful for the learners and also for the teachers (Bereźnicki 2015,p.55). Moreover, one can recognize the general programmes that the main government organized and the programmes that have the smaller range that are created by the small group of the teachers or just a teacher herself/himself at school for the learners that he/she teaches. Both kind of programmes are very advantageous, of course when they are well done, because they help the teachers to create the suitable process of teaching and learning without any adverse and incidental situations. However, there is the space for the appropriate change when it is convenient and advisable, but the teachers should already have the draft of what they want to do with learners. Furthermore, one can observes a tendency that nowadays the national programmes in Poland, and in other European countries, are becoming more and more decentralized, regionalized, flexible and less detailed. They are based on the new concept of education that is connected to some new trends in it, as globalization, individualization and egalitarianism. Thanks that, the teachers have wider autonomy what and how to teach.

Related work: The planning strategy of the work with the talented learners

The individual programmes for the talented young learners ought to be different from the programmes for the average learners or handicapped learners. They should be treated as the disparate group of learners with special needs. The talented learners are characterized by the high intelligence and high school achievements, but not only. They evince the cognitive curiosity, perceptivity, interests, awake imagination, concentration on the topic and persistence. Moreover, many talented learners are much more self-aware. They are quite mature during the oral conversation even with the adults especially because most of them like reading books. They read a lot and they can operate with the rich vocabulary. The talented learners can show a single talent or talents, cognitive ability, creative activity and leadership efficiency. According to the psychology, each child externalizes the cognitive curiosity, but the talented child is much more investigative. He/she is vividly interested in some general, special matters and some abstract concepts (as f. e. the origin of the world and so on). As for the perceptivity, the talented pupil can notice even minor details. He/she can pick out some subtle differences between some objects and ideas. The talented pupil can have extremely wide interests and in some field deepen interests(Dyrda, 2012,p.216-218). Moreover, those interests can be connected to serious problems and matters that the adults are interested in. The talented child can imagine many things easily. He/she is able to recreate something but often he/she can use the creative part of his/her imagination and create some original ideas and pictures in his/her mind. The concentration and persistence facilitate the long-term

dealing with a task or a problem (Chrzanowska, 2015,p.196-197). Those features depicts who the talented young learners are and justify the importance to take them into account when the programmes for them are created by the teachers and the headmasters.

After the characterization of the specific features of the talented learners, the author of the article would like to depict some examples of the important, interesting and useful programmes for the talented learners that can be the example of effective way of teaching and learning that group of learners. Some of the come from abroad, f. e. from USA or The United Kingdom of Great Britain. One of the programme that has imposed the author of the article is the Incubation Model of Teaching the Talented Learners that was made up by Eliss P. Torrance in 1974. First it was called Future Problem Solving Programme. He believed that "children can develop very easily but only when the adults would not to disturb them" (Limont, 2012, p.182). He meant that when the adults organized for the best education form them as possible, that they would use the suitable and individual programmes and methods. E.P. Torrance emphasized the importance to develop suitable competences of children as the base of the knowledge. Those programme is divided into three stages. The first of them is called Heightening Anticipation and Motivation and its goal is to stimulate the interest, the motivation and the ability to foresee the consequences of events with the use of imagination and logical thinking of the learners. The author called that stage warm-up. Moreover, the ability to perceive the relationship between the knowledge gained at school and the phenomena occurring in the surrounding of learners in they real, daily life outside school is also shaped. On that stage very important is to maintain exploratory activity of pupils in a situation of cognitive dissonance, uncertainties and incomplete information received. The second stage is called Deepening Expectations or Digging Deeper. It is connected to constant searching for the information, recognizing the problems in the tasks and the gaps of the knowledge of they own gained knowledge. During the last step, that is called Keeping It Going or Going Beyond, the pupils are provoked to be active in real-life situations and problematic task. They are also stimulate to try to be creative in some activities connected to art, music, drama, counting, sport and so on. They are also enhanced to plan and carry out research and experiments to confront their school knowledge with the reality (Limont, 2012,p.183-184). Truly speaking, at first that programme was devoted to children from fourth class and also older students. However, in my opinion, it can be also use for the younger learners, the age from 7 to 12. It consists some important elements that even should be implemented into the work of the talented pupils. These elements are rising motivation at the beginning of some task solving (the best motivation would be intrinsic one) and enhancing

children to predict some solutions of the task (that focuses them at that task straight away and they start to be interested in the task and its solutions). One of the most interested element from the E.P. Torrance`s programme is linking the theoretical knowledge with the practice, in it not only at school but also at home at all environment of the children (playground, social meeting and so on). It helps them to remember the knowledge, using it in many ways, understanding it and what is more understand the world as the whole, logical place and concept (according to, f. e. the humanistic psychology it is important matter to help children develop in the proper way and to be happy).

The most successful programmes are the programmes that are connected to interdisciplinary concepts. One of the first interdisciplinary programme was Constallation Programme, invented in Russia in 1642 (Limont, 2012,p.161). However, it is still up-to-date and useful for the talented learners. The main idea of it was to join all topics and concepts in the tasks and teach them cumulatively. The teacher/tutor should not divide the knowledge into subjects, as maths, languages, art and so on but accomplish them together. Moreover, it is according to the idea of integrated studies of early education in Poland from 1999. The Constallation Programme based on the theoretical conception of L. Wygotsky which takes into account the sphere nearest and further development. The process of constructing the knowledge of the young learners is based on the use of their natural understanding of the important concepts and terms. On the basis of this understanding it is built to further knowledge of the learners, using general concepts from different disciplines related to the topic being developed. First, the themes are explained to learners in general way to make them understand it. Then, some appropriate skills are formed in them that allow them learn independently (Vygotsky, 1997,p.16).

In Slovakia the programme Alternative Programme for Gifted Education (APROGEN) is quite popular. It is devoted to the talented learners. It was invented by Jolanta Laznibatova. In many elementary Slovakian school in the whole country the teachers have used it since 2007. Characteristic feature of this program is the emphasis on psychological support for the talented learners. It aims to develop their personality and motivation to learn from the time they star to learn. Moreover, in later years, the learning of the skills of their own development and is added. The shaping their social competences of the talented young learners is also important. That programme sis divided into three steps according to the age of the participants: first – preschool (children from 2-5 years old), the second one is early education and the third one is devoted to learners from fourth class. During the first step the talented of the pupils are recognized with the help of a psychologist. On the second step the

talented are developed and some programmes to develop empathy and tolerance are carry out. On the third level some communicative and social skills are promoted. On that level important are some strategies to solving out some complex and difficult social problems, the abilities to cooperate with other people and leading of their own school progress. As for the content, they are taught according some ministerial guidelines but also some additional knowledge is implemented (http://www.smnd.sk/main/; access, 02.07.2016).

In Poland some programmes for the talented learners are based on the conception of Multiple Talents of Howard Gardner. Many Polish teachers, especially the teachers of early education know that conception and use it in their programmes. According to that Author there are many different types of intelligence, such as linguistic, musical, logical-mathematical, visual-spatial, kinesthetic, interpersonal, intrapersonal and natural. The most important thing is to develop as much as possible kinds of multiple intelligences. Moreover, on that conception Polish teachers of early education have made some test of multiple talents and they have constructed some programmes. There are some useful scripts for these programmes that have been developed within the framework of the systemic project, entitled "Development and Implementation of a Comprehensive System of Work with the Talented Learners" led by the Education Development Centre, funded by the European Social Fund, implemented under the Priority III, Operations 3.3, Operational Programme Human Capital for the years 2007-2013 (Poleszczak, Porzak, Kata, Kopik, 2014,p.48).

Methods

The subject of that research are the programmes for the talented pupils. The theoretical aim of that research is to set, as much as possible, what kind of programmes are effective for the talented pupils. The Author of that article has taken a qualitative research method that is the analysis of the documents, because she has recognized it as the most suitable for that kind of research and the most interesting. The main question is what kind of programmes for the talented pupils are suitable and what made the adequate and useful.

Results: The modern and individual approach towards the programmes for the talented learners

In opinion of the Author of that article, the Polish teachers can create their own, original programmes based on some ideas from the programmes that have been mentioned in this article. There are some certain regularities which ruled the arrangement of suitable programme for the talented learners. The most important thing is to whom the programme is

aimed at. The teachers ought to recognize the specification of the learning of the talented learners. In this case some definitions of the talented learners are very useful.

An another important issue of such a kind of programmes is to compose them in a way that increase their motivation of the talented learners to explore and learn themselves. One should remember that the talented learners have already wider knowledge in some subjects or some topics and some more experience in some tasks than the other learners in their age and they need some more challenge to be motivated. The talented learners sometimes need some additional incentives, for example in the form of more information about the phenomena, to join the solution of a task.

Moreover, It would be great to make the programme for gifted students based on specific, well-known concepts of education and upbringing, because at the source of such concepts is often to recognize the nature of learners at the certain age, their possibilities and limitations, as well as the direction of their development. There are different foundations in nowadays quite outdated concepts of behavioral education and different in humanistic or socio-cultural concepts. The teachers should know them to use them consciously to prepare the suitable programme for the talented learners.

The significant thing is to take care through programmes of social development of the talented learners. There favorable thing is to teach learners how to communicate in the proper way with the others. It is one of the most important competence. Unfortunately, some talented learners have some social problems, especially with the communication. They are advanced in some subject or a subject and they have some extend knowledge in some fields but they sometimes feel outside the classroom, misunderstand and judged by other students as arrogant and self-righteous. That's why the improving communication is so advantageous for their appropriate social development.

Conclusions

To conclude, as for the content both basic and diversity programmes should be implemented. The basic programmes deliver some necessary, elemental knowledge and the diversity programmes can broaden that educational offer for the talented young learners. The basic programmes are not enough for the talented learners that have special educational needs. The diversity programmes should contain some specialized knowledge that can be compatible with the basic knowledge at school. Moreover, the basic substantive feature of the diversity programmes should be the integration of the knowledge from different subjects to make them interdisciplinary programmes.

Another important feature of the suitable programme for the young talented learners is to construct them in the way that allow them to self-studying. That is very important matter to teach the talented learners how to study themselves. It means: how to choose the specific subject of their interests, the content, the resources, how to chose important information and then process the information to use in the proper way. In the opinion of the Author of that article, in Poland the teachers usually do not teach the talented learners how to study. The students have to find the suitable way that they can learn personally. However, it is very difficult for most of them, in it for the talented learners. They do not know and do not use useful learning strategies consciously.

It is quite obvious, but it might be useful to mention that the programmes should contain the suitable methods of teaching. The teachers should plan and use many different method – active, passive, practice and adjust them to the goals of teaching and the content of teaching. Unfortunately, the active methods are used by Polish teachers of young learners very rarely. They are used quite often in UK or US. It is a challenge to prepare them and use them in the way they bring desirable effect and some benefits.

Moreover, the form of teaching and learning should be differentiated by the teachers. They should use group form and peer-tutoring not only frontal forms (when the teachers is talking and the pupils are listening and have to remember the content to recreate them accurately when the teachers ask them for it).

Furthermore, one may consider to implement some facultative subjects/educational areas, as f. e. astronomy in the programmes for the talented learners. They should be integrated with the others subjects. First, the teachers ought to diagnose what interests the talented learners in his/her class have and follow them to help them develop their favourite topics and actions.

The part of the programmes can be fulfill and expand outside school, in some supportive institutions, as libraries, museums, galleries or universities. Nowadays, especially in United Kingdom of Great Britain (England and Wales) it is quite popular to organize some meeting for the young learners with the academic teachers. In Poland, we are also trying to implement it and it usually works. However, it is not so popular at the moment. That is very interesting idea for the young talented learners and even also their teachers, their parents and also for the academic teachers.

The content of the programmes should be interdisciplinary and the content of each subject/educational area should be appreciated in the equal way. It means that each subject should be important. This thesis shows one more regularity – the teachers ought to motivate

the young talented learners to learn all areas of holistic knowledge. The talented learners are always outstanding at one or two area/subjects. However, at school they have to take in the information connected to many subjects. If they do not do it, they get some bad grades, feel upset, lose their motivation to learning as the general and they do not achieve the success that they could potentially.

The teachers can not be left themselves with the challenge of teaching the talented learners. They should have the support not only from the other teachers and the headmaster of the school but from the methodologist that is the expert of the programmes creation. Moreover, the teachers might organize the base of the experiences and knowledge of the teachers that are making some programmes themselves. They can organize it in the Internet to make it easily accessible for all teachers, also the teachers that live and work in the villages. It would modify and update they work connected to creating the teaching programmes. They would share their observations and knowledge.

To sum up, the teaching programmes should be well-thought-out. It means planned in the proper way but they should be only the sketches for the teachers to have an opportunity to add something important into it. One can describe that the programmes ought to be flexible and changeable. Moreover, the programmes should be individual and differential.

References

1.Bereźnicki F., (2015), Dydaktyka szkolna dla kandydatów na nauczycieli, Impuls, Kraków.

2.Chrzanowska I., (2015), Pedagogika specjalna, od tradycji do współczesności, Impuls, Kraków.

3.Dyrda B., (2012), Edukacyjne wspieranie rozwoju uczniów zdolnych, studium społeczno-edukacyjne, Wydawnictwo Akademickie Żak, Warszawa.

4.Limont W., (2012), Uczeń zdolny, Jak go rozpoznać i jak z nim pracować, GWP, Sopot.

5.Poleszczak W., Porwak R., Kata G., Kopik A.,(2014), Diagnoza i wspomaganie w rozwoju dzieci uzdolnionych, Test uzdolnień wielorakich i materiały dydaktyczne, Ośrodek Rozwoju Edukacji, Warszawa.

6.Vygotsky L., (1997), Educational Psychology, Taylor & Francis Group, Hardcover.

7.http://www.smnd.sk.

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Culture Erosion With Lack Of Indigenous Education In India

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Abstract

With the oncoming of globalization across the world, everything predominant and widely accepted by way of westernization has seeped into our lives going down the road of school education as well. So indirectly the culture of any place collides with such globalization being absorbed everywhere around. Since earlier times indigenous education has built up student-teacher relationships with warmth and given students a chance of learning along with exploring. Students had been in touch with nature with the assessment method not only sticking to testing on the basis of exams but also in other developing skills in the students of cooperation, honesty, compassion. The olden methods of education should go hand in hand along with growing methods of education by learning from outside the culture as well as from the culture to present ourselves with the best of both worlds. The ancient traditions of any society could be kept alive with passing on of the traditional knowledge to its young generation along with the global education as well so that there is no lack towards better development and there is no educational gap within the society as well as outside the society.

Keywords: education, language, indigenous, culture, learning
Main Conference Topic: Indigenous Education

Introduction

The expression "indigenous" when used along with the term education is usually referred to the language and culture of the original dwellers of any particular place which got haled with the passage of time by a group of more powerful people who colonized them.

Most of the colonies of Britishers were dominant in their times and were indirectly able to propel the people of the nations to assimilate their culture as they conquered them. Schools have been one important way of such conversions in the matter of religion, customs and language of the conquerors. There has been no forced assimilation on the Indian society but the change in cultures was an outcome of slow changes that came with the large population of Britishers staying in India. The study in this paper examines how India as a nation lost its indigenous methods of education and counting its advantages and disadvantages.[1]

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[1] http://www.oxfordbibliographies.com/view/document/obo-9780199756810/obo-9780199756810-0064.xml

The aim and objective of the concept of preserving indigenous education has always been to make people conscious about the importance of cultural and linguistic multifariousness in today's times. Not only cultural and linguistic diversity makes individuals and nations different from other but are also turn out to be its forte in the long run for a more balanced future and harmonious environment. Indigenous knowledge has also been of a great help in sustaining the earth and other creations since time immemorial.[2]

Related work

With the passage of time in more than sixty years after gaining independence Indians have switched on to using English as their official and basic language in majority of the places burying the languages and dialects that Indian subcontinent had offered for ages. In most of the workplaces and education centers this westernized mode of communication has become the major fashion[3]. While there is no problem with learning and speaking English language indigenous education inducted in the formal method of education seems to be a mid way in helping to learn both English language as well as the mother tongues.

A great change in the Indian education system came when the English people came in India and initiated with their setup of elementary education system which was very dissimilar to the Indian setup. In the olden times the Indian society schools mainly considered of madarsas and pathshalas for kids on an elementary level. Such schools included teachings of the holy books such as Quran and Ramayana along with moral studies. The basic languages used to read and write were chiefly the regional languages such as Sanskrit, Persian, Urdu, Prakrit to study the metaphysics, medicine, astrology, mathematics as a part of school syllabus.

Such India schools sprang up and vanished as per the local demands of it, bringing in anybody who can pay the meager amount of school fees for studies. Though the students in those schools came from all different sections of the society unlike the system in westernized form of schooling where private schooling is only available to the upper section of the society. Also the flexibility of being adaptable to the local environment and the importance and popularity that the indigenous system has gained over the years under a various economic conditions had its own merit. But recently, lack in the indigenous teaching methods has led to a great divide in the various sections of the society whereas the western education system seeping into the society all around the nation, the older methods of being in symmetry with

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[2] http://indigenousedu.org/wp/

[3] http://www.youthkiawaaz.com/2011/04/indigenous-education-in-india/

the nature and all sections of society has had a great setback due to this[4]. It was an attempt of the Britishers that there was formal introduction of western mode of education which was their way of reaching out to masses with the concept of education.

The continuous state of anarchy during and after the times of Britishers in India has been a chief reason in the neglect of this system of education and also the introductions of the western formal education system was also imminent at that point of time. After the introduction of new phase of education it expanded like wild fire with a change in the character and nature of the existing education system. Through the medium of English language the efforts towards evangelization had been practiced in an organized manner by the Christian myriads which were also warmly welcomed.

Like every coin has two sides the introductions of the formal western methods of education and the simultaneous loss of indigenous education had its advantages and disadvantages. The advantages of western education has also helped the nation to become global with the reach of English language to Indians as well as helping them to be one of the biggest number of people who speak English throughout the world in a very detectable way.[5]Such sort of education is able to help the growth of large amounts of talents of both manual and cerebral kind along with the educational system being measurable on accountability of results. But the lack of proper training and formal education of the then teachers in general, the various physical forms of punishment and confined curriculum were among some of the defects of the indigenous system of education which were now being fulfilled by the formal education system. But by far the good thing was education was approachable to all now.

The shortcoming with regards to lack of indigenous methods of teaching is that whereas the mainstream methods of the western society are being reflected in the educational course of the students today, the students are unable to learn their own history , language and culture. Also the formal education these days are mostly provided in English language which has led to fast depletion in the value of other indigenous languages. In such ways the indigenous methods of living is absolutely not taken into consideration. [6]The erosion of indigenous education of India, firstly, it led to obliteration of literacy and knowledge of such dimension among the Indian people. Secondly, the social balance of Indian society in which persons from all sections of the society have been fairly able to receive competent schooling as of

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[4] http://www.preservearticles.com/2012031627655/what-was-the-nature-of-indigenous-education-in-india.html

[5]http://www.yourarticlelibrary.com/education/indigenous-system-of-education-in-india-during-british-period/44825/

[6] http://unesdoc.unesco.org/images/0018/001807/180754e.pdf

now has been slowly demolished. thirdly, there has also been a damage in the economic domain led to a huge deterioration of socio-economic and social conditions and the personal dignity of those now referred as "scheduled castes" was largely effected; and the " other backward castes" was also effected to a little degree with such huge changes in delivery of indigenous education system, which was demonstrated by various movements which aimed at restoring the social balance embracing all the sections of society in such movements.

Fourthly and most importantly, the new westernized system of education in India has kept the educated section of Indians ignorant towards the culture which has sustained through a lot of tough times in this society but now is on the verge of dying out. Also with the passage of time people were induced with the lack of belonging and greatness towards the Indian culture. With the problem of Indian culture and Indian nomenclature dying out with the passage of time indigenous education seems to be a way out with that. Indian culture with reference to education and higher studies has always offered a rich diversity like arithmetic, geometry, invention of zero, medical studies which involves healing with herbs, and various other sciences, books of economics like Arthshastra by Chanakya giving us good enough reason to revert back and not forget the olden studies.[7]

To protect the right to ethnicity, health, nomenclature, individual identity and other such subjects there is declaration on the rights of indigenous people which sets out to protect the individual and collective rights of indigenous people.[8] Such sort of declarations on an international level are of great help for nations like India to protect and built up a future from their existing cultures, traditions, institutions and of course traditional knowledge. Article 31 of the declaration has been particularly of great importance as it lays emphasis on the extremely important topic of preserving the heritage of indigenous people along with their culture and education.[9]

Conclusion

The words of Mark twain are of very brilliant significance saying *"I never let my schooling interfere with my education"*. A womb-to-tomb process of learning should never be restricted to the methods formal education only. Protection of indigenous education has been one important task of the decade in the times of development. While embracing the ways of development from outside sources the reins of indigenous education and knowledge should

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[7] http://www.deccanherald.com/content/36408/indian-richness-overshadowed-negative-portrayal.html
[8] http://www.un.org/esa/socdev/unpfii/documents/FAQsindigenousdeclaration.pdf
[9] http://www.un.org/apps/news/story.asp?NewsID=23794&Cr=indigenous&Cr1=#.V6XZDfl97IU

be held onto tightly. While taking pride from the rich culture and knowledge resources from the past such as yoga, Vedic mathematics, Arthshastra (Economics) we should also adopt the western worlds' scientific and mathematical knowledge. The ill with any nation which is on the road to development is that in order to grow they have only visualized the rosy picture of the western world while neglecting their indigenous ways.

While on the avenues of development on a global level, we need to realize that this pridefulness should not make us intransigent and as a nation we should still remain open embracing with other cultures as well. Even with the achievement of origination of yoga and Vedic mathematics we should also take account of the scientific knowledge and boulevards of mathematics the western education has provided us with. Thus the chief intention of reimplementation of the system of indigenous education in India would be to have a beautiful harmony between methods of indigenous education and western education and make them go hand in hand. The problem with the world today is that people have stopped taking pride in their own culture and traditions. As a nation we need to respect our being completely in order to thoroughly implement the indigenous education system in our country. Once that is done by us, the world would also respect us for our personal identity of the nation. And this is not a simple task as it would take generations to have a grip over the best of both worlds, i.e. having indigenous education as well as western education helping towards the building of a great nation. And one important task that lies ahead of us is to change the social attitude of the people that whatever majority of the nations are following and whatever the westernization is bringing is completely right. However it is not wrong in any manner but it will be the best form of development for us if we still hold on tightly to the indigenous education and knowledge. The best way to help a country become better is to make her gain confidence in everything that it stands for. Thereafter sit back and monitor the benchmark the country itself reaches for and conquers. It is very much needed that we unshackle ourselves with the gripped system of formal education. We should not let the roots perish like this when our objective is to grow the tree bigger and better each day.

References

- United Nations adopts Declaration on Rights of Indigenous People, http://www.un.org/apps/news/story.asp?NewsID=23794&Cr=indigenous&Cr1=#.V6XZDfl97IU

- UNESCO, 2009, Learning and Knowing in Indigenous Societies Today, http://unesdoc.unesco.org/images/0018/001807/180754e.pdf

- D H New Service, Indian Richness Overshadowed by Negative Portrayal http://www.deccanherald.com/content/36408/indian-richness-overshadowed-negative-portrayal.html

- Frequently Asked Questions: Declaration on the Rights of Indigenous Peoples, http://www.un.org/esa/socdev/unpfii/documents/FAQsindigenousdeclaration.pdf

- V. Singh, What was the nature of indigenous education in India, http://www.preservearticles.com/2012031627655/what-was-the-nature-of-indigenous-education-in-india.html

- Denny, Indigenous system of Education in India during British period, http://www.yourarticlelibrary.com/education/indigenous-system-of-education-in-india-during-british-period/44825/

- Jon Reyhner, Navin Kumar Singh, Indigenous Education in a Global Context ,http://www.oxfordbibliographies.com/view/document/obo-9780199756810/obo-9780199756810-0064.xml

- The Indigenous Education Institute, http://indigenousedu.org/wp/

- Anonna Dutt, Indigenous Education in India: The way forward, ttp://www.youthkiawaaz.com/2011/04/indigenous-education-in-india/

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Using a 3D Virtual World to Teach Children about Flood and Fire Safety

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Abstract

This paper presents a 3D virtual world environment that is created to facilitate teaching children about natural hazards and in particular the ones related to floods and fires. Based on the results from an extensive study in which 3,138 teachers and 39,607 students participated, a number of scenarios simulating flood and fire situations is developed in order to expose children to these hazards but in a safe manner (based on simulated experiences and not on real life experiences). The entire work is based on the 'learning by doing' concept and as result it offers an immersive environment that presents attractive and educating scenarios to students, allowing them to participate and learn about the relative hazards. Furthermore, this environment could serve as a powerful teaching tool for the teachers willing to include non-traditional methods in their practice.

Keywords: e-Learning, Game-based Learning, Virtual Learning Environments

1. Introduction

Over the past several decades, naturally occurring disasters have increased in frequency and number, due to rapid population growth, rise in sea level, global climate change and increasing environmental degradation. In Europe, during the period 1980-2008, around 122,000 people were killed and 33 million negatively affected because of natural disasters (Disaster statistics in Europe, 2016). The social and economic impacts of natural hazards may severely hinder growth and development. Economic losses from natural disasters have also tripled in the last thirty years. Natural phenomena, such as earthquakes, floods and fires have always been a part of nature and history, but natural hazards do not need to become disasters. Natural hazard awareness and education on Disaster Risk Reduction (DRR) are the keys for effective catastrophic risk management strategies.

Therefore there is a specific need to promote a culture of safety in Europe against natural calamities. This can only be achieved by cultivating a holistic disaster management approach, which requires a prior knowledge an emphasis on disaster risk reduction tools and strategies. According to the Hyogo Framework for Action (2016), there is a major need to "... *use knowledge, innovation and education to build a culture of safety and resilience at all levels*". As children are one of the most vulnerable groups, we must teach them from the early age about the risks, so they will have a better chance to save their lives during disasters. Children

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[*] Presenting author

are the future architects, mayors, doctors, and parents of the world of tomorrow and if they know what to do to reduce the impacts of disasters, they will create a safer world. What is learned in childhood becomes incorporated into collective knowledge and carried into future decision-making (Hohmann & Weikart, 2008).

Based on these facts, a project named FORETELL (Flood and Fire safety awareness in virtual world) is launched aiming to develop an on-line 3D virtual world learning environment, which will simulate specific incidents of environmental hazards, such as floods and fires and prepare children to cope with these phenomena in a safe manner, through experiential learning activities (e.g. games). The first results of this project are presented in this paper. The rest of the paper is structured as follows: After a short literature review and presentation of the motivation of this work (section 2), the methods used to collect user requirements and investigate what children need is presented at section 3 as well as the main findings. Section 4 presents the system components, the game narrative and the early developments in the 3D virtual world learning environment and provides insight on the features of the environment, while the main conclusions of this paper are presented in section 5 and future work is discussed.

2. Literature Review and Motivation

Experiential learning principles support pedagogies such as *"learning by doing"* (Ying, 1967), which engage students in critical thinking, problem solving and decision making. Children should learn at an early age to respect the environment and understand development consequences that last for a lifetime. In this context, this work promotes the fundamental ideas of active participation and citizenship of young people, by helping children realize that they are also an important social actor. Article 12 of the UNCRC (United Nations Convention on the Rights of the Child) establishes the children's right of active engagement, which has been broadly conceptualized as 'participation' and requires information-sharing and dialogue between children and adults, based on mutual respect (Lansdown, 2011).

Having in mind that, as well as the fact that ICT technologies are important driving factor for the developments in education, this work aims additionally to empower the profile of the teaching professions in order to adopt novel approaches in teaching. Many teachers find the idea of adding scenario-based learning to their teaching methods interesting, as it makes classroom experiences more appealing and highly engaging. Generally, scenario-based learning immerses the learners in real life or situational simulations or learning experiences that allow them to gather skills or information that they will recall for future use. This work, therefore, exploits innovative technology-based learning strategies and pedagogical frameworks which are in compliance with the 2013 EU initiative: *"Opening Up Education: Innovative teaching and learning for all through new technologies and open educational resources"* (European Commission, 2013). Through these innovative methods, the ultimate aim of this work is to provide children and public with awareness and knowledge and help them develop essential skills necessary to cope with natural hazards.

According to educational theorist, Kolb D., *"Learning is the process whereby knowledge is created through the transformation of experience"* (Kolb, 1984, p. 38). According to Beard & Wilson (2002), experiential learning engages students in critical thinking, problem solving and decision making. So, children should learn at an early age to respect the environment and understand development consequences and building habits that last a lifetime. The emergence of ICT, has added another aspect that influences to a significant extent the way both educators (teachers) and children view the learning process. In the context of the work

presented in this paper, ICT technologies are used to enrich children's learning and prepare them against future disasters, through collaboration and critical thinking as well as learning by doing. Teachers will be empowered to adopt novel approaches in teaching.

Based on the aforementioned discussion, the objectives of this work are:

- To educate children in an innovative, highly immersive environment and in an engaging manner to achieve proper knowledge, skills and attitudes on how to behave in emergency situations, especially natural disaster related crises.
- To encourage children to help protect their community from natural hazards, through school activities, so that they can raise public awareness about risks and motivate others to take protective measures; help them realize that they are a significant part of the process, for their own safety and sense of empowerment.
- To promote a culture of safety, so in this way, a deep and long-lasting *"culture of prevention"* will be established, both through action and new attitudes.
- To create a learning environment that will be attractive to young learners.
- To relate experiential learning to education pioneering a more efficient future education.
- To strengthen the profile of the teaching professions through supporting teachers' work to deliver high quality teaching.

3. Method and Findings

During a short period of two months (April and May of 2016) an online survey has been conducted among students and teachers from the four countries participating in the FORETELL project, namely at Bulgaria, Greece, Italy and Malta. The aim of this survey was to determine the level of knowledge and awareness on the safe behavior in case of fires and floods, as well as the attitude of teachers and students towards the use of 3D simulation games in the learning process.

A total of 42,745 persons took part in the survey, 3,138 teachers and 39,607 students. The method included consent-of-use and demographics of the participants and three distinct tools:

A. A short (9 closed 5-point-scale questions) survey to collect opinions from teachers about their experience in similar environments, their attitude towards using such an environment in classroom and the appropriateness of the subject in matter (flood and fire safety).

B. A short (4 closed 5-point-scale questions) survey to collect opinions from children about their feelings towards such a 3D simulation.

C. A two-part questionnaire (15 multiple choice questions and a short priority list) aiming for the identification of current level of knowledge and awareness of safe behavior in case of fires and floods.

The questions on A survey were:

1. Have you ever used 3D simulations in your teaching?
2. Rate from 1 to 5 whether teaching through 3D simulation games is a positive or negative experience.
3. Do you think that 3D simulation games will increase understanding of protection from fire and floods?
4. Do you think that 3D simulation games facilitate teaching and learning about protection from fire and floods?

5. Do you think 3D simulation game can be applied to motivate and retain the activity of students during the learning process?
6. Will such games facilitate acquisition of knowledge and understanding? Will they serve to strengthen learning habits and skills?
7. 3D simulation games are excellent tools for assessing knowledge and skills regarding the topics for disaster protection.
8. Learning through playing increases in short terms knowledge and skills of trainees?
9. On the scale from 1 to 5 how would you rate the statement that games facilitate learning through fun and increase learning by providing positive feedback?

And for the B survey:

1. 3D simulation games increase my interest towards the studied material.
2. I am more interested in playing computer games based on real situations.
3. Through 3D simulation games I can acquire new information and strengthen my existing knowledge.
4. I will play 3D simulation games at home too.

The scales used were color coded (green to positive, yellow for undecided and red for negative) 5-point scale, like the example (with the exception of the yes/no question 1):

Strongly Agree – Agree – Undecided – Disagree – Strongly Disagree

The survey had showed that teachers in all countries had used 3D simulation in their teaching in a large percentage (76,7%) and that they believe that such environments are quite useful. The results are summarized at table 1 and figure 1, where the positive attitude of teachers is more than apparent. The table 1 shows the percentiles of the responses in each question (where 5 is the most positive response and 1 the most negative), while figure 1 illustrates the number of responses for each question.

Table 1. Results from teachers survey in percentiles

Question	5	4	3	2	1
Question 1	76,7%				23,3%
Question 2	41,6%	14,6%	18,3%	12,6%	13,0%
Question 3	46,3%	38,1%	13,1%	1,3%	1,2%
Question 4	48,6%	37,0%	10,4%	1,5%	2,5%
Question 5	54,8%	32,0%	8,8%	2,7%	1,8%
Question 6	53,6%	32,2%	9,8%	2,9%	1,6%
Question 7	51,2%	30,4%	14,1%	1,9%	2,4%
Question 8	51,3%	33,0%	10,7%	1,9%	3,1%
Question 9	38,2%	18,0%	16,9%	14,0%	12,9%
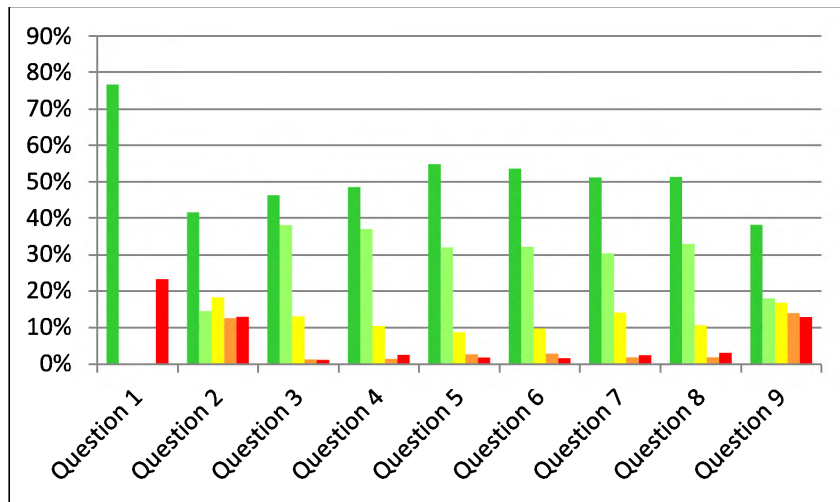
Figure 1. Teacher's opinions towards using 3D environments for teaching

Even more promising than the teachers' survey results, were the results from the children that showed that children are highly in favor of such an environment, as presented at figure 2, which illustrates the total responses for each question.
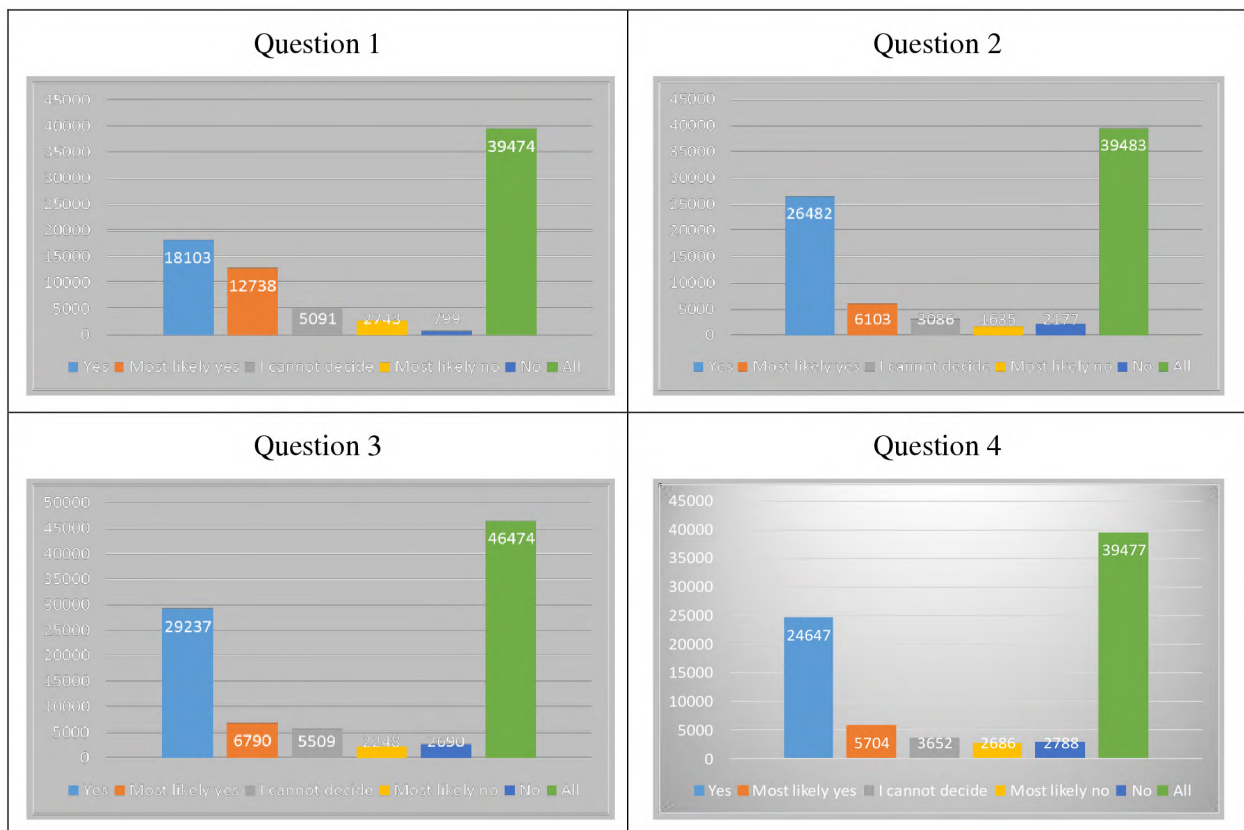
Figure 2. Students' opinions towards using 3D environments for learning about flood and fire

Finally, the results from the survey C, showed that only around 69% of the students are able to pass a relatively simple test related to their actions in case of such emergency. A sample of some of such questions is presented at table 2.

Table 2. Sample questions from survey C

4. In case the road is flooded, we should: a) cross it carefully **b) look for an alternative route** c) try to swim it
8. Water is used to extinguish: a) burning electric appliances b) burning petrol and oil **c) burning wood, paper, coal, rubber and textiles**
13. In case part of your clothes are burning, you should: a) stop, drop to the ground and roll into a ball to protect your face b) stop, drop your clothes on the floor and run to the shower **c) stop, drop to the ground, and roll back and forth to put of the flames**

The fact that 69% of the children responded correctly to the questions (regardless of their age), means that children are already familiar with such topics and have already passed some training on the risks in case of floods and fires, the causes for their emergence, prevention measures and correct actions during emergency situations, but there is still a need to develop such an environment to teach them about these hazards through simulation.

4. The FORETELL 3D Virtual World Learning Environment

The development of the FORETELL 3D Virtual World Learning Environment (VWLE) is completely based on free and open-source software tools. The platform of choice is the Opensimulator[1], an open-source client-server architecture which can host massive multiuser on-line 3D virtual environments which can be highly interactive and immersive, very similar to those of the proprietary Second Life™ platform[2]. The Opensimulator fulfills the project's prerequisites for free usage, building and editing, hosting on private servers, catchy graphics and customizable human-like avatars, embedded 3D editor and scripting language to add interactivity, in-world communication channels, expandability, compatibility with the MOODLE Learning Management System[3] and a large supportive community of developers and educators.

Along with the Opensimulator platform, a MOODLE web site has been implemented in order to host the educational multimedia material on floods and fire safety which will be produced during the project. The educational material will be released in English, Greek, Bulgarian and Italian and will be freely available to the educators as additional material for their lessons. Part of this material will be integrated in the 3D VWLE as well, in order to enhance the learning procedure and/or support the game flow.

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[1] www.opensimulator.org

[2] www.secondlife.com

[3] www.moodle.org
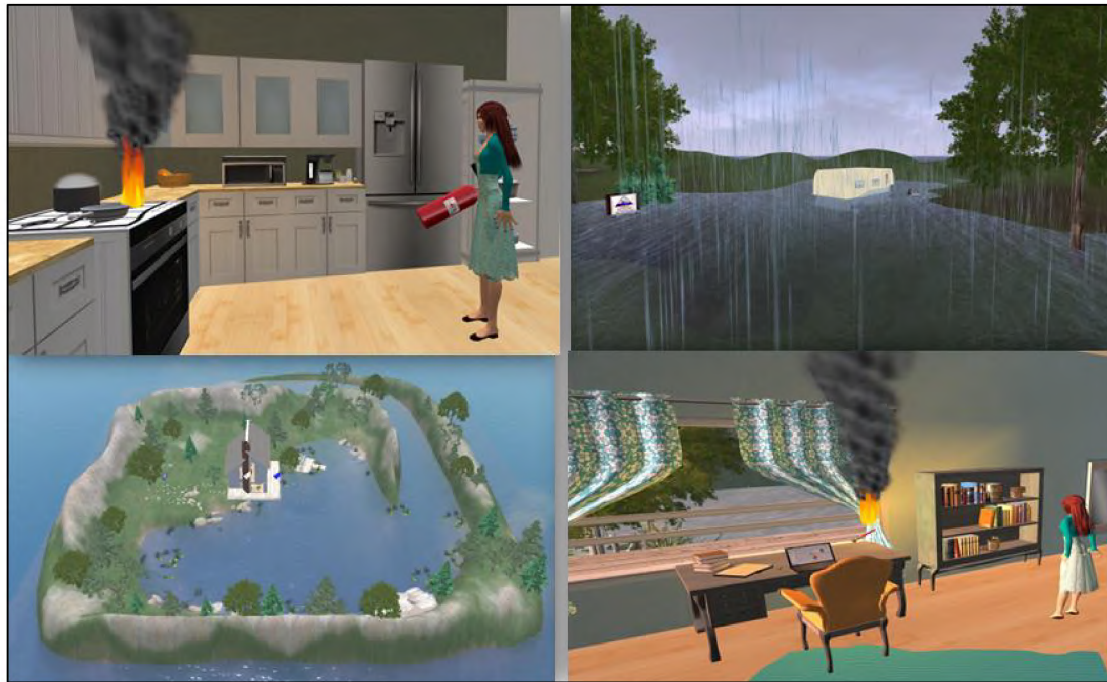
Figure 3. Various 3D virtual settings of the 3D VWLE

Based on the results of the user requirements survey, the following five core scenarios are designed and (some of them) implemented: 1) Fire at Home, 2) Flood at Home, 3) Fire in a Public Building, 4) Flood Outside, 5) Fire Outside. Each scenario consists of sub-scenarios which are small, self-contained situations that present the player with a problem to solve. In general, the sub-scenarios are tied together by a specific kind of danger that the player should be aware of, or by a specific solution. Each sub-scenario is a 'lesson' that the player needs to learn, all of which lead to a broader comprehension of the topic that is represented by the core scenario. Some of the scenario-based games are designed as single-player while others as multiplayer.

During the aforementioned five scenario-based games, the children are asked to learn about situations in the real world that they will rarely find themselves in. Therefore a narrative that encourages a sense of realistic make-believe is introduced for the game; The players are welcomed as 'Trainee Operators' and are told that the 3D virtual environment is a program that is used to train robots to deal with flood and fire situations, and that robots learn by observing the actions of the player.

On this assumption, the player logs into the 3D VWLE, chooses one of the five scenarios and teleports to the corresponding virtual setting. Each scenario briefly explains the situation that the player is currently in, providing hints about the kind of dangers they will need to look out for. From then on, the player is free to explore the virtual environment, interact with key objects placed in it, receive feedback from the environment and plan their actions in order to either prevent a danger or respond to an emergency situation properly. Their ability to deal with dangerous situations and their overall performance during the game is evaluated by the system and the players earn awards when they complete all tasks successfully.

Figure 4. The 'Introductory Area' of the 3D VWLE

The development of the 3D VWLE is currently work in progress but it will be made up of five individual virtual regions (figure 3) customized according to the flow and game mechanics of the five core scenarios. There is also an 'Introductory Area' (figure 4) which is the entry point of the VWLE. The 'Introductory Area' is mainly an area that introduces the players to the basic controls of the environment and explains to them how to start a scenario. It also provides places for avatar customization and familiarization with avatar movement and orientation. Moreover, it includes general tips and best practices on floods and fire safety, as well as access via teleporting to the five regions that host the core scenarios. The textual content of the 3D VWLE will be available in English, Greek, Bulgarian and Italian.

5. Conclusions and Future Work

This paper presented the need (proven by a large survey with over 40 thousand participants) for a 3D virtual world learning environment that is created to facilitate teaching children about floods and fires. The entire work is based on the 'learning by doing' concept and it offers an immersive environment suitable for children and their teachers. Future work includes to start using this environment with the participation of children and teachers and evaluate the results. Future plans also include enriching the environment with scenarios proposed by educators or emerged by student's feedback.

Acknowledgment

References

Beard C. & Wilson, J.P. (eds) (2002). The power of experiential learning: a handbook for trainers and educators, Kogan Page, London.

Disaster statistics in Europe, PreventionWeb, UNISDR, (2016). Accessed on September 2016 at: http://www.preventionweb.net/english/countries/statistics/index_region.php?rid=3.

European Commission, (2013), Press Release, Opening up Education' to boost innovation and digital skills in schools and universities, Accessed on September 2016 at: http://europa.eu/rapid/press-release_IP-13-859_en.htm.

Hohmann, M. & Weikart, D. P. (2008). Educating Young Children: Active Learning Practices for Preschool and Child Care Programs (3rd ed.). Ypsilanti, MI: High Scope Press.

Hyogo Framework for Action, (2016). Accessed on September 2016 at: http://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf .

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development (Vol. 1). Englewood Cliffs, NJ: Prentice-Hall.

Lansdown G. (2011). Every child's right to be heard- A resource guide on the un committee on the rights of the child general comment no.12, Published by Save the Children UK on behalf of Save the Children and UNICEF.

Ying, Charles C. (1967). Learning by Doing-An Adaptive Approach to Multiperiod Decisions, Operations Research, 1967, Vol 15, No 5, pp. 797-812.

Television Zombies and America's Frontier Myth: Teaching US How to Love Again

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Abstract

Since 9/11, the number of zombie narratives consumed in the United States has veritably exploded. They seem to be everywhere—in novels, comic books, film, and television. And some cross media. For example, the popular graphic novel series the *Walking Dead* has given rise to the hugely popular tv series of the same name.

The *Walking Dead* blends a zombie serial tale with a western. The results have granted the *Walking Dead* its enormous audience. The reason is that the particular subset of western the show employs has long been identified by scholars as America's creation story, its famous "frontier myth." That myth serves to symbolically rebirth the nation, which in turn blends easily with a horror sub-genre focused on a kind of rebirth tied to the trauma of 9/11.

Like any good teacher, the television series has responded to real world events and sought to make them intelligible to students/consumers, explained coherently in a language they already understand (the Western genre). In short, the *Walking Dead* teaches viewers how to understand 9/11 and how to respond to its effects.

Introduction

Since 9/11, the number of zombie narratives consumed in the United States has veritably exploded. They seem to be everywhere—in novels, comic books, film, and television. Some overlap media. For example, the celebrated graphic novel series *The Walking Dead* has given rise to the hugely popular television series of the same name. This cross-pollination is important because Americans consume on average five hours of television every day. As a result, much of what Americans know about the world and their place in it, has been learned from this informal media pedagogue. And the relationship has deep consequences because, more generally, the mass media has been identified by scholars as a key nation-builder. This dates to newspapers in the nineteenth century, but insofar as television has dominated the media for going on 70 years, the 'tube' has become the dominant informal teacher about how and what it means to be American.

Moreover, like any good teacher, the television series has responded to real world events and sought to make them intelligible to students/consumers, explained coherently in a language they already understand. One result is that *The Walking Dead* teaches viewers how to understand 9/11 and how to respond to its effects. Precisely how this occurs has much to do with the fact that *The Walking Dead* blends two genres, a serialized zombie tale with a frontier western. The results of this conflation, I will endeavour to show, have not only granted the *Dead* its enormous audience but also contribute to symbolic national regeneration.

The show's popularity emerge rather directly from its effective presentation of a mythical narrative that champions ongoing American rebirth. In this way, it channels what scholars have long termed America's creation story, its famous "frontier myth," most commonly identified with the western. That myth serves to symbolically regenerate the nation, which in turn blends easily with a horror sub-genre focused on a kind of rejuvenation tied often most recently to the trauma of 9/11 and the idea that America was then effectively

compelled to rise from metaphorical ashes. In short, like any good teacher, the television

series has responded to real world events and sought to make them intelligible to

students/consumers, explained coherently in a language they already understand—that is, the

frontier myth and the western and zombie genres.

Traditionally, the zombie phenomenon in visual culture has been understood as a

reaction to the trauma of real-world events ranging from the cold war to the Vietnam war and

now to 9/11 (Nilges, 195). "Popular culture often provides a window into the subliminal or

unstated fears of citizens, and zombies are no exception," writes Daniel Drezner (4). "The

horror genre experienced a dramatic resurgence over the last decade," note the editors of

Horror after 9/11 (Briefel and Miller, 1). In response to 9/11, "We have come to expect that a

monster is never just a monster, but rather a metaphor that translates real anxieties into more

or less palatable form," they add (1). Not surprisingly, then, Laura Frost suggests, we

understand 9/11 as "a national wound" (34). Stressing the role of pop culture as teacher,

David Altheide writes, "We learn about the world and how the world is run through the mass

media and popular culture. Indeed, the state of a citizen's worldview can be gleaned by its

dominant news sources" (11).

All nations have creation stories. America's frontier myth blends the historical settling

of the land by white settlers with a heavily Christianized interpretation of what that process

meant and continues to mean (though meaning is never fixed precisely or met without

contestation). At its core, the tale centers on white hetereosexual immigrants of European

origin who moved to the frontier, which was itself understood as the "meeting point between

savagery and civilization," according to Frederick Jackson Turner, author of the most

commonly cited articulation of the myth (Turner, 61). Once on the frontier, which was

invariably set somewhere in the west—hence conflation with the "western"—the man faced

either certain death or, the more desireable outcome, systematic stripping of all cultural

baggage. This was necessary to survive. Then followed rebirth. According to Turner's

famous essay:

> The frontier is the line of most rapid and effective Americanization. The
>
> wilderness masters the colonist. It finds him a European in dress, industries,
>
> tools, modes of travel, and thought. It takes him from the railroad car and puts
>
> him in the birch canoe. It strips off the garments of civilization and arrays him
>
> in the hunting shirt and the moccasin...In short, at the frontier the environment
>
> is at first too strong for the man. He must accept the conditions which it
>
> furnishes, or perish...The fact is, that here is a new product that is American
>
> (39).

Imagine this on a continental scale and you can see the results: America was born by

being born and has reborn timae after time by fighting and defeating perceived savages. I use

the word "imagine" deliberately, too, because this process was in fact a work of the

imagination, much along the lines of what Benedict Anderson meant when he famously

termed nationalism an "imagined community" (Anderson, B., 1-14). Meanwhile, Turner

asserts:

> ...to the frontier the American intellect owes its striking characteristics. That
>
> coarseness of strength combined with acuteness and inquisitiveness; that
>
> practical, inventive turn of mind, quick to find expedients; that masterful grasp
>
> of material things, lacking in the artistic but powerful to effect great ends, that
>
> restless, nervous energy; that dominant individualism working for good and
>
> for evil, and withal that buoyancy and exuberance which comes from
>
> freedom—these are traits of the frontier, or traits called out elsewhere because
>
> of the frontier (61, also see 46, 57).

That said, while clearly America was effectively fashioned by settlement, the frontier myth is empirically mistaken on every key point. Nevertheless, it remains cultural spot on because it endures as the commonly understood story that birthed and rebirths America. And frequently when America finds itself at war, its popular culture frames conflicts as symbolic frontier struggles pitting savagery against civilization.

Richard Slotkin, perhaps it best known scholar, calls the process "regeneration through violence." That is, violence was invariably central to the espied cultural stripping and alleged rebirth. And, in reality, Americans fought Indians for nearly four centuries as well as provoked war with Mexico, which was perceived a nation of half-breeds, in order to wrestle control on the territory we now know as the United States (61).

In this way, then, zombie narratives and the frontier myth share a natural affinity because are triggered by and feed on trauma. War reflexively engenders a compulsive symbolic replaying of the myth in popular culture. And both genres focus on rebirth, which makes zombies ideal vessels for frontier tales, not unlike the ways in which the western has so capably served "over many generations," according to John Cawelti (9). As a result, once we have taken the zombie bait and accept that some kind of apocalypse has descended upon us after 9/11, what then? "Narratives about the living dead use small communities or families as their unit of social analysis," Drezner summarizes (10). Again, enter the frontier myth because contemporary zombie stories boil down to survival stories but also they tend heavily therefore toward tales of regenerating the nation.

The survival of the human race in the face of a zombie holocaust depends, utlimately, upon the choices the survivors make. And who better to seize the reins at the edge of catastrophe, on the rim of the world, than the frontiersman, that primordial cowboy, himself tha avatar of rebirth? This is what the he has always done, from Puritan times to the nineteenth-century novels of James Fenimore Cooper, from seventeenth-century captivity

narratives to the 1950s and 1960s, the frontier myth dominated American television in the

form of the western. The western derives its semiotic power from its conflation of frontier

symbology with a genre centered imaginatively in the post-bellum west. But wait, given its

lust for and long track record in war, doesn't the United States find itself frequently in a post-

bellum state? Yes. And *The Walking Dead* makes this point with real emphasis. After all,

"Wherever we find monsters, there, too, we also find heroes" (Asma, 23). The show pays

homage to the myth by casting its two protagonists among the ensemble cast, as a

frontiersman and the frontiersman's son in-training. This passing-of-the-torch trope is a well

trod western gambit. The *Dead*'s Rick, the father, and Carl, his son, are imagined

frontiersmen, in other words.

Frontiersmen qua cowboys may be measured by their behaviour, which fortunately

boils down to a manageable list in 10 easy steps, traceable to the Gene Autrey (Baard). To

begin with, he never shoots first. Given that Rick and his cohort face the constant threat of

death from un-dead zombies as well as from other humans who may not be trustworthy,

following a catastrophe that is neither explained nor discussed, you might expect Rick and

the others to be a tad trigger happy. But not Rick, though he suffers and he questions the

nature of his suffering, his moral compass remains true on this point: he doesn't engage in

pre-emptive violence against his kind (the undead are, well, undead and therefore don't

count).

Second, the frontiersman remains true to his word. This is pure Rick. He is honest

and completely trustworthy. For example, in season three Rick faces the Governor, a sort of

classic incarnation of the corrupted easterner or Eurepean we are meant to understand first by

his pompous self-applied title. He is a suave, two-faced killer. Rick, though wary, keeps to

his word in all their dealings. The message is clear: government cannot be trusted but the

deeper cultural resonance upon which government was fashioned in the United States, the

frontiersman and his story, remain true to the ideal upon which the nation invented itself. Rick willingly imperils the group to remain straight and true.

Third, Rick does not lie. Sometimes, it costs him popularity but never respect. He lives a truthful life also in the sense that he stays loyal to his frontiersman typecasting. Crucially, and this figures in so many westerns, in keeping with his one true path, he nurtures Carl and mentors him the ways of the all-American boy. We get this visually as Rick's Stetson become Carl's Stetson, as Carl picks up the gun, as Carl, despite his tender years employs the gun, as Rick inadvertently and unintentionally teaches Carl, as Lori puts it, to become detached, turn "cold" to the world. But hey, a boy's got to learn how to do what a man's got to do.

The government is the liar in this horror show. It made promises it couldn't keep and Rick is doing something about it. "The very real sociophobia in the wake of 9/11," Kevin Wetmore argues, "is a fear of ongoing war on terror in which 'America,' by which we mean the government, the military and all authority figures, is unable to protect or solve the problems" (Wetmore, 163). So cowboy Rick steps up

Fourth, our hero treats all life with the dignity that it deserves. He must be gentle with children, the elderly, and animals." Rick is a good dad to Carl. He constantly puts himself in danger—and, from Lori's perspective, too often abandons them—for the greater good of the group. This is both lamentable and excusable, for Rick wears the burden of a messiah, too. And why not, the myth is tainted with Christian symbolism. There is every reason to see the frontiersman as a kind of American Adam or Jesus. Rick carries the weight of it and, so that we fully understand his suffering on the group's behalf, it shows; and yet he manages after all is said and done and he does not not complain. As a father, Rick endeavors first and foremost, to protect, teach, and love Carl. He hurts when Carl hurts (especially when Carl takes a

bullet). And he is physically demonstrative toward his son, at least some of the time. His loyalties are decided because he must also play father to the group.

In the television series, the character of Hershel, who owns a farm where the survivors stay for a time, is an old man. Rick walks a fine line here. His first allegiance is to safeguarding and nurturing the survivors/America. Yet the TV program (not the comic book) casts Hershel as an older and wiser man (though at first he is obstinate, another common enough casting—the old coot archetype). Thus, he and Rick get on well; yet Hershel also defers to Rick, as you might expect of an older man who sees in Rick the youth and vigor needed to regain the world.

Animals do much figure in the *Dead*. Nonetheless, firmly establishing his cowboy cojones, early on in the comic series Rick is delighted to find a horse to ride for a time. The image is classic western. He's got the horse, the pistol, and the cowboy hat. And like any good hero, he is on a mission to save the world. But this is horror after all, a kind of weird inverted homage to 9/11, so things tend to die graphically and noisily, except frontiersmen.

Fifth, frontiersmen are not bigots. Of course, the world keeps changing. We see it in *Dead* where people of colour play important roles. For example, Glenn, who is little more than a kid, saves Rick early on, finds love in the arms of Hershel's daughter Maggie (let's "fuck," she presses him several times in the comic series). Glenn is Korean-American. And while he plays an important role he also willingly subordinates himself to Rick's white leadership. So do the various, short-lived black cast members (with the exception of the lethal, sword-wielding Michonne).

Sixth, Rick goes out of his way to help people who need it. Sometimes, it seems, that this is all that Rick does. He leads a group of survivors, after all. The examples are simply too numerous. One case. On AMC Rick and Glenn risk themselves by going to town to a long deserted bar to rescue Hershel from himself (you know the cliche, former alcoholic doubts

himself etcetera etcetera). Suddenly two unknown survivors approach them. Ultimately one goes for his weapon and Rick, qua gunslinger, shoots and kills them both. Before they can return to Hershel's farm, however, others from the unknown group arrive and pepper the bar with fire. Eventually, Rick, Hershel, and Glenn escape but not before Rick risks them all in order to free one of the aggressors whose leg is impaled on a fence post. And then he takes the kid in—but blindfolded so as not to endanger his own clan even as he seeks to aid someone who might otherwise have killed him (creating, btw, another sore point with Shane, as their relationship continues to deteriorate). Before Shane eventually kills the kid by breaking his neck, the boy is shackled, black hood pulled over his head, shuttled around in vehicle trunks, held in solitary, and tortured. Pure Guantanamo Bay.

Seventh, Rick never shirks, he works hard always. Again, it is all work and little play in *The Walking Dead*. Organizing, gathering supplies, killing zombies, burning zombie bodies, securing more ammo, fighting other survivors who are not friendly, and so on. The program is both frequently diverting, often boring, and entirely humourless.

Eighth, the frontiersman "must keep himself clean in thought, speech, action, and personal habits" (Baard). Rick struggles with this because, especially as leader, he faces unpalatable choices. For example, by the time TV Hershel is bitten in the leg by a zombie it is clear that he will not "turn" quickly, but he will turn eventually. To that point, the choices that presented themselves in the series were to abandon Hershel to his fate or to shoot him in the head and thereby pre-emptively destroy a future zombie before it could menace the group. But Rick, like any good frontiersman, is clever and has the ability to think outside the box. So he cuts Hershel's leg off well above the bite in order to save his life. It is a calculated gamble that pays off. It also further softens Hershel's character. One result is that where Rick may not exactly be clean shaven, we cut him slack. I mean, come on, it is the apocalypse.

Ninth, Rick respects all people who deserve it as well as his country. The frontiersman represents the heart of the American nation. Rick is a true and faithful nationalist.

He honours parents. He is a parent and embraces the duty and sacrifice that such a role requires. And he respects women, even if the series unevenly deals with gender stereotypes. For example, his wife Lori is feminine in a trite emotional way. She is pretty, a devoted mom, but given to slightly hysterical behaviour. Her behaviour also borders on treasonous to the family unit as she falls prey to despair. Ever the pragmatist, Rick will push on ahead without her, too, if need be, we learn. Yet other females are slightly more complicated. Andrea , as close to a sexy-kitten as the series offers (and it is not very close), discovers a predilection for marksmanship. She is good at shooting zombies in the head and enjoys doing it. Then there is Michonne, the black loner female whose weapon of choice is a sword, good for lopping zombie noggins. She saves Andrea. Rick treats them all with respect. But, as Rick shouts at Lori, let there be no doubt, "I'm in charge." The burden weighs on him, too. "These people look to me to keep them safe. I owe it to them to do everything in my power."

Finally, tenth, Rick oozes patriotism. If a patriot loves one's country, then the series throws Rick a curveball because the country is gone. Civilization has been decimated and the survivors are compelled to invent it all over again. Rick holds true, however, to a pre-apocalyptic model of behaviour, adjusted to fit the horror, but never abandoned or compromised. In short, while the country may be gone, the nation as imagined community endures. He doesn't budge from it, however much Lori or Carl or Shane might want him to. In short, insofar as the nation prefaces the country, yes, Rick is more than a mere flag-waving patriot; he embodies, he lives and breathes the nation. He gives it life.

Conclusion

Thus, while the *Dead* proposes a scary new world, it is, in fact, much like the world the United States has imaginatively inhabited off and on since the coming of the Puritans. In this way, the series, despite the use of salty language (in the comic version) and free and easy sexuality (comic version) and a lot of gore, relates a deeply conservative and ultimately comforting tale not merely of survival, but of growth. The family at the heart of the survivors even brings new life into the world. Lori even gives birth. Then she dies and, in gambit unthinkable on mainstream television prior to 9/11, Carl is forced to shoot her in the head before she turns into a zombie. Such are the new rules.

References

[1]   Anderson, B. (2006). *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. New York: Verso.Bachman, C. (1992). Metamorphic, cacheable, linear-time archetypes for telephony. Journal of Interactive Epistemologies, 82(5), pp. 1-15.

[2]   Asma, S. T. (2009). *On Monsters, An Unnatural History of Our Worst Fears*. New York: Oxford University Press.Codd, E. (2005). Decoupling checksums from the transistor in DHCP. IEEE, USA.

[3]   Altheide, D. (2010). Fear, Terrorism, and Popular Culture, in Birkenstein, Froula, and Randell.

[4]   Baard, E. (September 21, 2004). George Bush Ain't No Cowboy, *Village Voice*.

[5]   Birkenstein, J., Froula, A., and Randell, K., eds. (2010). *Reframing 9/11: Film, Popular Culture and the "War on Terror."* New York: Continuum.

[6]   Briefel, A., and J. Miller, S.J., eds. (2011). *Horror After 9/11*. Austin: University of Texas Press.

[6]   Cawelti, J. G. (1999). *The Six-Gun Mystique Sequel*. New York: Popular Press.

[7]   Drezner, D. (2011). *Theories of International Politics and Zombies*. Princeton: Princeton University Press.

[8]   Frost, L. (2011). Black Screens, Lost Bodies, The Cinematic Apparatus of 9/11 Horror, in Briefel and Miller, eds.

[9]   Nilges, M. (2010). The Aesthetics of Destruction: Contemporary US Cinema and TV Culture, in Birkenstein, J., Froula, A., and Randell, K.

[10]   Turner, F.J. ([1893] 1961). *Frontier and Section. Selected essays of Frederick Jackson Turner*. New York: Prentice-Hall, 1961.

[11]   Wetmore, K.J. (2012) *Post-9/11 Horror in American Cinema*. New York: Continuum.

Brief Bio

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Assessment Competency among Primary English language Teachers in Malaysia

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Abstract

The purpose of this research was to find out the AfL practices involving monitoring and scaffolding practices among English language teachers. The study was conducted on primary school teachers who teach English as a second language in public schools in the capital city of Malaysia, Kuala Lumpur. A quantitative approach was used where teachers were subjected to respond to a set of adapted questionnaire consisting of 28 items on a 5 point Likert scale. The first part of the study set out to examine the overall monitoring and scaffolding practices of the primary school teachers. The second part of the study examined the difference in the two practices with respect to the teachers' background, namely gender and years of experience. The overall result was encouraging where most practices of AfL were found to be frequently practiced by the English teachers in the primary school classrooms. However, there are some concerns in practices involving scaffolding. It was also found that English teachers seem to practice significantly more scaffolding than monitoring. The implications of the results that underpin AfL are discussed in relation to teachers' competency and training needs.

Keywords: Classroom Assessment, Assessment for Learning, Scaffolding Practices, Monitoring Practices, Assessment Feedback
Main Conference Topic: Learning / Teaching Methodologies and Assessment

Introduction

Assessment is an integral component in any instructional context and educational setting. Ewell (2009) concurs that assessment plays at least two key roles; one in ensuring institutional quality and accountability, and the other, in improving students' learning. Anderson (2004) and Hannafinet al. (2003) further support the idea by stating that there is no factor that influences a learning environment as much as assessment. Educational assessment can be defined as the process of documenting learning. Education and assessment is like identical twins. Robin (2010) further convinces that education and assessment as the same entity (p.17). While the importance of educational assessment is undeniable, it has been defined in different perspectives. The Quality Assurance Agency for Higher Education (2011:3) defines assessment as 'any processes that appraise an individual's knowledge, understanding, abilities or skills'. Marzano, (2000:86) defines assessment as 'vehicles for gathering information about students' achievement or behavior'. Assessment can also be defined as 'an ongoing process aimed at understanding and improving student learning' (Angelo, 1995:7). The first two definitions clearly reflect assessment of learning (AoL), which is a certification of what and how much students have acquired over the course of learning. On the other hand, the third definition views assessment from the perspective of assessment *for* learning (AfL) where the central purpose of assessment is to stimulate greater students' engagement in their own learning. Stiggins (2002) makes a distinction between

these two assessment perspectives of learning assessment and remarks that both are essential and play important roles in quality assessment.

Related work

There is plethora of assessment's purposes highlighted by many researchers in education. The purposes of educational assessment are well document ranging from endorsing student achievement to accountability. The ideal purposes of assessment has been debated vigorously among educational researches due to the increased demand for accountability. Although assessment had been widely practiced for centuries for the purpose of selecting students for the next level of education, people are discussing the purposes of assessment. (Delandshere, 2001; Gipps, 1999).

Despite the many perspectives on the need for educational assessment, Brookhart (2003), Butterfield, Williams & Marr (1999) and Delandshere& Jones (1999) agree that there are often only two main purposes of educational assessment. Other authors (Nagy (2000), Rea-Dickens (2001), and Fenwick and Parsons (2000) identify the purposes of educational assessment ranging from three to as many as nine purposes. Harlen (2007) concludes that the diversity of viewpoints on the purposes of assessment revealed that there is no "hard and fast dividing line" (p.121) between assessment purposes whilst suggests a continuum of purposes. Robin (2010), concurs that "while thinking of assessment purposes as continuum suggests a linear progression that does not reflect the dynamics of classroom practice" (p. 18).

One of the purposes of assessment is providing a valid evidence of accountability for educational stakeholders based the results of (standardized) tests. Horn (2002) agrees that the mentioned purpose of assessment has greatly influenced the evolutions of education in many countries. He further argues that this purpose does not serve regular, timely or detailed feedback to the students. Instead, it only functions as a vehicle to "rank and sort" (Horn, p.219) students or schools in education system. Therefore, this purpose of assessment is the least supportive of individual learning (Robin, 2010). In relation to the arguments, Harlen (2007) explains that assessment of learning is usually conducted as a one-time assessment, such as standardized test; it functions as a summary of achievement across a period of time up to the reporting date.

PRIMARY ESL TEACHERS' MONITORING AND SCAFFOLDING PRACTICES OF AfL

The results that follow are based on the research question as follows:

What is the relative frequency of AfL practices among primary English language teachers in terms of their

    a.   monitoring practices, and

    b.   scaffolding practices.

Following the first research question, that is, to find out the frequency of monitoring students to follow progress and scaffolding practices as an AFL practice, the overall responses to the twenty-eight items are summarized in Table 4.2 below. The table gives an overall perceived practices based on all 28 items. As mentioned in Chapter 3, the 5 categories of frequency were collapsed into three which are: 'Never' and 'Seldom' became 'Sometimes', 'Occasionally' remained the same, and 'Often' and 'Very Often' became 'Always'. The overall results of all the twenty eight items are given below in Table 4.2. The results are arranged according to the highest percentage of Always to the lowest. The percentages based on frequency of always range from 95.9% the highest to 33.3%, the lowest. Of the 28 items in the TAFL survey, the highest percentage of Always was item 20 (*I ask questions in a way my students understand*), while the lowest percentage of Always was item 5 (*I ask my students to indicate what went well and what went badly concerning their assessments*). With the exception of item 5 (*I ask my students to indicate what went well and what went badly concerning their assessments*), all the other 27 items had percentages of Always exceeding 60%, which indicated that in most of the practices, the frequency of perceived used of Afl practices was encouraging.

WHAT ARE PRIMARY ESL TEACHERS' PERCEIVED MONITORING PRACTICES OF AfL?

In order to find out the English teachers' practices in AFL involving monitoring of student learning, the descriptive statistics of the sixteen items in the perceived monitoring practices from the survey is given in the following table (Table 1.0). Similar to earlier reporting, the frequency of used/practices is reported based on three categories, namely sometimes, occasional and always. The items are ranked according to the highest to the lowest percentages based on the Always category.

Table 1.0 Descriptive statistics for primary school ESL teachers' Perceived Monitoring Practices of AfL.

Num	Items	Sometimes	Occassionally	Always
12	After an assessment, I inform my students on how to improve their weak points.	1 0.8%	5 4.2%	114 95%
11	I discuss with my students the progress they have made in learning English.	1 0.8%	6 5%	113 94.2%
10	I discuss language learning task with my students to help them understand the content better.	1 0.8%	10 8.3%	109 90.8%
9	I give my students guidance and assistance in their language learning.	2 1.7%	13 10.8%	105 87.5%
14	I consider ways on how to improve on the weak points together with my students during remedial.	1 0.8%	14 11.7%	105 87.5%
2	While working on their language learning task, I ask my students how they think they are doing.	4 3.3%	12 10%	104 86.7%
13	I discuss with my students how to utilize their strengths to improve on their assignments.	2 1.7%	19 15.8%	99 82.5%
16	I consider ways on how to achieve the expected learning outcomes with my remedial students.	5 3.6%	22 18.3%	93 77.5%
8	I encourage my students to improve on their language learning processes.	2 1.7%	26 21.7%	92 76.7%
15	I inform my students their strong and / or weak points concerning language learning using the offline PBS checklist provided.	6 5.0%	24 20%	90 75%
7	I inform my students on their weak points concerning language learning.	3 2.5%	33 27.5%	84 70%
1	I encourage my students to reflect upon how they can improve their language learning.	7 5.8%	30 25%	83 69.1%
3	I involve my students in thinking how they want to learn English Language at school.	9 7.5%	28 23.3%	83 69.2%
4	I give my students the opportunity to decide on their language learning	10 8.3%	35 29.2%	75 62.5%

objectives.

6	I inform my students their strong points concerning language learning.	13 10.8%	32 26.7%	75 62.5%
5	I ask my students to indicate what went well and what went badly concerning their assessments.	31 25.9%	49 40.8%	40 33.3%

Most of the items on monitoring students' progress as an AFL practice had percentages of more than 70% except for items 3 (*I involve my students in thinking how they want to learn English Language at school*) , item 1 (*I encourage my students to reflect upon how they can improve their language learning*), item 4 (*I give my students the opportunity to decide on their language learning objectives*), item 6 (*I inform my students their strong points concerning language learning*) and item 5 (*I ask my students to indicate what went well and what went badly concerning their assessments*). The lowest percentage of Always was item 5 with a percentage of 33.3%, which means that about two thirds of the English teachers did not Always ask students to indicate what went well and what went badly concerning their assessment. In other words, most English teachers were not encouraging their students to reflect on their performances in the assessment.

4.5 WHAT ARE ESL PRIMARY TEACHERS' PERCEIVED SCAFFOLDING PRACTICES OF AfL?

Similar to earlier reporting, the descriptive statistics of the responses on perceived scaffolding practices based on twelve items are reported into three categories. Table 4.4 provides the results of the percentages of the scaffolding practices ranked according to the highest percentage of Always to the lowest.

As can be seen in the table below, the top three scaffolding practices had percentages of more than 90%. These are items 20 (*I ask questions in a way my students understand*), followed by items 21 (*By asking questions during class, I help my students gain understanding of the content taught*) and item 18 (*I provide my students with guidance to help them gain understanding of the content taught*). It is encouraging to see that almost all, which is about 96% of the English teachers, ask questions to their students as a scaffolding strategy (item 20), and 93% of them ask questions during class in order to provide guidance (item 21). This shows that the questioning technique is frequently used by the English teachers as a means to provide guides and necessary scaffolding in the English lessons. Similarly, about 93% of the English teachers always provided guidance to help their students to understand the content taught (item 18).

Of the twelve items on scaffolding practices, the three least used scaffolding practices are item 26 (*I know when my students achieve their learning outcomes*), followed by item 23 (*I give my students equal opportunities to ask questions*) and item 27 (*I am aware of students who need more guidance than others*), where the percentages of Always were less than 80%. The least practiced scaffolding is item 26 where only 66.6% of the English teachers perceived that they always had awareness of when their students achieve their learning outcomes. In other words, one third of the English teachers were only sometimes or occasionally aware of their students' attainment of their learning outcomes.

Table 2.0 Descriptive statistics for primary school ESL teachers' perceived scaffolding practices of AfL.

Num.	Items	Sometimes	Occasionally	Always
20	I ask questions in a way my students understand.	0	5 4.2%	115 95.9%
21	By asking questions during class, I help my students gain understanding of the content taught.	5 4.1%	3 2.5%	112 93.3%
18	I provide my students with guidance to help them gain understanding of the content taught.	0	9 7.5%	111 92.5%

17	I adjust my language teaching whenever I notice that my students do not understand a topic.	0	13 10.8%	107 89.2%
22	I allow my students to ask each other questions using English during class.	0	13 10.8%	107 89.1%
28	I encourage students to contribute in my language class	1 0.8%	14 11.7%	105 87.5%
24	My students know what the evaluation criteria for their work are.	0	18 15%	102 85%
25	I ensure that my students know what they can learn from their assignments.	5 4.2%	14 11.7%	101 84.2%
19	During my class, students are given the opportunity to show what they have learned.	2 1.60%	19 15.8%	98 81.6%
27	I am aware of students who need more guidance than others.	4 3.30%	21 17.5%	95 79.2%
23	I give my students equal opportunities to ask questions.	6 5%	25 21%	88 74%
26	I know when my students achieve their learning outcomes.	10 8.3%	30 25%	80 66.6%

IS THERE A RELATIONSHIP BETWEEN TEACHERS' PERCEIVED MONITORING PRACTICES AND THEIR PERCEIVED SCAFFOLDING PRACTICES?

In order to find out if there was a significant difference between the means of the two AfL practices, the means of the two practices were generated, followed by the independent sample t-test. The results of the means of the two AfL practices are summarized below. The mean of English teachers' monitoring practices was 3.99 while the mean of scaffolding was 4.18. This means that English teachers perceived that they practiced scaffolding more than monitoring. In other words, English teachers tend to do monitoring less than scaffolding in their English lessons.

Means of Monitoring and Scaffolding Practices

	Mean	Std. Deviation	N
Monitoring	3.9984	.46612	120
Scaffolding	4.1857	.43300	118

In order to see whether the difference is significant, an independent t-test was conducted. The result of the t-test shows that there is a significant difference between the two AfL practices (p≤0.05).

Correlatios

		Monitoring	Scaffolding
Monitoring	Pearson Correlation	1	.457[**]
	Sig. (2-tailed)		.000
	N	120	118
Scaffolding	Pearson Correlation	.457[**]	1
	Sig. (2-tailed)	.000	
	N	118	118

**. Correlation is significant at the 0.01 level (2-tailed).

The results show that there is a significant difference between English teachers' perceived scaffolding practices and monitoring practices (r=0.45, p=0.01). This means that teachers tend to practice scaffolding significantly more than monitoring in their English Language lessons.

Relationship Between Constructs	Pearson's r	P-value	Strength of Association	
Teacher's Perceived Monitoring Practices AFL And Teacher's Perceived Scaffolding Practices Of AFL	.45	.01	Moderate	

CONCLUSION AND DISCUSSION

In summary, overall, the findings indicate a positive overview of English teachers' practices as more than 70% of teachers perceived that they Always used the different strategies in AfL in all except for only six out of the 28 items in the survey. However, it is a concern to find that some items had really low frequency of use, namely involving monitoring practices. The chapter also presented the AfL practices of monitoring and scaffolding separately. It was found that English teachers significantly used more of the scaffolding practices as compared to monitoring. And lastly, no difference was found in the practices with respect to gender.

The descriptive statistics of perceived scaffolding practiced shows that a majority of the teachers always practice scaffolding in implementing AfL in teaching English Language in the classroom. This is confirmed by most items, showing above 70 percent of always. The highest item is item number 20 which the teachers always ask questions in a way their students understand the lesson (95.9% always do that in the classroom).

The result shows that teachers in Malaysia scaffold their students adequately to meet the requirements in AfL. Teachers questioned their students regularly to scaffold them as they believe that questioning is an integral part of learning. They acknowledge the importance of questioning as an efficient learning and instruction strategy. Classroom questioning helps students gain a better appreciation of what they are learning as well as how they are learning in the classroom (Sadareh, 2014). This result also reflected Levin and Long (1981)'s research where they discovered that teachers usually ask students between 300 to 400 questions a day. Sadareh (2014) also discovers that English teachers in Malaysia spend more than half of the classroom time on questioning. Yet, students rarely ask questions (Graeser& Person, 1994). Sadareh (2014) again says that teachers are not aware of this inconsistency where teachers only ask questions but do not provide chances for students to ask questions.

Barlow et al. (n.d.) reported that educators were appreciative of the impact of AfL, finding it capable of changing instructional practices in positive ways. They found AfL effective in transforming the teaching and learning culture from one that was teacher-centered to that of a continuous student-teacher dialogue that drove instruction and planning. AfL also stimulated instructional behaviors that were more responsive to students' learning needs, and empowered them through ownership of learning. Similarly, Chan and Sidhu (2013) showed that both students and educators believed in the potential of formative assessment and feedback to transform the didactic learning in Malaysian universities. Students were in favor of formative assessment which they felt could lead to 'transformative learning due to the frequent and ongoing constructive feedback they obtained from their educators' (Chan and Sidhu, 2013:6). Besides that, Ahmad et al. (2014) have also recently conducted a research on lecturers' competencies in AfL. Using the same framework, the study showed that respondents still do not have adequate understanding and exposure to AfL. It is also very likely that teachers and lecturers do not share a common understanding of the meaning and requirements of AfL (Dorn, 2010; Dunn and Mulvenon, 2009). Hence, they could have drawn the meaning of the indicators based on whatever they know about assessment, rather than on deep-seated knowledge of it. The empirical support for these findings is documented in Black and Wiliam's (1998) review on teachers' use of AfL, in which the authors concluded that across educational levels and students' age groups, AfL had the biggest substantial impact on learning compared to other educational interventions with effect sizes ranging between ES.40 and ES = .70.

Furthermore, the limited literature in this area informs us that they are poorly prepared to practice AfL adequately (Dorn, 2010; Freeman and Lewis, 1998; Kibreab, 2011;Lewin, 2004; Mukki, 2012; PalombaandBanta, 1999; Sahari, 1999; Song and Koh, 2010; Townsend, 2007). According to Dorn (2010:328), 'although formative assessment is appealing in theory, its practice as well as its definition is inconsistent'. Mukki (2012) found that university lecturers' difficulty in practicing AfL was reliably associated with insufficient training and exposure. So, the headmaster has to be alerted

with these matters and provide sufficient spaces for training and exposure until teachers can practice AFL well. It is said that teachers are not well equipped with adequate training in measurement and assessment especially for AfL. In relation to this situation, many problems in classroom assessment have emerged. In 1992, Stiggins conducted a qualitative research with a group of teachers teaching math, science, speaking and writing in second, fifth, eighth and eleventh grades. Seventy eight percent of the teachers were reported to use performance assessment in schools. However one third of them did not do the necessary reporting such as defining levels of performance or planning score procedures nor did they inform students of performance evaluation criteria. About 50% of the teachers did not record their scoring during assessment. These practices were not in line with performance assessment methods. In addition, Vanleirsburg and Johns (1991) concluded that approximately 40% from 130 preservice teachers and 119 in-service teachers did not know and were not informed that standardized tests and teacher-made tests should differ in terms of administration. Even, Hall and Kleine (1992) have also conducted a study on nonstandard teaching practice. From the study, fifty-five percent of the teachers reported engaging in inappropriate practices when administering nonstandard tests. The practices include teaching test items, increasing time limits, giving hints and changing students' answers.

However, today's things are really different from the period of the studies by Vanleirsburg and Johns (1991), Stiggins (1992) and Hall and Kleine (1992). Their studies were conducted almost three decades ago, when technology was still not accepted as the main tool of activities in education. The current study reflects the modern phenomenon of students' learning and assessment combined with teachers' knowledge and competencies in their working as teachers and assessors.

This study also shows that that there is a significant difference between perceived practices of monitoring and perceived scaffolding practices. English teachers are found to practice significantly more scaffolding than monitoring in their English lessons. This can be due to teachers' lack of competency or skills in monitoring of students learning and progress. Similarly, perhaps the teachers are not well aware of the importance of monitoring practices in order to enhance learning. In a normal English classroom in the Malaysian schools, teachers normally have to deal with a class of 40 students. Perhaps, another reason for the significant difference is due to the class size. Perhaps teachers do not find it easy to conduct discussions and attend to individuals to inform them of their progress and weakness, as these are among the expected activities in monitoring practices. Additionally, each English lesson for primary education in Malaysia only runs for 30 minutes, which may further impede or discourage teachers to adopt this practice.

References List

Admiraal, W., Hoeksma, M., Van De Kamp, M.-T., & van Duin, G. (2011). Assessment of Teacher Competence Using Video Portfolios: Reliability, Construct Validity, and Consequential Validity. *Teaching and Teacher Education*.

Bell, B., & Cowie, B. (2001). The characteristic of performance assessment in science education . *Science Education 85 (5)* , 536-553.

Black, P., & William, D. (2006a). Assessment for learning. In J. Gardner, *Assessment and Learning* (pp. 9-25). Thousand Oaks, CA: Sage Publication.

Bloom, B. S., Hastings, J. T., & Madaus, G. F. (1971). *Handbook on Formative and Summative Evaluation of Student Learning.* New York: McGrawhill .

Brookhart, S. M. (1993). Teacher's grading practices meanings and values. *Journal of Educational Measurement 32*, 123-142.

Brookhart, S. M. (2003). Developing measurement theory for classroom assement purposes and uses. *Educational Measurement Issues and Practices 22, 4*, 5-12.

(2004). Beyond Tests: Alternatives in Assessment. In H. D. Brown, *Language Assessment: Principles amd Classroom Practices* (pp. 251-280). New York: Pearson Education.

Butterfield, S., Williams, A., & Marr, A. (1999). Talking about assessment mentor students Dialogues about Pupil Assessment in Initial Teacher Training. *Assessment in education principles policy and practice 62*, 225-239.

Caa, M., & Claxton, G. (2002). Tracking the development of learning dispositions. . *Assessment in Education: Principles, Policy and Practice*, 9-37.

Camillli, G. (2006). *Test fairness.* Westport: Education and Prager Publisher.

Cowie, B., & Bell, B. (1999). A model of formative assessment in Science education . *Assessment in Education: Principles and Practices 6 (1)*, 101-116.

Dann, R. (2002). *Promoting assessment as learning: Improving the learning process.* London: RoutledgeFalmer.

Delandshere, G., & Jones, J. H. (1999). Elementary teacher's beliefs about assessment in mathematics: A case of assessment paralysis. *Journal of Curriulum and Supervision*, 216-240.

Earl, L. M. (2003). *Assessment as Learning: Using classroom assessment to maximize student learning.* Thousands Oaks, CA: Corwin Press.

Fenwick, T., & Parsons, J. (2000). *The art of evaluation: A handbook for educators and trainers.* Toronto: Thompson Educational Press.

Gardner, J. (2006). *Assessment for learning: A compelling conceptualization/ In J. Gardner (Ed).* Thousand Oaks, CA: Sage Publications.

Gipps, C. (1994). *Beyond testing: Toward a theory of educational assessment.* London: The Falmer Press.

Guskey, T. R. (2005). *Formative assessment and Benjamin S. Bloom: Theory, research, and implications.* Montreal, Canada: American educational Research Association.

Harlen, W. (2003). *Assessment of learning.* London, England: Sage publications Ltd.

Hodgkinson, C. (1991). *Education leadership: The moral art .* New York: State University of New York Press.

Horn, R., & A. (2002). *Understanding education reform: A reference handbook.* Santa Barbara, CA: ABC-CLIO, inc.

Kline, R. B. (2013). Assessing Statistical Aspects of Test Fairness with Structural Equation Modelling. *Educational Research and Evaluation*, 204-222.

L, A., & P, P. D. (2000). Assessment of-or-in the zone of proximal development. *Learning and Instruction 10*, 137-152.

Messick, S. (1989). Meaning and values in the validation: The science and ethic of assessment . *Education Research 18 (2)* , 5-11.

Patrisius, I. D. (2006). Cutural Bias in Language Testing. *82 TEFLIN Journal Volume 17.*

Pryor, J., & Crossotouard, B. (2008). A sociocultural theorosation of formative assessment . *Oxford review of education, 34 (1)*, 1-20

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Educational and rearing space vs. selected risky behaviours of Polish adolescents

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Abstract

Today's youth from Poland, received a chance to be more open to the modern world, after the political changes in 1989. Great opportunities showed up, to take advantage of modern inventions and achievements of dynamically developing technology. In the current times, full of changes the youth began to increasingly resort to various psychoactive substances, greatly expanding the area of risky behavior. These behaviors often leads to death. Freedom in the field of civil rights meant that some young people feel unpunished. Therefore, the wave of violence and aggression increased, and new groups of a destructive character came up. Great Wave of risky behavior also came out of cyberspace. Modern web technology caused that part of the youth is fused with the virtual world so they lost the feeling of living in the real world and the real meaning of life. Risky behaviors have become a serious problem of Polish youth in the education and raising up process.
The article presents research results concerning risky behaviours revealed by adolescent youth. Early diagnosis of risky behavior is essential to prevent o reduce their negative consequences in adulthood The conclusions of this research can be used to design programmes and preventive measuresin this area.

Keywords: education, risky behavior, youth, cyberspace, virtual world.
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Introduction

As a result of the development of civilisation, contemporarily, a young man functions in various spaces. One such important space is the educational and didactic environment, i.e. the multi-dimensional life space of young people. This space consists of the natural, social and cultural environment which, to a large extent, determines their conduct. In the course of education and rearing, a young man acquires knowledge and skills, develops personality and attitudes, gains capabilities for self-control of behaviours, and shapes own system of values which results in his/her development.
However, due to the living conditions in the contemporary world, the above-mentioned life spaces are not always able to meet the challenges related with the preparation of a young man for permanent changes, and the necessity to adjust to the new conditions of functioning in a constantly changing reality. The promoted medial image of man as a strong individual with high ambitions, success-oriented and ready to devote nearly everything to achieve it, does not facilitate this. It frequently becomes a model to follow for contemporary adolescents. The

continuity of self-creation and paying attention to not only what I am, but also how am I perceived by others, belongs currently to the canons of constructing self image. A part of adolescents successfully cope in these conditioning although, unfortunately, many of them become lost in the surrounding world. Young people, often lost in the culture of pleasure, show various risky behaviours, among which aggression and violence, brutal and vulgar manners, occupy a significant position. .

Therefore, the question becomes important concerning the size of this phenomenon, because an early detection of risky behaviours is crucial in counteracting the prevalence of such disorders, and the limitation of their negative consequences in adulthood.

Dimensions of life space of contemporary adolescents

Space, apart from time, is the most universal dimension of human life. One cannot live outside space, and it impossible to separate human life and social behaviours from space. Space belongs to epistemic categories which occur in various sciences, which means a wide scope of meanings of this concept and it cannot be explicitly defined as a whole, encompassing with its scope everything and everybody.

In common understanding, space is approached as a physical category, which means a multi-dimensional area, simultaneously homogenous, infinite and unlimited, where all physical phenomena take place. This is also a place occupied by a given material object, as well as a basic, apart from time, form of existence of matter (Encyklopedia popularna 2015:636).

In humanistic and social sciences, space is created, on the one hand, by relations and interactions occurring in society, and on the other hand, as an area where the process of shaping this society takes place. Therefore, the adjective 'social' is often added to express space in the above-mentioned meaning(Wendt 2015:55).

Social space denotes a collection of interpersonal relationships or a system of mutually conditioned relations occurring between individual members of a group (Sztompka 2016). Social space understood in such a way is characteristic of sociology, where the connections between spatial structure and social relations generated by society play an important role.

B. Jałowiecki, while emphasizing the features of space, presents it as a 'piece of work', thoroughly human, produced by humans in the way conditioned by the natural, social and cultural factors (Jałowiecki 1988:6)]. Thus, he perceives space as a category created by man as a social creature, which is shaped by the natural, social and cultural factors. Therefore, it may be presumed that space is different for different people who produce and modify it. Thus, the space exists and due to man becomes of value. Man can modify and shape space in a way to identify with it, enrich this space by values, rules, and consequently, give it a more personal character. For such an understanding of social space, metaphors are used such as 'inter-human space', 'inter-humans dialogue space', or 'space of associating with others' (Tischner 2006:147,237).

In psychological sciences, space is considered from its aspect of human life space. The life space of an individual is what surrounds this individual. Thus, this is an area in which take place all behaviours, reactions and interactions of this individual. At the same time, it consists of internalized and adopted elements which exert their effect on the shaping of human perception of the self and the environment, thus creating the world-view of an individual by which he/she is guided. Therefore, human space is connected with the development of an individual, understood as the relations of an organism with the surrounding environment (Brzezińska 2007). Thus, it may be stated that the shape of human identity depends, to a great extent, on the space in which man functions.

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In turn, from the pedagogical perspective, life space is perceived as a specific psycho-physical area, consisting of individuals and their surroundings. Such a way of handling space covers personal and social aspects, while the analysis and management of the life space facilitates the understanding of the rearing environment in which a child lives and grows (Izdebska 2009; Marynowicz-Hetka 2006). In this sense, space is associated with an openness, with the material of which the upbringing environment is created, characterized by interpenetration of the effects on the part of an individual and the environment, as well as value and idea.

Summing-up previous considerations, it should be stated that in constantly changing reality the life space of a child is conditioned by transformations, not only on the local scale, but also on a global scale, resulting in the penetration of foreign cultural patters. The above-presented interpretations of space show this space as a diverse concept, which is difficult to unequivocally define. However, all these interpretations mention the presence of man as a creator or co-creator of this space. The key criterion for distinguishing space is the factor identifying a subject with a specified social structure. Therefore, one can speak about family, educational, upbringing, local, national space, etc.

Educational and upbringing space

The sense of keeping pace with changes, willingness to participate in these changes, as well as an inner need to create them, require transformations in all spaces of human functioning. These changes, to a large extent, affect education, including the education space. In the area of pedagogical reflection, educational space is perceived as the sphere of human activity in which the process takes place. Thus, this is the area 'within which through interactions an individual acquires permanent elements of knowledge, ways of thinking, shapes own attitudes and views' (Juszczyk 2004:16). This is a multi-dimensional space in which the educational process is performed which covers education and upbringing (Nalaskowski 2002).

An inseparable part of this space is social interaction from the educational and upbringing aspect. Therefore, educational space is sometimes defined as a 'uniform construction for ordering social life, social activity based on the subjective-objective perception of social reality, at the foundation of which is the system of education and educational activity, the main goal of which is the shaping of personality'(Surina 2010:14). This space, by creating a coherent whole, is based on the system of social relations, but also covers all the available material and nonmaterial resources. It should be emphasized that the creator of educational space is primarily the teacher-educator who, by own intellectual and practical activity, creates the educational and upbringing space for the student. In turn, the cognitive activity of a student and developmental changes he/she experiences are, to a large extent, determined by the surrounding creating the structure of the space within which it enters into direct or indirect relations.

It is also important to perceive the interaction among all possible configurations of the elements of the environment and personal traits of an individual, which orientate the attitude of this individual towards the environment. The environment does not only constitute a didactic background for the teacher, but primarily serves students, provoking them cognitively and inspiring research activity, consequently stimulating their development. In this way, a space is created for the student's autonomy in the cognition and understanding of the world, and simultaneously, processes are stimulated related with the conscious building of their own identity.

Considering the fact that a contemporary man should be able to guide himself, be internally free, morally and ethically developed, intelligent, possess a strong will and

developed intuition, teacher-educators face an extremely difficult task in the area of the rearing of students. Therefore, the main direction of rearing as a social and cultural process should be the creation of a man who is capable of undertaking a responsible task.

In the construction of coherent educational space, an important role is ascribed to the relations which occur between a child, family, school, and the local environment. The essence of the organizational structure of the rearing environment is the interconnection of its components. These are connections which consist in the 'interaction of various elements of the environment from the aspect of educational goals, upbringing and care' (Winiarski 2004:145). They are manifested by interactions between individuals, social groups, institutions and environmental educational care facilities. Among the most important preconditions of rearing activity is integration within the scope of functioning of individual elements of the environment closest to the child.

Student-teacher relations play an important role in the shaping of a proper educational space. To a large degree, they condition the student's sense of safety in the classroom or at school. In the case when the student in contact with the teacher does not receive the signals of acceptance or liking, he/she frequently loses the sense of safety. Such a situation may become the cause of an intensified resistance against the teacher and the school which, in turn, triggers many compensatory mechanisms[Surina 2010). In addition, inappropriate teacher-student relations may become the cause of undesirable and risky behaviours manifested by students.

Risky behaviours are any which are inconsistent with the socially accepted standards, inducing social reprimand, which bring about a high risk of negative consequences, both for physical and mental health, as well as the social surrounding (Szymańska 2002). Such behaviours often serve the satisfaction of the need for, e.g. love, acceptance, etc.

Into the wide spectrum of risky behaviours should be classified: playing truant, escapes from home, rejection of authorities, lack of respect for the valid rules and norms, aggressive and criminal behaviours, tobacco smoking, alcohol consumption, use of narcotics and various substances (including medicines) for narcotic purposes, dangerous diets, early sexual activity, undertaking suicidal attempts, extreme behaviours (running in front of a moving train, care, lying on the road, etc.), addiction to computer games, addiction to the Internet, unceasing conversations online using chat or other communicators, and cyber violence[Gaś 2011; Jędrzejko et.al.2013).

A special duty to react to the alarming signals of students' behaviours rests on the school and teachers working in this school. Considering its common character and function, school is the area where, at various degrees and in various forms, nearly all the problems niggling children and adolescents are revealed. Therefore, the school is faced by new challenges aimed at an early recognition of negative behaviours in students and undertaking relevant prophylactic and educational actions.

Risky behaviours among adolescents – study report

While analyzing the alarming situation of Polish adolescents which is shaped by many unfavourable factors present in the educational and rearing space, as well as in the individual alone, it should be considered necessary to conduct diagnostic studies concerning the undertaking of various risky behaviours by young people.

According to the results of all-Polish studies to-date, alcohol consumption by adolescents has become almost a statistical standard (48.6% of the 15 – 16-year-olds declared alcohol consumption, while 83.3% consumed alcohol at least once in their life). Tobacco smoking is a less common behaviour; 56.2% of adolescents attending junior high schools had smoked at least once in their life. The use of illegal substances has become an increasingly

more evident problem; 19.2% of adolescents attending junior high schools declared occasional use of illegal substances, i.e. within the last 12 months. Considering the prevalence of using sedatives and sleep-inducing drugs over the counter, Polish adolescents occupy the first position in Europe. Such experiences were mentioned by 17.0% of 15 - 16-year-olds. Approximately 2% of adolescents may be threatened by the gambling problem (Sierosławski 2015). All these alarming phenomena are dynamic; hence, it is necessary to undertake prophylactic actions in this respect, and consequently, conduct diagnostic studies within this scope of problems.

In the context of the above-presented considerations an attempt was undertaken to determine the size and manifestations of risky behaviours among adolescents attending junior high schools in the Rzeszów Region. This will allow the counteracting of undesirable and socially unaccepted behaviours.

The study involved the collection of empirical material and was of a pilot character, conducted in 3 large cities in the Rzeszów Region: 3 medium-size towns, 3 small towns, and 3 rural environments, by the method of targeted and random multi-stage sampling. The sample was selected using the following requirements: all the respondents attended junior high school; into the study were randomly classified one first, second and third-grade class from each school in each location; therefore, performing a stratified sampling.

Considering research activities of a diagnostic character, a diagnostic survey was adopted as the primary method for the collection of material. In order to recognize the discussed phenomenon, a questionnaire for the student designed by the author was used as the main instrument, which contained questions based on such techniques for investigating risky behaviours as: the international ESPAD (Hibell et.al. 2009) questionnaire, and the questionnaire for students by K. Ostaszewski (2011).

The study covered 283 adolescents attending grades 1-3, including: 96 adolescents from grade 1, 93 from grade 2, and 94 – attending grade 3. Among the total number of respondents, 52.3% were boys and 47.7% girls. The adolescents participating in the study were aged 13 – 17. It should be emphasized that in one grade class there may be children at various ages, which results from the age at starting education, as well as repetition of the class due to failure at school.

However, differences were observed between individual schools with respect to the manifestations of these behaviours and the frequency of their occurrence. Slight differences were found according to the city/town and gender. Most frequently, risky behaviours were manifested by adolescents attending junior high schools in medium size towns (36.2%), followed by large cities (33.4). The lowest percentage of risky behaviours among the adolescents in the study was observed in schools located in rural agglomerations (18.7%). Results of conducted experiment are given in Table 1.

Table 1: Risky behaviours occurring among examined adolescents.

Model no.	Risky behaviours	Boys N-148		Girls N-135		Total N-283	
		N	%	N	%	N	%
1	aggression	132	89.1	89	65.9	221	78.1
2	alcohol initiation	82	55.4	66	48.9	148	52.3
3	diets	47	31.7	99	73.3	146	51.6
4	nicotine initiation	60	40.5	72	53.3	137	48.4
5	cyber violence	77	52.0	60	44.4	137	48.4
6	truancy	82	55.4	46	34.0	128	45.2
7	doing something for the thrill of excitement	79	53.3	47	34.8	126	44.5
8	theft	43	29.0	33	24.4	76	26.8

9	sexual initiation	29	19.6	39	28.8	68	24
10	designer drugs	38	25.8	14	10.4	52	18.3
11	narcotic initiation	24	16.2	22	16.3	46	16.3
12	racing a car/motocycle	26	10.5	12	8.8	38	13.4
13	tattoos	12	8.1	24	17.8	36	12.7
14	sex for money	11	7.4	24	17.8	35	12.3
15	hazard	27	18.2	5	3.7	32	11.3
16	self-mutilation	13	8.8	9	6.7	22	7.7
17	escapes from home	12	8.1	9	6.7	21	7.4
18	prescription drugs	8	5.4	11	8.1	19	6.7

Source: own studies.

Note: multiple response variable – due to the possibility of selection of several answers the percentages do not add up to 100.

Data presented in Table 1 demonstrate that the most frequent risky behaviours manifested by the examined adolescents were: aggression (78.1%), alcohol initiation (52.3%), use of various types of diet (51.6%), cyber violence (48.4%), nicotine initiation (48.4%), truancy (45.2%), and doing something for a 'thrill' (42.4%), whereas the most rare risky behaviours were: use of medicines which can be bought only on prescription (6.7%), escapes from home (7.4%), and self-mutilation (7.7%). Analysis of the results of the study allows the presumption that gender was the factor differentiating problem behaviours. Among boys who participated in the study: aggression (89.1%), alcohol consumption (55.4%) and truancy (55.4%) occurred most frequently, while the most rare behaviours were: use of drugs on prescription (5.4%), sex for money (7.4%), and escapes from home (8.1%). Among the girls in the study, the most often observed behaviours were: use of various types of diet (73.3%), aggression (65.9%), and cigarette smoking (53.3), whereas the most rare behaviours were: escapes from home (6.7%), self-mutilation (6.7%), and hazards (3.7%).

The greatest problems among the examined adolescents was the phenomenon of aggression (78.1%). This most often concerned peer contacts, but also aggressive behaviours with respect to adults, including teachers. Among aggressive behaviours with respect to teachers, ignoring commands was the most frequent (72.4%), which makes it impossible to conduct a class, and deliberately provoking the teacher's anger (51%). The purpose of such behaviours is the teacher's loss of control over behaviour; sometimes, students succeed and the teachers react accordingly with aggressive behaviours.

Considering the frequency of occurrence of peer violence (calculated based on the students' answers concerning their personal experiences of violence), differences were found according to gender. Various types of acts of violence more often occurred among boys (89.1%) than girls (65.9%). Also, boys were more frequently the perpetrators of violence (34.2%). It is an alarming fact that students (24%) reported that they had experienced several types of aggression simultaneously. This shows that young people often use force to solve their problems. Therefore, it may be presumed that the phenomenon of aggression is the lack of skills of solving conflicts among the respondents, and also the method of the relieving of accumulated emotions.

Apart from aggressive behaviours, an important negative phenomenon observed among the examined junior high school adolescents were behaviours related with alcohol consumption. Analysis of results of the study allows the presumption that alcohol is the most prevalent stimulant in this group. The fact that 52.3% of the total number of examined adolescents attending junior high schools consumed alcohol at least once in their life does not inspire optimism. Considering the variable of gender 55.4% of boys and 48.9% of girls in the study consumed alcohol in their to-date life, and 38.2% of the adolescents examined, including 19.4% of boys and 18.8% of girls, admitted that they regularly consumed alcohol

(Dubis 2014). First contacts with alcohol are considered as normal experiences occurring during the period preceding adulthood. The highest percentage of adolescents experienced alcohol initiation at the age of 13-14, boys earlier than girls. The mean age at alcohol initiation among the examined boys was 11 years, while among girls - 12 years. The above-mentioned facts demonstrate that in recent years the age limit when adolescents use alcohol for the first time in their life has alarmingly decreased. The results of the presented study are consistent with studies conducted in the Warsaw–Mokotów district (Ostaszewski et.al. 2013), and an all-Polish study(CBOS 2013).

The prevalence of the use of various types of diet by adolescents is also alarming. The ideal image of a slim silhouette created by the media affects self-esteem and acceptance of own body image by young people, which may lead to eating disorders. Own study showed that 51.6% of the examined adolescents, at least once in their life, used a diet aimed at the reduction of body weight, while 1.4% suffered from bulimia or anorexia. More than one fourth of junior high school adolescents declared willingness to reduce their body weight, and 40% experienced fear of obesity. In the case of use of various diets, clear differences were observed according to gender – as many as 73.3% of the examined girls used a diet at least once, whereas among boys this percentage was 31.7%. In the context of the discussed results of the study, it is noteworthy that adolescents often have problems with self-assessment of their body weight which would be adequate to reality. These assessments also differed according to gender. Boys had a greater tendency towards underestimation of their body weight, while girls at the same age overestimated it. This may be the cause of psychological problems related with emotions and self-acceptance, or it may lead to problems with correct nutrition, and consequently result in eating problems. An excessive concern about the body, use of diets, dietary supplements and steroids for the correction of own appearance, may evidence problems with perception of own corporeality and disorders in own body image.

The results of the study also indicate the co-occurrence of risky behaviours among adolescents. The combination of alcohol consumption and tobacco smoking was the most frequent (26.3%); however, it was not very different from the combination of the three substances: alcohol-cigarettes-narcotics (designer drugs) (23.4%). Thus, alcohol consumption is associated with the frequency of undertaking other risky behaviours, both by boys and girls.

The co-occurrence of risky behaviours or, simply, their accumulation in the form of a risky behaviours syndrome, is a problem indicated in many studies. Similar results were also obtained in other studies concerning the structure of problem behaviours at the age of adolescence, which confirmed the thesis pertaining to the occurrence of a syndrome of problem behaviours[Jessor 1987; Szymańska 2002; Gaś 2011;Jędrzejko et.al.2013).

Summing-up the discussed problem, it should be stated that adolescents approach the manifested risky behaviours as one of the elements of life style. A strong need for affiliation and acceptance among contemporaries, and willingness to feel adult are the dominant causes of such behaviours.

Conclusion

The presented results of the study and their interpretation are only of a preliminary character, because they are based on a pilot study and the respondents' declarative level. Thus, the study covers the conscious level of the respondent, which is constructed based on social and cultural conditioning, which means that the results may, but do not have to be, consistent with reality. In addition, it concerns a specified group of adolescents who attended junior high school in the Rzeszów Region during a given period and in specified social conditions. Nevertheless, the results allow the presumption that the occurrence of risky

behaviours among adolescents is a characteristic and relatively prevalent phenomenon during the period of adolescence. Many risky behaviours during this period originate from the sole fact of seeking identity by testing the patterns of adult life by the trial and error method, or by temporary rejection of norms and authorities. Junior high school adolescents need a large number of sensations, intensive experiences, as indicated by the theory of need for stimulation, and the manifested risky behaviours reduce anxiety, frustration, and quickly provide strong physical and psychological experiences.

Counteracting this phenomenon requires the creation of good prophylactic programmes which would be consistent with the realities of life, and refer to the actual experiences of the young recipients. This is the precondition which may contribute to the fact that the prophylactic offer will become attractive for adolescents and accepted by them. The proper arrangement of the educational space, concern about its openness to changes taking place in the world, are extremely important, and are a challenge not only for teachers and parents, but also for politicians dealing with education.

References

[1] Brzezińska, A. (2007). Społeczna psychologia rozwoju. Warszawa.

[2] Encyklopedia popularna(2015). PWN, Warszawa.

[3] CBOS, (2014).Młodzież 2013,Warszawa.

[4] Dubis, M. (2014). Zjawisko palenia papierosów i picia alkoholu wśród młodzieży gimnazjalnej, [w:] red. E.Juśko, J. Burgerowa, B.Wolny, Profilaktyka społeczna a wielowymiarowość współczesnej rodziny.Wybrane zagadnienia XXI wieku, Wydawnictwo Progres, Tarnów-Lapczyca

[5] Gaś, Z. B.(2011) Profesjonalna profilaktyka w szkole. Nowe wyzwania, Innovatio Pres, Lublin

[6] Hibell, B. Guttormsson,U. Ahlstrom, S. Balakireva, O. Bjarnason, T. Kokkevi,A. Kraus, L. (2009).The 2007 ESPAD Report, Stockholm.

[7] Izdebska, J. (2009). Przestrzeń dziecka i jej różne oblicza - jako obszar badań pedagogicznych i praktyki wychowawczej, [w:] red. J. Izdebska, J. Szymanowska, Dziecko w zmieniającej sie przestrzeni życia : obrazy dzieciństwa, Trans Humana, Białystok, s.136-151.

[8] Jałowiecki, B. (1988). Społeczne wytwarzanie przestrzeni, Warszawa.

[9] Jessor, R.(1967). Problem-Behavior Theory, Psychosocial Development, and Adolescent Problem Drinking, „British Journal of Addiction" nr 82, s. 331–342.

[10] Jędrzejko, M. i in.(2013).Zachowania ryzykowne i uzależnienia. Zjawisko i uwarunkowania, Oficyna wydawnicza ASPRAJR. Warszawa-Dabrowa Górnicza.

[11] Juszczyk, S. i in.(2004) Dydaktyka informatyki i technologii informacyjnej, Wydawnictwo Adam Marszałek, Toruń.

[12] Marynowicz-Hetka, E. (2006). Pedagogika społeczna, PWN, Warszawa.

[13] Nalaskowski, A. (2002). Przestrzenie i miejsca szkoły, Oficyna Wydawnicza Impuls, Kraków.

[14] Ostaszewski, K. Rustecka-Krawczyk, A. Wójcik, M. (2001). Czynniki chroniące ryzyka związane z zachowaniami problemowymi warszawskich gimnazjalistów: klasy I-III, Warszawa.

[15] Ostaszewski, K. Bobrowski, K. Borucka, A. Okulicz- Kozaryn, K. Pisarska, A. Raduj, J. Biechowska, D. (2013). Monitorowanie zachowań ryzykownych i problemów zdrowia psychicznego młodzieży. Badania mokotowskie2012, Warszawa.

[16] Sierosławski, J.(2015). Europejski program badań ankietowych w szkołach ESPAD, Używanie alkoholu i narkotyków przez młodzież szkolną,

http://www.parpa.pl/images/file/Raport%20ESPAD%202015.pdf, dostęp 27.10.2016, godz.16.20

[17] Surina, I. (2010). Rozważania o przestrzeni edukacyjnej – od teorii do praktyki edukacyjnej, [w:] I. Surina (red.), Przestrzeń edukacyjna wobec wyzwań i oczekiwań społecznych, Oficyna Wydawnicza Impuls, Kraków, s. 11-23.

[18] Sztompka, P. (2016).Kapitał społeczny. Teoria przestrzeni międzyludzkiej. Wydawnictwo ZNAK, Kraków

[19] Szymańska, J.(2002). Programy profilaktyczne. Podstawy profesjonalnej psychoprofilaktyki, *Centrum* Metodyczne Pomocy Psychologiczno-Pedagogicznej, Warszawa.

[20] Tischner, J. (2006). Filozofia dramatu. Znak, Kraków .

[21] Wendt, J. (2007). Wymiar przestrzenny struktur i aktywności społeczeństwa obywatelskiego w Polsce. PAN, Prace Geograficzne nr 208, ss.52-64.

[22] Winiarski, M. (2004). Współpraca rodziców i nauczycieli, jej implikacje edukacyjne i determinanty, [w:] red. S. Kawula, Pedagogika społeczna. Dokonania – aktualność – perspektywy, Adam Marszałek, Toruń ss.142-153.

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Educational and rearing space vs. selected risky behaviours of Polish adolescents

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Abstract

Today's youth from Poland, received a chance to be more open to the modern world, after the political changes in 1989. Great opportunities showed up, to take advantage of modern inventions and achievements of dynamically developing technology. In the current times, full of changes the youth began to increasingly resort to various psychoactive substances, greatly expanding the area of risky behavior. These behaviors often leads to death. Freedom in the field of civil rights meant that some young people feel unpunished. Therefore, the wave of violence and aggression increased, and new groups of a destructive character came up. Great Wave of risky behavior also came out of cyberspace. Modern web technology caused that part of the youth is fused with the virtual world so they lost the feeling of living in the real world and the real meaning of life. Risky behaviors have become a serious problem of Polish youth in the education and raising up process.
The article presents research results concerning risky behaviours revealed by adolescent youth. Early diagnosis of risky behavior is essential to prevent o reduce their negative consequences in adulthood The conclusions of this research can be used to design programmes and preventive measuresin this area.

Keywords: education, risky behavior, youth, cyberspace, virtual world.
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Introduction

As a result of the development of civilisation, contemporarily, a young man functions in various spaces. One such important space is the educational and didactic environment, i.e. the multi-dimensional life space of young people. This space consists of the natural, social and cultural environment which, to a large extent, determines their conduct. In the course of education and rearing, a young man acquires knowledge and skills, develops personality and attitudes, gains capabilities for self-control of behaviours, and shapes own system of values which results in his/her development.

However, due to the living conditions in the contemporary world, the above-mentioned life spaces are not always able to meet the challenges related with the preparation of a young man for permanent changes, and the necessity to adjust to the new conditions of functioning in a constantly changing reality. The promoted medial image of man as a strong individual with high ambitions, success-oriented and ready to devote nearly everything to achieve it, does not facilitate this. It frequently becomes a model to follow for contemporary adolescents. The

continuity of self-creation and paying attention to not only what I am, but also how am I perceived by others, belongs currently to the canons of constructing self image. A part of adolescents successfully cope in these conditioning although, unfortunately, many of them become lost in the surrounding world. Young people, often lost in the culture of pleasure, show various risky behaviours, among which aggression and violence, brutal and vulgar manners, occupy a significant position. .

Therefore, the question becomes important concerning the size of this phenomenon, because an early detection of risky behaviours is crucial in counteracting the prevalence of such disorders, and the limitation of their negative consequences in adulthood.

Dimensions of life space of contemporary adolescents

Space, apart from time, is the most universal dimension of human life. One cannot live outside space, and it impossible to separate human life and social behaviours from space. Space belongs to epistemic categories which occur in various sciences, which means a wide scope of meanings of this concept and it cannot be explicitly defined as a whole, encompassing with its scope everything and everybody.

In common understanding, space is approached as a physical category, which means a multi-dimensional area, simultaneously homogenous, infinite and unlimited, where all physical phenomena take place. This is also a place occupied by a given material object, as well as a basic, apart from time, form of existence of matter (Encyklopedia popularna 2015:636).

In humanistic and social sciences, space is created, on the one hand, by relations and interactions occurring in society, and on the other hand, as an area where the process of shaping this society takes place. Therefore, the adjective 'social' is often added to express space in the above-mentioned meaning(Wendt 2015:55).

Social space denotes a collection of interpersonal relationships or a system of mutually conditioned relations occurring between individual members of a group (Sztompka 2016). Social space understood in such a way is characteristic of sociology, where the connections between spatial structure and social relations generated by society play an important role.

B. Jałowiecki, while emphasizing the features of space, presents it as a 'piece of work', thoroughly human, produced by humans in the way conditioned by the natural, social and cultural factors (Jałowiecki 1988:6)]. Thus, he perceives space as a category created by man as a social creature, which is shaped by the natural, social and cultural factors. Therefore, it may be presumed that space is different for different people who produce and modify it. Thus, the space exists and due to man becomes of value. Man can modify and shape space in a way to identify with it, enrich this space by values, rules, and consequently, give it a more personal character. For such an understanding of social space, metaphors are used such as 'inter-human space', 'inter-humans dialogue space', or 'space of associating with others' (Tischner 2006:147,237).

In psychological sciences, space is considered from its aspect of human life space. The life space of an individual is what surrounds this individual. Thus, this is an area in which take place all behaviours, reactions and interactions of this individual. At the same time, it consists of internalized and adopted elements which exert their effect on the shaping of human perception of the self and the environment, thus creating the world-view of an individual by which he/she is guided. Therefore, human space is connected with the development of an individual, understood as the relations of an organism with the surrounding environment (Brzezińska 2007). Thus, it may be stated that the shape of human identity depends, to a great extent, on the space in which man functions.

In turn, from the pedagogical perspective, life space is perceived as a specific psycho-physical area, consisting of individuals and their surroundings. Such a way of handling space covers personal and social aspects, while the analysis and management of the life space facilitates the understanding of the rearing environment in which a child lives and grows (Izdebska 2009; Marynowicz-Hetka 2006). In this sense, space is associated with an openness, with the material of which the upbringing environment is created, characterized by interpenetration of the effects on the part of an individual and the environment, as well as value and idea.

Summing-up previous considerations, it should be stated that in constantly changing reality the life space of a child is conditioned by transformations, not only on the local scale, but also on a global scale, resulting in the penetration of foreign cultural patters. The above-presented interpretations of space show this space as a diverse concept, which is difficult to unequivocally define. However, all these interpretations mention the presence of man as a creator or co-creator of this space. The key criterion for distinguishing space is the factor identifying a subject with a specified social structure. Therefore, one can speak about family, educational, upbringing, local, national space, etc.

Educational and upbringing space

The sense of keeping pace with changes, willingness to participate in these changes, as well as an inner need to create them, require transformations in all spaces of human functioning. These changes, to a large extent, affect education, including the education space. In the area of pedagogical reflection, educational space is perceived as the sphere of human activity in which the process takes place. Thus, this is the area 'within which through interactions an individual acquires permanent elements of knowledge, ways of thinking, shapes own attitudes and views' (Juszczyk 2004:16). This is a multi-dimensional space in which the educational process is performed which covers education and upbringing (Nalaskowski 2002).

An inseparable part of this space is social interaction from the educational and upbringing aspect. Therefore, educational space is sometimes defined as a 'uniform construction for ordering social life, social activity based on the subjective-objective perception of social reality, at the foundation of which is the system of education and educational activity, the main goal of which is the shaping of personality'(Surina 2010:14). This space, by creating a coherent whole, is based on the system of social relations, but also covers all the available material and nonmaterial resources. It should be emphasized that the creator of educational space is primarily the teacher-educator who, by own intellectual and practical activity, creates the educational and upbringing space for the student. In turn, the cognitive activity of a student and developmental changes he/she experiences are, to a large extent, determined by the surrounding creating the structure of the space within which it enters into direct or indirect relations.

It is also important to perceive the interaction among all possible configurations of the elements of the environment and personal traits of an individual, which orientate the attitude of this individual towards the environment. The environment does not only constitute a didactic background for the teacher, but primarily serves students, provoking them cognitively and inspiring research activity, consequently stimulating their development. In this way, a space is created for the student's autonomy in the cognition and understanding of the world, and simultaneously, processes are stimulated related with the conscious building of their own identity.

Considering the fact that a contemporary man should be able to guide himself, be internally free, morally and ethically developed, intelligent, possess a strong will and

developed intuition, teacher-educators face an extremely difficult task in the area of the rearing of students. Therefore, the main direction of rearing as a social and cultural process should be the creation of a man who is capable of undertaking a responsible task.

In the construction of coherent educational space, an important role is ascribed to the relations which occur between a child, family, school, and the local environment. The essence of the organizational structure of the rearing environment is the interconnection of its components. These are connections which consist in the 'interaction of various elements of the environment from the aspect of educational goals, upbringing and care' (Winiarski 2004:145). They are manifested by interactions between individuals, social groups, institutions and environmental educational care facilities. Among the most important preconditions of rearing activity is integration within the scope of functioning of individual elements of the environment closest to the child.

Student-teacher relations play an important role in the shaping of a proper educational space. To a large degree, they condition the student's sense of safety in the classroom or at school. In the case when the student in contact with the teacher does not receive the signals of acceptance or liking, he/she frequently loses the sense of safety. Such a situation may become the cause of an intensified resistance against the teacher and the school which, in turn, triggers many compensatory mechanisms[Surina 2010). In addition, inappropriate teacher-student relations may become the cause of undesirable and risky behaviours manifested by students.

Risky behaviours are any which are inconsistent with the socially accepted standards, inducing social reprimand, which bring about a high risk of negative consequences, both for physical and mental health, as well as the social surrounding (Szymańska 2002). Such behaviours often serve the satisfaction of the need for, e.g. love, acceptance, etc.

Into the wide spectrum of risky behaviours should be classified: playing truant, escapes from home, rejection of authorities, lack of respect for the valid rules and norms, aggressive and criminal behaviours, tobacco smoking, alcohol consumption, use of narcotics and various substances (including medicines) for narcotic purposes, dangerous diets, early sexual activity, undertaking suicidal attempts, extreme behaviours (running in front of a moving train, care, lying on the road, etc.), addiction to computer games, addiction to the Internet, unceasing conversations online using chat or other communicators, and cyber violence[Gaś 2011; Jędrzejko et.al.2013).

A special duty to react to the alarming signals of students' behaviours rests on the school and teachers working in this school. Considering its common character and function, school is the area where, at various degrees and in various forms, nearly all the problems niggling children and adolescents are revealed. Therefore, the school is faced by new challenges aimed at an early recognition of negative behaviours in students and undertaking relevant prophylactic and educational actions.

Risky behaviours among adolescents – study report

While analyzing the alarming situation of Polish adolescents which is shaped by many unfavourable factors present in the educational and rearing space, as well as in the individual alone, it should be considered necessary to conduct diagnostic studies concerning the undertaking of various risky behaviours by young people.

According to the results of all-Polish studies to-date, alcohol consumption by adolescents has become almost a statistical standard (48.6% of the 15 – 16-year-olds declared alcohol consumption, while 83.3% consumed alcohol at least once in their life). Tobacco smoking is a less common behaviour; 56.2% of adolescents attending junior high schools had smoked at least once in their life. The use of illegal substances has become an increasingly

more evident problem; 19.2% of adolescents attending junior high schools declared occasional use of illegal substances, i.e. within the last 12 months. Considering the prevalence of using sedatives and sleep-inducing drugs over the counter, Polish adolescents occupy the first position in Europe. Such experiences were mentioned by 17.0% of 15 - 16-year-olds. Approximately 2% of adolescents may be threatened by the gambling problem (Sierosławski 2015). All these alarming phenomena are dynamic; hence, it is necessary to undertake prophylactic actions in this respect, and consequently, conduct diagnostic studies within this scope of problems.

In the context of the above-presented considerations an attempt was undertaken to determine the size and manifestations of risky behaviours among adolescents attending junior high schools in the Rzeszów Region. This will allow the counteracting of undesirable and socially unaccepted behaviours.

The study involved the collection of empirical material and was of a pilot character, conducted in 3 large cities in the Rzeszów Region: 3 medium-size towns, 3 small towns, and 3 rural environments, by the method of targeted and random multi-stage sampling. The sample was selected using the following requirements: all the respondents attended junior high school; into the study were randomly classified one first, second and third-grade class from each school in each location; therefore, performing a stratified sampling.

Considering research activities of a diagnostic character, a diagnostic survey was adopted as the primary method for the collection of material. In order to recognize the discussed phenomenon, a questionnaire for the student designed by the author was used as the main instrument, which contained questions based on such techniques for investigating risky behaviours as: the international ESPAD (Hibell et.al. 2009) questionnaire, and the questionnaire for students by K. Ostaszewski (2011).

The study covered 283 adolescents attending grades 1-3, including: 96 adolescents from grade 1, 93 from grade 2, and 94 – attending grade 3. Among the total number of respondents, 52.3% were boys and 47.7% girls. The adolescents participating in the study were aged 13 – 17. It should be emphasized that in one grade class there may be children at various ages, which results from the age at starting education, as well as repetition of the class due to failure at school.

However, differences were observed between individual schools with respect to the manifestations of these behaviours and the frequency of their occurrence. Slight differences were found according to the city/town and gender. Most frequently, risky behaviours were manifested by adolescents attending junior high schools in medium size towns (36.2%), followed by large cities (33.4). The lowest percentage of risky behaviours among the adolescents in the study was observed in schools located in rural agglomerations (18.7%). Results of conducted experiment are given in Table 1.

Table 1: Risky behaviours occurring among examined adolescents.

Model no.	Risky behaviours	Boys N-148		Girls N-135		Total N-283	
		N	%	N	%	N	%
1	aggression	132	89.1	89	65.9	221	78.1
2	alcohol initiation	82	55.4	66	48.9	148	52.3
3	diets	47	31.7	99	73.3	146	51.6
4	nicotine initiation	60	40.5	72	53.3	137	48.4
5	cyber violence	77	52.0	60	44.4	137	48.4
6	truancy	82	55.4	46	34.0	128	45.2
7	doing something for the thrill of excitement	79	53.3	47	34.8	126	44.5
8	theft	43	29.0	33	24.4	76	26.8

9	sexual initiation	29	19.6	39	28.8	68	24
10	designer drugs	38	25.8	14	10.4	52	18.3
11	narcotic initiation	24	16.2	22	16.3	46	16.3
12	racing a car/motocycle	26	10.5	12	8.8	38	13.4
13	tattoos	12	8.1	24	17.8	36	12.7
14	sex for money	11	7.4	24	17.8	35	12.3
15	hazard	27	18.2	5	3.7	32	11.3
16	self-mutilation	13	8.8	9	6.7	22	7.7
17	escapes from home	12	8.1	9	6.7	21	7.4
18	prescription drugs	8	5.4	11	8.1	19	6.7

Source: own studies.

Note: multiple response variable – due to the possibility of selection of several answers the percentages do not add up to 100.

Data presented in Table 1 demonstrate that the most frequent risky behaviours manifested by the examined adolescents were: aggression (78.1%), alcohol initiation (52.3%), use of various types of diet (51.6%), cyber violence (48.4%), nicotine initiation (48.4%), truancy (45.2%), and doing something for a 'thrill' (42.4%), whereas the most rare risky behaviours were: use of medicines which can be bought only on prescription (6.7%), escapes from home (7.4%), and self-mutilation (7.7%). Analysis of the results of the study allows the presumption that gender was the factor differentiating problem behaviours. Among boys who participated in the study: aggression (89.1%), alcohol consumption (55.4%) and truancy (55.4%) occurred most frequently, while the most rare behaviours were: use of drugs on prescription (5.4%), sex for money (7.4%), and escapes from home (8.1%). Among the girls in the study, the most often observed behaviours were: use of various types of diet (73.3%), aggression (65.9%), and cigarette smoking (53.3), whereas the most rare behaviours were: escapes from home (6.7%), self-mutilation (6.7%), and hazards (3.7%).

The greatest problems among the examined adolescents was the phenomenon of aggression (78.1%). This most often concerned peer contacts, but also aggressive behaviours with respect to adults, including teachers. Among aggressive behaviours with respect to teachers, ignoring commands was the most frequent (72.4%), which makes it impossible to conduct a class, and deliberately provoking the teacher's anger (51%). The purpose of such behaviours is the teacher's loss of control over behaviour; sometimes, students succeed and the teachers react accordingly with aggressive behaviours.

Considering the frequency of occurrence of peer violence (calculated based on the students' answers concerning their personal experiences of violence), differences were found according to gender. Various types of acts of violence more often occurred among boys (89.1%) than girls (65.9%). Also, boys were more frequently the perpetrators of violence (34.2%). It is an alarming fact that students (24%) reported that they had experienced several types of aggression simultaneously. This shows that young people often use force to solve their problems. Therefore, it may be presumed that the phenomenon of aggression is the lack of skills of solving conflicts among the respondents, and also the method of the relieving of accumulated emotions.

Apart from aggressive behaviours, an important negative phenomenon observed among the examined junior high school adolescents were behaviours related with alcohol consumption. Analysis of results of the study allows the presumption that alcohol is the most prevalent stimulant in this group. The fact that 52.3% of the total number of examined adolescents attending junior high schools consumed alcohol at least once in their life does not inspire optimism. Considering the variable of gender 55.4% of boys and 48.9% of girls in the study consumed alcohol in their to-date life, and 38.2% of the adolescents examined, including 19.4% of boys and 18.8% of girls, admitted that they regularly consumed alcohol

(Dubis 2014). First contacts with alcohol are considered as normal experiences occurring during the period preceding adulthood. The highest percentage of adolescents experienced alcohol initiation at the age of 13-14, boys earlier than girls. The mean age at alcohol initiation among the examined boys was 11 years, while among girls - 12 years. The above-mentioned facts demonstrate that in recent years the age limit when adolescents use alcohol for the first time in their life has alarmingly decreased. The results of the presented study are consistent with studies conducted in the Warsaw–Mokotów district (Ostaszewski et.al. 2013), and an all-Polish study(CBOS 2013).

The prevalence of the use of various types of diet by adolescents is also alarming. The ideal image of a slim silhouette created by the media affects self-esteem and acceptance of own body image by young people, which may lead to eating disorders. Own study showed that 51.6% of the examined adolescents, at least once in their life, used a diet aimed at the reduction of body weight, while 1.4% suffered from bulimia or anorexia. More than one fourth of junior high school adolescents declared willingness to reduce their body weight, and 40% experienced fear of obesity. In the case of use of various diets, clear differences were observed according to gender – as many as 73.3% of the examined girls used a diet at least once, whereas among boys this percentage was 31.7%. In the context of the discussed results of the study, it is noteworthy that adolescents often have problems with self-assessment of their body weight which would be adequate to reality. These assessments also differed according to gender. Boys had a greater tendency towards underestimation of their body weight, while girls at the same age overestimated it. This may be the cause of psychological problems related with emotions and self-acceptance, or it may lead to problems with correct nutrition, and consequently result in eating problems. An excessive concern about the body, use of diets, dietary supplements and steroids for the correction of own appearance, may evidence problems with perception of own corporeality and disorders in own body image.

The results of the study also indicate the co-occurrence of risky behaviours among adolescents. The combination of alcohol consumption and tobacco smoking was the most frequent (26.3%); however, it was not very different from the combination of the three substances: alcohol-cigarettes-narcotics (designer drugs) (23.4%). Thus, alcohol consumption is associated with the frequency of undertaking other risky behaviours, both by boys and girls.

The co-occurrence of risky behaviours or, simply, their accumulation in the form of a risky behaviours syndrome, is a problem indicated in many studies. Similar results were also obtained in other studies concerning the structure of problem behaviours at the age of adolescence, which confirmed the thesis pertaining to the occurrence of a syndrome of problem behaviours[Jessor 1987; Szymańska 2002; Gaś 2011;Jędrzejko et.al.2013).

Summing-up the discussed problem, it should be stated that adolescents approach the manifested risky behaviours as one of the elements of life style. A strong need for affiliation and acceptance among contemporaries, and willingness to feel adult are the dominant causes of such behaviours.

Conclusion

The presented results of the study and their interpretation are only of a preliminary character, because they are based on a pilot study and the respondents' declarative level. Thus, the study covers the conscious level of the respondent, which is constructed based on social and cultural conditioning, which means that the results may, but do not have to be, consistent with reality. In addition, it concerns a specified group of adolescents who attended junior high school in the Rzeszów Region during a given period and in specified social conditions. Nevertheless, the results allow the presumption that the occurrence of risky

behaviours among adolescents is a characteristic and relatively prevalent phenomenon during the period of adolescence. Many risky behaviours during this period originate from the sole fact of seeking identity by testing the patterns of adult life by the trial and error method, or by temporary rejection of norms and authorities. Junior high school adolescents need a large number of sensations, intensive experiences, as indicated by the theory of need for stimulation, and the manifested risky behaviours reduce anxiety, frustration, and quickly provide strong physical and psychological experiences.

Counteracting this phenomenon requires the creation of good prophylactic programmes which would be consistent with the realities of life, and refer to the actual experiences of the young recipients. This is the precondition which may contribute to the fact that the prophylactic offer will become attractive for adolescents and accepted by them. The proper arrangement of the educational space, concern about its openness to changes taking place in the world, are extremely important, and are a challenge not only for teachers and parents, but also for politicians dealing with education.

References

[1] Brzezińska, A. (2007). Społeczna psychologia rozwoju. Warszawa.

[2] Encyklopedia popularna(2015). PWN, Warszawa.

[3] CBOS, (2014).Młodzież 2013,Warszawa.

[4] Dubis, M. (2014). Zjawisko palenia papierosów i picia alkoholu wśród młodzieży gimnazjalnej, [w:] red. E.Juśko, J. Burgerowa, B.Wolny, Profilaktyka społeczna a wielowymiarowość współczesnej rodziny.Wybrane zagadnienia XXI wieku, Wydawnictwo Progres, Tarnów-Łapczyca

[5] Gaś, Z. B.(2011) Profesjonalna profilaktyka w szkole. Nowe wyzwania, Innovatio Pres, Lublin

[6] Hibell, B. Guttormsson,U. Ahlstrom, S. Balakireva, O. Bjarnason, T. Kokkevi,A. Kraus, L. (2009).The 2007 ESPAD Report, Stockholm.

[7] Izdebska, J. (2009). Przestrzeń dziecka i jej różne oblicza - jako obszar badań pedagogicznych i praktyki wychowawczej, [w:] red. J. Izdebska, J. Szymanowska, Dziecko w zmieniającej sie przestrzeni życia : obrazy dzieciństwa, Trans Humana, Białystok, s.136-151.

[8] Jałowiecki, B. (1988). Społeczne wytwarzanie przestrzeni, Warszawa.

[9] Jessor, R.(1967). Problem-Behavior Theory, Psychosocial Development, and Adolescent Problem Drinking, „British Journal of Addiction" nr 82, s. 331–342.

[10]Jędrzejko, M. i in.(2013).Zachowania ryzykowne i uzależnienia. Zjawisko i uwarunkowania, Oficyna wydawnicza ASPRAJR. Warszawa-Dabrowa Górnicza.

[11]Juszczyk, S. i in.(2004) Dydaktyka informatyki i technologii informacyjnej, Wydawnictwo Adam Marszałek, Toruń.

[12]Marynowicz-Hetka, E. (2006). Pedagogika społeczna, PWN, Warszawa.

[13]Nalaskowski, A. (2002). Przestrzenie i miejsca szkoły, Oficyna Wydawnicza Impuls, Kraków.

[14]Ostaszewski, K. Rustecka-Krawczyk, A. Wójcik, M. (2001). Czynniki chroniące ryzyka związane z zachowaniami problemowymi warszawskich gimnazjalistów: klasy I-III, Warszawa.

[15] Ostaszewski, K. Bobrowski, K. Borucka, A. Okulicz- Kozaryn, K. Pisarska, A. Raduj, J. Biechowska, D. (2013). Monitorowanie zachowań ryzykownych i problemów zdrowia psychicznego młodzieży. Badania mokotowskie2012, Warszawa.

[16]Sierosławski, J.(2015). Europejski program badań ankietowych w szkołach ESPAD, Używanie alkoholu i narkotyków przez młodzież szkolną,

http://www.parpa.pl/images/file/Raport%20ESPAD%202015.pdf, dostęp 27.10.2016, godz.16.20

[17] Surina, I. (2010). Rozważania o przestrzeni edukacyjnej – od teorii do praktyki edukacyjnej, [w:] I. Surina (red.), Przestrzeń edukacyjna wobec wyzwań i oczekiwań społecznych, Oficyna Wydawnicza Impuls, Kraków, s. 11-23.

[18] Sztompka, P. (2016).Kapitał społeczny. Teoria przestrzeni międzyludzkiej. Wydawnictwo ZNAK, Kraków

[19] Szymańska, J.(2002). Programy profilaktyczne. Podstawy profesjonalnej psychoprofilaktyki, *Centrum* Metodyczne Pomocy Psychologiczno-Pedagogicznej, Warszawa.

[20] Tischner, J. (2006). Filozofia dramatu. Znak, Kraków .

[21] Wendt, J. (2007). Wymiar przestrzenny struktur i aktywności społeczeństwa obywatelskiego w Polsce. PAN, Prace Geograficzne nr 208, ss.52-64.

[22] Winiarski, M. (2004). Współpraca rodziców i nauczycieli, jej implikacje edukacyjne i determinanty, [w:] red. S. Kawula, Pedagogika społeczna. Dokonania – aktualność – perspektywy, Adam Marszałek, Toruń ss.142-153.

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Training Concept of Fathers who's Children Participate in Montessori Method Curriculum

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Abstract

The actuality of the problem lies in the fact that in Bulgaria the number of children included in the alternative education programs is increasing. Such kinds of alternatives are Parental Cooperatives, Montessori Method Curriculums, Democratic Education, Waldorf Groups, Kindiroo System, and Home Schooling. At the same time, mainly mothers take comprehensive solutions for the inclusion of children (3 to 7 years) in educational programs. The role of fathers is not well studied. The objective of the study is to create a training pattern for fathers whose children are involved in the Montessori Method Curriculum. Assigned tasks are to be held 4 focus groups (5 participants in each) on this objective, and to create a of group training session for men in the Montessori Method. The basic assumption is that trainings for fathers which focus groups will develop will centered on the style of interaction between father and child and it will depend on the knowledge and skills of fathers to be responsible parents. The methods of research are polls, focus groups, heuristics (synthesis).

Keywords: Montessori Method, focus groups, father's role
Main Conference Topic: Education, Teaching, Learning and E-learning

Introduction

In 1945 Dr. Benjamin Spock published the book "D-r Spock's Baby and Child care", in which he revolutionary discuss changing family roles and importance of fatherhood in life cycle. For the first time in the tradition of guidance for young families, the father's role was discussed as a "partner" for the mother and "sharing play" for the child. Until this historical moment the father's role is more intellectual and mentoring, "head of family" resource.

Montessori Method is considered to be an alternative educational method in Bulgaria par with the Waldorf pedagogy, democratic education, home schooling and other (Дамянова, 2008), (Алианс от НПО, 2008), (Гюрова, 2012). The function of the father in curriculum of the child is not well presented and explored in Bulgaria. In contrast, in Central and Western Europe and in the world practice, Montessori schools and Centers for Early Childhood Development (CECD) are widespread and are considered traditional. In foreign experience opens discussion on individual planning aspects of child development in terms of the Montessori Method by suggesting that it is a delicate process that requires excellent interaction between the head of the group of children and parents of children (Каргапольцева, 1999), (Rathunde, 2003), (Lillard, 2005), (Lillard & Else-Quest, 2006),(Хилтунен at. all, 2014). It means that the expected participation of the mother and father have to be equal and in situation of partnership. But how many Bulgarian fathers are ready to be a partner to the curriculum of the child?

In other point of view, Dr. Benjamin Spock defines family as a cohesive unit of society in which children should learn security conditions for proper development, education and training of adaptability. "Children can be happy with them mother and father, with only one parent, a grandparent or foster parents, or as part of a big family," says Dr. Spock and adds "happy child is a healthy child" (Spock, 1957). This point of view puts the importance of emotional health in leading position - holistic thesis in pediatrics, which for the first time arranges the role of father function for child's wellbeing.

In present days, new research on relationship "father-child" shows that proximity and supporting child behavior of the father are more important than the quantity of time spent together (Arens, 1970), (Стивънс, 2008), , (Harold, 2012). In case of separation, maintaining the relationship between parents and maintain full contact with both parents are crucial conditions for the welfare of the child (Harold, 2012). At the beginning of the XXI century men take more active part in caring for the household and children, although in our society still haunted by the view that raising children is women's work (Стоянова, 2013), (Митрева, 2014). "There are no reason fathers to do worse than the mothers and not equal to their contribution to the security and development of children", said Mr. Svetoslav Stefanov – chairman of Union of fathers in Bulgaria (Стефанов, 2014). For example, inclusion of fathers in Parental Cooperatives for rising children is a new wave in Bulgaria, but very well accessed from the new generations of families.

All in the family benefit when parental responsibility is shared - even the sharing is not exactly in half in different family activities. But the benefits can melt if it is done as a favor to the wife: the implication would be that the child's cares did not father's function, but it just shows exceptional generosity. Ideally, parents should be united by the spirit of equal partnership.

Traditional family roles in contemporary Bulgarian society are those of the mother, father and children (Вълкова & Петров, 2015), (Стоянова, 2013). The extended family includes relatives and friends whose support could be called decisive for the stability of young families (Алексиева & Петров, 2015). Complete function of the father in Bulgarian family is hampered by expectations he primarily be providing livelihood and prestige for children (teenagers) in terms of insufficient understanding by society and, accordingly, little support from institutional resources of society for those men who want to share housework, to be emotional, and to be partners in the games children (Алексиева & Петров, 2015). In Bulgaria the fields of pedagogy and children activity training are strongly feminized.

Study settings

The study, presented in the article, focuses on the understanding of Bulgarian university students in specialty "Social management" aged 20 to 30 years to describe a "the father's role in Montessori Method Curriculum of their children", the obligations and the rights of fatherhood in terms of children' education (in Bulgaria). The main objective of the study is to form a concept of fathers' preparation in field of Montessori Method in parenthood. The vote of one participant appears approximately 5% of the total score of votes.

Regulatory, legal conditions, and the administrative ways to carry out social work and educational training with men, being responsible parents, are available through application of the Law on social assistance, Law on child protection, Law on family benefits for children

and families, as well as the Law on protection domestic violence. The article dealt only traditional sexual relations in families as in Bulgaria legislature still considers that society is not ready for liberation of the legal sense of the traditional family gender roles.

The survey is conducted in a 4 focus groups of 5 participants aged 20 to 30 years. Each focus group previously informed with the scope and regalement, basis of Montessori Method, instructed each other, was accepted group rules, and was distributed sources for pre-acquainted with the purpose of the session.

The cycle of work of the focus group (Bohart & Tallman, 1999) is the following: introduction, warm-tasking, discussing possibilities, decision making, preparing the general presentation. Duration session of focus group of 4 academic hours with 4 breaks of 15 minutes between. The tasks assigned to the participants in the focus group follows.

Task 1: To discuss the following questions: What are the main principles and practices of Montessori Method which you think are most available for access in fatherhood? What are the typical imaging features of contemporary Bulgarian father? What are the main features of the father in the family? What are the main duties of fathers in the family which he tries to train the children? What need to be the role of fathers in their children education? What should be the behavior of the father in everyday situation of children -education and training? To make conception of Father's function by criterions "Health and Safety", "Emotional Intelligence", "Social Intelligence".

Task 2: To draw up a plan for group training session with men on topic "Montessori Fathers" with the following elements: target group work, formulation of the problem to participants - fathers proposal for a game whose main objective is warm and rallying the group's compilation of rule, compiling case in which future fathers need to get into the shoes of a child drawing up a list of topics that will be discussed with the participants in the group.

Applied value results and discussion

Results by Task 1
"Generalized functions of the father in Montessori Method Curriculum"

Criterion "Health and Safety": strong or resistant to disease, powerful, taking care of hygiene, the subject of moderate physical activity, better appetite, age at first child between 28 and 45 years; protective, with respect to the child's health; take care of the hygiene of the child

Criterion "Emotional Intelligence": resistance emotions, lower levels of anxiety, coping with stress, personal confidence, apathetic to the fussiness, calms the child when he/she is upset, experiencing "gender" solidarity with other fathers.

Criterion "Social Intelligence": follow the child curiosity, sets rules on child attitude to the environment, leads by personal example, helping the child with training, providing resources for child's development and care, talk and play with the child, encouraging the child.

Poll percentage model of focus groups conclusion

90% of participants access the principle "Absorbent mind" - children learn environment without someone to teach them

90% of the participants access the principle of "Prepared environment" - the furniture in the children rooms allows freedom of movement and choice of activities, ensures safety

80% of participants in the focus groups essential role of fathers is to be the guide, to educate and train their children in Montessori Method Curriculum at home.

80% of the participants access the principle of "Fixing the mistakes" – children understand the mistake when the father shows it and the children try to fix it by themselves.

80% of participants included in the physical image of the father he can be strong, durable and physically active

70% of participants believe that fathers should be pleasant looking, cleanly, clean clothes and careful manners.

70% of participants have fond memories of childhood related to paternal care, attention or guidance

60% of participants are agree that the father and the mother are partners in everyday activities (including the responsible behavior to the child education)

50 % of participants agree that the father is the one who has to take care of family material wellbeing.

Results by Task 2:
"The father role when the child attends in Montessori Method Curriculum"

Participation in the focus groups ended with the development of a total of 4 presentations on "The father role when the child attends in Montessori Method curriculum" – 100% success.

Similar elements of presentations related to the image and function of the father are: to understands and to follow child's interests and curiosity, regulating children's behavior in stressful situation, to have self-control, teaches kids (boys) of masculine behavior and (girls) of independence (autonomy), and dealing to build respect to social norms, to be protector, and to take the bigger part of the financial stability of the family.

It is impressed the participants' fixation on the role of the relationship between father and child. The main message in commenting on the image of the father is that he must bear personal responsibility for the development of the child, as well as with their behavior and with their appearance. This concept differs from the data from the survey conducted within the national campaign "Being a father" in 2014 (Петков at all., 2015). It concludes that 90% of respondents believe that the most important role of husbands is to provide material to his family, and a woman - to take care of home and children (Петков, at all., 2015). The difference probably stems from the fact that in this study with focus groups were involved men who are have social attitude, being students in "Social Management" university specialty and the study of the campaign "Being a father" in focus groups participated fathers and mothers with various professions.

When comparing the results of productions of focus groups concluded that family patterns are changing perceptions regarding future parents on the image and function of the father in the family. Montessori Fathers seem to be more understandable to regularities in child development. This finding coincides with the conclusion of the above survey, namely:

"The family in Bulgaria is not in crisis, but the patterns are changing." (Петков at all., 2015). The majority of the young people and the parents' community want to see greater involvement of fathers in the daily cares of children, and claim that society should encourage inclusion.

Thus specialists working with children and families need both to work actively with children to overcome negative gender stereotypes and to involve fathers more actively to promote the model of a strong but caring man, partner and father. Actively involved fathers raise children who do better physically, intellectually and emotionally (Ликаде, 2006), (Лакан, 2008), (Harold, 2012). These children perform better on intelligence tests, have a rich vocabulary, stronger intrinsic motivation, create lasting friendships and intimate relationships, and have better health, less often abuse alcohol and drugs or become victims of violence. Full interaction between father and child in infancy is associated with the development of good social skills later. The presence of warm and close relationship with the father affects the ability of the child to cooperate, to assert yourself without aggression and take responsibility (Poa, 2008), (Abse, 2012). These skills are manifested in the early years in school, even if there are other limiting factors such as lower socioeconomic status or poor relationship with mother (Abse, 2012).

Model of group training with men "Montessori Fathers"

In university students' opinion, the main objective of the training with fathers is to induce analytical thinking among participant, it meaning for him, and for all family members. The aim is formed on the basis of proposals including "analysis of parental models from their own childhood", "analysis of the Montessori Father functions", "Friend or Leader?" and etc. Staging the problem to participants – the fathers will be put through several short videos about the behavior of fathers in the presence of children, for example: EmioCreated (2012), or Motola (2016). Focus groups suggested in the introduction to design a clip of the participants under the title "Why I can use Montessori principles in relationship with my children?", in which individual members of the group shares expectations of participation in the training.

Trainings are not group psychotherapy, as it relates to mentally healthy people who need assistance to improve their ability to raise healthy and happy children. Group sessions begins with warming-up participants and ends by placing a task for independent homework between sessions. A session lasts maximum 60 minutes. Proposed elements of the session are following.

a) Design and implement group rules - lasting up to 5 minutes (example):
   - At the beginning of the first meeting each member of the training gives suggestions for rules;
   - Consensus proposals are written clearly on the board or poster and remain suspended throughout the group work.
   - Rules can be printed on cards and given to the participants.
b) Check the individual work of the previous session (15 minutes):
   - Participants think and prepare all the time between the sessions in tasks on Montessori Method with their children
   - The presentation of individual tasks results from homework voluntarily circles.
c) Inserting a subject in the session (5 minutes) for example:

- "Montessori Method – evidence based success", "Everyday live activities – what fathers do to train the children of responsibilities?", "Development of the language – development of the communication "father-child" and etc.
- The problem should be placed discussion. The method of insertion can be direct, through enunciation, game, by entering into or move and a mystery: ask a question, which the group has to find the right answers. The point is to focus on particular important for each individual problem.

d) discussions and replica (20 minutes)
  - It is essential to comply with group rules
  - "Replica" as the method used when no response group, each participant agrees on the discussed problem, after which it can be "replicated" but also try to reply.

e) Summary of the discussion (10 minutes)
  - Moment in which the debate has ended, but needs extra touches. The trainer shares opinion, which is also set to debate or replicas. Regulation is the same (requires application of methods "self- revelation" and "self-expression".

f) Placement of individual homework for the next session: binding element (10 minutes).

Conclusion

Focus groups formed by participants between the ages of 20 and 30 have a different view of the image and function of the father in Montessori Method Curriculum. The stereotype of the gender conditioned family functions fixed on the physical and disturbed young people believe that the responsibility for raising children should be shared. Fixes and most important function of the father is that he perceived of a partner to the child in the way of its growth. The focus groups concluded that family patterns are changing perceptions regarding future parents on the image and function of the father in the family. Montessori Fathers seem to be more understandable to regularities in child development.

It must be emphasized that the gradual social work will have to expand its scope beyond traditional groups perceived to be at risk and will need to meet the need of the society of responsible young people who grow up as responsible parents. The specialist working with children often said that each side contains a beginning. We can say that each child beards the limits of his father.

References

[1] Abse, S. (2012). Comentary on Capter Two. In A. Balfour, How Couple Relationships Shape Our World (pp. 57 - 71). London: Carnac Books Ltd

[2] Arens, W. (1970). The Men – Eating Myth: Anthropology and Anthropophagy, 1970

[3] Bohart, A. C., & Tallman, K. (1999) Relationship Counselling: Sons and Their Mothers - A Person-Centred Dialogue, p. 2-9

[4] Harold, G. T. (2012). Parents as partners: how parental relationships affects children's psychological development. In A. (Bulfour, How Couple relationships Shape Our World (pp. 25 - 57).London: Karnac Books Ltd, 2012

[5] Lillard, A. S. (2005). Montessori: The science behind the genius. New York: Oxford University Press.

[6] Lillard, A.& Else-Quest, N. (2006). Evaluating Montessori education. Science, (313) pp. 1893-1894.

[7] Rathunde, K. (2003). A Comparison of Montessori and Traditional Middle Schools: Motivation, Quality of Experience, and Social Context, The NAMTA Journal 28.3 (Summer 2003): pp. 12-52.

[8] Spock, B. (1957). D-r Spock's Baby and Child care, publ. Simon&Schister Inc., 1957

[9] Вълкова, Г.& Р. Петров (2015). Семейният конфликт, справедливото му разрешаване в съда, сп. Адвокатски преглед, 4-5/2015 стр. 51-59

[10] Гюрова, В. (2012). Качество на управлението на предучилищното обучение. Сп. Образователни технологии 3/2012, стр. 13

[11] Каргапольцева Н. А. (1999). Монтессори-образование: проблема социализации и воспитания личности: монография. — М.: Педагогический вестник, 1999. — 184 с

[12] Лакаде, Ф. (2006). Да издигнеш баща си и да спасиш майка си в сб. Белезите на различието. Какво научихме от децата, които растат без родители и тези, които се грижат за тях, С., 2006

[13] Лакан, Ж. (2008). Семейните комплекси, Сиела, 2008

[14] Петров, Д. at all. (2014). Социологическо изследване „Нагласи, практики и бариери пред активното мъжко включване в грижите за деца", рамките на Национална кампания „Да бъдеш баща", 2014

[15] Роа, Д. (2009). Семейството – за какво служи то, каква е неговата функция в сб. Тревогата и бащата, издание на Групата на Фройдистко поле в България, изд. Унипрес, С. 2009

[16] Стивънс, А.(2002). Бащата, който казва „да" в сб. Логиката на езиковия изказ в психоаналитичната клиника, издание на Групата на Фройдистко поле в България, С., 2002

[17] Стоянова, С. (2013). Стереотипи за половите роли и разпределение на функциите в семейството, годишник на ЮЗУ, 2013

[18]Хилтунен, Е. А.& Борисова О.Ф.& Михайлова В.В. (2014). Примерная основная образовательная программа дошкольного образования „Детский сад по системе Монтессори, изд. Национальное образование, М., 2014

Media Resources

[19] EmioCreated (2012). Home with dada - Time Lapse, 2012 https://www.youtube.com/watch?v=RntoTUPuWMc

[20] Motola, D. (2015). A baby, a beard, and bedtime https://www.facebook.com/DavidMotolaMusic/videos/vb.226471901020778/226472681020700/?type=2&theater

[21] Алексиева, Я., Д. Петров (2014). Презентация „Роля на бащата", част от международна кампания „Men Care – a global fatherhood campaign", 2014 https://www.youtube.com/watch?v=Ukibp-gQ1T4

[22] Алианс от НПО (2008). Предложение за прилагане на визия за реформа в грижите за детето в България, www.sosbg.org/content/plan_realizacija.doc , 2008

[23] Дамянова, А. (2008). Конструктивизмът - новата образователна парадигма?, е-изд. LiterNet, http://liternet.bg/publish3/adamianova/konstruktivizmyt.htm, 2008

[24] Митрева, Д. (2014). Каква е ролята на бащата в отглеждането на детето, интервю за телевизия „Канал 3TV", 2014, https://www.youtube.com/watch?v=Rf--xAjwT90

[25] Стефанов, Св.(2016). Младите хора се притесняват да имат и първо дете, bTV Новините; http://btvnovinite.bg/video/videos/tazi-sutrin/nuzhna-li-e-dopalnitelna-trudova-zakrila-za-roditeli-s-deca-do-3-godini.htmlAdleman, L., Mahan, P. L., & Jo M. (2003).

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E-Learning Implementation in a Compulsory Science General Education Course

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Abstract

e-Learning is under rapid development and has become one of the most important trends in universities worldwide. Recent studies showed that e-Learning can enhance students' learning and academic performance when it is appropriately incorporated into a course. This kind of pedagogy was adopted in a compulsory science general education course, *In Dialogue with Nature*, in The Chinese University of Hong Kong. This course invites students to read influential science classic texts concerning human exploration on nature and reflect on the perennial human concerns brought up by the classics. To address the genuine needs of the students in understanding the giants' work and having more in-depth reflections on the texts, three e-Learning initiatives have been implemented in this course. *DiaNable*, a mobile application, is a virtual reading companion to aid students' reading. The micro-modules explain basic scientific concepts and relevant background knowledge for student to comprehend and reflect on the texts. Civilization 4, a commercial game which is used as a gamification tool, lets the students to experience the scientific developments in human history. Evaluation on these tools showed that they are effective in addressing the aims. With the integration of both e-Learning and face-to-face learning in the course design, students' perceived learning outcomes attainment has significantly improved.

Keywords: E-Learning, M-Learning, Gamification, Science Education, General Education, Course Evaluation

Conference Topic: E-Learning, M-Learning, Videos for Learning and Educational Multimedia, Educational Games and Software

1. Introduction

With the adoption of a 4-year university curriculum in Hong Kong in 2012, The Chinese University of Hong Kong (CUHK) has put more emphasis on general education. In addition to the existing distributive requirement on four fundamental realms of human concern, namely 'Chinese Cultural Heritage', 'Nature, Science and Technology', 'Society and Culture' and 'Self and Humanity', the General Education Foundation (GEF) Programme was introduced for all undergraduate students to provide them a common intellectual experience.

GEF Programme consists of two courses, *In Dialogue with Nature* and *In Dialogue with Humanity*. Every week, students are required to read an excerpt from an influential core text and discuss the core questions brought up by the text with the fellow students and teacher in a two-hour interactive tutorial. Through the courses, students are expected to develop informed views towards those core questions and put them in the modern context.

In particular, the course *In Dialogue with Nature* (UGFN) invites students to 'retract the train of thought of our predecessors in this quest for knowledge, and with whose writings students will engage in dialogues'. Core readings include Plato's *Republic*, Euclid's *Elements*, Isaac Newton's *Mathematical Principles of Natural Philosophy*, Charles Darwin's *On the Origin of Species*, Joseph Needham's *The Shorter Science and Civilisation in China*, etc. Students would learn about the worldviews of ancient Greek, ancient Chinese and modern science and reflect on issues such as nature of knowledge, nature of human, human position in nature, contribution, limitation and societal implication of science.

However, students often find the core readings challenging and difficult to comprehend. They also find it hard to situate themselves in the respective worldviews. These could be due to the lack of reading confidence, insufficient understanding of background knowledge and the difficulty of visualizing the complex historical setting. In light of this, several e-learning tools were developed. First, a mobile learning application 'DiaNable' was designed to facilitate students' reading. Second, a suite of micro-modules was constructed to supplement students' background knowledge. Third, a popular commercial game called Civilization 4 was adopted to let students to experience the historical development of science in different civilizations.

In this paper, the three e-learning tools will be introduced and their effectiveness will be discussed. The overall students' perception of the learning outcome attainment will be reported.

2. Mobile Application 'DiaNable' for Facilitating Reading

Mobile learning has become increasingly popular in the higher education sector. Compared with traditional classroom learning, mobile learning can occur anytime and anywhere; and can be more personalized and contextualized (Crompton, 2013). Students also have the expectation that their mobile devices could be integrated into their learning experience (Dahlstrom, Walker and Dziuban, 2013). Aligning with this global trend, a mobile learning application 'DiaNable' was designed to serve as a virtual reading companion for UGFN students. 'DiaNable' aims at enhancing students' understanding of the texts such that they could have a solid knowledge foundation to engage in the discussion in the interactive tutorial.

Four particular challenging texts were included in the first phase of the 'DiaNable' mobile application. The design of 'DiaNable' mainly consists of three layers: 'Level 1', 'Level 2' and 'Quiz' (Figure 1). All three layers contain a multitude of study questions in the format of multiple choices and true-false. 'Level 1' focuses on basic understanding of the overall structure of the text. Students are expected to attempt the questions after skimming through the text. 'Level 2' focuses on the textual details. Students can attempt a question after close-reading one or few paragraphs of the text. 'Quiz' contains questions with various levels of difficulty. For some questions, students are required to apply the concepts they learnt from the text in other scenarios. Students are expected to attempt this layer after reading the whole text. For all three layers, immediate feedbacks are provided to the students so that students can re-read the respective paragraphs to clarify their understanding, if they do not obtain the correct answers. Apart from these three layers, a Chinese-English mini-dictionary is also included in 'DiaNable', for students' easy reference.
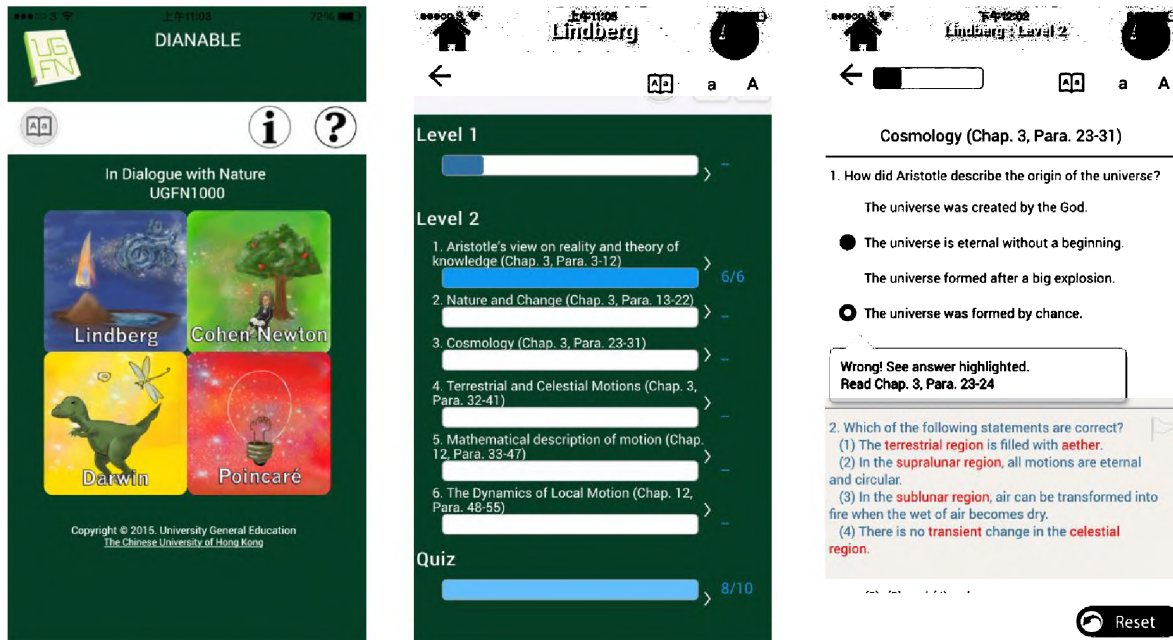
Figure 1. Interface of 'DiaNable'.

Online survey results (N=22) (Table 1) show that a majority of students thought that 'DiaNable' is effective in helping them to understand the texts and evaluating their degree of understanding. Students also agreed that textual understanding is necessary for performing well in tutorials.

Table 1. Students' perception on the effectiveness of 'DiaNable' (6-point Likert scale).

	1	2	3	4	5	6	Overall
Understanding of texts is necessary for you to perform well in tutorials.	0%	0%	6%	13%	50%	31%	5.1
DiaNable helps you understand the texts.	0%	0%	0%	13%	68%	19%	5.1
DiaNable evaluates effectively how much you could understand about the texts.	0%	6%	0%	25%	50%	25%	5.0

3. Micro-modules for Supplementing Relevant Background Knowledge

Micro-module development for eLearning is a rapidly developing pedagogy in the universities with initiatives of Khan Academy, Coursera and edX in the United States (Bishop and Verleger, 2012). The micro-modules are often embedded in flipped classroom approach. This allows students to watch the relevant materials, such as video lecture, at their own time and engage in more interactive activities in the freed class time (Lage, Platt and Treglia, 2000; Mason, Shuman and Cook, 2013). In recent studies, there are increasing evidences to show that micro-module implementation in flipped classroom approach can possibly enhance students' learning outcome attainment and exam performance (Gannod, Burge and Helmick, 2008; Stelzer and Corbin, 2010).

In UGFN, students are required to understand the science-related classics on their own and discuss the core questions brought up by the classics that are enduring in the history of human

civilizations. To reach this aim, a set of micro-modules was developed for explaining basic scientific concepts to the students that is essential in understanding the texts *(eg. mass and weight, Newton's first and second law, chemical bonds, DNA and protein, etc.)*, as well as giving further background knowledge to the students in various aspects related to the reflection on each text *(eg. two puzzles in front of Newton's classical mechanics, beauty in scientists' eyes, implication of five elements theory in Chinese medicine, etc.)*. Each micro-module consists of a series of materials including short lectures, short video clips. Some of the micro-modules also included a series of online interactive exercises to serve as checkpoints for the students who have watched or read the materials. The micro-modules were implemented in the Knowledge and Education Exchange Platform (KEEP). Figure 2 shows the front-page of the UGFN micro-modules on KEEP. The micro-modules are named according to the main character of each classic text and students can choose the text they are interested by clicking on the corresponding button. Then, students are directed to a content page as shown in Figure 3. They can choose the topic by clicking on the corresponding link to watch the video (Figure 4) or attempt the interactive exercises (Figure 5).

Figure 2. Front-page of UGFN micro-modules.

Figure 3. Content page under a particular text.
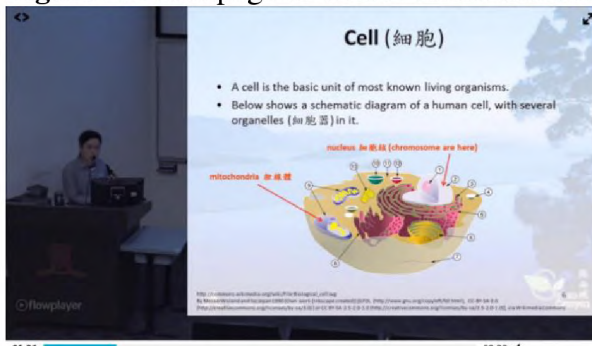
Figure 4. Short video in the micro-modules.
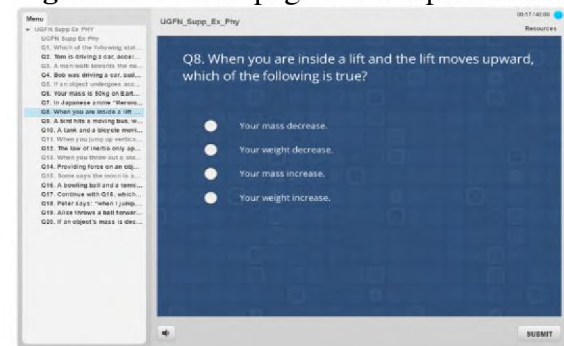
Figure 5. Interactive exercises.

An online survey was conducted to collect students' opinion on the usage of micro-modules. 21 valid responses are collected and the results are shown in table 1. In general, students reported that the micro-modules can help them to better understand and reflect on the text (Q1, 2) as well as enhancing their attainment on course learning outcomes (Q3-6).

Table 2. Students' perception on micro-modules usage (6-point Likert scale)

Watching micro-modules/ attending supplementary lectures…		Mean rating
Q1	enhanced my understanding on the text content.	4.67
Q2	allowed me to have more in-depth reflection on the related topics.	4.19
Q3	increased my understanding on the development of natural science.	4.57
Q4	increased my understanding on the contributions and limitations of scientific inquiry.	4.14
Q5	increased my understanding on the features of scientific methods.	4.19
Q6	increased my interest in natural science.	4.29

4. Gamification for experiencing the complex historical setting

Gamification is a new trend in education globally (McClarty, 2012; Hoober-Burkhardt, 2014). Via an educational game, students can gain pleasures in the learning process and be engaged to one another with the challenges and uncertainties provided by the game (Lenhart, 2008). Unlike the traditional classroom teaching, a successful game can be more efficient in visualizing the educational content and demand the students to thoroughly think through it (Mayo, 2009).

In UGFN, students are exposed to a massive amount of content that covers areas of science, technologies, culture, religions, economics, and warfare. This complexity and diversity of background knowledge beneath the classics is a source of difficulties students often found in studying this course. We believe that these difficulties can be overcome by gamification. The game aims at presenting students with the historical world discussed in the classics. Through playing the game, students can, first, be familiar with that historical period and have a deeper understanding of the questions that some great thinkers attempted to answer. Secondly, students can put themselves into the shoes of those great thinkers and begin to think about whether they agree with the judgments and concepts made by these thinkers. Thirdly, the game offers a chance for students to view the historical world in a holistic way and understand the development of and interactions between different places in the world.

It should be noted that developing a sophisticated game as complicated as a world simulator is not an easy task. On the other hand, modifying an existing game is a more feasible solution. Among the sea of commercial games available in the market, Civilization 4 is selected for several reasons. First, the game is already a world simulator that includes the aspects that UGFN concerns. Second, Civilization has a highly praised feature which provides the users to modify almost any aspects of the game and freely share it with other people, as long as it is not for commercial purpose. Third, as a highly popular strategy game, Civilization already has a large fan base, which means students can get help and familiarize with the game relatively easy, if not already played before.

Figure 6. The interface of the game Civilization 4.

A world scenario suitable for the teaching of UGFN was created on top of the base game. The game with the scenario was then used for two consecutive semesters and received generally positive feedback. The game was incorporated as an optional assessment worth 6% of the course. An analysis was performed in the second semester. For a total of 99 students, 45 students chose to play the game. Among them, 39 students participated in a short survey to provide feedback on their gaming experience during the course. The result was as shown in Table 3 and is in general positive. Students rated 7.64 out of a scale of 10 on the enjoyment of the game and 6.30 and 6.33 for the two questions on the relevance of the game in relation to the course learning outcomes.

A further analysis was performed on only those more engaged students (defined as playing for more than 5 hours in total). As can be seen in Table 4, the ratings in this group were all higher than the average group. For enjoyment, it is 8.11; for relevance to the course, it was 6.50 and 7.00. This illustrates the effect of gamification is correlated to the student's engagement and enjoyment that they found from the game.

Table 3. Average students' perception on the game Civilization 4 (10-point scale)

The average of the whole group, 39 students	Mean rating
Q1. This game is enjoyable.	7.64
Q2. This game facilitates my understanding in UGFN.	6.30
Q3. This game makes me more interested in science.	6.33

Table 4. Deeply engaged students' perception on the game Civilization 4 (10-point scale)

The deeply engaged group, 19 students, played > 5 hours	Mean rating
Q1. This game is enjoyable.	8.11
Q2. This game facilitates my understanding in UGFN.	6.50
Q3. This game makes me more interested in science.	7.00

5. Students' Perceived Learning Outcome Attainment

With the development of the three initiatives, UGFN students are now exposed to both e-Learning and face-to-face learning environments. This section aims to understand students' perception of their learning outcome attainment in UGFN, as a whole. An entry-exit survey, following Astin's talent development model (Astin 1985), was developed to serve such purpose, and the methodology was previously described and utilized (Kiang, Ng and Cheung, 2015; Ng, Kiang and Cheung, 2016; Kiang, Chan, Ng and Cheung, 2016). In brief, students voluntarily filled in an entry survey at the beginning of the course to indicate their perception on the attainment of various intended learning outcomes (ILOs). Students were asked to respond to the same set of ILOs-related statements at the end of the course. Students' responses were tracked by their student identification numbers. Data from 2015-16 spring term is reported in Table 5 (N=811). Two-tailed paired Student's t-test was performed to see if the differences of perceived learning outcome attainment are statistically significant. Results indicate that students show significant improvement in perceived ILOs attainment in both generic cognitive skills and subject matter content of UGFN.

Table 5. Students' perception of learning outcome attainment (6-point Likert scale).

	ILOs-related items	Entry	Exit	Δ
Generic Cognitive Skills	Q1: I can analyze and evaluate arguments critically.	4.27	4.77	+0.50*
	Q2: I am open to new and different ideas.	4.86	5.09	+0.23*
	Q3: I can articulate clearly my ideas in writing.	4.14	4.50	+0.36*
	Q4: I can express clearly my ideas orally.	4.01	4.43	+0.41*
	Q5: I am confident in reading difficult texts in English.	3.68	4.12	+0.44*
Generic skills-related ILOs Average		**4.19**	**4.58**	**+0.39**
Subject Matter Content of UGFN	Q6: I am confident in reading science-related texts.	4.15	4.41	+0.26*
	Q7: I am interested in natural science.	4.38	4.68	+0.30*
	Q8: Scientific knowledge is important for my intellectual development.	4.64	4.92	+0.27*
	Q9: I understand the development of natural science.	3.52	4.58	+1.07*
	Q10: I understand various features of scientific methods.	3.73	4.67	+0.94*
	Q11: I understand the contributions and limitations of scientific inquiry.	3.91	4.71	+0.81*
	Q12: I can assess the social implication of scientific inquiry.	3.89	4.63	+0.74*
Subject matter content-related ILOs Average		**4.03**	**4.66**	**+0.63**

Notes: (1) Δ refers to mean exit rating minus mean entry rating; (2) * denotes statistical significant change of the dependent variables in two-tailed paired t-test at p ≤ .05.

6. Conclusion

Three e-Learning initiatives have been implemented in the UGFN course. The mobile learning application 'DiaNable' was found to be effective in facilitating students' understanding of the texts. The micro-modules were found to enhance students' understanding of the texts, reflection on the core issues and attainment of ILOs. The adaptation of the commercial game Civilization 4 was found to be enjoyable and effective in facilitating students to be more engaged in science. With the exposure to both e-Learning and face-to-face learning environments, students' perceived learning outcomes attainment in UGFN has significantly improved.

7. Acknowledgements

8. References

1. Astin, A. (1985) Achieving educational excellence. San Francisco, CA: Jossey-Bass.

2. Bishop, J. L., and Verleger, M. A. (2013) The flipped classroom: A survey of the research. Paper presented at the 120th American Society for Engineering Education Annual Conference and Exposition, Atlanta, GA.

3. Chan, C. W., Szeto, W. M., and Wong, W. H. (2012) In Dialogue with Nature, 2nd ed. Hong Kong: Office of University General Education.

4. Crompton, H. (2013) A historical overview of mobile learning: toward learner-centered education. In: Berge ZL, Muilenburg LY (eds) Handbook of mobile learning. Florence: Routledge, 3–14.

5. Dahlstrom, E., Walker, J. D., and Dziuban, C. (2013) ECAR study of undergraduate students and technology, 1st ed. Louisville, CO: Educause Centre for Applied Research.

6. Gannod, G. C., Burge, J. E., and Helmick, M. T. (2008) Using the inverted classroom to teach software engineering. Proceedings of the 30th international conference on Software engineering, 777–786.

7. Hoober-Burkhardt, B. (2014) The Use of Gamification to Teach the Cosmic Distance Ladder. Thesis dissertation, Pomona College.

8. Kiang, K. M., Chan, H. Y., Ng, A. K. L., and Cheung, D. H. C. (2016) Effectiveness of Micro-Modules in a Science Classics Course. American Journal of Educational Research 2016, 4(13), 917–926.

9. Kiang, K. M., Ng, A. K. L., and Cheung, D. H. C. (2015) Teaching Science to Non-Science Students with Science Classics. American Journal of Educational Research 2015, 3(10), 1291–1297.

10. Lage, M. J., Platt, G. J., and Treglia, M. (2000) Inverting the classroom: A gateway to creating an inclusive learning environment. The Journal of Economic Education, 31:30–43.

11. Lenhart, A., Kahne, J.,Middaugh, E., Macgill, A., Evans, C., and Vitak, J. (2008) Teens, Video Games, and Civics. Pew Internet & American Life Project.

12. Mason, G. S., Shuman, T. R., and Cook, K. E. (2013) Comparing the Effectiveness of an Inverted Classroom to a Traditional Classroom in an Upper-Division Engineering Course. IEEE Transactions on Education, 56:430–435.

13. Mayo, M. J. (2009) Video Games: A Route to Large-Scale STEM Education? Science, 323(5910), 79–82.

14. McClarty, K. L., Orr, A., Frey, P. M., Dolan, R. P., Vassileva, V., and McVay, A. (2012) A Literature Review of Gaming in Education. Pearson's Research Reports.

15. Ng, A. K. L., Kiang, K. M., and Cheung, D. H. C. (2016) Assessing students' attainment in learning outcomes: a comparison of course-end evaluation and entry-exit surveys. World Journal of Education, 6(3), 56–65.

16. Stelzer, T., Brookes, D. T., Gladding, G., and Mestre, J. P. (2010) Impact of multimedia learning modules on an introductory course on electricity and magnetism. American Journal of Physics, 78:755–759.

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Gamification: an efficient way for an active environmental science education

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Abstract

Kids and teenagers use Information and Communication Technologies (ICT) like computers and mobile devices for connecting individuals to social networks, downloading music and videos, playing but also searching information and developing school tasks. Starting from this awareness, in the frame of two European projects, Involen and Raise, ICT didactic platforms for the development of LBGs (Location Based Games) for smartphones and tablets, which combines the use of computer and the mobile devices, have been used and tested in environmental education. The aim of these projects is to raise the environmental awareness and active citizenship for nature protection through volunteering with the use of new technologies. Pupils, teachers (together with other facilitators like environmental guides) are part of a team committed to follow a learning process focused on nature protection that will bring to the creation of an LBG for the local protected area.

Keywords: education, environment, LBG platforms, game.
Main Conference Topic: Education, Teaching and Learning, Science Education

Introduction

Environmental-science education plays an important role on children and youth to provide the next generation with the desire, commitment and ability to create an ecologically sustainable future.

This has been the basis conception for the development of RAISE project (Raising environmental awareness among young people, EU 2014-2-TR01-KA205-015084, 2015-2017) that represent the natural progression of INVOLEN project (Intergenerational learning for nature protection volunteers, EU 527670-LLP-1-2012-1-GR-GRUNDTVIG-GMP, 2012-2015), based on: knowledge transfer, voluntary environmental protection and use of new technologies (Papageorgiou et al. 2015).

RAISE project is committed at raising environmental awareness among young people, promoting volunteering for environment, making non-formal education more attractive in the framework of natural and environmental issues, enhancing the preservation of environment and promoting the culture of active citizenship.

Furthermore, considering that nowadays children in urban environments are particularly disadvantaged - an estimation states that 10% of children play in the natural environment compared to 40% of adults when they were young it is relevant to offer to students the possibility to approach nature and experience hands-on activities.

Description of related work

RAISE bases on LINE "Learning In the Natural Environment". LINE is significant and involves benefits from educational attainment, awareness of environment and natural science skills, behavioral outcomes and social cohesion, LINE also enables learners to rediscover connections with nature helping to develop a sense of place and personal responsibility for the environment. However, it is also important to consider the significant support that new technologies may provide in environmental-science education (Ofsted, 2008), (Natural England, 2012). It is surprising the raising number of apps that are continuously developed as support tools in nature or as didactic tools. Location-Based Game (LBG) offers possibilities and makes possible implementation of innovative and much more attractive ways of playing. A LBG is a game designed to be played on a device in motion and in strict connection to the location (Donald, 1994), (Liarakou et al., 2012), (Lehmann 2012). The methodology of INVOLEN and RAISE projects, we describe here, within the obtained results, is based on a learning experience in which the students create the LBG from the initial concept to its full completion, with information gathered during the environmental-science education activities and practical experiences.

The methodology developed within INVOLEN project used also in RAISE, stands on a participative approach to bringing all learning stakeholders (students, teachers, environmental experts, volunteers, managers etc.) together to plan their learning process, define their objectives and outcomes, and become equal "players" of learning. The learning process is made of 6 work units:

1) Planning phase and individuation of competence needs and skills of the team members. Set up of a draft calendar and meetings schedule.

2) Visit to the area for volunteering activities (i.e. cleaning up path and trails, collecting pictures, things, videos, sounds etc.)

3) Demonstration of an ICT game by an ICT expert or a facilitator who learnt LBGs development, for discussing the potentialities and the possibilities of LBG related to the context and the protected area.

4) Collection of stories, legends, tales by experts, elders who live in or close to the protected area, found in internet, in books etc..

5) Selection of one or more stories and creation of the game's story that will become the game scenario.

6) Development of the LBG on its editor's interface and playtesting.

The units activities can be frontal lessons, hands-on activities, environmental volunteering, storytelling, and development of a LBG with nature conservation purpose using a platform for LBGs development. In these projects, ARIS games (www.arisgames.org) was the platform used for the game creation.

ARIS Editor 2.0 (Augmented Reality and Interactive Storytelling), is an authoring tool that works to create mobile, locative, narrative-centric, interactive experiences. The interface allows to build a game on the base of a scenario. The basic elements are *Items, Tabs, Quests, Conversations* between players and virtual characters, *Media*. They can be organised by setting *Location, Triggers* and *Locks*. The player can interact with the game through Notebook where he can collect pictures or notes while he plays. ARIS games can be played only on Apple mobile devices (iPhone, iPad), on site or at home, downloading the ARIS app and searching in the Aris games list. The player is guided on a route identified by the icons appearing on the map: these icons are game objects the player interacts with. So moving along the route, reading the game plaques and answering to questions posed by the

characters, the player can get information about the history and the environmental peculiarities of the area.

Applied methodology: "A Jump in the Middle Age"

In RAISE project 5 classes in Turkey, Greece and Italy, have been involved to apply the methodology. Here below we describe the experience of the 1E of the Istituto Sacchetti in San Miniato, (Italy) that developed the LBG "A Jump in the Middle Age". They focused on the San Genesio Archeological area (San Miniato, Pisa) in the territorial natural context, from the roman times up to nowadays.

The aim of the project was to increase the knowledge of the territory where the students live (history, environment and traditions) and find the relationships between the acquired knowledge and storytelling. The whole project was structured in the six work units developed in 10 two-hour meetings.

The I.C. Sacchetti in San Miniato, is place along the famous route *via Francigena*, which was described by Sigeric, Archbishop of Canterbury in the year 990, who took a long route from Great Britain up to Rome to receive the investiture of Pope Giovanni XV. The relevance of the route for history and tourism of the area, pushed the idea to raise students' knowledge and awareness of their local territory.

Work Unit 1 – in this work unit, one meeting and phone calls between teachers and the members of the local Association Archeo&Tech which manages the archeological excavations, have been done to decide the commitment of the staff involved in the implementation of the project and the volunteering actions. A draft calendar of meetings and activities was set up. The second meeting was in class, together with the students. The members shared their former experiences in intergenerational learning, environmental education and volunteering or on the use of technologies. In the end, a survey through a questionnaire aimed to identify the competences and the needs of the members.

Work Unit 2 – in this work unit, the class carried out a voluntary activity at the archaeological site of San Genesio where they cleaned up the area by dead leaves brought there by the winter rains, removed rabbish and obviously made a tour of the area to get information and knowledge about it etc.

Work Unit 3 – in this work unit the demonstration of a Location Based Game is perfomed in quick-travel modality (in the classroom, without playing onsite), to show students how the selected platform for LBG works and what kind of mechanics and actions are available. This unit was carried out by the teacher who learnt autonomously how to make Locatin Based Games in Aris, without almost no support by the ICT experts.

Work unit 4 – in this unit the students collected the information and the stories connected to the local territory. This work units is interdisciplinary and focuses on several relevant features of the local area. Pupils collected information from several sources such as interviews to experts, grandparents, internet etc. on a variety os subjects: i) the landscape, ii) the ecosystem, habitats and traditional recipes of the area, iii) the archeological excavations of the medial village of San Genesio, and iv) the *via Francigena*.

In this work unit they also integrated the collection of information with experimental activities applying Inquiry Based Learning. For instance they seeded and observed the phenology of vegetables used in traditional recipes.

Work Unit 5 – this work unit regards the storytelling. The team (splitted in sub-groups) provides different "fantasy" stories based on the information gathered in the former unit. Each story has a narrator, a character which will lead the game player along the game.

Through the story, developed on a real trail or territory, the player interacts with the game's characters and learn about the environment, history, legends etc... The story is organized according a flux of actions and a scenario or storyboard (Figure.1).
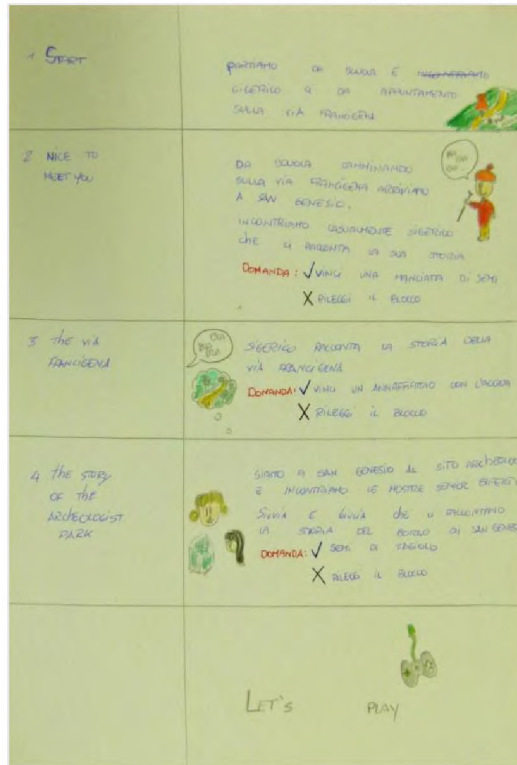
Figure 1: Game scenario with the flux of the game actions.

Drawings and pictures enrich the game and in the end, the story of the game "A Jump in the Middle Age" was defined. The storyboard (on paper) is then ready to be moved in the ARIS platform.

Work Unit 6 - In this work unit the storyboard is transferred in the ARIS platform (Figure 2). ARIS (short for Augmented Reality and Interactive Storytelling), is an authoring tool as well as an iPhone application that work together to create mobile, locative, narrative-centric, interactive experiences (Gagnon, 2012).
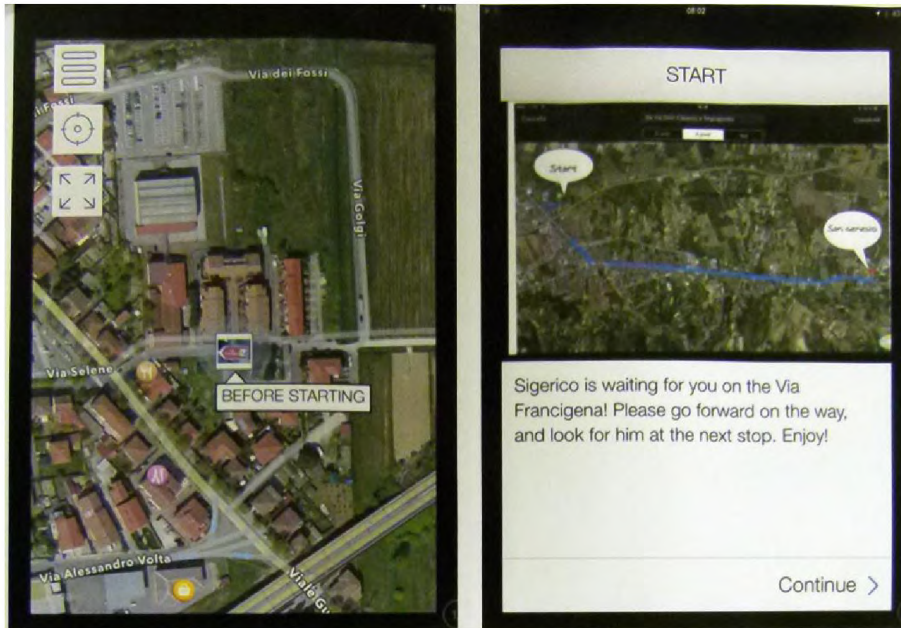
Figure 2: Example of screenshot of the game on the iPad.

Playing the game in the mobile device (iPhone or iPad), the player is guided on a route by icons appearing on the map according to flux of actions set in the game. These icons are game objects that the player interacts with (e.g. a conversation with virtual character, collection of items, visit to a web page etc.). So, moving along the route, reading the game plaques (content boards) and answering to questions posed by the characters the player can get information about the history and the environmental peculiarities of the area (Figure 3).
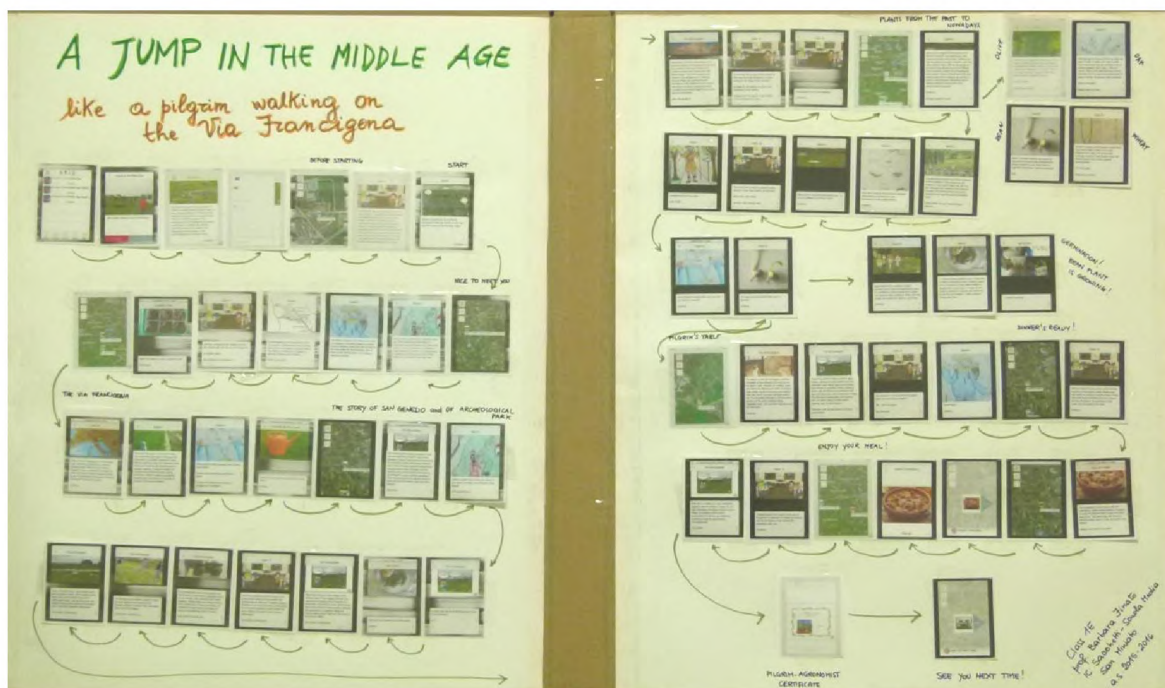
Figure 3: The paper board show all the steps of the game, each card is a shortcut of the game played on iPad.

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Evaluation of the methodology and discussion

The challenging methodology has demonstrated its effectiveness in achieving a variety of aims and outcomes. An evaluation form was submitted to the teacher in order to know if the intergenerational learning experience met its purpose concerning the intergenerational collaboration, the use of technologies and the volunteering experience. The teacher totally agreed and seniors involved in the project showed curiosity toward the use of technologies whilst students were both curious and active. Combining different learning experiences (non-formal and informal learning, intergenerational learning, learning in natural environment and gaming with technologies), the methodology has surely strengthened the relationship between generations: seniors and teenagers. This relationship is two way with the knowledge transfer from elders to youngster about local traditions, environment and history of the territory, but also transfer of motivation and knowledge from youngsters to elders.

The methodology demonstrated that, applying ICT in a creative way, supports learning and raises the awareness that technologies can be used also for learning. Since many teachers argue the difficulty to get the new generations motivated and involved in their classes (Felicia, 2009), the inclusion of *serious games* in teaching could be a proper solution, aiming to match the new digital native generation's needs and expectation, ensuring effective learning and motivation. Integrating LINE, as inquiry activities in natural environment, stimulate curiosity and knowledge that can be used in gaming. In RAISE project, observation and exploration of nature and natural phenomena are integrated with storytelling and gaming, generating new knowledge for the students but also creating a learning experience for the game's player.

Research results

Combining different learning experiences (non-formal and informal learning, intergenerational learning, learning in natural environment and gaming with technologies), the methodology has surely strengthened the relationship between generations: seniors and teenagers. This relationship is two way with the knowledge transfer from elders to youngster about local traditions, environment and history of the territory, but also transfer of motivation and knowledge from youngsters to elders. In other experiences, elders recognized the importance of using ICT and learning the technological language, even for communicating with their grandchildren, in addition, the use of technologies and gaming showed many advantages also for the teachers. According to them, it stimulated the cooperation by working in group; enhanced the capacity of working according a multi-phase process, taught to be patient and respect timelines; enhanced the communication capacity and knowledge transfer with hands-on and tales.

The methodology demonstrated that applying ICT in a creative more than mechanical way, supports learning and raises the awareness that technologies can be used not only for playing but also for learning (teacher's personal communication). Since many teachers argue the difficulty to get the new generations motivated and involved in their classes, the inclusion of *serious games* in teaching could be a proper solution, aiming to match the new digital native generation's needs and expectation, ensuring effective learning and motivation.

Moreover, integrating LINE, as inquiry activities in natural environment, would also stimulate curiosity and knowledge that can be used in gaming. In Raise project, observation and exploration of nature and natural phenomena are integrated with storytelling and gaming, generating new knowledge for the students but also creating a learning experience for the game's player.

From the didactic point of view the students also appreciate the interactive experience, because it combines hands-on approach and work, coding, ideas drafted on paper, skills in planning, design techniques, digital storytelling and game scenario, beside game development, stimulating and motivating the students in the learning process.

Short conclusion

In the frame of two European projects students successfully applied a learning methodology for environmental-science education that integrates intergenerational learning, gaming with technologies and volunteering with learning in natural environment. The complexity of the methodology is simplified in a structured process (6 work units) in which students, facilitators and elders work together for the development of a LBG to be played in a local protected area. Obtained results: i) sharing experience between generations, ii) learning of the local environment by observations and collections of information, iii) helping local associations by volunteering, iv) improving ICT skills.

References

[1] Ofsted (2008). Learning outside the classroom: how far should you go? Ref.: 070219. Crown, London, UK, pp. 1-28

[2] Natural England (2012). Learning in the Natural Environment: Review of social and economic benefits and barriers. Natural England Commissioned Report NECR092. www.naturalengland.org.uk. ISSN 2040-5545, pp. 1-48.

[3] Donald, A.N. (1993). Things That Make Us Smart: Defending Human Attributes In The Age Of The Machine. Ed. Addison-Wesley Longman publishing, Boston ISBN 0-201-62695-0

[4] Liarakou, G., Sakka, E., Gavrilakis, C., Tsolakidis, C. (2012). Evaluation of Serious Games, as a Tool for Education for Sustainable Development. http://www.eurodl.org/materials/special/2012/Liarakou_et-al.htm

[5] Lehmann, L. (2012). Location-based Mobile Games: State of the art and future challenges for developing location-based games for mobile devices. Seminar Paper at SNET Project (WT year 2011/2012).

[6] Papageorgiou, F., Kolovou, E., Saridaki, M., Ugolini, F., Rossini, G., Gosselin, E., Zappella, L., Giosma, K., Panoriou, E., Zevnik, P., Honvári, P. (2015). A GUIDE FOR LEARNING FACILITATORS. PRISMA, Athens, Greece. ISBN: 978-960-6676-25-3. http://www.involen.eu/images/EN/Involen_Guide_eng_final.pdf

[7] Gagnon, D.J. (2012). ARIS: An open source platform for developing mobile learning experiences. University of Wisconsin –Madison. Available at: http://arisgames.org/wpcontent/uploads/2011/04/ARIS-Gagnon-MS-Project.pdf.

[8] Felicia, P. (2009). Digital games in schools: A handbook for teachers. European Schoolnet, Bruxelles, Belgium. ISBN: 978-907820994-2. pp. 1-46.

Exploring the nexus between 'over-crowded' curriculum and academic autonomy in internationalization of higher education: A case of Australia

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Abstract

The undergraduate curriculum is often perceived as meeting increasing demands in the changing context of higher education. Besides preparing graduates for academic excellence, the curriculum has to fulfil other purposes that are not directly linked to disciplinary learning and teaching. One of the goals is the graduate attributes and outcomes arising from the global trend of internationalization. The paper is set against this context in exploring academic autonomy. Of particular interest here is how academics from different disciplines react with the global pressure to shape the curriculum. The paper is based on an empirical study undertaken across disciplines at Australia universities. Central to the inquiry are the critical questions: How could we understand teaching academic autonomy in curriculum design? In what ways are academics from across disciplines different in exercising their autonomy? The discussion places academics to the forefront, focusing on their different interplays in the curriculum design. These include the major enablers and barriers inherent to the their respective disciplines. Given the fundamental structure and nature of disciplines regardless of nations and geographic boundaries, the paper concludes with pedagogical recommendations for educators, teaching academics and university executives for better delivery of undergraduate curricula across countries in the global tide.

Keywords: internalization of higher education, undergraduate curricula, curriculum design
Main conference topics: Higher Education, Global Issues in Education and Research, Education, Research and Globalisation

Introduction

It has been argued that the undergraduate curriculum is 'over-crowded' to serve multiple purposes, as driven by vested interests and power from outside the discipline. One of the overwhelming forces over the past two decades is internationalization, which has become a buzzword in the education field. The global trend has been translated into policies and curricula. As far as a study conducted almost 20 years from now (Rizvi & Walsh, 1998), it indicated that 37 out of 38 Australian universities included a policy of internationalization in their plans, with over 70 per cent of them having international strategies in the form and content of their curricula.

Knight (2008) defines internationalization of higher education as "the process of integrating an international, intercultural, or global dimension into the purpose, functions, or delivery of higher education at the institutional and national levels" (p. 21). It highlights the parameters of 'international' and 'intercultural' dimensions, which are relevant to the paper – how the teaching academics integrate the 'intercultural' dimension into the undergraduate curriculum to accommodate the external force. The large literature in the field implies that the discussion to follow cannot be comprehensive. Central to the background of the paper is one of the goals of internationalization to achieve global citizenship, which could not be monolingual or monocultural (Nettelbeck et al., 2009). In the pedagogical domain, it has been widely discussed that the promotion of diverse language and cultural learning is not fully reflected in the English-based curriculum across countries, implying that the development of global citizenship is still in question. While recognising the important role of languages in the process of internationalization, the following section unravels the key cultural challenges confronting university programs across Western countries with a focus on Australia, which has prompted the inquiry for this paper.

Issues of monocultural curriculum in the context of internationalization

There are increasing concerns related to the pedagogical dimension of internationalization, which has inevitably been influenced under the global pressure. In the domain of teaching and learning, the role of language and culture in the internationalizing processes and curriculum is significant, reflecting the quality of higher education (Rizvi & Walsh, 1998). However, evidence suggests that the emerging issues related to cultures in Australian higher education curricula are underrepresented.

Evidence indicates that the cultural needs of international and local students in Australia may not have been fully attended. Haigh (2009a) puts forward that programs have to be constructed on multicultural foundations to reflect real internationalization of the curriculum. Across Western countries such as the United Kingdom, Sweden and Australia, debates argue that the hegemony of English language and culture has contributed to the culturally deficient curriculum in higher education, despite that the goal of internationalization is to embrace diverse cultures and perspectives (Jackson, 2003; Svensson & Wihlborg, 2010). There are cautions related to legitimisation of concepts and approaches solely based on English academic culture and Western perspectives in Australian higher education, which presents one view of the world (see Leask, 2013). Rather than internationalizing the curriculum, a more 'inclusive Western-style education' is resulted (Haigh, 2009b). This may in turn diminish international students' capacity and learning opportunities to contribute from their own cultural experience, creating a form of 'institutional discrimination' (Caruana & Hanstock, 2003) and 'potential oppression' (Leask, 2013). This may also deprive local students of the opportunities to learn knowledge and cultures of other countries. As such, the intended benefits of internationalization for all students to gain experiences in terms of 'foreignness abroad' and 'diversity at home' may not be yielded (Byrnes, 2009).

A critical point worth noting is that the dominant use of English-based knowledge and culture in the higher education curriculum may be due to the perceived threat to the status quo of the inherited world view by both inside and outside academe (Jackson, 2003). This may reflect the challenges confronting teaching academics in integrating diverse elements into the programs in higher education. It has been recognised that validating the ideas other than English-based cultures and perspectives in the development of curricula remains a real challenge (Haigh, 2009a). The foregoing discussions on the university curriculum in terms of

cultural issues and academics' role have reinforced the grounding for investigation into how the competing demands from internationalization are accommodated in higher education curricula. As such, the paper is designed against this backdrop to explore teaching academics' autonomy in diversifying the curriculum. Of particular focus is the different level of autonomy inherent to disciplinary nature as seen in subjects from Engineering, History, Physics and Business.

Methods

The pertinent cultural concerns in relation to the university curriculum have stressed the need for a better understanding of how teaching academics play out in the curriculum in response to the external pressure. This paper has sought to address the critical concerns on the basis of an empirical, case-based approach study. To explore academics' autonomy in curriculum design, the teaching and learning about Asia, or 'Asia literacy', is positioned as a case in the study. The positioning is well-argued as informed by the current Australian higher education context. The priority of Asian languages and cultures has been an educational and political initiative that has been advocated under successive policies by the Australian Government for almost three decades. It is linked to the global forces and literacy to promote student attributes such as 'global mindset and skill-set' and global citizenship for engagement with the Asian region and the global context (Commonwealth of Australia, 2012). Through the case, the study has brought teaching academics' perceptions and/or experiences to the forefront to unpack how academics from different disciplines may enact their autonomy in integrating the externally driven initiative into undergraduate curricula.

The empirical study was undertaken in three Australian universities, which involved department heads, program director, and course coordinators. To ensure wide-ranging and comprehensive data from the sampling, teaching academics were from a cross section of disciplines, including Science, Architecture, Information Technology, History and Economics, Media and Communication and Asian Studies. That is, they represent the 'hard, pure', 'hard, applied', 'soft pure' and 'soft applied' knowledge fields respectively, which show distinctive inherent differences in the areas of learning, teaching, assessment and curriculum, as identified by Trowler, Saunders, and Bamber (2012), shown in Table 1. Besides this, the paper concentrates on general foundation subjects offered to undergraduate students.

Table 1: Criteria sampling of participants

Knowledge fields/disciplines	Hard Pure	Hard Applied	Soft Applied	Soft Pure
Selected undergraduate programs	▪ Physics ▪ Mathematics and Statistics ▪ Science	▪ Computing ▪ Accounting ▪ Geospatical Sciences ▪ Environment ▪ Engineering ▪ Architecture	▪ Education ▪ Business ▪ Media and Communication ▪ Management and Marketing	▪ Arts ▪ Cultural Studies ▪ History ▪ Art ▪ Asian languages

Drawing on their narratives from interviews, supported with document analysis of course materials, the paper has addressed the following questions around undergraduate curricula in the changing context of higher education:

How could we understand teaching academics' autonomy in curriculum design from across disciplines?

In what ways are academics from across disciplines different in exercising their autonomy in curriculum design

The study was ethically approved by the participating universities and academics. The data obtained from interviews were transcribed and coded thematically using Nvivo. They were then triangulated across different sources of documents to test for consistency and to offer opportunities for illuminative insights (Patton, 2002).

Results

Through a critical analysis of the data, the following section presents the key findings around how teaching academics may integrate Asian perspectives and shape the curriculum differently across disciplines. Of particular importance is the disciplinary difference in which academics from soft disciplines tend to execute more autonomy in the curriculum design than their counterparts from hard disciplines. Relevant direct quotes and responses are provided, with key words italicised for the purpose of emphasis.

Hard disciplines

Across the hard pure and hard applied disciplines, academics' research interests and/or experiences in Asia do not appear to have direct relevance to undergraduate curriculum. All participants from the hard pure disciplines and about half from the hard applied disciplines did not relate their international experiences to teaching.

For instance, as seen in the following response, the participant's working experiences in Asia were not 'related much' to the Engineering program.

I have a lot of *experience in Asia*...personal or professional experiences related to Asia...I *don't so much relate* to program design (Program, Engineering, Participant 20)

Across the hard disciplines, the analysis indicates that the participants appear to be less empowered to include Asia, as evident in the following response: "unless I've got an Asian student who is prepared or willing to provide that information, I don't feel comfortable in making those assumptions".

The major barrier for the curricular integration is the universal nature of hard disciplines that may downplay academics' autonomy in the curriculum design. Key evidence supports that the subject knowledge of the hard pure disciplines seems to be more inherent to the disciplines. This is indicated by all participants from the hard pure disciplines, and majority from the hard applied disciplines. One of the distinctive features is the universal nature of knowledge, as indicated in the following responses: "It is sort of the field where it's by definition international", and "people would use examples that would be global in application".

Soft disciplines

Academics' international profile including Asian expertise and teaching beliefs seems to be key to the curriculum integration in the soft pure and soft applied disciplines. There is strong evidence, as supported by majority of participants from the soft disciplines, that academics' research interests and/or experiences in Asia are strongly relevant to the inclusion of Asia into general subjects. For example, a participant stated that the teaching of the foundation subject in Arts was a 'hundred per cent' influenced by research in Japan.

An explicit example is the impact of Asian expertise on the following foundation subject in History. The subject design was arbitrary, which, as the participant pointed out, was 'excessively' Asian-based due to a teaching academic's research area in Japan:

> …I will be co-teaching with somebody who is a Japanese historian. So he is pushing for *more Asian content…* I thought [it] was excessively Asian (Foundation subject, History, Participant 6)

Another feature that has driven the integration of Asia is related to academics' dispositions, that is, their teaching beliefs in relation to Asia. The analysis indicates that academics from soft disciplines seem to be comparatively empowered for incorporating Asia into the curriculum than their counterparts from hard disciplines in light of limited expertise and experience.

The following participant from a foundation subject in History of science got student to think about Asia despite the lack of Asian expertise to 'teach properly':

> …most of my subjects would get people *willing to think about Asia*, whether that makes them Asia literate…because I *don't have the expertise to teach properly*, can't find that level on Asian science and philosophy… what I can do is *give them the first steps* into that…(Foundation subject, History/Science, Participant 3)

As supported by all participants from the soft pure disciplines and majority from the soft applied disciplines, there is an indication that the subject knowledge seems to be less specific – fluid and arbitrary. This is evident in the following responses around the organisation of the subjects in terms of themes and concepts: 'thematic-based', "we look more on themes". This may allow for a greater extent of inclusion into the curriculum. As a participant from Cultural Studies pointed out, the topic-based approach allowed the subject to 'transform' itself over time as the topics were updated every year.

Conclusion

Based on the empirical-based analysis, a number of conclusions can be drawn around how the curriculum is shaped by teaching academics to accommodate competing demands from the changing higher education landscape. The paper concludes by addressing the questions raised earlier.

How could we understand teaching academics' autonomy in curriculum design from across disciplines?

In relation to academic autonomy, it may point to academics' power and authority of applying their research interests, experiences, and teaching beliefs to the curriculum design. Drawing on the findings, academics from across the four knowledge fields, that is, hard pure, hard applied, soft pure, and soft applied disciplines play out differently in the curriculum design. Their levels of autonomy seem to be largely due to structural features of their respective disciplines. The knowledge fields are distinctive in nature and structure. Hard disciplines are characterised by universal nature of knowledge; knowledge of soft disciplines is less specialist and arbitrary. This is in line with the general discourse supporting the varying co-existence of social power from academic agents and knowledge power from disciplinary structures (see Maton, 2014; Young, 2010).

In what ways are academics from across disciplines different in exercising their autonomy in curriculum design?

The study indicates that academics from soft disciplines seem to make a better connection of their personal interests, experiences and beliefs to the curriculum design than their counterparts from hard disciplines. Also, they appear to be more able or empowered in the curriculum integration. That is, they show a greater sense of agency – a key enabler for shaping the curriculum. This confirms the prior studies (Luckett, 2010; Maton, 2014) that the personal attributes of academics are what specialize the soft disciplines.

Moreover, the study supports previous research that the specialist knowledge, rather than academic autonomy and agency, is prioritised in hard disciplines (Maton, 2014). It appears that this limits the extent to which academics can exercise their autonomy to include Asian perspectives within the curriculum redesign – a key barrier for transforming the curriculum. As such, the interplay of academic agency and disciplinary features may account for the varying extent of integration between disciplines. Within soft disciplines, the relative strong sense of academic agency, facilitated by flexible structural features, seems to support a relatively extensive Asian integration into subjects. In contrast, the priority of technical and specialist features of hard disciplines, with academic agency being suppressed, may result in the limited integration into subjects.

The study offers insights into implementation of cultural initiatives, as driven by university strategies and policies to promote global citizenship and outlook. The disciplinary differences may influence the uptake of new initiatives. The study highlights the importance of recognising disciplinary distinctiveness and structural impediments. Nonetheless, it has drawn on shared views of academics from across disciplines, and identified some possible suggestions around academics' expertise, interests, and teaching beliefs to facilitate the diversification of the curriculum. These include the importance of academic empowerment and development, and established infrastructure and support.

Despite its limited geographic spread, the paper has spelt out some of the theoretical and educational concerns surrounding the culturally deficient issues of the curriculum in the context of internationalization. What has been achieved here is outlining the underlying links between academics' autonomy and disciplinary structures in the curriculum design. The paper represents a starting point to explore how the curriculum is shaped to accommodate the increasing external pressure, placing the inclusion of Asian perspectives to the fore against the trend of global literacy. Despite its orientation to Asia in the Australian context, the paper opens up for discussions on other language contexts and nations given the pivotal role of language and culture in the pedagogical sphere of internationalization. The scant research in the areas of language and culture, in particular the pedagogical implications for the integration of multiple languages and cultures, calls for further empirical investigation and reality check.

Biography of the author

As a teaching researcher at University of Melbourne, Caterina has extensive teaching experiences across Australia and Hong Kong, including subject development and delivery of on-campus and online postgraduate courses. She has been involved in interdisciplinary research and evaluation projects in the fields of health, education and international development. Currently, Caterina is a PhD candidate at the Melbourne Centre for the Study of Higher Education. Her main research interests include internal education and higher education, with a specialization in diversity of perspectives and cultures in internationalized university curricula. She was awarded the Tony Adams Funding for the doctoral studies (https://www.ieaa.org.au/what-we-do/previous-recipients#caterina).

References

Byrnes, H. (2009). The role of foreign language departments in internationalizing the curriculum. *Modern Language Journal, 93*(4), 607-609. doi: 10.1111/j.1540-4781.2009.00932.x

Caruana, V., & Hanstock, J. (2003). *Internationalising the curriculum: From policy to practice*. Paper presented at the Education in a Changing Environment Conference, University of Salford, UK.

Commonwealth of Australia. (2012). *Australia in the Asian century (White Paper)*. Canberra: Commonwealth Government of Australia.

Haigh, M. (2009a). Fostering cross-cultural empathy with non-Western curricular structures. *Journal of Studies in International Education, 13*(2), 271-284.

Haigh, M. (2009b). The Sattvic curriculum: A three-level, non-Western, superstructure for undergraduate education. *New Directions For Teaching & Learning, 2009*(118), 61-70. doi: doi:10.1002/tl.353

Jackson, M G. (2003). Internationalising the university curriculum. *Journal of Geography in Higher Education, 27*(3), 325-330.

Knight, J. (2008). *Higher education in turmoil: The changing world of internationalization*: Rotterdam: Sense Publishers.

Leask, B. (2013). Internationalization of the curriculum and the disciplines: Current perspectives and directions for the future. *Journal of Studies in International Education, 17*(2), 99-102.

Luckett, K. (2010). Knowledge claims and code of legitimation: Implications for curriculum recontextualisation in South African higher education. *Africanus, 40*(1), 4-18.

Maton, K. (2014). *Knowledge and knowers : Towards a realist sociology of education*: Milton Park, Abingdon, Oxon: Routledge.

Nettelbeck, C, Byron, J, Clyne, M, Dunne, K, Hajek, J, Levy, M, . . . Wigglesworth, G. (2009). *An analysis of retention strategies and technology enhanced learning in beginners' Languages Other Than English (LOTE) at Australian universities*. Canberra: Australian Academy of the Humanities.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.): Thousand Oaks, Calif.: Sage Publications.

Rizvi, F, & Walsh, L. (1998). Difference, globalisation and the internationalisation of curriculum. *Australian Universities' Review, 41*(2), 7-11.

Svensson, L, & Wihlborg, M. (2010). Internationalising the content of higher education: The need for a curriculum perspective. *Higher Education, 60*(6), 595-613. doi: 10.1007/s10734-010-9318-6

Trowler, P, Saunders, M, & Bamber, V (Eds.). (2012). *Tribes and territories in the 21st Century: Rethinking the significance of disciplines in higher education*. London, New York: Routledge, Taylor & Francis Group.

Young, M. (2010). The future of education in a knowledge society: The radical case for a subject-based curriculum. *Pacific-Asian Education Journal, 22*(1), 21-32.

Computers, Competencies and Critical Thinking: The Assessment of Academic Skills in Higher Education

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Abstract

Recent work highlights the difficulties that academic staff encounter in applying information and communication technologies (ICT) to develop higher order academic skills such as critical thinking, problem solving and creativity. However, there is still some question about how well academics are equipped to utilize new technologies in assessing such skills. It has been suggested in recent work that academics set up ICT-based assessment tasks in such a way as to inadvertently lead students on the path towards lower order skill outcomes and that this points to a deficiency in pedagogic knowledge and practice. This paper seeks to explore and critique this view in terms of challenging the conceptual basis of assessing higher order skills through these technologies. It is argued that the use of digital devices and platforms in higher education is leading to a focus on students' ability to use and manipulate of these products as an index of their flexibility and adaptability to the demands of the knowledge economy. However, this view of learning can easily slide into focusing on competencies rather than higher order skills. The paper seeks to address and situate the place of ICT in assessing higher order academic skills in terms of pedagogical philosophy.

Keywords: ICT, assessment, higher, academic, skills, pedagogy, philosophy
Main Conference Topic: Higher Education

Introduction

This paper considers the assessment of higher order skills within higher education in terms of wider pedagogical discussion and debate surrounding the expanding use of new technologies. It poses questions about the pedagogical philosophy of these technologies in terms of their utility in addressing the development of skills such as problem-solving, critical thinking and creativity (Bath *et al.*, 2004; Winchester-Seeto *et al.*, 2011). Within the literature these skills are considered as fundamental to the 'higher' nature of higher education and have been associated with graduate attributes (Barrie, 2006; Moore, 2004). Graduates are expected to be able to make connections between what they have learned and various academic and professional practices and between their knowledge and its creative application to new or ill-defined problems (Boud and Falchikov ,2006). Furthermore, these skills in critical analysis and problem-solving are also increasingly being related to graduates' ability to think and act as citizens in an increasingly globalized world where the pace of technological and associated change in the world of work requires flexibility in ways of operating never before. However, whilst these higher order skills are recognized as crucial to the development of modern graduates, integrating them into curricula and their associated assessment strategies has proved to be more controversial and challenging. This is particularly evident with respect to the new technologies as tools that can support the development and demonstration of these skills. Some of the key arguments that surround these issues are developed in the following sections.

Assessment and ICT

Assessment is fundamental to the ways in which students engage with curriculum. The kinds of assessment tasks that are set, their role in shaping how much time students spend on various associated activities, and their importance for progression and course completion all testify to the significance of assessment within the student experience (Brown and Knight, 1994; Ramsden, 1992; Rust, 2002).The nature of assessment within higher education sends out a message to students about what they are expected to achieve in terms of being able to demonstrate the kinds of skills that mark out a graduate (Brown, 1997). In other words, assessment is a key component of what constitutes the higher nature of higher education. For example, there is a qualitative difference between the kind of skills involved in critical analysis that are expected of a secondary school pupil tackling a history essay and those of a third year undergraduate who is also doing an essay on what may well the same or similar topic. The difference cannot be simply expressed in terms of an index of difficulty associated with the curricular content but in the way that students are expected to engage with this content. In other words, the practice of critical thinking within higher education is expected to be qualitatively different from what would count as critical thinking in secondary school education. This may come down to the ways in which arguments are counterposed against each other or challenged, familiarity with and use of original sources, and originality of argument. This is just one example of how higher order skills within higher education are demonstrable through assessment.

However, while these kind skills are considered important for many courses, there is also a recognition that students require a portfolio of these skills as part of what are now known as graduate attributes, and as part of a wider recognition of the need for metacognition and lifelong learning (Boud and Falchikov, 2005; Falchikov and Thompson, 2008). Some have gone so far as to suggest, that the gap between the intentions of lecturing staff and the reliance on assessment strategies that focus on the reproduction of knowledge rather than its manipulation or transformation, raises the question of whether higher order learning is in fact being assessed (Arum and Roksa, 2010). This is considered all the more pressing in light of the uptake of new technologies for the purposes of assessment. However, it has been found that despite the affordances of new technologies online assessment has remained predominately summative (Northcote, 2003). A recent study of academics at an Australian university found that despite intentions of higher order learning outcomes for students, there was a tendency to use online tools such as quizzes to assess recognition and understanding (McNeill *et* al., 2012). There were examples of respondents using wiki, blogs and online portfolios to assess higher order outcomes such as metacognition, creativity and evaluation. However, the relatively low uptake of these tools suggested to the authors a tendency to avoid using them as a means of engaging higher order learning and a need for academic development work to aid academics in integrating new technologies in their curriculum and assessment design.

While the uptake of new technologies to assess higher order learning skills and outcomes may well be problematic, the opportunities to support the design, delivery and administration of diagnostic formative and summative assessment have been attested to in the literature. In particular, a new assessment paradigm that involves a transformational approach to computer-based assessment whereby the integration of students' performance over time is monitored as well as the integration of assessment with teaching (Bennett, 2010). The extent to which such an approach can evaluate the higher order skills is open to question but other approaches such as immersive environments and games are being used to assess problem-solving, collaboration and inquiry (Dede, 2010; de Jong, 2010; Means and Rochelle,

2010). It has recently been suggested that electronic assessment is at a critical juncture between the 'old' testing paradigm where the linkage between pedagogy and technology is mostly one-directional, and the 'new' paradigm of a two-way 'dialogue' between new e-assessment technologies and pedagogy (Redecker, and Johannessen, 2013). However, while these new technology assessments can inform pedagogy and vice versa the learning outcomes are framed in terms of competencies that are required for life in the 21st century. Such claims seem to be framed in instrumentalist and functional terms rather than connect with learning that promotes higher order learning outcomes. This issue of the problematic nature of the promotion of new technologies in relation to assessment is developed in the next section.

Digital Literacy and Academic Literacy

Assessment practice has become a central topic higher education due to a changing emphasis on student engagement with higher order learning outcomes that reflect 'new' literacy skills in response to changing methods of accessing information and communicating brought about by new technologies, globalization and changing workplace needs (Johnson and Kress, 2003). Thus the higher order skills of critical thinking, problem-solving and creativity have become inter-twined with other generic high level skills such as information literacy, superior communication ability, and team working. These skills are driven by the changing pace of new technologies and communication mediums, and although they are not always explicitly taught, the do form a major part of the student experience and are often assessed implicitly within the courses that students undertake.

However, while these kind of generic information literacy and communication skills are important, it may be the case for some at least, that they have become the 'tail wagging the dog', so to speak. Thus whilst learning technologists have been keen to stress the benefits of new technologies, the have formulated these within an overarching discourse of digital literacies (Beetham *et al.*, 2009). However, this recasting of higher order learning outcomes leaves wider concerns with academic and textual literacies behind and strips these outcomes of their association with disciplinary knowledge and instead promotes a competency-based agenda (Lea, 2013). This has resulted in the term 'digital literacies' in higher education being associated with more instrumental purposes such as producing graduates that are 'fit for purpose', that is that have a range of transferable skills and competencies that can be applied to lifelong learning and the world of work. Those who are enthusiastic about promoting learning technologies in this way tend to base their arguments upon: (i) the need for higher education to respond to a generation of students who are familiar with these technologies (e.g. wikis, blogs, social media, twitter etc.) so that they are aligned with practices in higher education, including assessment practices, and (ii) that educators need to develop their own skills in utilizing these new digital technologies to enhance and improve their teaching and learning strategies and practices.

The wider implication of this conceptualization of digital literacy is that it extends beyond higher education to digital society, as something that higher education must engage with itself if it is to adapt to a changing world. This view of literacy presents an 'impact model' in which new digital technologies impact upon higher education which in turn must produce students who can use these technologies to make an impact upon themselves and their world. It is an autonomous conceptualization of literacy as if it were a stand-alone facet of learning, as something concerned with technical skills and proficiencies including cognitive skills. What this view does not engage with is the ways in which literacy is bound up with practices of knowledge making and representation and power. It is of course that latter that many academics would argue are the very things that students should be engaging

with in a reflexive manner within higher education and that these constitute higher order learning and skills within disciplinary and inter-disciplinary contexts.

Lea (2013) also notes that teaching staff are viewed as requiring more training through workshops and the like to engage with these new technologies so they can see the benefits of them for their pedagogical practice, include as noted above, assessment practices. This presents staff as being deficient in their pedagogic knowledge and practice, which they need to keep up with the pace of modern technology. Moreover, it also promotes the idea that teaching staff need to adapt to their learners as competent professionals. This discourse marginalizes the role of teachers and places them in the position of 'playing catch up' with the technology. In this way it is not only that curriculum and assessment that required to be aligned but also that teaching staff need to be aligned with the requirements of new technologies. This discourse is pervasive, even when presented in terms of challenges that e-assessments present in the face of seeking to move beyond that of declarative knowledge (Guàrdia et al., 2016).

This is considered as necessary in order to mirror market flexibility and produce graduates whose programmes of study develop the skills associated with such a requirement for flexibility. It is claimed subject content has become a means to procure more or less elaborate competencies, and as a result, graduates are considered as no more than aggregates of attributes. The danger here for higher education is that student learning is reduced to solely being an index of employability. It is easy to understand why this is the case given the present economic climate but it is arguable that higher order skills should be considered s something more than simply developing the student into a 'future worker'. The capabilities of new technologies and new forms of assessment can still be utilized alongside 'old' technologies in such a way that we ensure that scholarship, critical thinking and creativity are the drivers of higher education. The next section explores the practices associated with the development of higher order skills.

Practices and Problems

Exploration, problem-solving and creativity are often associated with a focus on the agency of the learner. Take, for example, the practices involved in constructing wikis and blogs. These may take time and certainly can be said to involve creativity and teamwork. However, the focus on digital literacy perhaps at the expense of academic literacy means that these practices have come to dominate the agenda on nature of higher order learning outcomes and skills (Oliver, 2013). Failure to engage in using these technologies, to link them to innovation in terms of curriculum development and assessment seems, on the face of it, to overemphasize a conservative view of teaching and learning as the reproduction of knowledge. However, this is perhaps an oversimplification of the position. Practices of assessment such as extended essays or unseen examinations may be justifiable and worthwhile but for different reasons that in the past. If these practices were preserved simply on the basis of tradition, then this would indeed represent a straightforward conservatism. However, some practices may well be characterized as conservative but in fact provide a function that can be seen as valuable in today's world. For example, in a world where students can instantly access information at the flick of a finger it might be useful to counter this with slower forms of learning that require reading, re-reading and reflection.

The point being made here is that what may seem like conservative practices can in fact provide a useful counterpoint to so-called innovative practices and may be just as transformative. The new pathways of information communication technologies have, and are,

transforming the higher education landscape, particularly where library visits and reading book are being replaced by the retrieval of information from websites. A culture of 'fast knowledge' whilst useful in some contexts and subject areas, can be inhibiting in other contexts and subject areas. Likewise, as noted above there has been a rise in diagnostic assessment and instantaneous feedback. Again without wishing to come down in favour or against the use of such approaches, the main focus should be on the higher order skills which students acquire as part of their higher education experience. While the growing use of information and communication technology has transformed the nature of learning for students such that they can now choose to engage at a distance at any time, this has also led to a shift in self-identity, from that of novice and student, to that of participant and consumer. As educational practices become more learner-centred and teachers become more resource providers and mentors then the change in relations between students and their teachers becomes itself more problematic. This is particularly the case in light of assessment where for the most part teachers are still the final judges of the quality of student learning.

Being able to access, select, evaluate, synthesize, and collaboratively transfer information between one another in an online environment is part of the array of higher order skills that require assessment. However, theses generic skills cannot be extracted from the subject areas and types of knowledge that students must work in, and with. Some practices are normative in this sense that they are a performative part of the know-how of how to get things done, what steps need to be taken and how these can be achieved in an efficient manner. This does not mean to say that they are fixed in that interpretation and adaptation are always a potential part of them. On the other hand, other practices that educators might wish students to engage in are more critical and directed at changing thinking, perceptions, values and the like. These practices often require reflection, careful thought, and develop over time in an unhurried fashion. Indeed, they could be characterized as a state of mind that is reflective of the spirit of lifelong learning. In both cases it is the student's relation to these practices that is of crucial importance.

Learning Technology and Pedagogy

Learning technology is often treated as a causal agent in and of itself. It is assumed that students use this technology in a benign context-free online environment. Such a view fails to consider whether or not technology-based learning adds a new dimension to the existing constellation of social relations for learners or simply mirrors or sits alongside these. However, for the most part the increasing focus on information and computer technology in higher education has focused on the delivery of mass higher education and its associated common-sense benefits. A recent theoretical contribution within the field of learning technology has examined different assumptions within the field and has argued that there is a theoretical and philosophical gap in our understanding how these technologies contribute to learning (Selwyn, 2013). Typically, these are framed in terms of affordances, that is, what the technology enables learners to do. However, there is a conceptual slippage concerning what kinds of things count as an affordance and as a result these can framed in simple unidirectional terms that are taken as being self-evident such as accessing online materials at times of a learner's choosing. Associated with this is the idea that technology involves social considerations in terms of the ways in which people take advantage of it to further their own interests. This may for example, involve the creation of communities of practice through the networking affordances of digital technology. Whilst this conceptualization is useful, it needs to be incorporated into an understanding of how learning practices remain stable over time as well as how they evolve and change.

Despite the changing landscape of higher education that new technologies have, in part, brought about, there still remains a core set of activities that constitute teaching, learning and assessment. Practices such as lectures, seminar discussions, coursework assignments, examinations, and so on, form the core activities of what staff and students are engaged in. Some of these practices are likely to be the subject of change and transformation over time or perhaps be replaced by new practices. However, the main point is that practices are activities that involve both continuity and change over time. There may be aspects of assessment practices that are more appropriate at certain stages than others, or fit learners' needs more readily or require updating in the light of new relations between staff, students and the curriculum. For example, it is often the case, as in any educational endeavor, that learners require understanding certain fundamental aspects of a subject, discipline or practice before being able to engage in a critical evaluation of that knowledge or set of practices. In higher education, although learners typically join their courses with pre-requisite knowledge and skills these are usually not sufficient to engage in being able to critically engage with the new material that they learn. Thus, even at an advanced stage of learning there is an aspect of 'taking in' a fundamental knowledge base and set of principles that define what the subject or discipline is about. In some cases, this may be familiar and lead on from school or further education learning but in other cases a whole new knowledge paradigm may be opened up to learners. In either case this early advanced education necessarily requires a degree of unquestioning acceptance in order to acquire this fundamental knowledge base. Indeed, it is only through the acquisition of this knowledge that learners also acquire other kinds of tacit understanding about the nature of subjects and disciplines such as their epistemological paradigms. It is only after having acquired both this explicit and implicit knowledge that students can then go in the later stages of their programmes of study to learn to unpack their understandings and subject them to question, doubt and critique, and to appreciate the provisional status of knowledge. It is therefore integral to the learning process that higher order skills of critical analysis, problem-solving and creativity are necessarily built up from such 'unquestioned' knowledge. Therefore, learning in an unquestioning manner early on does not mean that unquestioning acceptance is being learned *tout court*.

It is for the reasons outlined above that we should be thoughtful about how and why new technologies are used in assessment practices. Getting students to be creative early on in their programmes of study in for example, producing a blog or wiki, may serve the purpose of collaborative working and may make the experience engaging. However, the higher order outcomes of this practice will need to be carefully considered as it may help or hinder the acquisition of 'baseline' knowledge and principles and their initiation into the practices of a subject or discipline. That learning requires an initiation into practice is certainly the case but it also the case that as students' progress through their programmes of study that they develop in a relational way to their subject or discipline. This will at first be mostly about learning the 'craft' of the subject or discipline, or inter-discipline in terms of education about its methods and practices. However, later in their studies students can engage in higher order skills that evidence a critical or creative engagement. It is here that within their assessments student can be encouraged consider how practices are themselves developing via new information and communication technologies. This is one of the great advantages of the sharing capacity of new technologies. The blurred relationship between consumption and production of wikis, social networks, blogs, etc. throws into relief questions about how subject and disciplines are developing through the information that is accumulated, posted, traded, and shared. This requires a self-reflexive relationship between students and their learning, or what was referred to earlier as metacognition. This is indeed a higher order skill, and one in which higher education can attach to it the concept of merit, by acknowledging a commitment to

critical thinking that is beyond the image of performativity in relation to simply digital literacies. This critical and more reflective mode of practicing is rooted in an enactment of participating in practices of knowledge generation and exchange whilst also at the same time maintaining a 'distance' from these in terms of subjecting them to scrutiny, question and potential transformation.

Conclusion

There are a number of assumptions made about the higher order skills that are capable of being developed through assessments that utilize new technologies. These are often framed in terms of an aligned curriculum that a positions learner as active enquires. However, these assumptions are rarely tested but rather are grafted onto the rationales for making use of such technologies. In the case of collaborative exercises, it may well be the case that learners are passively consuming information by reproducing information from online sources through cut-and-paste operations rather than engaging in a genuinely collective construction of a wiki. Thus what is superficially labeled as 'collaborative learning' may be nothing more than an exercise in co-operation or co-ordination. This kind of learning can be characterized as developing a competence rather than a higher order skill. Allied to this is assumption that learners freely engage with digital learning technologies in some independent and autonomous manner that underplays the role of formal teaching and learning. However, what is required is an underpinning pedagogical philosophy that seeks to define and develop higher order academic skills as a key to the 'higher' nature of higher education. The possibility of enabling the assessment of these skills through ICT can then be situated in the context of their primacy rather than seeking to make significant the affordances of these technologies. As Salomon (2016: 159) succinctly puts it: "Let technology show us what can be done, and let educational considerations determine what is done in actuality."

References

[1] Bath, D. Smith, C. Stein, S. & Swann, R. (2004) Beyond mapping and embedding graduate attributes: bringing together quality assurance and action learning to create a validated and living curriculum. *Higher Education Research & Development*, 3(3), pp. 313-328.

[2] Winchester-Seeto, T., Bosanquet, A., & Rowe, A. (2011) Smoke and mirrors: graduate attributes and the implications for student engagement in higher education. In Solomonides, I, Reid A and Petocz, P (Eds) *Engaging with Learning in Higher Education*. Faringdon: Libri Publishing.

[3] Barrie, S. C. (2006) Understanding what we mean by the generic attributes of graduates. *Higher Education*, 51, pp. 215–241.

[4] Moore, T. (2004) The critical thinking debate: How general are general thinking skills. *Higher Education Research and Development*, 23, pp. 3–18.

[5] Boud, D. & Falchikov, N. (2006) Aligning assessment with long term learning. *Assessment Evaluation in Higher Education*, 31, pp. 399–413.

[6] Brown, S. & Knight, P. (1994) *Assessing Learners in Higher Education*, Kogan Page, London.

[7] Ramsden, P. (1992) *Learning to Teach in Higher Education*, Routledge, London.

[8] Rust, C. (2002) The impact of assessment on student learning: how can the research literature practically help to inform the development of departmental assessment strategies and learner-centred assessment practices? *Active Learning in Higher Education*, 3(2), pp. 145-158.

[9] Brown, G. (1997) Assessing Student Learning in Higher Education, Routledge, London.

[10] Boud, D. & Falchikov, N. (2005) Redesigning assessment for learning beyond higher education. *Research and Development in Higher Education*, 28, pp 34-41.

[11] Falchikov, N. & Thompson, K. (2008) Assessment: What drives innovation? *Journal of University Teaching & Learning Practice*, 5(1), pp. 49-60.

[12] Arum, R. & Roksa, J. (2010) *Academically Adrift: Limited Learning on College Campuses*, University of Chicago Press, Chicago, IL.

[13] Northcote, M. (2003) Online assessment in higher education: the influence of pedagogy on the construction students' epistemologies, *Issue in Educational Research*, 13(1), pp. 66-84.

[14] McNeill, M. Gospera, M. & Xu, J. (2012) Assessment choices to target higher order learning outcomes: the power of academic empowerment, *Research in Learning Technology*, 20, pp. 283-296.

[15] Bennett, R. E. (2010) Technology for large-scale assessment. In P. Peterson, E. Baker and B McGaw (Eds.) *International Encyclopedia of Education*, 3rd edn., 8, pp. 48–55, Oxford, Elsevier.

[16] Dede, C. P. (2010) Technological support for acquiring twenty-first-century skills. In P. Peterson, E. Baker and B. McGaw (Eds.) International Encyclopedia of Education, 3rd edn., 8, pp.158–166, Oxford, Elsevier.

[17] de Jong, T. (2010) Technology supports for acquiring inquiry skills. In P. Peterson, E. Baker & B. McGaw (Eds.) *International Encyclopedia of Education*, 3rd edn., 8, pp. 167–171, Oxford, Elsevier.

[18] Means, B. & Rochelle, J. (2010) An overview of technology and learning. In P. Peterson, E. Baker & B. McGaw (Eds) *International Encyclopedia of Education*, 3rd edn., 8, pp 1–10, Oxford, Elsevier.

[19] Redecker, C. & Johannessen, O. (2013) Changing Assessment: Towards a New Assessment Paradigm Using ICT, *European Journal of Education*, 48(1), pp. 79-96.

[20] Johnson, D. & Kress, G. (2003) Globalisation, literacy and society: Redesigning pedagogy and assessment. *Assessment in Education: Principles, Policy & Practice*, 10 (1), pp. 5-14.

[21] Beetham H., McGill L., & Littlejohn, A. (2009) Learning Literacies in a Digital Age http://www.jisc.ac.uk/media/documents/projects/llidareportjune2009.pdf (Accessed 4th November, 2016).

[22] Lea, M. R. (2013) Reclaiming Literacies: Competing Textual Practices in a Digital Higher Education. *Teaching in Higher Education*, 18(1), 106-118.

[23] Guàrdia, L., Crisp, G., & Alsina, I. (2016). Trends and challenges of e-assessment to enhance student learning in Higher Education. In *Innovative Practices for Higher Education Assessment and Measurement*, pp. 36-56. IGI Global Publishers, Hershey, PA: USA

[24] Oliver, M. (2013) Learning technology: Theorising the tools we study. *British Journal of Educational Technology*, 44(1), pp.31 – 43.

[25] Selwyn, N (2013) Rethinking Education in the digital Age. In K. Orton-Johnson and N. Prior, *Digital Sociology: Critical Perspectives*, Palgrave Macmillan, Basingstoke, Hampshire.

[26] Salomon, G. (2016). It's not just the tool but the educational rationale that counts. In E. Elstad (Ed.) *Educational Technology and Polycontextual Bridging*. Sense Publishers: Rotterdam, The Netherlands, pp. 149-161

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Collaborative partnership as correlates of evidence-based practice in comprehensive diagnostic assessment process of children with autism spectrum disorders in Nigeria

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Abstract:
This study investigated collaborative partnership as correlates of evidence-based practice in comprehensive diagnostic assessment process of children with autism spectrum disorders in Nigeria. A survey of one hundred seventy six (176) participants comprising of parents and relevant professionals from South-east and South-south Geopolitical Zone of Nigeria selected through expert sampling technique constituted the sample for the study. Two null hypotheses were formulated to direct the study. A twenty (20) item questionnaire with a four point rating scale and reliability coefficient of 0.80 was used to canvass opinions of these personnel on the perceived relevance of parental and interdisciplinary partnership in conducting a quality and comprehensive diagnostic assessment process of children with autism spectrum disorders. The data collected were statistically analyzed using Pearson Product Moment Correlation Analysis. The findings revealed that parental and interdisciplinary partnership have a statistically significant correlation with evidence-based practice in comprehensive assessment process of children with autism spectrum disorders. The authors recommended that parents of children with autism spectrum disorders and relevant professionals should strengthen their service bond in compliance to international legal framework while acknowledging their interdependency to ensure quality and comprehensive assessment process for the overall development of children with autism spectrum disorders.

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Key word: Autism, Assessment, Collaborative Partnership

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Introduction

There has been tremendous progress made in the field of autism over the last 50 years. While it was once a syndrome that was rarely discussed in public, the incidence of children and young people with autism across the world and in particular Nigeria has significantly increased over the past decade. Autism is no longer thought of as a rare disorder, but assumed that this is due to an increased recognition of the needs of individuals on the autistic spectrum. Recent prevalence studies estimated 190,000 children in Nigeria may have this condition (Baron- Cohen, Sidon & Dolphins, 2014). There has been much discussion as to why the rate of autism has been steadily increasing since the 1990s. One reason is linked to the change in diagnostic nomenclature in 1994. At that time, the diagnostic criteria for autism expanded to include children who were not previously considered on the spectrum. Studies

have shown that, despite this change in diagnostic criteria, the number of diagnosed cases of ASDs is much higher than expected (Johnson & Myers, 2007). Furthermore, Pupils on the autistic spectrum are twenty times more likely to be excluded from school than their typically-developing peers (Humphrey, 2015). This has led to increased attention surrounding the educational needs of children with ASDs and the best intervention programmes required.

Autism is a pervasive, etiologically and clinically heterogeneous group of neurodevelopmental disorder which results in profound impairment of social interaction, communication, restricted and repetitive behaviors. Symptoms usually start early, before three years of age. Autism is not a single disorder but a spectrum of all closely related disorders with a shared core of symptoms (Okwudire, 2015). Its cause is unknown but proposed causes include genetic inheritance, teratogens, childhood vaccines and the child's general environment. Included in this group of autistic disorder, Rett's disorder (also known as Rett's syndrome), childhood disintegrative disorder, Asperger's disorder (also known as Asperger's syndrome), and pervasive developmental disorder, not otherwise specified (PDD.NOS); and further noted that there are some overlapping symptoms across these disorders and they are commonly referred to in the professional literature as autism spectrum disorders (ASDs). Autism affects approximately four times more boys than girls (American Psychiatric Manual of Mental Disorders, 2000).

Due to poor medical diagnosis in developing countries, these children may not be identified until school age (California Department of Developmental Services, (2013). As they grow older, academic expectations change as children progress through nursery and primary school, and their academic deficits become obvious. While there's no proven cure yet for autism spectrum disorder (ASDs), treating ASDs early using school-based programmes, and getting proper medical care can greatly reduce ASDs symptoms and increase the child's ability to grow and learn new skills. Autism is treatable through individualized, intensive behavioral and educational intervention; these modalities of treatment are not readily available in Nigeria due to lack of evidence based diagnostic assessment practices (Gbeli & Adeyinka, 2014). According to these authors, improper diagnostic assessment occurs due to a multitude of reasons. First, parents are unsure how to proceed when they first notice signs of atypical development. Secondly, medical and educational practitioners do not handle the diagnostic assessment of autism spectrum collaboratively to design a comprehensive intervention package for the child overall development. Additionally, there is a limited capacity to formally diagnose ASDs in Nigeria. There are few professionals trained and able to make an accurate, differential diagnosis. Thus, many children with this puzzling condition whose cure and causes are largely unknown are not identified early in Nigeria until school age and some are labeled as lunatics.

Consequently, evidence-based practice has become the current benchmark for professionals in medicine, psychology, education, and other healthcare fields in providing a comprehensive diagnostic assessment of children with ASDs (National Autism Center, 2009). Evidence-based practice includes a combination of the best available scientific evidence, professional collaboration, and understanding of client characteristics. Intervention decisions for individuals with ASDs are not based solely on scientific evidence and professional expertise, but are made in the context of the strengths, concerns, values, and preferences of the person with an ASDs and the family while valuing the expertise of other relevant professionals in the diagnosis of ASDs. This network includes the family and the professional team (Medical Specialists, educators, psychologists, social workers, etc.). Thus, evidence-based practice requires the development of local capacity in Nigeria that requires interdisciplinary efforts of both the medical and educational fields in carrying out diagnostic assessment of ASDs (Mesibov & Shea, 2011).

On the medical front, physicians, including pediatricians, family physicians, developmental pediatricians, psychologists, child psychiatrist, speech/language pathologists and neurologists need significant improvement in identifying early signs of ASDs, screening at regular intervals, diagnosing ASDs across all ages (using sound clinical models), and providing recommendations to educators and parents for movement into service delivery. On educational front, personnel including, special educators, regular teachers, behavior analyst, speech/language therapists, school psychologists and social workers are relevant in the diagnostic assessment and remediation of ASDs. For educational services, educators identify areas of learning deficits (Adonu & Kershi, 2001). Furthermore, efforts among school psychologists and other educational team members is needed in terms of eligibility determination for special education services under the disability category of autism for incorporating appropriate individualized interventions and supports. Assessment is the base for all education activities. The purpose of assessment is to identify teaching goals (Okwudire, 2012).

On this account, diagnostic assessment is the first step in the intervention process. Diagnostic assessment in this group consists of a wider variety of assessment procedures for purposes of (a) establishing the diagnosis, (b) determining current levels of functioning, and (c) delineating differential or coexisting diagnosis for appropriate intervention plan (Humphrey, 2015). Gathering and documenting information on the specific area(s) of disabilities that present learning difficulty to a child in school is critical in determining which intervention measure is required to ensure that the child is given appropriate educational services that meet his/her learning needs. This process of gathering and documenting and interpreting information about a child suspected to have learning difficulty is called diagnostic assessment. The success of the diagnostic assessment process for older children and adolescents depends on close collaboration among all service agencies and community professionals responsible for providing services to the individual. Before the Individualized Education Programme IEP team meets, an assessment team gathers information together about the student to make an evaluation and recommendation. The school psychologist, social worker, classroom teacher, and/or speech pathologist are examples of educational professionals who conduct educational assessments (National Autism Center, 2009). It further noted that a neurologist and other medical team may conduct a medical evaluation, and an audiologist may complete hearing tests. The classroom teacher also gives input about the academic progress and classroom behavior of the student. Parents give input to each specialist throughout the process. Then, one person in the evaluation team coordinates all the information, and the team meets to make recommendations to the IEP team. The IEP team, which consists of the school personnel who work with the student and families, then meets to write the IEP based on the evaluation and team member suggestions (Urpuru & Dellar, 2010). Because assessment involves professionals representing multiple disciplines, an individual provider often is identified to collaborate with the family to integrate the findings into a descriptive profile of the individual with ASDs. In public education settings, findings are integrated by a member of the educational team such as a special education teacher. It is against this background that this research is conceived to investigate collaborative partnership as correlates of evidence-based practice in comprehensive diagnostic assessment process of children with autism spectrum disorders in Nigeria.

Statement of the problem

In Nigeria, there seems to be increasing concern over the rise in cases of autism spectrum disorders among school children. In some counties, these concerns have resulted in efforts to enact laws mandating early diagnosis and intervention; the provision of education, as well as developing interdisciplinary model in the diagnosis of ASDs. Nigeria is yet to be

on the map to recognize autism as a concern. In Nigeria, medical and educational professionals do not recognize the role of interdisciplinary partnership with parent of children with ASDs in the diagnosis of their children.

Educational professionals have no clue as to where to refer cases and/or what to do even when sure of the possible disability. Many children with ASDs in Nigeria are either not diagnosed, or misdiagnosed, end up being hidden at home or are lucky to be categorized with mentally ill children with no effort to employ interdisciplinary intervention model. Despite the range of international policies on diagnostic assessment of children with ASDs, it is clear that the current service delivery system in Nigeria is not keeping pace with evidence based practice for diagnosing, treating, and managing ASDs. Experience and research have shown that Nigeria's efforts in diagnosis and identification are appalling, as diagnosis of ASDs is often handled by classroom teachers or physicians without shared knowledge from parents and other relevant disciplines in the diagnosis of these children. It is against this background this research becomes necessary to investigate the place of collaborative partnership practice in comprehensive diagnostic assessment process of children with autism spectrum disorders in Nigeria.

Purpose of the Study

The purpose of this study was to investigate collaborative partnership as correlates of evidence-based practice in comprehensive diagnostic assessment process of children with autism spectrum disorders in Nigeria. Specifically, it aimed at finding the relationship between:

1. Parental partnership and comprehensive diagnostic assessment process of children with autism spectrum disorders
2. Interdisciplinary partnership and comprehensive diagnostic assessment process of children with autism spectrum disorders

Research Hypothesis

To direct the study, two null hypotheses were formulated:

1. There is no significant relationship between parental partnership and comprehensive diagnostic assessment process of children with autism spectrum disorders.
2. There is no significant relationship between interdisciplinary partnership and comprehensive diagnostic assessment process of children with autism spectrum disorders.

Methodology

The research adopted a correlational survey and expert sampling technique was used to sample 176 (one hundred and seventy six) participants comprising of parents and relevant professionals from South-east and South-south Geopolitical Zone of Nigeria selected through expert sampling technique. The instrument for data collection was a questionnaire of twenty (20) items with a 4 point rating scale. It was used to survey opinions on collaborative partnership among professionals and parents in achieving a comprehensive diagnostic assessment process of children with autism spectrum disorders. The instrument was validated by three experts and has reliability coefficient of 0.80 obtained through Cronbach Alpha method of determining reliability. Pearson Product Moment Correlation Analysis was used for hypotheses testing and analysis of the data obtained from field.

Presentation of Result

Research hypothesis One: There is no significant relationship between parental partnership and comprehensive diagnostic assessment process of children with autism spectrum disorders. The hypothesis testing and its analysis are done in Table 1 below.

Table 1

Pearson Product Moment Correlation Analysis of the Relationship between parental partnership and comprehensive diagnostic assessment process of children with autism spectrum disorders (N=176).

Variable	Mean	Standard Deviation	ΣX^2 ΣY^2	ΣXY	Sig	r
Parental partnership	11.01	4.04	701. 09			
Comprehensive diagnostic assessment process	11.34	4.99	1543.07	445.05	0.002	0.60

P<0.05 Degree of Freedom (df) = 174

The analysis in Table 1 showed that parental partnership has a Mean of 11.01 and Standard Deviation of 4.04 and comprehensive diagnostic assessment process of children with autism spectrum disorders has a Mean of 11.34 and Standard Deviation of 4.99. These correlated variables produced an r= 0.60 and it is significant at p<0.05 at degree of freedom of 174. This revealed that parental partnership is significantly related to comprehensive diagnostic assessment process of children with autism spectrum disorders. Therefore, the null hypothesis was rejected. This indicates that parental partnership is an evidence based practice in conducting a comprehensive diagnostic assessment process of children with autism spectrum disorders.

Research hypothesis Two: There is no significant relationship between interdisciplinary partnership and comprehensive diagnostic assessment process of children with autism spectrum disorders. The hypothesis testing and its analysis are done in Table 2 below.

Table 2

Pearson Product Moment Correlation Analysis of the Relationship between interdisciplinary partnership and comprehensive diagnostic assessment process of children with autism spectrum disorders (N=176)

Variables	Mean	Standard Deviation	ΣX^2 ΣY^2	ΣXY	Sig	r
Interdisciplinary partnership	12.11	4.01	1459.82			
Comprehensive diagnostic assessment process	11.34	4.99	1543.07	954.50	0.004	0.56

P<0.05 Degree of Freedom (df) =174

The Table Two above revealed that the Mean of interdisciplinary partnership is 12.11 and standard deviation is 4.01 while comprehensive diagnostic assessment process of children with autism spectrum disorders has a Mean of 11.34 and Standard Deviation of 4.99. The correlation coefficient (r=0.56 obtained from the correlated variables is significant at p<0.05. The result shows that interdisciplinary partnership is statistically and significantly related to comprehensive diagnostic assessment process of children with autism spectrum

disorders. By this result, the null hypothesis was rejected. This result shows that utilizing an interdisciplinary team informs best practice in diagnosis of ASDs.

Discussion

The findings of Hypothesis One revealed that there is a significant correlation between parental partnership and comprehensive diagnostic assessment process of children with autism spectrum disorders. The findings are in agreement with the work of Kyauta, (2013) which affirmed that it is becoming increasingly understood that parents need to be involved in decisions affecting their children's education and overall development. The parents are one of the major targets of the programme because without their support no objective of the intervention programme could be achieved. It is therefore essential that every effort should be made to ensure effective communication and partnership is established and maintained. Parental collaboration in the diagnostic assessment of their children has become a global and contemporary concern to ensure the conduct of comprehensive assessment and the provision of child-centered intervention for all children as nations all across the world key into the global mandate of Education for All (EFA). This 21st century issue in special educational provision has also become a cardinal feature in global best practices in provision of quality assessment for all children. The conduct of quality diagnostic assessment in compliance with evidence based practice demands that parents play a central role and are at the core hub of decision making process about their children to ensuring that need-based intervention is given to children and wards particularly at the early stage (Kyauta, 2013).

Similarly, Purin and Sildon (2008) maintained that a family-centered frame of reference reinforces the concept of parents and caregivers as the most knowledgeable source of information about the child, acknowledges that the child is part of a larger family system and sets the stage for ongoing collaboration and communication between professionals and family members. Individuals with ASDs and their families are treated as key partners throughout the intervention process. Parent and caregiver involvement are essential to maximizing the effectiveness of interventions because of their central role both in determining the child or individual's environment and experiences and in facilitating coordination of intervention services. The needs, priorities and resources of the family should be the primary focus and be respectfully considered during each step of screening, diagnostic evaluation and assessment for intervention planning (Mesibov & Shea, 2011).

The Hypothesis Two of this study states that there is a significant relationship between interdisciplinary partnership and comprehensive diagnostic assessment process of children with autism spectrum disorders. These findings are in agreement with the study of Collaborative Work Group on Autistic Spectrum Disorders (2010) which stated that in compliance to evidence based practice, a collaborative interdisciplinary effort represents the optimal approach to intervention planning and implementation. Specialists provide insight and recommendations relevant to their fields of expertise, and also are familiar with the theories and approaches of other key disciplines so that integrated intervention strategies and programmes can be developed. The recommendation for an interdisciplinary team assessment for children with ASDs is in keeping with current evidence based practice that indicates that these children respond best to a combination of intervention approaches that address particular challenges on an individual basis. Thus, individual team members are able to make contributions that are more valuable to a complete intervention approach when they are a part of a comprehensive assessment process. It is important to acknowledge both the unique expertise of professionals based on their area of specialty and their knowledge and experience related to or shared with other disciplines. For example, similar methodologies often are used across disciplines to promote learning and pro-social behaviors of children with ASDs.

Similarly, Marder and Fraser (2012) affirmed that interdisciplinary processes stress the importance of gathering information from a variety of disciplines that have unique knowledge of a particular aspect of the autistic child and family. Professionals most often involved with persons with ASDs include psychologists, psychiatrists, neurologists, pediatricians, other physicians, speech pathologists, audiologists, occupational therapists, social workers and behavioral and educational specialists. Input from all involved professionals may be necessary to obtain a complete picture of the child and family for effective service planning. A quality interdisciplinary diagnostic assessment requires respect, integration and coordination among professionals with diverse backgrounds. The interdisciplinary team model is the preferred model in the evaluation and assessment of ASDs. The interdisciplinary process involves professionals from various disciplines providing their unique contributions regarding aspects of the child's development and family functioning. The defining feature of this approach is the ability to integrate and synthesize information through an interactive group process (Adonu & Kershi, 2001). Members are aware that their interpretation informs the whole and are able to formulate conclusions and recommendations based upon the combined efforts of all. Furthermore, ASDs affect multiple developmental domains. Therefore, utilizing an interdisciplinary team constitutes best practice for a diagnosis of ASDs and is an essential component of the assessment process. An interdisciplinary team is essential for establishing a developmental and psychosocial profile of the child and family to guide intervention planning. Such an approach promotes seamless communication among team members and leads to a more integrated, cohesive translation of findings. The interdisciplinary team creates a view of the individual that is detailed, concrete, easily understood and offers realistic recommendations (Gbeli & Adehinka, 2014).

Conclusion

The best way to help individuals with autism involves a team effort with parents playing an integral role as respected partners. No one individual or group of professionals has unlocked all of the complex variables involved in ASDs; a coordinated effort by all involved can greatly enhance the functioning level of the child with ASDs and concomitantly reduce the tremendous familial stress associated with having a child with a disability. Parents are to be acknowledged as collaborators in their child's treatment programmes beginning at the time of diagnosis.

Recommendations

Based on the findings of this study, the following recommendations are made:

- Parents of children with ASDs and relevant professionals should strengthen their service bond in compliance to international legal framework while acknowledging their interdependency to ensure quality and comprehensive assessment process for the overall development of children with autism spectrum disorders.
- All professionals involved in diagnostic assessment of children with ASDs should value the shared responsibility and expertise of other relevant professionals in the diagnosis of ASDs to foster integrated intervention strategies and programmes for the child.
- All relevant professionals in the diagnostic assessment of ASDs should be legally empowered, specifying the role of each profession/professional in assessment so as to promote quality, comprehensive and coordinated assessment process that foster integrated intervention programmes.

References

1. American Psychiatric Manual of Mental Disorders (2000). *Diagnostic and statistical manual of mental disorders (5th ed.).* Washington, DC: Author.
2. Baron- Cohen, C., Sidon, N. and Dolphins, F.B. (2014). A comprehensive behavior theory of autistic children: Paradigm for research and treatment. *Journal of Behavior Therapy and Experimental Psychiatry, 20, 17-29.*
3. California Department of Developmental Services (2013). *The childhood autism rating scale (CARS) for diagnostic screening and classification of autism.* New York: Irvington Publishers.
4. Collaborative Work Group on Autistic Spectrum Disorders (2010). *Designing collaborative educational services: A collaborative approach.* Baltimore, MD: Paul H. Brookes Publishing Co.
5. Gbeli, S.A. and Adeyinka, C. 2014). Commentary on person-centred approaches to supporting children and adults with autism spectrum disorders. *Tizard Learning Disability Review, 14(3), 27-29.*
6. Humphrey, H.F. (2015). Early intervention for children with autism and related developmental disorders. In E. Schopler, M. Van Bourgondien, Sc M. Bristol (Eds.). *Preschool Issues in Autism.* New York: Plenum Press.
7. Johnson, I. and Myers, A.C. (2007). Improving social engagement and initiations between children with autism spectrum disorder and their peers in inclusive settings. *Journal of Positive Behavior Interventions, 14(4), 220- 227.*
8. Kyauta, E.F. (2013). *The world of the autistic child.* New York: Oxford Press.
9. Marder, F. and Fraser, B.U. (2012). Teaching play activities to preschool children with autism: The importance of developmental considerations. *Journal of Early Interventions, 17, 1-21.*
10. Mesibov, G. B., & Shea, V. (2011). Evidence-based practices and autism. *Autism, 15(1), 114-133.*
11. Okwudire, A.N. (2012). Forms of assessment strategies for children with autism in Nigeria. *Journal of Professional Teachers 1 (1) 116-122*
12. Okwudire, A.N. (2015). Access to quality education in Nigeria for individuals with autism spectrum disorders in Imo State. *The Exceptional Child 17 (1) 56-66*
13. Purin, T. and Sildon, O.P (2008). A practical strategy for ongoing reinforcer assessment. *Journal of Applied Behavior Analysis, 22, 171-180.*
14. Urpuru, V. and Dellar, G. (2010). *A review of the research to identify the most effective models of practice in early intervention for children with autism spectrum disorders.* Australian Government Department of Health and Ageing, Australia.

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The Impact of Collaborative Writing through Wikis and Blogs on Iranian EFL Learners' Writing Achievement

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Abstract
Wikis and blogs, defined as educational tools in line with the objectives of collaborative writing, are regarded as innovative ways of writing addressing the problems of conventional types of writing. Although writing in wikis and blogs step in different contexts, they are both aiming at betterment of collaborative writing procedures. It is believed that due to certain reasons bringing in wikis and blogs to learners' life can lead to better performance of writing. This study aimed at dipping into pedagogical aspects of wikis and blogs in the hope of eliminating prior traditional mistakes and bringing students together in a more constructive L2 context. To this end, three groups of intermediate students were experimented in three settings of wiki-group, blog-group and conventional (control) group. Despite conventional group learners, participants in both experimental groups experienced L2 writing in a new telecollaborative context. An achievement test was administered after the treatment to check learners' degree of improvement in EFL writing. The results of this study provide a deep insight towards the effectiveness of writing in the contexts of wikis and blogs compared with conventional writing procedures. The overall conclusion drawn from the distinction of conventional writing, on one hand, and wikis and blogs, on the other hand, indicates that the latter channels of writing are more constructive for learners' writing improvements.

Key words: collaborative writing, wikis, blogs

1. Introduction

According to Yang and Chen (2007) the final goal of learning a language is communication therefore, an L2 teachers' main goal is to prepare learners to communicate in a meaningful real world situation. Language skills as speaking, listening, reading, and writing prepare the tools for a meaningful communication. Although these four skills should equally be accounted for, in many EFL/ESL contexts L2 writing is usually neglected. In Iranian ESL/EFL setting teaching L2 writing has its own set of problems. In a conventional L2 writing class communication among students and teachers is limited. To improve communication and deal with other issues that exist in traditional L2 writing classes it is a good idea to introduce web 2.0 based collaborative writing platforms such as wikis and blogs. In these two contexts students and teachers can write together collaboratively with no time and place limitations. Unlike face-to-face meetings among students to discuss the drafts of the writing, blogs and wikis would allow members to communicate with one another faster and more frequently, improve and share their drafts faster, and produce their final written products with great satisfaction as they are not bound by time and space (Zaini, Kemboja & Supyan, 2010). The adoption of using blogs and wikis as instructional technology can create a space beyond the more traditional classroom setting that can be used judiciously to facilitate learners' collaborative writing processes and interactions. And consequently lead to an improvement in human communication, cooperation, and collaboration.

1.1. Collaborative writing

Collaboration as a cornerstone of human communication can improve in a web-based environment. In traditional classes educators are typically dissatisfied with the quality of students' cooperation and collaboration. Web 2.0 technology can potentially offer the solution to this problem (Witney & Smallbone, 2011). Through collaboration in a cyberspace and by helping each other to learn, students contribute to each other's skill base and knowledge and thereby shape a virtual learning community. With teaching through technology becoming increasingly integrated into teaching methodologies, educators strive to ensure these methods are in fact enhancing student learning. When collaborative web 2.0 tools are used to support existing pedagogy and enhance student interaction in socially current ways, these tools can effectively support student-centered

constructivist learning (Alshumaimeri, 2011). Constructivists such as Piaget have long argued that individuals are, from birth on, actively involved in constructing personal meaning, with their personal understanding arising from their experiences (Coniam & Mark, 2008). And these experiences emerge out of individual's social interactions and collaborations. Couture and Rymer (1989) see collaboration as the oral and written communication pertaining to a document during the process of planning, drafting and revising it, and say that it may be fair to conclude that significant writing is enveloped in talk (as cited in Bremner, 2010 p. 121). In this study collaborative writing refers to the development of a piece of text by multiple writers. Students and teacher(s) come together to form a learning community to produce a single text. Every single member of the team has the right to edit, delete, add information, or give comments on others' share of the task. Since this kind of collaboration is not possible in a traditional class setting, there is a need to make use of computers and combine conventional face-to-face classes with web 2.0 based technologies.

1.2. Social Constructivism

The emphasis on community and social networks in Web 2.0 has a strong connection to theories of social constructivism and the learners' need to create meaning. Within this context social- constructivist learning theory has reemerged as an approach to learning independently and embedded within a social community. Social constructivism is the approach for online and distance learning for the e-Learning 2.0 paradigm and the Web 2.0 era (Sturm, Kennell, McBride, Kelly, 2009). Wikis and blogs can be used to facilitate computer-supported collaborative learning, i.e., the development of collaboration by means of technology to augment education and research. This enhances peer interaction and group work, and facilitates sharing and distributing knowledge and expertise among a community of learners (Parker & Chao, 2007). Richardson (2006) calls blogs "a truly constructivist tool for learning" (p. 27) because their content is part of a wider body of knowledge accessible and potentially relevant to an audience outside the classroom (Sturm, Kennell, McBride, Kelly, 2009). Wikis on the other hand enhance asynchronous communication and cooperative learning among students, and promote cooperation rather than competition.

1.3. CALL and Blended Learning

Rahimi and Yadollahi (2010) in a recent research carried out in an Iranian EFL context have suggested that globalization and rapid growth of information and communication technologies has provided greater opportunities for teachers to use computers in their classes over the past thirty years. Based on Warschauer and Healey's classification of CALL Rahimi and Yadollahi (2010) have also proposed that over the past fifty years or so the integration of CALL into language classes has enjoyed three different phases:

1. Behaviorist phase (late 1950s-1970s), in which computers are used as tutors. They provide learners with repetitive drills, exercises and grammatical explanations. There is no interaction between the set and the student in this phase.

2. Communicative phase (late 1970s-1980s), in this phase cognitive psychology is the core and:

- Learning is considered to be a creative process,

- Use of the language is supposed to be more important than its usage,

- Skill practice i.e., language games, reading, and text reconstruction substituted drill practice,

- Computer was still a tutor but it also provided learners with some choice, control, and interaction, and more importantly

- "computer was also used as stimulus (e.g. to stimulate writing, discussions) or as a tool, i.e., it did not offer instructional materials, but was used for creating or understanding the language through programs such as word processors, spelling and grammar checkers."

3. Integrative phase (late 1980s to date), that is mainly based upon socio-cognitive theory of learning in which authentic use of language in a meaningful context is emphasized. This interaction-based phase of incorporating CALL into language learning has also been greatly influenced by the constructivist view of learning (as cited in Rahimi and Yadollahi, 2010).

Web 2.0 technology has been one of the latest improvements in the integrative phase of CALL. This technology can easily be merged into traditional settings to provide an interaction-based setting in line with Vygotskian constructive view of learning. Wikis and blogs as innovative tools of web-based instruction have been appealing to many educators, parents, and policymakers in blended learning approach. The blended approach to language learning tries to combine the best elements of online learning and face to face learning (Motteram and Sharma, 2009). This approach has been suggested to be the most appropriate solution for many teachers working in traditional classrooms who want to make use of digital technologies as an aspect of their practice (Motteram and Sharma, 2009). A big advantage of this student-centered mixed-mode instruction is its combination of rich learner-teacher-peer interaction both synchronously (through face-to-face interaction) and asynchronously (through the internet as in this study) (Dziuban et al., 2004). In other words, in a blended learning context learners are able to be both together and apart. They may be connected to a community of learners without being time, place, or situation bound (Akkoyunlu and Soylu, 2008). Hybrid or blended learning combines the best of both worlds; it thoughtfully combines online delivery of educational content with the best features of classroom interaction and live instruction to personalize learning (Akkoyunlu and Soylu, 2008).

1.4. Blogs and Wikis

Doctorow et al., (2002) defined blogs as a simple webpage consisting of brief paragraphs of opinion, information, personal diary entries, or links, called *posts*, arranged chronologically with the most recent first, in the style of an online journal (cited in Akçaya and Arslan, 2010). Weblog or blog is a major component of Web 2.0 that provides an excellent opportunity for language learners and educators to share and expand their knowledge collaboratively. As a feature of Computer Mediated Communication (CMC), blogging provides a viable environment for collaboration in which EFL learners can share their emotions and ideas in cyberspace (Fageeh, 2011). Through weblogs members would be able to communicate with one another more easily, more frequently, and faster. They can improve and share their drafts faster and produce their final written products with great satisfaction as they are not bound by time and space (Zaini, Kemboja & Supyan, 2010). Although blogs can be applied to teach all language skills, they seem to be extremely valuable tools for writing instruction in particular. Duffy and Axel (2006) proposed that within the structure of a blog, students can demonstrate critical thinking, take creative risks, and make sophisticated use of language and design elements. In doing so, students acquire creative, critical, communicative, and collaborative skills that may be useful to them in both scholarly and professional contexts.

A wiki on the other hand, is a space on the Web where one can share work and ideas, pictures and links, videos and media — and anything else one can think of (www.wikispaces.com). Bailey (2011) defines a wiki as a series of collaborative web pages which can be edited by all those with a password or by all those who visit it and which becomes a repository of knowledge, with the knowledge base growing over time. Wikis are paradigm examples of Web 2.0 tools that are effectively used to design constructivist learning environments and engage learners in collaborative learning environments. As another feature of cutting-edge web 2.0 technology wikis have also attracted the interest of many professional educators all over the world. These educators not only are motivated to analyze wikis from a theoretical perspective but also want to understand how and why their students should invest in them. What can writing in a wiki teach students about the composition process? What kind of rhetoric is needed to successfully enter and actively participate in a wiki community? What are the different stages of collaboration, and how do they foster course outcomes? And, on a more pragmatic level, what kind of wiki-related writing assignments will truly benefit students? If wikis are good for anything in a writing classroom, it is their ability to open up issues that may have seemed hopelessly abstract before (Cumming & Barton, 2011). A wiki is a powerful tool for constructivist learning environment because it facilitates collaboration. In recent years, online collaboration wiki websites such as PBworks.com, Wikispaces.com, Wetpaint.com and Wikia.com are widely used by educators to support English writing (Li, et al., 2009).

1.5. Process Writing

In this study a process writing approach was favored over a product-oriented approach to L2 writing. According to Chao and Lo (2009) process writing, in fact, is learning how to write by writing. The process of how a piece of precious writing is developed is of high importance. The process-oriented instruction focuses on the process as students write rather than the product of what students produce. The process writing has an immense effect on understanding the nature of writing and its instruction (e.g., Hyland, 2003). It takes into account multiple stages of writing process, such as prewriting, drafting, revising, editing, and publishing. It has to be noted that the writing process is dynamic and recursive. A great deal of writing textbooks (e.g., Oshima &

Hogue, 2007) use process oriented writings as the guidelines of teaching materials. These five writing processes, therefore, are generally viewed as the essential skills required in the actual generation of a written text. Wikis and blogs provide environments in which the criteria for process writing can be met and students can actually learn how to write by writing. In these two settings learners can write, rewrite, revise, edit, and even publish either collaboratively with other members of the group or individually.

2. Aims and Research Questions

This study introducing two of the most recent web-based social networking tools in educational context will motivate educators to start applying some new features of web 2.0 in their classes. In this study, it is hoped that more potentialities might be discovered through the above-mentioned contexts. Therefore, the purpose of this study is to shed some light on the pedagogical aspects of the net, and to provide a new collaborative writing context to eliminate the prior traditional mistakes and also to provide more outlets for the betterment of L2 writing. In this study the researcher is pursuing the goal that L2 writing can be enhanced via collaboration through the channels of wikis and blogs. Accordingly, the issue of how context, both wikis and blogs, affects collaborative writing processes is central to this study. The way in which the two contexts differ is examined, and how this can affect the resulting collaborative activity is discussed. Concerning the significance of technology use in teaching English as a foreign/second language, current study aims to answer the following questions:

Q1. Is there any significant difference between wiki-group and conventional group writing achievement test results?

Q2. Is there any significant difference between blog-group and conventional group writing achievement test results?

Q3. Is there any significant difference between wiki/blog groups and conventional group writing achievement test results?

3. Methodology

Participants of this study were 36 Iranian male and female adult EFL learners. They were all university graduates, ranging from 23 to 47 years old. Their current proficiency level of English was intermediate. The size of each class must be the same to fulfill the purpose of balanced design in research. In this study there were 3 classes each consisting of 12 learners. In class 1 (wiki-group) and class 2 (blog-group), telecollaborative web 2.0 tools were employed and in class 3 (control group), conventional writing procedure was practiced. Wiki and blog group students were randomly divided into 4 groups. Each group contained 3 members and members of each team were asked to do their exercises collaboratively with other members of the team.

The design used in this research was a quasi-experimental one in that the participants were not randomly selected. In this research, three groups of intermediate students were experimented in three settings of wiki-group (experimental group 1), blog-group (experimental group 2) and conventional (control) group. See figure 1 below.

E_1	X_1	T
E_2	X_2	T
C		T

Figure 1: Research Design

Here, collaborative writing through wikis and blogs was the independent variable and students writing achievement was the dependent variable.

4. Results

Prior to the treatment, a TOEFL writing placement test was administered to check learners' current level of writing proficiency. To precisely evaluate the performance of participants, TOEFL writing rubrics was applied. Possible progresses of three groups were assessed using a TOEFL writing achievement test at the end of the term. To check the possible differences among three groups ANOVA was applied. Table 1 displays the results.

Table 1: Writing Achievement Test Results

ANOVA

Writing Achievement Test

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	512.16	2	256.08	198.45	.00
Within Groups	42.58	33	1.29		
Total	554.75	35			

ANOVA was conducted to explore the impact of the treatment on learners' degree of improvement in L2 writing, as measured by the achievement test. Subjects were divided into three groups of wiki, blog and conventional group. There was a statistically significant difference at the p < .05 level in mean of the three groups. [F (2.33) = 198.45, p = 0.00.] The amount of F and also p prove that these three groups were significantly different after implementation of the treatment. But the important question here for this study is: where exactly do these differences lie? To answer this "Tukey" and "Scheffe" were used as post hoc tests in this study.

The first research question investigated the effect of using wikis on L2 writing skills. For so doing, wiki based groups Writing Achievement Test results were compared to conventional group Writing Achievement Test results. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for wiki-group achievement test is significantly higher than the mean score for conventional group achievement test (p: .00). Table 3 shows the results of this comparison.

As regards the second research question in this piece of research post-hoc comparisons using the Tukey HSD test indicated that the mean score for blog-group achievement test is significantly higher than the mean score for conventional group achievement test (p: .00). The value of p shows that there is a significant difference between these two groups regarding their achievement test results. The results of this comparison are displayed in table 2 below.

Table 2: Writing Achievement Test Results

Multiple Comparisons

Writing Achievement Test Results

Tukey HSD

(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
wiki	blog	.16	.46	.93	-.97	1.30
	conventional	8.08[*]	.46	.00	6.94	9.22
blog	wiki	-.16	.46	.93	-1.30	.97
	conventional	7.91[*]	.46	.00	6.77	9.05
conventional	wiki	-8.08[*]	.46	.00	-9.22	-6.94
	blog	-7.91[*]	.46	.00	-9.05	-6.77

*.The mean difference is significant at the 0.05 level.

In order to make sure that the mean of experimental group 1 and experimental group 2 put together is significantly different from the mean of conventional group, Scheffe's formula was applied here.

$$\frac{(c)}{\sqrt{\frac{MS_w}{n}\sum w_i^2}}$$

Figure 2: Scheffe's Formula

The results indicated that there was a model significance between wiki/blog and conventional group. t_c =19.92 > t_α =2.56. This indicates that there is a significant difference between the means of wiki/blog groups on one side and conventional group on the other side.

5. Discussion

Results of writing placement test show that participants in all three groups were homogeneous prior to the treatment. After the treatment a test was performed to see if the groups were still homogeneous or not. Table 2 shows that experimental group members outperformed control group members in the achievement test. Although wiki and blog settings are not very similar comparing participants in these groups a significant

dissimilarity in their achievement test scores was not noticed. Group 3 students also improved during the course but compared to groups 1 and 2 the degree of improvement was not as significant.

What caused these changes in the performance of the groups? It may be inferred that, part of the difference in wiki and blog group achievement is linked to the application of Vygotskey's constructive theory. Based on constructivism, students are in charge of their own learning and improvement. Knowledge and meaning should be constructed by the learners themselves rather than provided by a teacher. But in a conventional class setting most of the responsibility is on the instructor. The second reason could be associated with telecollaboration that is possible in a wiki and blog setting. Unlike face-to-face meetings among the group members to discuss the drafts of the writing, blogs and wikis would allow the members to communicate with one another faster and more frequently, improve and share their drafts faster, and produce their final written products with great satisfaction as they are not bound by time and space (Zaini, Kemboja & Supyan, 2010). Thirdly, there is process writing approach in which writing is actually viewed as a thinking process (Brown, 2002). In this approach most of the focus is on a) the process of writing that leads to the final written product b) helping writers to understand their own composing process and build repertoires of strategies for pre-writing, drafting, and rewriting c) giving students sufficient time to write and rewrite d) placing central importance on the process of revision and e) giving students feedback throughout the composing process and encouraging feedback from both the instructor and peers (Brown, 2001). In a traditional approach on the other hand, the teacher would "hunt" for mistakes and use a red pen to mark it. Instead, in a process approach to writing students are invited to read each other's text, make comments and corrections. And then, there is the effect of blending wikis and blogs as high-tech technology into the conventional settings. Carman (2005) has mentioned unique features of these web 2.0 tools, some of which were helpful in this research project including:

1. Live Events: Synchronous, instructor-led learning events in which all learners participate at the same time, such as in a live "virtual classroom."

2. Online Content: Learning experiences that the learner completes individually, at his own speed and on his own time, such as interactive, Internet-based or CD-ROM training.

3. Collaboration: Environments in which learners communicate with others, for example, e-mail, threaded discussions and online chat.

4. Assessment: A measure of learners' knowledge. Pre-assessments can come before live or self-paced events, to determine prior knowledge, and post-assessments can occur following scheduled or online learning events, to measure learning transfer.

5. Reference Materials: On-the-job reference materials that enhance learning retention and transfer, including PDA downloads, and PDFs.

The last but not least important issue that might have influenced the results of this study deals with the limitations of conventional classes. Face-to-face traditional classes have some flaws that make them less effective for teaching composition. Some of these weaknesses as Hinkelman (2005) mentions are inauthentic target language involvement, improper fit with learner preferences and priorities, and inflexible teaching environments. These demerits of traditional classes made participants in this research project achieve less in their composition classes. Thus considering Rahimi and Yadollahi's (2010) study, findings of this research may also suggest that it is time to embrace wikis and blogs as effective writing tools in Iranian EFL/ESL context.

6. Conclusion

To draw a clear conclusion of the effectiveness of telecollaboration the researcher may resort to Lave and Wenger's (1991) situated learning. Based on this model a community of practice is formed whenever people with a common goal come together to learn and teach each other. In this study learning/teaching communities were formed in wiki and blog contexts in which members were meant to achieve common goals through collaboration and interaction. Learning by doing is the core concept of Lave and Wenger's (1991) model of situated learning, in which members of the community are supposed to be "legitimate peripheral participants" (p. 29). Some of the salient features of this model that are also important in the present study are cited in Boudreaux (2010) as follows:

- Participants should take part in communities of practitioners.

- These communities are to pull together people with a common goal of learning something specific.

- Learning is not only a condition for membership into the community but it is also a reward achieved by said membership.

- All members who truly fall into this category have access to the whole community and everything that is produced and shared in this community.

- Every member is an equal member of the community and there is no one person who takes control of the group or the effort.

As far as Wikis are concerned in this research, they allow students to participate in the types of communities of learning that Lave and Wenger (1991) define. As mentioned above these communities involve community members to learn something specific and they each contribute to each others' learning. They allow students an opportunity to work together and provide activities for students to complete where they can generate knowledge with one another and not just themselves. Since each person must contribute in some way, they are excellent in making each member accountable peripheral participants (Boudreaux, 2010). Blogs originally conceived of as online journals, can also be used in line with Lave and Wenger's proposal as they hold a special place as a center of communication and social interaction (Carney, 2009). The term blogosphere has emerged to define this interconnected community of blogs and bloggers (Alm, 2009). This community building properties of blogs and wikis, along with other synchronous or asynchronous web-based communication and content creation tools, build communities of practice into the paradigm of an online learning environment. In traditional classrooms, there are often social communities or cliques but they are rarely based on common learning goals since knowledge building is seen as rooted in the individual student's learning process (Sturm, Kennell, McBride, Kelly, 2009). Boudreaux (2010) suggests that in a collaborative learning situation, learners contribute to each and every part of the assignment and consult with one another by working together to achieve the goal. And this contribution to the assignment and consultation of the group-mates can well be found in both wikis and blogs contexts.

7. Pedagogical Implications

The findings of the study suggest that wikis and blogs help EFL learners to improve their writing through the collaborative learning context and process oriented approach to writing. This has clear and significant implications for teaching and learning strategies in the Iranian EFL context and opens up interesting opportunities for all teachers, administrators, and curriculum developers to explore when planning writing courses for the learners. Having a strong basis in social constructivism and connectionism, web-based learning can blend in with traditional face-to-face classroom activities to compensate for many of the weaknesses present in such classes. Some clear implications of employing wikis and blogs in EFL/ESL context will be as follows:

- More interaction between teachers and learners is possible in a wiki or blog setting rather than in a traditional classroom setting.
- More continuity between learning sessions during a course of study and after the course is over is predictable.
- More active and dynamic learning and teaching opportunities are available.

- A shift in the fundamental perception of learning from, content delivery, to a guided learning process will be possible.
- More recognition of and scaffolding on what students already know is accessible.
-A collection of evidence and documents of students learning online will easily be reachable.
- The learning process can be associated with the learner and fit to the specific demands of the individuals.

8. Future Areas of Research

With Web 2.0 technology improving speedily, it is not just wikispaces or some blog providing websites that can be merged in L2 writing classes. There are other Web 2.0 related social networking facilities that may prove effective in the second/foreign language teaching and learning processes. Some of the most prominent of these are Googledocs, Podcasts, Vodcasts, Twitter, Skype, YouTube, Facebook, and Google+. Having some features in common, they each have distinct capabilities to help meet diverse pedagogical demands of the future. A comparative study of the impact of any of these tools on L2 acquisition could be a possible suggestion for the researchers in this field.

This study was carried out in a single 13-session term, yet longer-term projects can be done where students employ wikis or blogs for a more substantial amount of time. In the present study all participants come from the same language background as they are all Iranian Turkish speakers. They also have a good command of Farsi speaking and writing. Another potential research project that could be done would be to have multinational students working as telecollaborators in cyberspace. This feature, participants coming from different linguistic and cultural backgrounds, would provide students with the opportunity to work with native speakers in a more authentic and meaningful way which, in turn, could facilitate students' L2 acquisition.

In conducting this piece of research, it is hoped that contributions have been made to the field of teaching English as a foreign language (TEFL) in Iran. Using technology in an educational context is something that is worthwhile for learners and educators as it provides them with opportunities to explore ways to express themselves both as individuals and as members of groups in the society. Telecollaborative Web 2.0 tools such as wikis and blogs offer students the opportunity to broaden their linguistic and social horizons by interacting and communicating with classmates outside of the physical classroom. It is hoped that more studies will be carried out in future that expand upon the findings of this research so that constructive network-based tools can be incorporated and merged more confidently in L2 classrooms of the future.

Reference

Akçaya, A., & Arslan, A. (2010). The using of blogs in Turkish education. *Procedia Social and Behavioral Sciences, 2* , 1195–1199.

Akkoyunlu, B., & Soylu, M. Y. (2008). A Study of Student's Perceptions in a Blended Learning Environment Based on Different Learning Styles. *Educational Technology and Society , 11* (1), 183-193.

Alm, A. (2009). Blogging for self-determination with L2 learner journals. In M. Thomas, *Handbook of research on Web 2.o and Second Language Learning* (pp. 202-222). New York: Information science reference.

Alshumaimeri, Y. (2011). The effects of wikis on foreign language students writing. *Procedia - Social and Behavioral Sciences, 28* , 755-563.

Baily, L. C. (2011). *Using blogs to facilitate collaborative writing projects without silencing the individual student voice.* Chicago: California State University.

Boudreaux, M. (2010). *Collaboration via wikis: Social aspects and adapting teacher feedback in an online environment.* University of Louisiana at Lafayette.

Bremner, S. (2010). Collaborative writing: Bridging the gap between the textbook and the workplace. *English for Specific Purposes 29* , 121–132.

Brown, H. D., (2001). *Teaching by Principles: An Interactive Approach to Language Pedagogy.* 2nd ed., Pearson Education, NY.

Carman, J. M. (2005). *Blended Learning Design: Five key ingredients.* Agilant Learning. Available: HYPERLINK "http://www.agilantlearning.com/pdf/Blended%20Learning%20Design.pdf" http://www.agilantlearning.com/pdf/Blended%20Learning%20Design.pdf

Carney, N. (2009). Blogging in Foreign language Education. In M. Thomas, *Handbook of research on Web 2.o and Second Language Learning* (pp. 292-308). New York: Information science reference.

Chao, J. Y.-C., & Lo, H.-C. (2009). Students' perception of wiki-based collaborative writing for learners of English as a foreign language. *Interactive Learning Environments* , 1-17.

Coniam, D., & Kit, w. M. (2008). Incorporating wikis into the teaching of English writing. *Hong Kong Teachers' Centre Journal* , 7, 52-65.

Cummings, R. E., & Matt, B. (2011). *Wiki Writing: Collaborative Writing in the Colledge Classroom.* Michigan: The University of Michigan Proficiencyss.

Dziuban, C. D., Hartman, J. L., & Moskal, P. D. (2004). Blended Learning. *Educause Center for Applied Research , 1-17.*

Dziuban, C., Moskal, P., & Hartman, J. (2004). Higher Education, Blended Learning and the generations: Knowledge is Power-No More. *Research Initiative for Teaching Effectiveness, LIB 118* , 1-14.

Fageeh, A. I. (2011). EFL Learners' use of blogging for developing writing. *Journal of Language and Literature, 2* , 31-48.

Li, X., Chu, W. K., Ki, W. W., & Woo, M. (2009). *Students and teacher's attitudes and perceptions toward collaborative writing with wiki in a primary four chinese classroom.* Proceedings of an International Conference *"ICT for Language Learning" 3rd edition.* Hong Kong.

Motteram, G., & Sharma, P. (2009). Blended Learning in a Web 2.0 World. *International journal of Emerging Technologies & Society , 7* (2), 83-96.

Parker, K. R., & Chao, J. T. (2007). Wiki as a Teaching Tool. (A. Koohang, Ed.) *Interdisciplinary Journal of Knowledge and Learning Objects , 3*, 57-68.

Rahimi, M., & Yadollahi, S. (2010). *Computer-Assisted Language Learning: Iranian students' Attitude.* Proceedings of a National Conference on Modern Instructional Methods (pp.1-10). Tehran: Shahid Rajayee Teacher Training University.

Richardson, W., (2006) *Blogs, Wikis, Podcasts, and Other Powerful Web Tools for Classrooms*. Thousand Oaks, CA: Corwin Press.

Sturm, M., Kennell, T., McBride, R., & Kelly, M. (2009). The Pedogogical Implications of Web 2.0. In M. Thomas, *Handbook of research on Web 2.o and Second Language Learning* (pp. 367-384). New York: Information science reference.

Warschauer, M. (2005). Social Perspectives on CALL. *CALL Research Perspectives* , 41-51.

Witney, D., & Smallbone, T. (2011). Wiki work: can using wikis enhance student collaboration for group. *Innovations in Education and Teaching International, 48* , 101–110.

Zaini, A., Kemboja, I., & Supyan, H. (2011). Blogs in Language Learning: Maximizing Student's Collaborative Writing. *Procedia Social and Behavioral Sciences, 18* , 537-543.

MODELING THE RELATIONSHIP BETWEEN TURKISH STUDENTS' MATHEMATICAL ACHIEVEMENT IN PISA 2012 AND AFFECTIVE CHARACTERISTICS AND COMPARING THE MODEL IN TERMS OF GENDER

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Abstract: This study aims to model the relationship between Turkish students' mathematical achievement and their affective characteristics affecting their mathematical achievement and investigate whether there are any differences regarding the variables in the models created for two different genders. The sample consists of 4848 Turkish students who participated in PISA 2012. The data were analyzed usingfirst the Explanatory Factor Analysis in order to construct a theory for the model and then the structural equation modeling (SEM) technique in order to determine whether the models created for different genders are statistically meaningful. The LISREL outputs obtained for both subgroups were compared in terms offit indices which are the standard values and the obtained values showed a good model fit. The results indicated that students' self-efficacy has the largest effect on their mathematical achievement in both groups.

Key words: Structural Equation Model (SEM), PISA, Gender.

Conference Topic: Education, Research and Globalization

INTRODUCTION

Self-efficacy in mathematics can be defined as the beliefs of one's own ability to successfully complete tasks related to mathematics. Attitudes towards mathematics include not only the tendency to like or dislike mathematics and to deal with or escape mathematical activities, but also the belief that one is good or bad at mathematics and that mathematics is useful or useless (Trans. Akgün, 2002).

The answers to the following questions will be a clear indication of whether our education system has achieved its goal:
- What are the indicators of success?
- Is the mathematics education in Turkey capable ofhelping the students attain the skills and attitudes described in the whole program?
- What level of the determined skills and attitudes are the students at?

The affective characteristics consist of students' interests, attitudes and beliefs that they will be successful as they enter a certain learning process. These affective characteristics are considered as the source of the efforts students will make in the learning process. Therefore,

it is important to investigate the relationship between students' affective characteristics and achievement in various data sets. In our country, test results which have been revealed in national and international studies indicate that significant deficiencies in our education system (PISA 2003 national report). PISA 2012 results also showed that Turkey was at a much lower level of average achievement level in Mathematics when compared with the other countries (PISA 2012 national report). Depending on these findings, it can be concluded that Turkish students lack the cognitive skills needed to learn the basic mathematical principlesin the general practice. As shown in many studies (Ceylan and Berberoğlu, 2007; Doğan and Barış, 2010; Özdemir, 2003; Uzun, Gelbal and Öğretmen, 2010, Carroll et al., 2009; Klomegah, 2007), these cognitive skills can be affected highly by the attitudes, perceptions, self-efficacy belief of the students. Therefore, these affective characteristics of the students can be studied in order to reveal the probable factors which might affect Turkish students' low achievement in mathematics. In fact, it is no secret that achievement is affected by many factors. Studying the factors known to have impact on achievement will help obtain more accurate findings about our education system.

This study aims to model the relationship between Turkish students' mathematical achievement and their affective characteristics affecting their mathematical achievement. It also aims to investigate whether there are any differences regarding the variables in the models created for two different genders. In line with this goal, it is thought that the model should be established by using an international large-scale testingdatasetso that the interpretation of the differences within this model will be helpful to explain our identity of national success. International testing datasets are important sources which help the education policy makers, and the experts and researchers who prepare the curricula to better understand the functioning of their education systems.

METHOD

This study is a correlational study designed to test the relationshipbetween Turkish students' mathematical achievement in PISA 2012 and their affective characteristics affecting their mathematical achievement and to compare this relationship in terms of genders.

Study group: The study group consists of 4848 Turkish students who participated in PISA 2012. Their scores in Mathematic test and responses to the survey were used as the data, which were obtained from EARGED and ISC websites.

Data analysis: The data were analyzed using first the Explanatory Factor Analysis (EFA) in order to construct a theory for the model and then the structural equation modeling (SEM) technique in order to determine whether the models created for different genders are statistically meaningful. In order to determine the variables i.e. affective factors affecting mathematics achievement, first, an exploratory factor analysis was used. Depending on the analysis results, the representative variables,which would be used in SEM, were determined. An EFA is a statistical method used to uncover the underlying structure of a relatively large set of variables and to reveal the true causes behind many features that can be measured and

observed (Hair, Anderson, Tatham and Black, 1998: 95-97). SEM is a statistical approach used to test models in which causal and correlational relationships between observed (measured) variables and latent (unobservable, non-measurable) variables coexist (Hoyle, 1995). Since it is based on the determination of the relationship patterns between a numberof variables desired to be revealed in the SEM studies, it will be possible to make more accurate inferences about the existing relationships and to drawmore explanatory conclusions about Turkish students' mathematicalachievement in PISA 2012. Since the EFA is a multivariate statistical technique, its assumptionsare tested first. In this context, PISA 2012 Turkey Student Survey data were analyzed and all the assumptions were tested on 59 items related to affective characteristicsof the students. In order to use a full data matrix, 3488 respondents who did not fully respond all the items in PISA 2012 Turkey Student Survey were deleted using the listwise method. After the extreme values were checked, 339univariate extreme values, which were not between the standard z values -3 and +3, were removed. Then, multivariate outliers were checked using Mahalonobis distances ($\chi 2$ $_{(P = 0.01, \, df = 58)} = 97{,}039$). 81 multivariate outliers,which were higher than 97,039, were removed from the dataset (Tabachnick and Fidell, 2007).Eventually, there were 940 respondents left in the dataset.

In order to determine the representative variables, it was decided to work on the items in the subtopics of "interest in mathematics", "instrumental motivation", "self-efficacy in mathematics", "anxiety in mathematics", "study ethics in mathematics" in the original dataset. Analyzes were conducted with 28 items under these subtopics. In the EFA, the varimaxvertical rotation technique was used because the unrelated factors (Tabachnick and Fidell, 2007). As a result of the EFA, the loadings of the 28 items in the student survey under the factors were examined. In the determination of the factors, the eigenvalues, factor loads and theoretical relevance of the items under the same factor are evaluated.

The analysis results indicated that the total variance explained by the items loading under five factors was 60.77%. The Bartlett's Test was found to be significant.However, in this study, the items in the subtopics "mathematical interest" and"instrumental motivation" were accumulated under one factor. Also since 2 items related to the subtopic"self-efficacy in mathematics" loaded higher underthe fifth than the other factors, the number of the factors was fixed to 4, and then the analysis was repeated. The analysis results indicated that the total variance explained by the 24 items loading under four factors was 56.67%. At the end of the EFA, the measurement model related to affective characteristics was determined by using 28 items under 4 factors. The model, whose theory was constructed using EFA, was created with Lisrel 8.7 Path technique as shown in the Figure 1. The latent variables in the model will be used to explain the achievement of the students. Achievement is a latent variable and indicator variables are thestudents' mathematics test scores. The model whose theory was constructed by the literature and the EFA is given in the Figure 1 below.
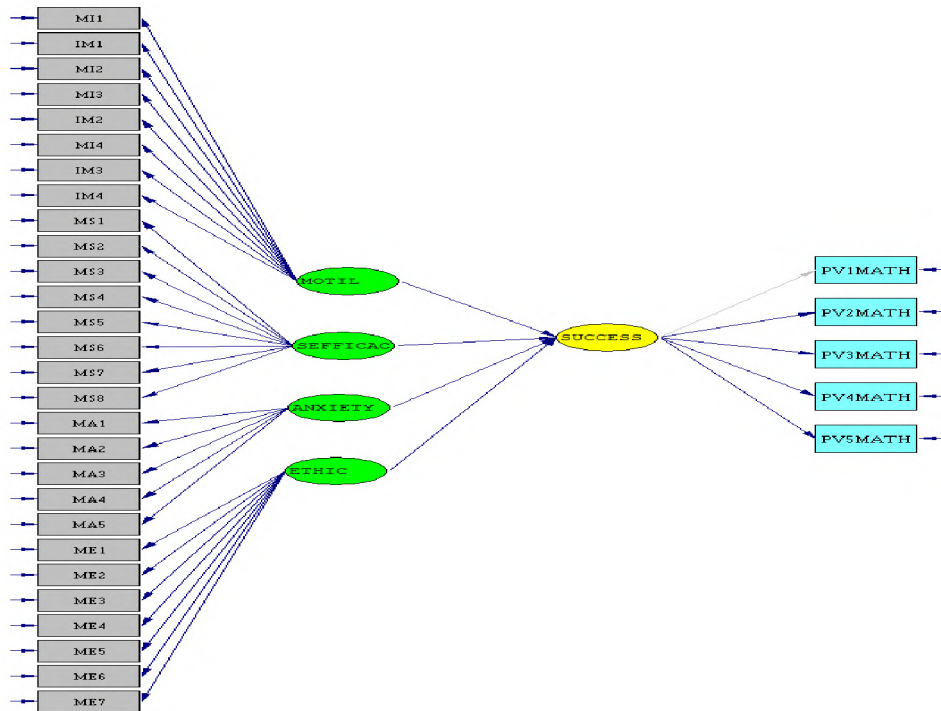
Figure 1: Diagram of the structural model created using all the data and EFA results

The structural model in the Figure 1 created on the basis of the results of the EFA has 6 latent variables and 33 indicators in total; 8 indicators predicted by the latent variable MATEMATICHAL INTEREST (*MOTIL*), 8 indicators predicted by the latent variable *SELF-ECCICACY (SE)*,5 indicators predicted by the latent variable *ANXIETY (ANX)*, 7 indicators predicted by the latent variable *ETHICS (ETHIC)*, 5 indicators predicted by the latent variable Mathematical achievement (*SUCCESS*).

Mathematical achievement (*SUCCESS*) is the dependent latent variable and the students' scores from the 5 basic mathematics tests are used as the components explaining it. The LISREL output of the structural model shown in the Figure 1 was examined and the obtained fit indices were given with the recommended level of acceptablefit in the Table 1.

Table 1: Fit indices obtained for the model created using all the data

	df	X^2	p	RMSEA	CFI	GFI	NFI
Model	485	2371.97	<0.001	0.072	0.96	0.85	0.95

As shown inthe Table 1, the fit indices are consistent with the values suggested by Schermelleh-Engel and Moosbrugger (2003) and Klein (2005). That is, CFI, GFI, NFI, RMSEA values satisfied the recommended level of acceptable fit.If the values are within the specified range, it means that the model is compatible with all the data. That is, the hypothetical model applies to all data sets, hence the theory is consistent with the data. The standard path values and t values of the structural models created with the affective variables and achievement are given in Figures 2a and 2b.
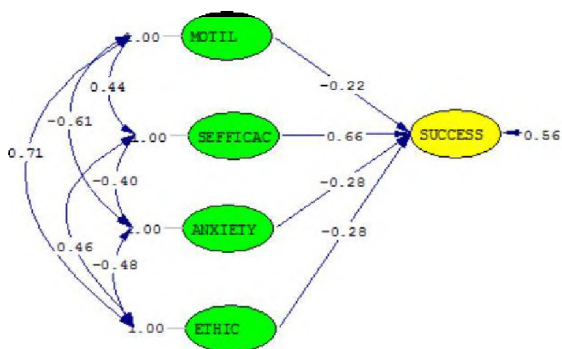
Figure 2a: Standard path values of the latent variables in the model   **Figure 2b**: t values of the latent variables in the model
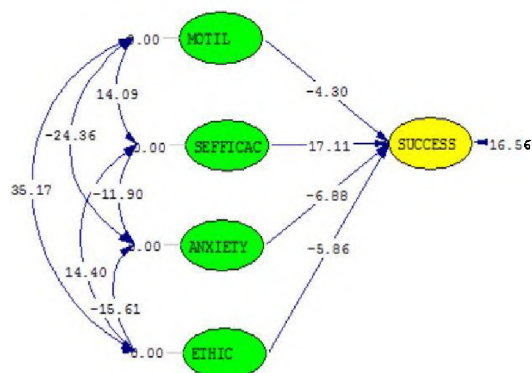
Figures 2a and 2b show the standard path values and t values of λ factor loads which determine the relationship between the latent variables and achievement in the structural model. It is possible to conclude by looking at the values in the equation that the variables that are modeled on the mathematical achievement of the Turkish students participating in PISA 2012 have a significant effect on the data. The t-values of all variables are found to be significant. The regression equation obtained from these values is as follows:

$$SUCCESS = 0.66*SE \ - \ 0.28*ANX- \ 0.22*MOTIL \ - \ 0.28*ETHIC$$

With this regression equation, it is possible to interpret the relationship between *SUCCESS* and the variables *SE, ANX, MOTIL* and *ETHIC*. Depending on the coefficients in the equation, it can be concluded that mathematical achievement, the dependent variable, can be predicted predominantly by the students' self-efficacy. It is followed by their anxiety andstudy ethics equally and then mathematical interest.

Table 2: Fit indices of the models created for female and male students

Model for	df	X^2	p	RMSEA	CFI	GFI	NFI
Femalestudents	485	1552,49	<0,01	0.073	0.96	0.82	0.95
Male students	485	1307,86	<0,01	0.068	0.96	0.83	0.94

The values in Table 2 satisfied the recommended level of acceptable fit. Very similar fit indices were obtained for both data sets. Examining the equation allows us to make a comparison of the variables which are thought to be effective in the achievement ofmale and female students. When the values are examined, it can be said that the model is compatible with both datasetsof male and female students. The structural model diagrams showing the standard path values and t values of the variables in the model for male and female students are shown in Figure 3a (female students) and Figure 3b (male students).
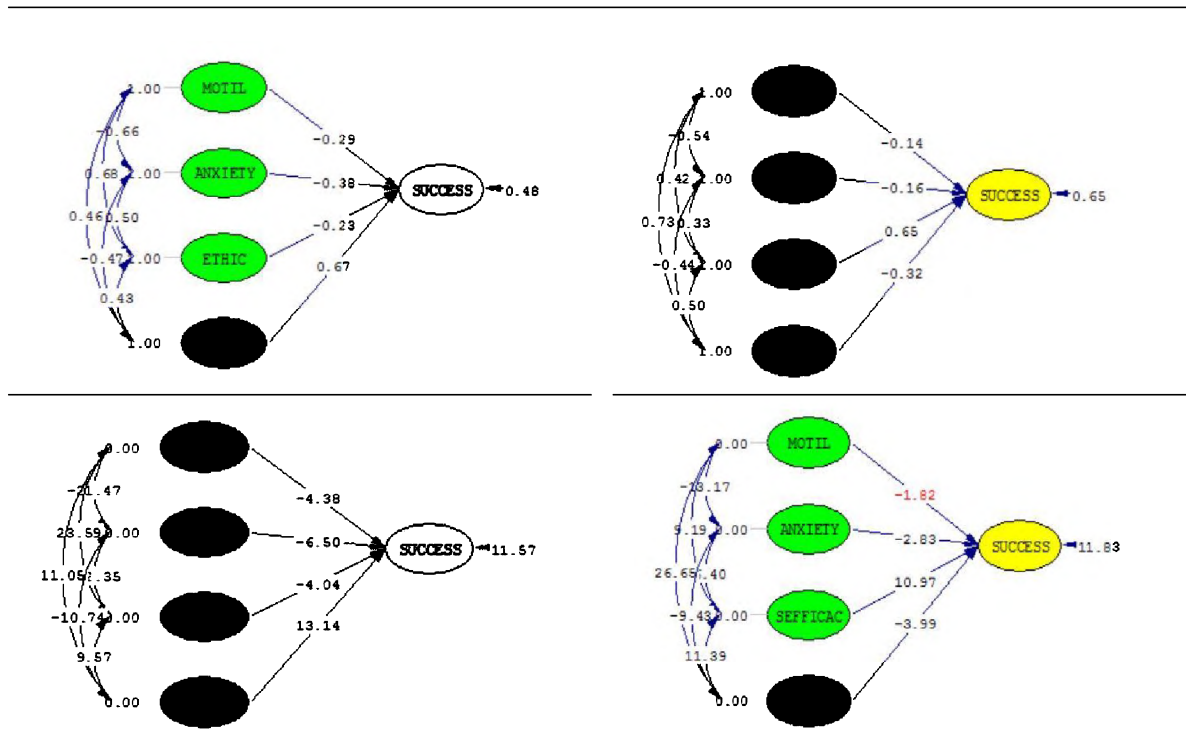
Figure3a: Standard path values and t values of the latent variables in the model for female students	**Figure3b:**Standard path values and t values of the latent variables in the model for male students

Figures 3a and 3b show the standard path values and t values of λ factor loads which determine the relationship between the latent variables and achievement in the structural model. In the model for female students, the t-values of all variables are found to be significant. However, the t-value of the latent variable *"MOTIL"* in the structural model for male students was foundto be insignificant. The regression equations obtained from these values are as follows:

SUCCESS (FEMALE) = 0,67*SE - 0,38*ANX- 0,29*MOTIL - 0.23*ETHIC
SUCCESS (MALE) = 0,65*SE - 0,16*ANX - 0.32*ETHIC

According to the coefficients of the variables in these equations, the independent variables that predict the female students' achievement the most are their self-efficacy, anxiety, mathematical interest and study ethics respectively while the independent variables that predict the male students' achievement the most are their self-efficacy, study ethics and anxiety respectively.

CONCLUSIONS AND RECOMMENDATIONS

There have been many research and studieswhich have made significant progress indescribing the cognitive processes that are important to success in mathematics. However, the relationship between affective factors and these cognitiveprocesses have always been underestimated. That is why this study aimed to determine relationship between affective factors and the mathematical achievement of students based on their cognitive ability in

PISA 2012. In this study, a structural equation modelwas created to investigate the relationship between Turkish students' mathematical achievement and their affective characteristics affecting their mathematical achievement and investigate whether there are any differences regarding the variables in the models created for two different genders.

Naturally people's attitudesare closely related to their cultural environment and their previous experiences (Kahle and Lakes, 1983). Also having an attitude does not necessarily mean behaving in the expected direction. Several correlational study results in Turkey have also indicated that the average level of students' achievement in mathematics is low even though students generally have positive attitudes towards mathematics. Findings of this study have revealed similar results with the studies conducted in our country (Öztürk and Şahin, 2015, Tatlı, Ergin, Demir, 2016). As a matter of fact, according to the PISA results, our students were found to be incompetent to perform basic mathematical skills in daily life situations in which they need to use mathematics. However, their level of anxiety about learning mathematics and getting bad grades in mathematics was not found to be high (PISA 2012 National Report).

This study indicated that the most important predictor variable for students' achievement was students' self-efficacy. In gender-based comparisons, both for female students and male students; it wasfound that there is a positive relationship between math achievement and mathematics self-efficacy levels. When this finding is evaluated together with the related research results in the literature, it can be concluded that the mathematical achievements of the students are affected positively by their self-efficacy in mathematics. In other words, students who have a high level of self-efficacy in mathematics can be successful in mathematics too. Therefore, helping students increase their belief in their ability to succeed in mathematics is very crucial in mathematics education. Because students with high mathematical self-efficacy make more efforts to learn and perform well in math, hence have higher academic achievements in the tests like PISA, TIMMS.In conclusion, teachers or educators should focus not only cognitive developments but also affective developments oftheir students by addressing their affective needs related to mathematics. This way they can help their students develop positive attitudes towards mathematics and build their confidence in their mathematical skills, which will eventually increase their academic achievements in mathematics.

REFERENCES

Abali Öztürk Y.&Şahin Ç. "Determination of Relations Between Academic Achievement-Self-Efficacy and Attitude Related to Mathematics", The Journal of Academic Social Science International Journal of Social Science Number: 31, p. 343-366, Winter II, 2015

Akgün, L. (2002). Positive Attitude Development Factors towards Mathematics, Unpublished Master Thesis, Atatürk University, Erzurum.

Carroll, A., Houghton, S., Wood, R., Unsworth, K., Hattie, J., Gordon, L. & Bower, J. (2009). "Self-Efficacy and Academic Achievement in Australian High School Students: The Mediating Effects of Academic Aspirations and Delinquency". Journal of Adolescence, 32 (4), 797-817

Ceylan and Berberoğlu, 2007. Öğrencilerin Fen Başarısını Açıklayan Etmenler: Bir Modelleme Çalışması Egitim ve Bilim. 32.144 : 36.

Doğan, N. ve Barış, F. (2010). Tutum, Değer ve Özyeterlik Değişkenlerinin TIMSS-1999 Ve TIMSS-2007 Sınavlarında Öğrencilerin Matematik Başarılarını Yordama Düzeyleri. Eğitimde ve Psikolojide Ölçme ve Değerlendirme Dergisi,1(1)

Hair, J.F. Jr. , Anderson, R.E., Tatham, R.L., & Black, W.C. (1998). Multivariate Data Analysis, (5th Edition). Upper Saddle River, NJ: Prentice Hall.

Hoyle, R.: 1995, Structural Equation Modeling; Concepts, Issues, and Application (Sage, Thousand Oaks, CA).

Kahle, J. B., & Lakes, M. K. (1983). The myth of equality in science classrooms. Journal of Research in Science Teaching, 20, 131–140.

Kara, Y. &Gelbal, S. (2013) İlköğretim Öğrencilerinin Başarılarını Etkileyen Özelliklerin Tam Sıralama Halinde İkili Karşılaştırmalar Yöntemiyle Ölçeklenmesi. Journal of Measurmentand Evaluation in Educationand Psychology, 4(1), 33-51 33.

Kline, R. B. (2005). Principles and Practice of Structural Equation Modeling (2nd ed.). New York: Guilford.

Klomegah, R. Y. (2007). "Predictors of Academic Performance of University Students: An Application of the Goal Efficacy Model". College Student Journal, 41 (2), 407-415.

Milli Eğitim Bakanlığı, (2005). PISA 2003 Projesi Ulusal Nihai Raporu. Ankara: Milli Eğitim Bakanlığı Basımevi

Özdemir, E. (2003). Modeling of the Factors Affecting Science Achievement of Eighth Grade Turkish Student Based on the International Mathematics and Science Study-Repeat (TIMSS-R) Data, Yayınlanmamış yüksek lisans tezi, Orta Doğu Teknik Üniversitesi, Ankara

PISA 2012 National Final Report, S 143,144, ODSGM, MEB

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Test of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research - Online*, 8(2), 23-74.

Tabachnick, B., Fidell, L. (2007). Using Multivariate Statistics. Pearson Education Company, USA. 5th ed.

Tatlı C., Ergin D., Demir E.,2016.Classifiers of Students' Mathematical Anxiety According to PISA 2012 Turkey Data. Elementary Education Online,; 15(2): 696-707,

Uzun, N. B., Gelbal, S. &Öğretmen, T. (2010). Modeling the Relationship between TIMMS-R Science Achievement and Affective Characteristics and Comparing the Model According To Gender. Kastamonu Education Journal, 18 (2), 531-544.

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ADAPTATION OF A MODIFIED TURKISH VERSION OF BIOETHICAL VALUES QUESTIONNAIRE (BVQ)

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Abstract

The Bioethical Values Questionnaire was created for investigation of conceptions about bioethical values inherent to the scientific activity. This was an adaptation study that focused on using a Turkish version of Bioethical Values Questionnaire developed by Silva, Araujo, Carvalho and Caldera. The subjects of the research consisted of 420 pre service teachers from one of the government university in Turkey. After the application of a factor analysis, it was determined that unlike the original scale, the questionnaire applied to preservice teachers showed a four factor structure and consisted 18 items. It is believed that the instrument will serve as a valuable tool for researchers in science education.

Keywords Bioethical Values Questionnaire, Explanatory and confirmatory factor analyses, scale adaptation, validity and reliability.

Conference Topic: Science Education

1. INTRODUCTION

Nowadays because of the developments in the biotechnological field, people all around the world are supposed to be capable of making decisions and offering possible and acceptable solutions about the bioethics. These developments provide comfort and benefit for mankind but they also give concerns about ethics and moral issues. Therefore, people at any age need to make an ethical decision about science and technology and using its products (Macer, 2004). Society needs to be able to evaluate critically the potential benefits and risks of scientific advances (Dawson, 2001; Dawson and Schibeci, 2003).

One of the most common scientific advances are about biotechnological advances. These advances relate to "socioscientific issues" in general. which are controversial social issues... They can be considered from a variety of perspectives, do not possess simple conclusions, frequently involve morality and bioethics (Sadler & Zeidler, 2004), and also describe societal dilemmas with conceptual, procedural or technological associations with science (Sadler, 2004). These issues have become more important in science education to improve scientific literacy (Pedretti & Hodson,1995), to make science learning more relevant to students' lives (Cajas, 1999; Pedretti, 1999); and to evaluate scientific information (Jimenez- Aleixandre, Rodriguez, & Duschl, 2000; Kolsto, 2001).

The purpose of the science education programs that making individuals be ready for their social roles at their future is beginning to gain more importance today. Because, reflections and effects of the scientific and technological developments on the society are more perceivable now rather than the recent past. Today these technologies are not just an experiment at a laboratory. Now, they are beginning to become a part of our daily lives. Genetically modified foods, duplicated species, use of the genetic knowledge, optional embryo choices, creatures with modified genetic composition, modified vegetational or animal based products and many other things like these are became a normal matter which we are confronted everyday. If we accepted that the biotechnological developments are causing lots of problems, due to the fact that the educators are teaching these kind of subjects, they also should be teaching the concept of moral and ethics. Educators who agree that biotechnological developments cause many ethical problems suggested that morality and ethics need to be taken into consideration while dealing with issues (Crne- Hladnik et al, 2012). Realising and solving ethical issues and not encountering with any dilemma about them are worth to be investigated as a susceptibility issue.

In these days, teaching bioethics become important than ever before. Bioethic as a term, even it used to making a correlation between scientific data and moral system for a while, it has a more broad sense now. The term of bioethic that was only seen as a solution to the moral issues about the medical researches at past, but particularly after 1960's, regarding the developments on technologies such as use of nuclear weapons, fertility technology, it has also began to be seen as interdisciplinary concept (Kushe and Singer, 2015). Concept of bioethic has some sub-concepts such as ecological ethic, environment ethic, medical ethic, medical bioethic, clinical ethic, clinical bioethic. At the aspect of these execution, in addition to biotechnological innovations, the large scaled developments at the science which is done on behalf of life and health is starting to cause some challenges about the making choices regarding the public moral. So, at the second half of the 20th century the consept of bioethic and its study field has started to improve all around the world as well as in our country. In this context if it comes to the bioethic topics, the need of revelation of the "values" that are used for valuation of these topics, is became into prominence. By looking at this need, firstly existing scales and questionnaires that were developed and oriented for this area, are investigated at the literature. Because of the lack of information about the development process of the questionnaires encountered in Turkish literature, foreign literature is scanned. When both constructional forms and development processes of the scales analyzed, just one scale that was developed by Silva et. al. (2012) was found appropriate to use. Bioethical Values Questionnaire has a characteristic feature, which makes its different and more special than all other scales, that being just focused on bioethical values. In this sense, implementation and translation of this scale to Turkish is so important for the people who are interested in this topic and want to make a research about bioethical values.

2. METHOD

Turkish version of Bioethical Value Questionnaire (BVQ) was administered to a sample of 420 preservice teachers, who had enrolled in Teacher Education Program at one of the government university in Turkey. Preservice teachers with incomplete questionnaires with missing values were removed from the data set, before the analyses of the collecting data.

Instrumentation

BVQ which was developed by Silva et. al (2012), reveal the existing bioethical values and it has 21 items. BVQ has a two factoral structure and if the result of the questionnaire is high, it shows that the bioethics values are high. Negative statements are count as a unfavorable. BVQ is a 4 degreed Likert type questionnaire (completely agreed, agreed, not agreed, completely not agreed). The undecided choice was removed from the original questionnaire because the researchers wanted to prevent the not expressing an opinion.

Translation and Turkish-English Equivalency

First of all, we contacted with the developers of BVQ to get their permission about translating to Turkish. So the Turkish literature can gain this scale. The authors gave us their approval by an e-mail. After getting permission, we started to work on the implementation process. The language of the BVQ is originally Portuguese. However, the developers of the BVQ published their article with English version of BVQ (Silva et. al., 2012). And we worked with people who are professional and have an expertise in translating from English to Turkish for preserving the equivalency of the scale. Also the translation, from English to Turkish was done by two experts who have masters on both Turkish and English and translation of each item on the scale was done separately. These translations compared with each other to choose the most suitable and proper ones, that related to matter which is able to express the idea of the original item best, were used for this research. Five voluntary teacher candidates were interviewed face to face for testing to clarity of the scale that is translated in Turkish. During these interviews, we asked them to explain what they understood from each matter and also whether they had any ideas to express the item more adequately or not. Each item reviewed separately over and over again until there was no inconsistency and no confusion about meaning of the item. At final step, we considered the feedbacks which teacher candidates gave us during the interviews, and we did necessary changes under the condition that not changing the meaning of the item, and all of us reached a consensus about the final version of the scale.

Statistical Analyses

To examine factoral structure of the questionnaire with the data which we collected from Turkish preservice teachers, we did an exploratory factor analysis and we used a confirmatory factor analysis to execute a similar approach as the researchers did when they were first developing their questionnaire. And by doing so the validity of the questionnaire was examined by two different factor analyses.

Exploratory factor analysis aims to reach a few significant identified structures which are explained by synergetic several variables (Büyüköztürk, 2002; 2007). At the exploratory factor analysis, whether an item in the questionnaire take place at the factor which would identify the item or not, depends on high loading value which is a result of the relationship between the item and the factor. Item factor loadings is usually wanted 0.45 or higher but in some cases 0.30 item factor charge value can be stayed at the questionnaire (Kline, 1994; Tabachnik & Fidell, 2007).

The confirmatory factor analysis is predetermined or a building constructed with data collected confirmed what grade examination purposes. Confirmatory factor analysis is performed to verify the confirmation of a pre-determined structure (Simsek, 2006). In this study, Mplus 7.0 for confirmatory factor analysis and SPSS 23.0 was used for exploratory factor analysis.

3. FINDINGS

Before we started to exploratory analysis, first we wanted to see that if the data set was suitable to factorization and to represent the system by doing Kaise-Meyer-Olkin (KMO) test. According to Alpar (2016), the result of the KMO test is expected to be higher than 0.80 and also if the result is lower than 0.50 the factor analysis should be stopped (Çokluk, Şekercioğlu, & Büyüköztürk, 2012, p. 207).

Table 1. Eligibility of Bioethics Value Scale's Data for Factor Analysis		
Kaiser-Mayer-Olkin (KMO) Measure of Sampling Adequacy		.826
Barlett's Test of Sphericity	Chi-Square	1922.314
	Sd	153
	Sig.	.000
Cronbach's Alpha		.792
(p<0.05)		

As you can see at the Table. 1, result of our KMO test is 0.82 and this value shows that the magnitude of the sample can be called as "good" for factor analysis (Çokluk et al., 2012, p. 207). Besides when we examined the results of Bartlett's test of sphericity, we saw that the chi square value ($\chi2=1922.314$; $p<.05$) was significant. Because of the Cronbach's Alpha value was 0.79, it can be said that reliability of the data is high. In this context, the results show normal distribution and the data comes from several variables. The relationships between variables is enough to make factor analysis.

Several analyses were undertaken to investigate validity of BVQ by means of confirmatory factor analyses and internal consistency reliability. Reliability coefficients ranged between 0.49 (Control of Genetic Interventions) and 0.82 (Benefits of Biotechnology Applications). Table 2 shows scale names, scale descriptions, sample items and Cronbach coefficient alpha of each scale.

Table 2. Scale names, scale descriptions, sample items and Cronbach alpha coefficients			
Scale name	Scale description	Sample item	α
Benefits of Biotechnology Applications (BBA)	Treatment opportunities bring by biotechnology researches	Recent therapeutic cloning techniques will assure the cure of many diseases.	0.82
Science and Ethics (SE)	Public awareness of genetic engineering researches	Opinions based in moral values are not relevant in discussions involving the use of embryonic stem cells in therapeutic researches.	0,62
Attitudes about Reprogenetics and Cloning (ARC)	Attitudes about human cloning and reproductive technologies	In case there is a human immune to emerging diseases, I am favorable to cloning this individual.	0,70
Control of Genetic Interventions (CGI)	Consequences from genetic interventions and impacts of genetic manipulation	I believe that by labeling the transgenic food and giving the opportunity for the population to choose to eat it or not, we solve the ethical problems surrounding this subject.	0,49

When explanatory factor analysis was used to test factor loadings, items 4, 10 and 19 displayed unsatisfactory loading tendencies, these items were removed from BVQ. Then confirmatory factor analysis was used to test the model's fit. The analysis was conducted with 18 items in four factors that accounted 50.57 % of total variance. As a result of confirmatory factor analysis, 18 items and the path diagram concerning these items' factor loads are presented in Fig 1.

For a model with four factors, goodness-of-fit statistics were calculated ($\chi2=1922.314$; $p<.05$; SD= 2.67; RMSEA= 0.06). According to these results, the proper of the model was expected level. Thus it was established through fit indices that the Turkish version of BVQ comprised 18 items and four factors and that this model was appropriate theoretically and statistically.
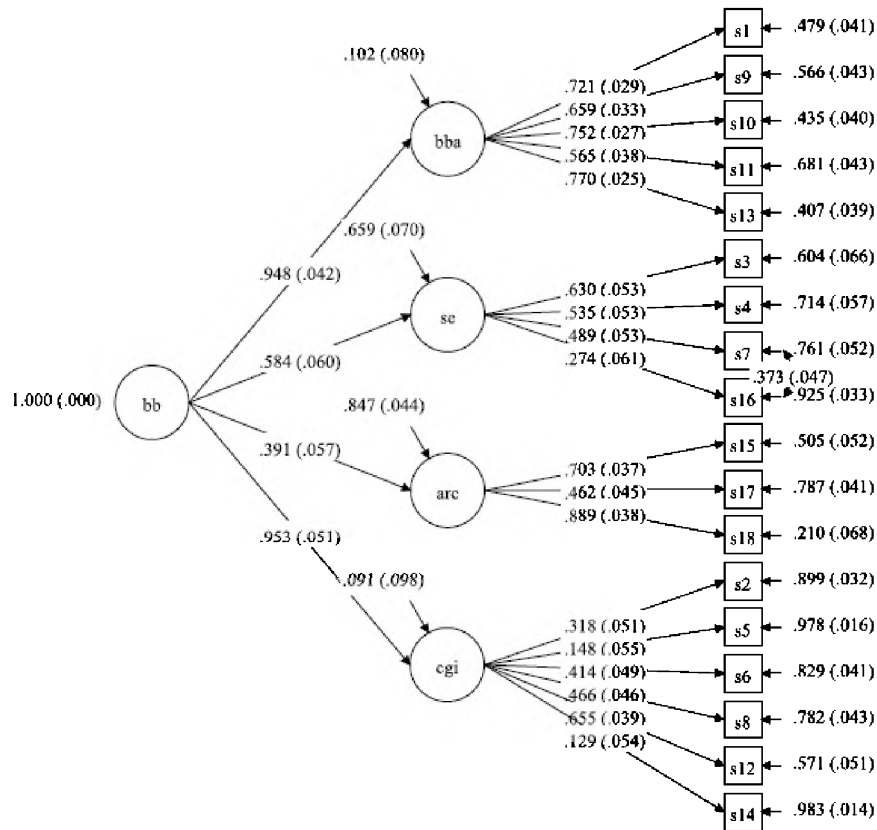
Fig. 1 Factor loadings for BVQ items

*bba (Benefits of Biotechnology Applications), se (Science and Ethics), arc (Attitudes about Reprogenetics and Cloning), cgi (Control of Genetic Interventions)

4.CONCLUSION

In this study, the factor structure of the Turkish version of the BVQ is examined via exploratory and confirmatory factor analyses. The confirmatory factor analyses results showed that the factorial model of BVQ is an acceptable degree of goodness of fit for Turkish university students. However, Turkish version of the BVQ can be improved. The alpha values of the factors of the BVQ, although they are relatively low at one factor, show acceptable reliability especially when the complexity of the structure of the scale is considered. An important contribution made by the present study was through translating and validating a widely applicable questionnaire to investigation of conceptions about bioethical values inherent to the scientific activity. Overall this instrument, the Turkish version of BVQ with some modification, was valid and reliable instrument for the measurement of bioethical values.

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REFERENCES

Alpar, R. (2016). Spor, Sağlık ve Eğitim Bilimlerinden Örneklerle Uygulamalı İstatistik ve Geçerlik Güvenirlik. 4. Baskı, Ankara: Detay Yayıncılık.

Büyüköztürk, Ş. (2002). Faktör analizi: Temel kavramlar ve ölçek geliştirmede kullanımı. *Kuram ve Uygulamada Eğitim Yönetimi*, 32(32), 470-483.

Büyüköztürk, Ş. (2007). Sosyal bilimler için veri analizi el kitabı.

Cajas, F. (1999). Public understanding of science: Using technology to enhance school science in everyday life. *International Journal of Science Education*, 21(7), 765-773.

Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2012). Sosyal bilimler için çok değişkenli SPSS ve LİSREL uygulamaları (2. Baskı). Pegem Akademi Yayınları.

Črne-Hladnik, H., Hladnik, A., Javornik, B., Košmelj, K., & Peklaj, C. (2012). Is Judgement of Biotechnological Ethical Aspects Related to High School Students' Knowledge? *International Journal of Science Education*, 34(8), 1277-1296.

Dawson, V. (2001). Addressing controversial issues in secondary school science. *Australian Science Teachers Journal*, 47(4), 38.

Dawson, V., Schibeci, R. (2003). Western Australian high school students' attitudes towards biotechnology processes: Case studies. *Journal of Biological Education*, 38(1), 7-12.

Jimenez-Aleixandre, M. P., Rodriguez, A. B., & Duschl, R. A. (2000). " Doing the lesson" or" doing science" Argument in high school genetics. *Science Education*, 84(6), 757-792.

Kline, P. (1994). An easy guide to factor analysis.

Kolstø, S. D. (2001). Scientific literacy for citizenship: Tools for dealing with the science dimension of controversial socioscientific issues. *Science Education*, 85(3), 291-310.

Kolstø, S. D. (2001). 'To trust or not to trust,...'-pupils' ways of judging information encountered in a socio-scientific issue. *International Journal of Science Education*, 23(9), 877-901.

Kuhse, H., Singer, P. (2015). Bioethics: An Anthology (3rd ed.). Blackwell, Oxford, UK.

Macer, D. (2004). Bioethics education for informed citizens across cultures. *School Science Review*, 86(315), 83-86.

Pedretti, E., & Hodson, D. (1995). From rhetoric to action: Implementing STS education through action research. *Journal of Research in Science Teaching*, 32(5), 463-486.

Pedretti, E. (1999). Decision making and STS education: Exploring scientific knowledge and social responsibility in schools and science centers through an issues- based approach. *School Science and Mathematics*, 99(4), 174-181.

Sadler, T.D. (2004). Moral sensitivity and its contribution to the resolution of socio-scientific issues. *Journal of Moral Education*, 33(3), 339-358.

Sadler, T. D., Zeidler, D. L. (2004). The morality of socioscientific issues: Construal and resolution of genetic engineering dilemmas. *Science Education*, 88(1), 4-27.

Silva, P. R., Araújo, E. S. N., de Andrade Caldeira, A. M., & Carvalho, G. S. (2012). Construção e validação de quesonário para análise de concepções bioécas. *Revista Bioética*, 20(3), 488-499.

Şimşek, Ö. F. (2006). Sosyal bilimler ve davranış bilimlerinde yapısal eşitlik modellemesinin üstünlükleri: Bir simülasyon çalışması. 5. İstatistik Günleri Sempozyumu.

Tabachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics, 5th. Needham Height, MA: Allyn & Bacon.

Remarks to principles of employment and education policies implementation in European union countries

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Abstract

Employment and educational policies reffer to subjects of the business and public sectors. They underline the idea of the necessary partners long-term cooperation on all possible levels. Employment and educational policies are extremely important for the Small and Medium-sized Enterprices.

Key Words: employment, unemployment, business sector, public sector, Smalll and Medium-sized Enterprices, employment policy, objectives

Main Conference Topic: Economics, Management and Marketing

Introduction

Employment and educational policies represent a very important component part of the European Unon member states integrated social policy. They are politics which are coordinated not only on the supranational but also on the national and regional levels.Another their important feature is the fact that these policies are based on the idea stressing the necessity to integrate all interested partners into their long-term cooperation on all possible levels.

The most significant common goal of the European employment policy important for all European business sectors including the Small and Medium-sized Enterprices is decreasing of the unemployed people number connected with the implementation of structural reforms and the grow of the workforce mobility. One of its priorities is the regulation of the European labour market. The equal access to labour market is guaranteed to all EU countries inhabitants in the principal legal documents. The *main goal of the educational policy is the increasing the qualification of the EU citizens.*It was stressed for several times that these policies goals is possible to achieve predominantly on the basis of the „*partnership principle* implementation.

Decisive long-term aims of the EU social policy are defined in the so called „*Objectives*„ implemented first of all through the folloving Structural and other Funds:
- *European Regional Development Fund*
- *European Agricultural Guidance and Guarantee Fund*
- *European Social Fund*
- *Small and Medium Enterprices Fund*
- *Integrated Development Operations Fund.*

Problems connected with employment and requalifications of workers and other employees as well as the solution of the situation of unemployed people are regularly solved practically by all European Union institutions. *The European Council meeting* held in Luxembourg in November 1997, *for example, decided about the necessity to work out national employment programs by the member states.* The Luxembourg European Council meeting adopted *several Directions* concerning the solution of four key problems:

- *labour market integrity increasing;*
- *further rising the quality of economic environment;*
- *adaptibility of entrepreneurial subjects increasing;*
- *employees adaptability improvement.*

The mentioned orientation connected with the national employment programs implementation plays extremely important role till now.

Further significant step in favour of the European Employment Policy adoption was represented by the *European Congress of the European Social Fund* held in British Birmingham in May 1998. This congress discussed especially the following problems:

- *long-term unemployment and possibilities of its solution;*
- *unsufficient number of labour opportunities for young people* (till 26 years of their age);
- *employment of especially endengered groups of inhabitants* (disabled and homeless people,mental disabled people a former prisoners),
- *effective adaptability for changes ,first of all in the industrial sector,*
- *equal opportunities.*

Ways of european employment policy goals realization

The long-term conception of the European Union employment policy is implemented especially on the basis of concrete projects worked out and implemented both on the supranational and on the individual member states national levels. Speaking about the supranational level, the most outstanding are *ADAPT* and *EMPLOYMENT* programmes.

The ADAPT represents a very concrete programme implemented since 1995. Its basic approach comes from principles stressed in the so called „*European Union White Book about Growth,Competition and Employment*" approved by the European Council in December 1993. The provision of assistance in workers and employees adaptation to changes implemented, first of all, *in the industrial sector* are considered to be extremely significant .

Programmes *NOW, HORIZONT, YOUTHSTART* and *INTEGRA* are European programmes *closely connected with ADAPT and EMPLOYMENT.* For example., the main *NOW* programme goal is to guarantee the equal labout opportunities for men and women.The main *HORIZONT* programme is the assistance provided to workers and employees from industrial branches of national economies with the aim of their more effective adaptation to changes in the industry.The *YOUTHSTART* programme is oriented towards the improvement of young people possibilities to get work.The essence of the *INTEGRA* programme is the assistance provided to disadvantaged groups of inhabitants.The indicated programmes are extremely significant for the Small and Medium-sized Enterprises and their role in the European as well as the Czech economic life.Their importance was underlined, for example, by the European Communities in the *Single European Act*, the acquis communautaire notable legal standard adopted in year 1986.

What concerns the SMEs role in the European employment policy principles implememntation it is evident that SMEs are flexible and that they have the indisputable economic potential. They are able to react relatively quickly to changes in the market - including the labour market. Their owners and managers react flexibly on changes in the national economics. They are able to adopt quickly necessary desisions and part of them are active in innovations. As Liběna Tetřevová stressed „*small and medium-sized enterprises have decisive significance in the contemporary globalized economics.They operate as important employers, actors of regional development (and in such a way also of the whole national economics development) and simultaneously they create a fair social pillar. Small and Medium-sized enterprises represent 90 per cent of all European enterprises and they create approximately 66 per cent of labour places in the private sector. Thanks to these facts they represent the driving force of the development, the economic growth, innovations and competitiveness*". (Tetřevova, 2009).

Not only SMEs economic but also the social role document the fact that the Small and Medium-sized Enterprises create many labour places for people with the low qualification and also that they pay taxes into municipal budgets.Simultaneously it is necesary to take into account the fact that SMEs economic stability is connected very often with the big enterprises activities that represent one of SMEs products important market.

That is why several important legal documents approved in the European Union during the 1990s confirmed the role played by the employment policy. One of the most privileged ones is the European Commission *Green Book* called officially „*Life and Work in Information Society: People as the First,,* adopted in July 1996. It was underlined in this Green Book - among others - that the second half of 1990s was characterized especially by the more and more intensive information technologies implementation in different spheres of member states social life. Such an orientation is qualified in the „Green Book as a „ *new labour culture*".

Implementation

Problems of employment and requalifications representing the essence of the „ *new labour culture*" as well as the solution of the unemployed people social situation are regularly discussed practically by all European Union institutions. Legal documents approved in the European Union during the 1990s (valid till now) confirm predominantly the role played by the interrelationship between the employment and the educational policy.Therefore,programs oriented to the improvement of the workers and other employees qualification as one of ways for the rate od unemployment decreesing are financed from the European Union structural funds.

Taking the indicated facts into account the significance of the permanent quality of trainings increasing in different spheres of the human activities was stressed by the European Union since its creation in November 1, 1993.Three years after this event EU proclaimed year 1996 as the „*European Year of Long - life Education*". The following step was represented by the *Employment Guidelines* proclamation proposed by the European Commission in year 1998.These steps were fully supported by the European Parliament stressing the fact that „*the long - life education is the key to the social integration as well as the equal opportunities attainment*".

The approach to the necessary European training activities improvement was further specified during the European Council meeting held in Lisbon in March 2000 where the so called *Lisbon Declaration* was adopted in the framework of the so called „*Lisabon Strategy*". In November this year material called „LONG-*LIFE EDUCATION – TIME TO ACT*" was adopted by the European Commission which stressed here that the „*long - live education must become the leading principle for providing the education and participation in it in any kind of its context*" and that „*this vision has to be implemented in the following decade*".

The European Commission underlined in this sense the significance of e - learning activities as the component part of the so called „*Initiative E-Europe*". Commission emphasized sixt following key approaches:

1. General and permanent access to the education oriented towards the adoption and the improvement of knowledge and skills necessary for the participation of everybody in the knowledge society.
2. The necessity to invest a volume of financial means into the human resources management increasing.
3. Effective methods of teaching and learning working out.
4. Ways of people participation in the education and results achieved by them improvement and assessment.
5. Easy approach of citizens to high quality of information and to advisory activities during their all-life ensurement.
6. Providing opportunities to take part people in the long-life education to enable implementation of individual educational forms directly in their municipalities.
The mentioned general approaches were materialized in individual EU member states with different intensity during the last ten years.

Results

Ways of the long-life education principles implementation in various educational and trainings activities are discussed in Europe, the Northern America, in Japan as well as in other economically more developed countries. Different possitions were stressed in mentioned discussions. Lucy Gaster, - similarly like some other British and U. S. authors - pointed out, for example, the necessity to improve the business sector , predominantly SMEs owners and managers training based on the "*awareness, assessment or diagnosis, planning and preparation, implementation including education and training and the development of commitment and understanding within the organization, a stage of continuous or intensive improvement (over a period of two to three years) and a final stage of review, leading to a renewal of the process of continuous improvement.* (Gaster, 1995)
She supplemented her position by stressing some other necessary approaches significant mainly from the point of view of the required staff education and training reinforcement. She recommended the training of different categories of the staff predominantly in:
"*Listening, giving time, empathizing, thinking through, giving enough information for options to be clear, not "fobbing off", sensitivity to individual needs, fairness, honest , treating people equally, being polite , friendly and ensuring a speedy response* (Neighbourhood Office staff).
Being open with people, providing full information, looking at alternative possibilities, minimum waiting, sensitive, trustworthy, responsive staff - and speedy response (Housing staff).

Understanding, being knowledgeable, flexibility, equal treatment and "do as You would be done by",minimum waiting, offering real choice, consumer involvement (Social Services staff)" . (Gaster, 2003)

Lucy Gaster supplements, for example, the mentioned goals by the following necessary transformations:

" *- Better information to the public.*

- Empowering the public.

- Extension of individual consumer rights.

- Improving consistency, speed and overall quality of services.

- Winning awards.

- Providing information to potential competitors." (Gaster,1995)

The long-term experience from the European Union employment and educational policies implementation accumulated by the theoreticians and the public administration offices and authorities confirm the up-to-date significance of activities aimed at the employees professional knowledge and skills in different spheres of the human activities. Such an orientation is extremely important for owners and managers of various business subjects including of the Small and Medium- sized Enterprices.

Conclusion

The long-term experience from the implementation of the European Union employment and educational policies confirm the fact that it is necessary to develop and to improve constantly the professional knowledge and skills of the staff in different spheres of the human activities. Such an orientation is extremely important for owners and managers of Small and Medium- sized entreprices.

References

[1]   Armstron M.,Stephens T. (2008). *Management a leadership.* Praha (Grada Publishing). ISBN 978-80-247-2177- 4.

[2]   Bovaird, T., Loffler E. (2009). *Public Management and Governance.* London:Routledge,. 400 s. ISBN978-0-415-43042-5.

[3]   Daly, H. E., Cobb, J. B. (1994). *For the Common Good: Redirecting the Economy toward Community, the Environment, and a Sustainable Future.* Boston:Beacon Press, 2nd edition.534 s. ISBN 978-0807047057.

[4]   Farnham, D., Horton, S. (1996). *New Public Management in Europe: Public Servants in Transition,* London. Macmillan Press Ltd.

[5]   Gaster, L. (1995). *Quality in Public Services: Managers´Choice*, Open University Press Buckingham - Philadelphia.

[6]   Gaster., L. (2003). *Providing Quality in the Public Sector:A Practical Approach to Improving Public Services.*Maidenhead: Open University Press, 292 p. ISBN 0-335-20955-6 .

[7]   *Governance in Transition:(*1995). *Public Management Reforms in OECD Countries.* Paris: Organisation for Economic Co-operation and Development. ISBN 92-64-14486-2

[8]   Hughes, O. E (2003). *Public Management and Administration:An Introduction.* Palgrave: Macmillan,. 336 p. ISBN 0-333-96188-9.

[9]   Lacina, K., Kudrycka, B. (2003). *Adult Education on Quality Management and other Cross-Sectional Aspects of Public Administration.* Bialystok, 214 p. ISBN 83-88463-25-X.

[10]   Lacina K. (2012). *Innovations in Contemporary European Public Administration Education* in Várkoly L. at Szczebiot R. (scientific editors) *Present Day Trends of Innovations,*part. 2, 337 p. Lomza (Poland):The State Higher School of Computer Science and Business Administration, ISBN 978-83-60571-23-1.

[11]   *New Public Management in Europe: Adaptation and Alternatives.* edited by Pollitt CH., van Thiel, Homburg V. Basingstoke:Plagrave Macmillan.(2007). ISBN 978-0-230-00693-5

[12]   *Public Administration after „New Public Management".* Paris: Organisation for Economic Co-operation and Development. (2009). ISBN 978-92-64-08643-2

[13]   Van Dooren,W.,Bouckaert,G., Halligan, J. (2010). *Performance Management in the Public Sector.* London, New York, Routledge. ISBN 978-0-415-37104-9

[14]   Tetřevová, L. a kol. (2009). „*Veřejný a podnikatelský sektor*" Professional Publishing, ISBN: 978-80-86946-90-0 , p. 113.

Brief biographies of the authors

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prof. PhDr. Karel Lacina, DrSc. is the author of more than twenty scientific books. The field of his long-term studies are the European and the national public administration as well as the employment and the educational politices. He was the head of different national and international groups of authors. One of their papers called „*Adult Education on Quality Management and other Cross-Sectional Aspects of Public Administration*",Bialystok, 2003. 214 s. ISBN 83-88463-25-X) which main authors are Karel Lacina and Barbara Kudrycka was awarded by the *European Quality Prize* in year 2004

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IT IS VERY IMPORTANT BUT I CAN'T DO IT: MEDICAL STUDENTS' SELF EFFICACY BELIEFS AND IMPORTANCE PERCEPTIONS RELATED TO GENERAL OCCUPATIONAL COMPETENCIES

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Summary: This study aims to examine whether there is a difference between the importance perceptions and self-efficacy beliefs of the medical students about general occupational competencies and whether these perceptions show difference in terms of gender, reason to prefer and the grade. The findings have shown that the medical students find the occupational competencies aimed for them to be gained important and that their self-efficacy beliefs in regards to these competencies is relatively lower than their importance perceptions. Besides, it has been found that the self efficacy beliefs of male students is higher than female students, that the self efficacy beliefs of the 1st and 3rd grade students are higher than the 2nd grade students, and that the self efficacy beliefs of students preferring faculty of medicine with their own will is higher than those preferring with the other reasons. In addition, it has been found that the importance perception of occupational competencies of female students is higher than the male students, and that the importance perception of occupational competencies of 3rd grade students is higher than the 2nd grade students. Finally, occupational competencies are perceived as highly important in all groups in terms of the reason to prefer the faculty.

Key Words: Self-efficacy belief, Importance Perception, Medical Education.

Conference Topic: Higher Education, Health Education

INTRODUCTION

Medical services offered in Turkey increase the need of doctors continually in terms of the improving and changing country and world standards; and this need causes the rapid increase of the number of faculty of medicine, founded in order to train doctors. However, this rapid increase causes faculties having different opportunities and infrastructures to adopt different educational programs, and that creates a difference in quality between the graduate doctors. There has occurred the need of a framework program in order to prevent this difference, to better the medical education and to set the basic standards no matter which program is applied (Ulusal ÇEP, 2014). This need has given birth to the "National Core Curriculum" (National CC) used in the medical education today. National needs and international standards (TUNING, World Health Organization, Bologna Process, etc.) have been taken into consideration in the preparation of this curriculum and it has been provided that almost all the medical faculties giving education in our country have made contributions in the program development process (National CC, 2014). The program includes the information, skills and applications directly related to the human health and life. This is why, different from many other curriculums, it has been programmed much more detailed and extensive. In order for the medical students to complete this program successfully, it is necessary that they perform a high academic success and gain enough/necessary occupational information and skills. This

situation requires the medical students to study in quite an intensive tempo (Ogenler and Selvi, 2014).

As much as the academic success is related directly to the time allocated to study and self-sacrifice, it can also be affected by many variables such as intelligence, skill, motivation, test anxiety, etc. Many studies presenting the relationship between these variables and academic success have been come across in the literature (Lee and Bowen, 2006; Dubow, Boxer and Huesmann, 2009; Keskin and Sezgin, 2009; Sarıer, 2016). It is thought that another variables that may affect the academic success of the medical students are their self efficacy beliefs and importance perceptions of the target behavior aimed with the medical education program.

The term "self-efficacy" first comes across in Bandura's Social Learning Theory. According to Bandura (1997), self-efficacy is an effective quality in the production of behaviors and explained as the perception, belief and judgement of the individual's ability to handle different situations and to achieve success by organizing the necessary activities in order to show a particular performance. Similarly, self-efficacy concept is described by Jinks and Morgan (1999) as the feeling of trust developed by conducting some particular duties, and by Zimmerman (1995) as "individuals' judgement of his/her capabilities to complete a task, to be successful." According to Schunk (1990), the self efficacy belief is an important predictor of human behavior. In the case that individuals believe that they have the necessary skills and supervision power in order to fulfill a task, it is stated that they are more eager to fulfill this task, that they utter their determination in this context and show the necessary behavior (Eaton and Dembo, 1997). It can be expected that from these definitions and explanations, the success the individuals with a high self efficacy belief show in academic terms is higher. On the other hand, the perception of individuals on how important the aims in the related education program are for themselves show positive effect on their academic success. The studies in the literature support the idea that efficacy perception and feeling of importance increase academic success in learning process (Lent, Brown and Larkin, 1984; Bailey, 1999; Zimmerman, 2000; Chemers, Hu and Garcia, 2001; Üstüner et al., 2009; Dinther, Dochy and Segers, 2011; Başusta and Elçin, 2014). In this context, knowing the self-efficacy and importance perceptions of students about particular subjects would make a great contribution to the planning and conducting the teaching-learning processes in medical schools more effectively, and this to increasing the student success. Presenting the importance and self-efficacy beliefs of students in terms of particular subjects in medical education is highly important in organizing teaching-learning process and increasing student success.

The aim of this study is to examine whether there is difference between the importance and self efficacy beliefs of the medical students about general occupational competencies and whether these perceptions show difference in terms of several variables (gender, reason to prefer, the grade). The findings obtained from the study is thought to provide an important point of view to medicine trainers in terms of organizing teaching-learning processes more effectively.

No studies have been found aimed to put forward the self-efficacy and importance perceptions about occupational competence of medical students in Turkey and the factors affecting these perceptions in the national literature examination conducted. In this context, it is thought that the findings of the study would make an important contribution in terms of the medicine education and trainers in Turkey. In the international literature examinations conducted, besides there being several studies aimed to examine the self efficacy beliefs of medical students and variables affecting these perceptions (Tresonlini and Stritter, 1994; Mavis, 2001; Opacic, 2003; Burgoon, 2008; Ammentorp et al., 2013; Malau-Aduli et al., 2013; Turan et al., 2013; Harle, Gruber and Dewar, 2014), no studies have been found aimed

to put forward how much importance they give to occupational competences and/or how adequate they feel about themselves in terms of the same competences by taking several variables into consideration. In this context, the findings of this study is expected to contribute significantly to literature.

Considering the above research gaps and purpose of research, the study addresses the following research questions:

1) Is there a difference between the self efficacy beliefs and importance perceptions of medical students about general occupational competencies?
2) Do the self efficacy beliefs of medical students about general occupational competencies show difference according to gender, grade and reason to prefer the faculty?
3) Do the importance perceptions of medical students about general occupational competencies show difference according to gender, grade and reason to prefer the faculty?

METHOD

Research Type: This research is a correlational research as it aims to examine whether there is difference between the importance perceptions and self efficacy beliefs of medical students about their general occupational competencies and whether the self efficacy beliefs and importance perceptions of students show difference in terms of gender, grade and reason to prefer the faculty.

Participants:

A total number of 484 preclinic period students (1st, 2nd and 3rd year) who were studying at Mersin University Faculty of Medicine in Turkey participated in the study. After the outlier and missing data analysis, while no outlier has been detected for the self efficacy scores, 24 outliers have been observed about importance perception scores. Finally, a total number of 454 students' (219 males and 235 females) data have been taken into account for the analysis. 363 of the students have stated that they have preferred the faculty with their own will, 67 stated that to be on their families' will and 23 to be on other reasons. 175 of the 1st year students, 180 of the 2nd year students and 96 of the 3rd year students have taken part in the research.

Data Collection Tools: A 17-item double-sided scale developed by Başusta and Elçin (2014) has been used in the analysis of the research data aiming to determine the medical school students' efficacy beliefs about general occupational competencies and to measure their importance perceptions of this competencies. The items in the scale have been placed in such a way that the students would be able to mark both their perceptions of how important they find the related statement in terms of medical profession under the column "Importance" and their beliefs of how adequate they feel of themselves in terms of efficacy stated in the related statement under the column "Self-efficacy". Exploratory factor analysis findings have put forward that the scale developed has a 3-factor structure. The total variance explained is 59.9 % for self-efficacy scale and 56.00 % for importance scale. Factors in the scale have been called as "Clinical application skills", "Occupational Values" and "Occupational working skills" for self-efficacy scale, and as "Clinical application skills", "Application process and methods", and "Occupational working skill" for importance scale respectively. Item total score correlations have shown that the related items could be used for double-sided scale. The alpha reliabilities of self-efficacy and importance scales are 0.93 and 0.91 respectively. Besides, a data form prepared by the researchers has also been used in the study in order to

gain the information of several variables (gender, grade, preference reason, etc.) that may affect the importance and self-efficacy beliefs of the medical students.

Data Analysis: The normality studies of the data distribution have been made first to determine the statistical method to be used in the analysis of research data. As a result of the studies made, it has been determined that the self efficacy beliefs scale data has an extreme negative skew distribution, and that the data obtained from importance perception scale has mid-level negative skew distribution. As both distributions are not normal, 1/k-x transformation for extreme negative skew distribution in importance perception scale data and Sqrt (k-x) transformation for mid-level skew distribution in self efficacy beliefs scale data has been made (Tabachnick and Fidel, 2007). In the examinations made after the normality transformation, the data are again resulted as not distributed normally (K-S$_{self-efficacy}$=0.060; K-S$_{importance}$=0.252; p<0,05). This is why, it has been determined that non-parametric statistical methods would be used in the answering of the research questions. Whether there is a meaningful difference between the students' self efficacy beliefs levels and importance perception levels about general occupational competencies has been studied with Wilcoxon signed rank test, whether self efficacy beliefs levels and importance competence levels differ according to gender has been studied with Mann Whitney U test, and whether they show difference according to grade and faculty preference reason has been studied with Kruskal Wallis test. In the situations where meaningful differences have been obtained as a result of Kruskal Wallis test, Mann Whitney U test has been used again for paired comparisons and it has been decided whether the difference between the p values obtained and Bonferroni-correction-made α value (α/3=0.05/3=0.17) is meaningful in comparison (Alpar, 2012:254). α=0.05 has been taken into consideration in all analysis.

FINDINGS and COMMENTS

The results of Wilcoxon signed rank test conducted to determine whether there is a meaningful difference between the self efficacy beliefs and importance conceptions of medical school students about general occupational competencies have been given in Table 1. According to Table 1, there is a meaningful difference between the self efficacy beliefs ($\bar{X}$=56.59; SS= 15.56, median=58.00) and importance perceptions ($\bar{X}$=77.51; SS= 8.72, median=78.30) of the students about general occupational competencies (z= -18.022; p<0.05).

Table 1. Wilcoxon test results about the difference between self efficacy beliefs and importance perception scores about general competencies [*]

Self-efficacy - importance	n	Rank average	Rank total	z	p
Negative rank	425	230.93	98146.50	-	0.000
Positive rank	19	33.87	643.50	18.022	
Equal	10				

[*] Positive ranks based

The difference viewed is monitored in support of importance perception level when the rank averages and rank totals are taken into consideration. In other words, it can be said that the students find occupational competencies important but their self efficacy beliefs of these competencies are low compared to the importance they give.

The results of Mann Whitney U test conducted to determine whether self efficacy beliefs of medical school students about general occupational competencies show difference according to the *gender* have been given in Table 2.

Table 2. Mann Whitney U test results about the study according to self efficacy beliefs about general competencies

Gender	n	Rank Average	Rank Total	z	p
Female	235	210.58	49486.00	-	0.004
Male	219	245.66	53799.00	2.847	

*Positive ranks based

According to Table 2, there is a meaningful difference between the self efficacy beliefs of female students about general occupational competencies ($\bar{X}$=55.13; SS=15.37, median=56.00) and the self efficacy beliefs of male students about general occupational competencies ($\bar{X}$=59.18; SS=15.58, median =61.00) (z= -2.847; p<0.05). It can be said that when the median of the distributions is taken into consideration, the difference observed is in favor of male students. In other words, self efficacy beliefs of the male students about general occupational competencies is higher than female students.

The results of Kruskal Wallis test conducted to determine whether self efficacy beliefs of medical school students about general occupational competencies show difference according to *grade* is given in Table 3.

Table 3. Kruskal Wallis test results about the study of self efficacy beliefs of general competencies according to grade

Grade	n	Rank average	sd	χ^2	p	Meaningful difference
1	177	264.16	2	35.039	0.000	1-2
2	181	183.88				2-3
3	96	242.14				

According to Table 3, self efficacy beliefs of students studying in different grades about general occupational competence are meaningfully different from each other (χ^2=35.039; p<0.05). As a result of Mann Whitney U test conducted to determine from which grades the difference observed is resulted from, it has been determined that the self efficacy beliefs of first grade students about general occupational competencies ($\bar{X}$=60.65; SS=17.70, median=66.00) are different from second grade students ($\bar{X}$=52.36; SS=13.86, median=51.00) (U_{1-2}=10683.50; p<0.017), that the self efficacy beliefs of second grade students ($\bar{X}$=52.36; SS=13.86, median=51.00) again show difference from the third grade students ($\bar{X}$=59.43; SS=11.93, median=60.00) (U_{2-3}=6128.50; p<0.017), and that the difference between the first grade and third grade students are not meaningful (U_{1-3}=7341.50; p>0.017). According to this finding, when the median of the distributions is taken into consideration, self efficacy beliefs of the first grade and third grade students about general occupational competencies can be expressed as higher than second grade students.

The results of Kruskal Wallis test conducted to determine whether self efficacy beliefs of medical school students about general occupational competencies show difference according to *faculty preference reason* are given in Table 4.

Table 4. Kruskal Wallis test results about the study of self efficacy beliefs of general competencies according to faculty preference reason

Preference reason	n	Rank Average	sd	χ^2	p	Meaningful difference
Own will	363	238.05	2	12.274	0.002	1-2
Family will	67	191.64				1-3
Other reasons	24	168.10				

According to Table 4, when the reason to prefer faculty of medicine differs, self efficacy beliefs of students about general occupational competencies also differ from each other meaningfully (χ^2=12.274; p<0.05). As a result of Mann Whitney U test conducted to determine from which reasons the difference observed results from, it has been determined that self efficacy beliefs of students coming to faculty of medicine on their own will about general

occupational competencies ($\bar{X}$=58.30; SS=15.62, median=61.00) show meaningful difference from students coming on their families' will ($\bar{X}$=52.81; SS=15.06, median=54.00) (U_{1-2}=9683.50; p<0.017), that self efficacy beliefs of students coming to faculty of medicine on their own will about general occupational competencies ($\bar{X}$=58.30; SS=15.62, median=61.00) show meaningful difference from students preferring the faculty with reasons apart from family will ($\bar{X}$=50.58; SS=13.21, median=50.00) (U_{1-3}=3005.00; p<0.017), and that self efficacy beliefs of students coming to faculty of medicine on their families' will ($\bar{X}$=52.81; SS=15.06, median=54.00) does not differ from the students preferring the faculty with reasons apart from family will ($\bar{X}$=50.58; SS=13.21, median=50.00) (U_{2-3}=729.50; p>0.017). According to this finding, when the median of distribution is taken into consideration, it can be stated that self efficacy beliefs of students preferring faculty of medicine on their own will is higher than students preferring on families' will or other reasons.

The results of Mann Whitney U test conducted to determine whether importance perceptions of medical school students about general occupational competencies show difference according to *gender* are given in Table 5. According to Table 5, there is a meaningful difference between the importance perceptions of female students about general occupational competencies ($\bar{X}$=80.45, SS=5.06, median=82.00) and the importance perceptions of male students about general occupational competencies ($\bar{X}$=77.28, SS=6.27, median=78.00) (z= -5.551; p<0.05). it can be stated that when the median of distribution is taken into consideration, the difference observed is in favor of female students.

Table 5. Mann Whitney U test results about the study of importance perception about general competencies according to gender

Gender	n	Rank average	Rank total	z	p
Female	235	260.24	61156.00	-5.551	0.000
Male	219	192.37	42129.00		

* Positive ranks based

The results of Kruskal Wallis test conducted to determine whether importance perceptions of medical school students about general occupational competencies show difference according to *grade* are given in Table 6.

Table 6. Mann Whitney U test results about the study of importance perception about general competencies according to grade

Grade	n	Rank average	sd	χ^2	p
1	177	224.18	2	8.591	0.014
2	181	213.11			
3	96	260.75			

As it can be seen in Table 6, the importance perceptions of students studying at different grades in faculty of medicine about general occupational competence who meaningful difference (χ^2=8.591; p<0.05). The results of Mann Whitney U test conducted to determine from which grades the difference observed results from have put forward that the importance perceptions of students studying at first grade about general occupational competencies ($\bar{X}$=78.94; SS=5.57, median=80.00) does not show meaningful difference from students studying at second grade ($\bar{X}$=78.16; SS=6.34, median=80.00) and students studying at third grade ($\bar{X}$=80.34; SS=5.33, median=83.00) (U_{1-2}=15198.50; U_{1-3}=7088.50; p>0.017), but that there is meaningful difference between the importance perceptions of students studying at second grade about general occupational competency ($\bar{X}$=78.16; SS=6.34, median=80.00) and the importance perceptions of students studying at third grade about general occupational competency ($\bar{X}$=80.34; SS=5.33, median=83.00) (U_{2-3}=6903.50; p<0.017). According to the findings obtained, when the median of the distribution is taken into consideration, the general

competency identified according to their occupations is seen as more important according to the students at second grade.

The results of Kruskal Wallis test conducted to determine whether importance perceptions of medical school students about general occupational competencies show difference according to *faculty preference reason* are given in Table 7.

Table 7. Kruskal Wallis test results about the study of importance perception about general competencies according to faculty preference reason

Preference reason	n	Rank average	sd	χ^2	p
Own will	363	233.77	2	4.246	0.120
Family's will	67	204.31			
Other reasons	24	197.46			

As it can be seen in Table 7, when the reason of preference of faculty of medicine differs, importance perceptions of students about general occupational competencies do not differ (χ^2=4.246; p>0.05). According to this finding, students preferring the faculty on their own will ($\bar{X}$=79.22; SS=5.74, median=81.00), students preferring the faculty on their families' will ($\bar{X}$=77.97; SS=6.05, median=79.00) and students preferring the faculty with other reasons ($\bar{X}$=77.04; SS=7.16, median=78.50) gives importance to occupational competencies at the same level. It can be stated that when the average, standard deviation and median values are taken into consideration, the scores that can be taken from a 17-item scale may differ between 17 scores and 85 scores, and that occupational competencies in all three groups can be seen fairly important generally.

DISCUSSION AND SUGGESTIONS

The findings obtained within the study has shown that medical students find the occupational competencies aimed to be gained to themselves important. Their self efficacy beliefs about these competencies have come out as lower than their importance perceptions relatively. Self efficacy is the execution of the behavior come up from the result (Snyder & Lopez, 2002:278). This is why preclinical period medical students having especially low self efficacy beliefs – an important predictor of clinical success – have to be determined before they pass to clinical period and medical faculty programs should be designed in a way that can increase this perception to create special activities that can strengthen the beliefs of these students. As Plaza stated (2002), achieving a goal does not only depend on knowledge and skill but also to self-efficacy. The Accreditation Council for Graduate Medical Education (ACGME) has stated in its report that independent from the area of expertise, when the basic points about the general competences expected from a doctor is thought, besides the medical knowledge in preclinic term, patient care, practice-based learning and improvement, interpersonal communication skills, professionalism and systems-based practice activities should also be given place. In short, shaping the medical education programs in faculties of medicine with lessons where good doctor applications are on the forefront is important in terms of occupational success. Competence is to fulfill the responsibilities of the work undertaken. This is why the importance perceptions of the students about these competencies identified are quite high. It is thought that their visions and experiences developed about the human life in society and the education they have taken is a reason for this perception to be high. No matter what the reason of preferring the faculty of medicine is, the steadiness of the importance given to the general competencies can be a result of the social and traditional view to the medical education in a way.

The self efficacy beliefs of the male students about general occupational competencies is higher than the female students. The research findings in the studies conducted about self efficacy point to different results. Although some studies give results in support of females

and some to males, there is no meaningful difference in terms of self efficacy beliefs in many studies. Some studies point that females being more active in social life in recent years have made up the difference (Çakır, 2006; Akbulut, 2006; Denizoğlu, 2008; Yenice, 2012). As an effective program is expected not to create difference according to gender, the result coming in support of males in this study makes us think that a reason for this difference is the traditional and social role attributed to men and women in Turkish society. The third graders self-efficacy perceptions' being high may result from the learning environment especially preclinical last term students are in and the improving of their skills directed to applying their extensive medical knowledge. This finding can be said to be resulted from the existing beliefs of the first-grade students entering the faculty of medicine with high points about succeeding in a work already. In the second grade, extensive medical knowledge, getting away from the social environment and the needs of becoming a student at faculty of medicine may decrease the self-efficacy beliefs of the students. There are several studies in literature putting forward that general self efficacy beliefs does not change according to grade level (Yenice, 2012; Cerit, 2012; Yıldırım and İlhan, 2010). In this context, the self efficacy beliefs of the students studying at first and third grades about general occupational competencies being higher than students studying at second grade can be supported with these studies. Furthermore, the third-grade students about to pass the clinical term seeing the identified general competencies about their occupation more important than the second-grade students can be a result of şts being a part of the learning process. As it is known, the self-efficacy beliefs of individuals affect the aims people designate for themselves, how much effort they can give to achieve these aims, how long they can face the difficulties to reach their aims and their reactions in face of a failure (Hazır Bıkmaz, 2004). The students preferring the faculty on their own will having self efficacy beliefs about general occupational competencies being higher than those students preferring the faculty with their families' will or some other reasons is a situation expected in this context and overlapping with literature. Medical education in our country is in a great change. "Skills Education" in teaching field comes forward in almost all faculties of medicine in recent years. Supporting the education with efforts for application in preclinical term is quite important in this context. It must not be forgotten as well that the attitudes thought to be the prerequisites of the occupational success is a part of this process. Performing this study in faculties of medicine in several universities in Turkey and researching the possible reasons of the difference may give contribution to medical education. There are scarcely any studies on importance perception in education. Thus, it is thought that the studies on this are would bring serious benefits to the field.

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KAYNAKLAR

Alpar, R. (2012). *Uygulamalı çok değişkenli istatistiksel yöntemler.* Ankara: Detay Yayıncılık.

Ammentorp, J., Thomsen, J.L., Jarbøl, D.E., Holst, R., Lindebo, A., Ovrehus, H. and Kofoed, P.E. (2013). Comparison of the medical students' perceived self-efficacy and the evaluation of the observers and patients. *Ammentorp et al. BMC Medical Education,* 13(49), 2-6.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: W.H. Freeman.

Başusta, N.B., Elçin, M. (2014). Hekim adaylarının mesleksel yeterliklerine ilişkin önem ve özyeterlik algıları ölçeğinin geliştirilmesi, *Eğitim Bilimleri ve Uygulama,* 13(26), 239-255.

Bailey, J.G. (1999). Academics' motivation and self-efficacy for teaching and research, *Higher Education Research & Development,* 18(3), 343-359.

Burgoon, J.M. (2008). *An investigation of the self-efficacy of medical students for the anatomy curriculum: role of gender and prior experience, and self-efficacy's influence on academic achievement.* Educational Psychology, Measurement and Evaluation Department of University of North Carolina. Thesis Study of degree of Doctor of Philosophy.

Chemers, M.M., Hu, L., Garcia, B.F. (2001). Academic self-efficacy and first year college student performance and adjustment. *Journal of Educational Psychology,* 93(1), 55-64. http://dx.doi.org/10.1037/0022-0663.93.1.55

Dinther M.V, Dochy, F., Segers, M. (2011). Factors affecting students' self-efficacy in higher education. *Educational Research Review,* 6, 95–108. http://dx.doi.org/10.1016/j.edurev.2010.10.003.

Dubow, E. F., Boxer, P., & Huesmann, L. R. (2009). Long-term effects of parents' education on children's educational and occupational success: mediation by family interactions, child aggression, and teenage aspirations. *Merrill-Palmer Quarterly (Wayne State University. Press),* 55(3), 224–249. http://doi.org/10.1353/mpq.0.0030

Eaton, M. J. & Dembo, M. H. (1997). Differences in the motivational beliefs of asian american and non-asian students. *Journal of Educational Psychology,* 89(3), 433-440.

Harle, C.A., Gruber, L.A., Dewar, M.A. (2014). Factors in medical student beliefs about electronic health record use, *Perspectives in Health Information Management,* Erişim Adresi: http://perspectives.ahima.org/factors-in-medical-student-beliefs-about-electronic-health-record-use/

Jinks, J. ve Morgan, V. (1999). Children's percevied academic self-efficacy: an inventory scale. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas.* 72(4), 224-230.

Jung-Sook, L. & Natasha, K. (2006). Parent involvement, cultural capital, and the achievement gap among elementary school children. *American Educational Research Journal,* 43(2), 193-218.

Keskin G, Sezgin B. (2009). Bir grup ergende akademik basarı durumuna etki eden etmenlerin belirlenmesi. *Fırat Sağlık Hizmetleri Dergisi,* 4(10).

Lent, R.W., Brown, S.D., Larkin, K.C. (1984). Relation of self-efficacy expectations to academic achievement and persistence. *Journal of Counseling Psychology,* 31(3), 356-362. http://dx.doi.org/10.1037/0022-0167.31.3.356

Malau-Aduli, B.S., Page, W., Cooling, N., and Turner, R. (2013). Impact of self-efficacy beliefs on short- and long-term academic improvements for underperforming medical students. *American Journal of Educational Research,* 1(6), 168-176. http://dx.doi.org/10.12691/education-1-6-1

Mavis, B. (2001). Self-efficacy and osce performance among second year medical students. *Advances in Health Sciences Education,* 6, 93–102.

Mehmet Ali Gülpınar, M.A., Gürpınar, E., Songur, A., Vitrinel, A. (2014). Mezuniyet öncesi tıp eğitimi ulusal çekirdek eğitim programı-2014 (ULUSAL ÇEP-2014). Tıp Dekanları Konseyi. Erişim tarihi: 30.10.2016, http://tip.bezmialem.edu.tr/tr/Documents/ulusalcep2014.pdf

Plaza, C.M. (2002) Curricular evaluation using self-efficacy measurements. *American Journal of Pharmacology Education*, 66, 1–8.

Sarıer, Y. (2016). Türkiye'de öğrencilerin akademik başarısını etkileyen faktörler: bir meta-analiz çalışması. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi.* DOI:10.16986/HUJE.2016015868.

Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist*, 25, 71-86.

Tresolini, C.P., Stritter, F.T. (1994). An analysis of learning experiences contributing to medical students' self-efficacy in conducting patient education for health promotion. *Teaching and Learning in Medicine*, 6(4), 247-254. http://dx.doi.org/10.1080/10401339409539688

Üstüner, M., Demirtaş, H., Çömert, M., Özer, N. (2009). Ortaöğretim öğretmenlerinin öz-yeterlik algıları. *Mehmet Akif Ersoy Üniversitesi Egitim Fakültesi Dergisi*, 17(2): 1-16.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson/Allyn & Bacon.

Turan, S., Valcke, M., Aper, L., Koole, S. and Derese, A. (2013). Studying self-efficacy beliefs in medical education. *Procedia - Social and Behavioral Sciences*, 93, 1311 – 1314. http://dx.doi.org/10.1016/j.sbspro.2013.10.034.

Ogenler, O., & Selvi, H. (2014). Variables affecting medical faculty students' achievement: a mersin university sample. *Iranian Red Crescent Medical Journal*, *16*(3). http://doi.org/10.5812/ircmj.14648

Opacic, D.A. (2003) The relationship between self-efficacy and student physician assistant clinical performance. *Journal of Allied Health*, 32 (3), 158–166.

Zimmerman, B.J. (2000). Self-efficacy: an essential motive to learn. *Contemporary Educational Psychology.* 25(1), 82–91.

Fostering the employability of students through education-business partnerships in Malta

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Abstract

Malta is one of the smallest states of the EU. It has no natural resources and an economy open to strong competition. Yet, since its independence, the standard of living of the island has consistently gone up. One of the secrets for its success is the huge investment in education. Inspite of this, businesses are having to resort to foreign workers as there are difficulties to find suitably skilled workers in certain sectors in spite of the huge investment in education and training. To ensure the employability of future workers, this paper aims to recommend that educational institutions should establish closer links and meaningful ways of collaboration with the business community with the aim of bridging the gap between education and the world of work. One way of doing this is by creating effective and sustainable education-business partnerships that are aimed at developing the necessary skills and personality traits that employers look for when recruiting and recommends ways how these collaborations could be formed taking into account their limitations.

Keywords: Education-business partnerships; school-to-work transition; education in Malta
Main Conference Topic: Education practice, trends and issues

Introduction

Malta is one of the smallest states in the world and of the EU, with a very high population density and no natural resources. Yet, in spite of this, since its independence 52 years ago, the standard of living of its people has gradually but consistently improved. In fact, The Malta Independent (2015) reported that in the third quarter of 2015, Malta had the highest GDP growth of all countries in the EU.

There are many plausible explanations for this paradox, definitely, the investment in education is one of them. Compulsory education in Malta starts by the age of four years and continues till the age of sixteen when students have to decide whether to pursue their education or may try to start working. Those who opt for the former, have to choose between enrolling in a programme leading to university or to join a vocational course.

However, like many other countries, Malta faces real challenges to produce well rounded individuals that are equipped not only with academic knowledge, but with other skills needed to thrive in today's world of work. In spite of this investment, the National Employees Skills Survey (NESS) (2016) carried out in Malta, many employers declared that the main reason why vacancies were hard to fill was the lack of applicants with the required skills or the required attitude and personality.

This paper aims to address this challenge, of improving the employability of youths going through the educational system by recommending a viable solution.

A world wide challenge

This problem of proper articulation between training offered and work opportunities does not only seem endemic to the Maltese scenario nor is it a recent phenomenon.

The Education Business Partnership Conference (EBPC) (2000), Laanan (1995), Leary (1996) and many others, claim that a large proportion of young people entering the workforce today are not properly prepared to meet the current demands of the unpredictable work environment. For example, Microsoft was not able to fill thousands of technology-related jobs because the applicants were not qualified enough (Mazzela, 2013). Given the recent challenges due to the economic crisis and stiffening competition for investments, the problem may be getting more acute and needs to be addressed.

This challenge has been felt throughout the EU as well, and in an attempt to address this problem the European Commission has put in place a number of initiatives. For example, in 2008, the University-Business Forum was set up to facilitate interections and exchanges between the business world and academia. It provides a European-level platform for discussion and networking between universities and businesses. In addition, the Erasmus+ Programme, makes it possible to fund mobility and cooperation initiatives between business and higher education.

The Maltese context

Economic growth in Malta, has brought about an increase in the number of job vacancies, however, in spite of this, youth unemployment still needs to be addressed. Malta needs to recruit a substantial number of non-local workers, also to make up for areas in which the necessary skills are not available. Infact, according to the NESS (2016), 29% of employers employ foreigners on full time basis and 39% of these employers did so because they couldn't find suitably qualified local ones.

In order to ensure that investments in the Maltese educational system are yielding benefits, one needs to find ways how to reduce the skill mismatches through better linkages between education and businesses. Unfortunately, in Malta, the role of the business community in educational curricula is very often minimal and at present there is no formal mechanism to ensure that the curricula are relevant to the rapidly changing needs of businesses.

The term business here will include all those organizations, enterprises, and industries, which offer employment and work.

Bringing stakeholders together

According to Imel (1991), in this scenario what is required is a program that connects youth in schools with the world of work so as to give them both knowledge of work and knowledge of themselves. A better prepared work force increases public confidence, and support for education enhances economic development and consequently improves the quality of life (Lankard, 1995).

Given the dynamic economic environment we are facing it is very difficult to anticipate the necessary future skills for the various sectors in the economy. As a result, although a course may be designed in response to a particular need, unless it is of very short duration, it is very likely that by the time students complete their training, the opportunities that once existed and for which the course was intended may no longer exist. Inevitably, the experience

is frustrating for the graduating student and for employers, as well as wasteful for society because the resources could have been otherwise utilised.

It is not easy to overcome such a problem and most probably there is no one singular solution. Primarily, schools should provide solid general foundation in communication, mathematics, science and technology thus equipping the learner with the tools for further learning. Education should serve to produce well rounded learners who have the abilities and skills necessary to innovate themselves and to instill in them the desire for lifelong learning.

In addition, there needs to be a strong relationship between the course structure and the job market through the formation of education-business partnerships, which bring businesses and education closer together for mutual benefit. Indeed, the Australian Council for Educational Research (ACER) (2011) considers the strengthening of school-business connections as compelling.

The Chamber of Commerce and Industry of Queensland (2010) maintains that the engagement of business with education 'delivers significant benefits by supporting the development of young people, contributing to skills, improving knowledge of existing and future workforce demands and enhancing the educational outcomes for students.' Such partnerships can serve as a critical agent in smoothing the transition between school and the world of work, however it must be ensured that there is an adequate balance between the different goals of education, that is, preparing students for further studies, for the world of work, citizenship, and personal development.

Benefits derived from partnerships

Traditionally, education-business partnerships have been viewed from the perspective of the benefits to education. However, if the relationship is to be considered as a partnership, then benefits must be realised by all partners such that these radiate from one partner to another (Grobe, et.al., 1993). An effective partnership should yield gains for business, for students, for teachers, and for the school.

The following are some of the main benefits of education-business partnerships.

- **Benefits for business**

One of the greatest advantage mentioned by Lankard (1995), Lapinsky (2000), Leary (1996), Marsden (1990) and Warden (1986) is the smoothing of the school to work transition. As a result, entry-level employees come on board with significant skills and competencies, so they are immediately productive thus cutting down on the cost and need for training. Businesses can also gain access to potential recruits.

Weller and Dillon (1999) found that very often, teachers' abilities in the business context are undervalued. These abilities may be used by businesses for motivating and developing their own staff (SLED, 1998).

Furthermore, Lankard (1995) and Lapinsky (2000) view partnerships as important for improved public relations by providing an enhanced corporate image as part of their Corporate Social Responsibility.

- **Benefits for students**

According to ACER (2011), students mainly benefit from partnerships because of 'increased vocational knowledge, employability skills and career awareness.' The practical experience also helps students develop 'skills in teamwork, enterprise, communication and problem solving.' In England, the Department for Education and Skills (DES) (1999) claims that partnerships broaden the students' understanding of the world of work. They give students the possibility of understanding the relationship between what is learned at school and the competencies and skills required at the workplace (Vaznaugh, 1995) and this is what enhances their employability.

- **Benefits for teachers**

The European Training Foundation (1999) believes that the role of teachers in education cannot be overemphasized enough. Their active input is crucial in forging the link between education, training and the world of work. Teachers benefit from improved insight into the needs of industry so they can relate these back to the classroom (DES, 1999). Partnerships can be a good way to sustain the continuous-professional-development of teachers.

- **Benefits for the school**

'Coping with escalating costs, responding to greater diversity among students, and keeping pace with changing technology are all high priorities for today's educators' (Lee, 1997, 1). Education-business partnerships can be a possible way to ease some of the financial problems of schools by supplying funds, materials, technologies and professional expertise for projects which the school budget would not be able to cover.

Establishing meaningful partnerships

For partnerships to be truly successful, they have to provide win-win opportunities for all involved and to remain fruitful, they need to be regularly evaluated and assessed. The EBPC (2000) recommends a number of guidelines when setting partnerships. The following are some of them.

- Identify commonly agreed goals from the outset.
- Understand each of the partners' priorities and maintain a balance between their interests.
- Look to the needs of teachers as well as pupils in designing partnerships.
- Embrace not only education and businesses but also voluntary organizations and communities.
- Be guided by best practice in own country as well as in others.
- Value the different ways that industry and education have of doing things rather than try to make everyone act and think in the same way.
- Influence the reform of education and learning systems so that students acquire the skills and competences for success in life and work.
- Maintain long-term viability through flexibility and regular revisiting of goals, implementation and outcomes.
- Ensure that partnerships remain sustainable.

A partnership can be initiated either by a school or a business. It can be described as a mutual agreement aimed at achieving certain goals, and establishing concrete ways of achieving those goals. The first step is establishing communication. Each party must be

committed to make time and effort to agree terms. It is important that the right people are involved in the negotiations, so that maximum potential is achieved (Imel, 1991).

Possible forms of collaboration

Partnerships between education and business can vary in nature (Imel, 1991) depending upon the need the partnership is created to serve (Lankard, 1995) and on what each part hopes to achieve. Furthermore, according to Kubota (1993) and the SLED (1998), all businesses have something to offer and to gain irrespective of their size or sector. Therefore, the objectives of the partners will determine their degree of involvement.

Partnerships can be created between one school and a business, or one business and a number of schools, or some other combination. They can be simple or complicated, formal or informal, short term or long term.

There exists a whole continuum of different models which can be adopted. The continuum can span from a one off annual event to a continuous engagement of the partners throughout the year, possibly spanning several years. Besides the duration, one can also consider the depth of involvement of the partners within the partnership.

The following are some practical ways for an effective education-business partnership.

- **Business personnel as classroom consultants**

Their expertise can be used by both teachers and students in particular situations ranging from evaluating practical solutions to theoretical problems, as well as supporting educational and research projects.

- **Involvement in establishing the curriculum**

Although traditionally curriculum design and development was left in the hands of educational professionals, businesses should have the possibility to contribute towards a more relevant curriculum for today's world.

- **Curriculum based activities**

When the educational program involves hands-on-activities, the curriculum is considered to be activity based. Through partnerships, school curricula may be specifically designed to involve hands on activities with one or more businesses. These planned activities serve as a means for students to learn certain skills and concepts such as how to set up a business or to market a product.

- **Field trips**

During field trips, students are given the opportunity to ask questions and acquire knowledge of the day-to-day operation of the business being visited. Students can also be informed about opportunities of work.

- **Contribution to career/guidance service**

Appropriate career advice is useful both to students and to prospective employers and contributes in no uncertain way towards employability. The business community, together with school based advisors can contribute significantly in this regard.

- **Financial contributions/ sponsorships**

Although most schools, including in Malta are either completely funded or partially funded by the state, the annual budget very often only covers recurrent operational costs and planned capital expenditure. Regretfully, there is no or minimal allocation for educational projects of various types, including those of which result from individual initiatives. The business community should be able to sponsor and support such initiatives which otherwise are doomed to be shelved.

- **Teachers on temporal secondement**

Although the period of attachment usually only lasts from a few weeks to months, teachers can gain a lot of experience and insight in the way businesses operate while in return, offering their expertise to the business. The business community recognises that teachers have a primary role for effecting meaningful changes in the educational system (Kubota, 1993) and therefore it makes sense to develop them as the main agents of change. By being exposed to the real work environment they would be able to transfer this knowledge and experience back to the classroom.

- **Enterprise activities**

There are many forms and levels of enterprise activities such as the Young Enterprise project in which students set up small business of their own. Businesses can support such activities by offering help when approached in the form of sponsorships and advice. In Malta, most of the business are small-to-medium enterprises (SMEs), thus usually with limited resources. However, they can still provide advice and training on running a small business thus fostering future businesses.

- **Involvement in school governance**

Although as previously indicated, education should be in the hands of educational professionals, the business community has a lot to offer and schools stand to gain a lot if business representatives are invited to sit on school governance boards.

- **Work experience**

Businesses provide students with an opportunity to interact with employees working in the field. The business can opt to simply provide mentoring and job shadowing in the workplace, or else offer apprenticeship, training-ship or internship for a full scale work experience. The experience of working in an actual place of work is invaluable to students where they get to understand and develop values such as teamwork, creative thinking and problem solving skills as well as practice their written communication skills.

It is important that for these partnerships to flourish, a formal structure should be set up to sustain, monitor and evaluate them while formally recording them to serve as models of good practice. However, ACER (2011) recommends that such structures 'should not be prescriptive and would need to be flexible enough for schools and businesses to adapt for their own purposes.'

Limitations and ethical concerns

In spite of the many benefits of education-business partnerships, one should be aware of their limitations. The world of teaching and learning, and the economic sphere are not necessarily natural partners as they traditionally fulfill different roles in society and have different goals (European Training Foundation, 1999). There are some who may even view partnerships as an intrusion, infringing on local controls of schools and as an attempt by

employers to train workers for jobs thereby limiting their educational options too early in life (Lapinsky, 2000).

It is true, that there is a real danger that if the educational programs offered are too specific and linked to particular jobs, then it would be less likely that schools will produce literate, well-rounded generalists who can cope with rapid change at the workplace and everyday life.

An education-business partnership, whether formal or informal, should be based on ethical standards. The following are the main ones as recommended by BCTF (2002):

- The partnership enhances the quality and relevance of education for learners.
- The direct and indirect impact of the partnership does not exploit the school or the student in any way.
- The partnership treats students fairly and equitably, including at-risk students and those who have less access to resources from family and community.
- The partnership provides opportunities for all partners to meet their shared social responsibilities toward education.
- The partnership is free of stereotyping and discriminatory practices.
- Acknowledgement of each partner's contribution is appropriate, and includes logos or other forms of organizational recognition only if agreed to by the school.
- The partnership allocates resources to complement, not replace, public funding for education.
- The partnership is developed and structured in consultation with all partners and respects the policies, procedures, and traditions operating in the school.
- The partnership clearly defines roles and responsibilities for all partners and involves individual participants only on a voluntary basis.
- Partnership performance is evaluated to make informed decisions on continuation of the partnership.

Conclusion

According to Dewey (1938), 'The purpose of education is to enhance individual effectiveness in society and give learners practical knowledge and problem-solving skills'. This implies that education should go beyond the acquisition of knowledge. It should give students the skills to be employable and continue learning to contribute to society.

The rapid economic growth which Malta is experiencing is exposing a weakness in the education system, that of preparing students who have the academic and technical knowledge as well as other necessary skill sets to thrive in today's world of work. One possible way of overcoming this challenge is to formally establish healthy education-business partnerships throughout the education process.

In this way, education-business partnerships can become an effective solution to bridging the gap between education and the world of work.

References

Australian Council for Educational Research (2011). *Final Report: The benefits of school-business relationships.*

BCTF (2002). *Issues in Education: Guidelines for education/business partnerships*, pp. 1-4. [http://www.bctf.be.ca/parents/edubusbr.html, (19/04/2002)].

Chamber of Commerce and Industry of Queensland (2010). *Supporting Business-School connections.*

Department for Education and Skills (1999). *Survey of school business links in England: 1997/98, Statistics of Education*, 2/99:1-15, [http://www.dfes.gov.uk/statistics/DB/SBU/b0049/573.htm (18/04/2002)].

Dewey, J. (1938). *Experience and education*, Macmillan.

Education Business Partnership Conference (2000). *Impressions of EBP2000*, Education Business Partnership Scotland.

European Training Foundation (1999). *The European House of Education: Education and Economy – A new partnership*, Turin.

Grobe, T. *et. al.* (1993). *Synthesis of Existing Knowledge in the Field of Educational Partnerships, Office of Educational Research and Improvement, and Practice in the field of Educational Research and Improvement*, Washington, ED362994.

Imel, S. (1991). *School-to-work transition: Its role in achieving universal literacy*, ERIC Digest, ED329806: 1-4, [http://ericacue.org/docs/bed.htm (17/04/2002)].

Kubota, C. (1993). *Education-Business partnerships: Scientific work experience programs*, ERIC/CSMEE Digest, ED359045: 1-5, [http://ericacue.org/docs/bed.htm (17/04/2002)].

Laanan, F.S. (1995). *Community colleges as facilitators of school-to-work*, ERIC Digest, ED383360
[http://ericaue.org/docs/bed.htm (17/04/2002)].

Lankard, B.A. (1995). *Business/Education partnerships*, ERIC Digest 156: 1-4, [http://ericacue.org/docs/bed.htm (17/04/2002)].

Lapinsky, D. (2000). *Education for work*, pp. 1-7, [http://www2.widener.edu/~egr0001/EDControversy/Lapinsky.html (20/02/2002)].

Leary, M. (1996). *Turning students into employees: the school-to-work transition*, CORD, Waco & Texas.

Lee, L. (1997). *Civic literacy, Service learning, and Community Renewal*, ERIC Digest, ED405913: 1-4, [http://ericacue.org/docs/bed.htm (17/04/2002)].

The Malta Independent (2015, December 10). Malta has the highest GDP growth year-on-year in EU,
[http://www.independent.com.mt/articles/2015-12-10/business-news/Malta-has-highest-GDP-growth-year-on-year-in-EU-6736150222   (22/10/2016)]

Marsden, C. (1990). *Education and Business: A vision for the partnership*, BP Educational Service, UK.

Mazzella, J. (2013). Solving the high-tech talent crisis,
[http://m.usatoday.com.akadns.net/article/news/1949365]

National Commission for Further and Higher Education, Jobsplus and Mala Enterprise (2016). *National Employee Skills Survey*, Malta.

SLED (1998). *Workforce of the future –facing the challenges of the millennium*, pp. 1-3, [htttp://www.sled.org.uk/news16.htm (18/04/2002)].

The Times of Malta (2001, May 12). Education Business Links initiatives launched.

Vaznaugh, A. (1995). *Dropout intervention and language minority youth*, ERIC Digest, ED379951: 1-5, [http://ericacue.org/docs/bed.htm (17/04/2002)]

Weller, M. & Dillon, P. (1999). Education and business partnerships in the United Kingdom: Initiatives in search of a rationale, in *Bulletin of Science, Technology & Society*, 19 (1): 60-67.

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MODELING THE RELATIONSHIP OF THE SELF-EFFICACY BELIEFS WITH OCCUPATIONAL ANXIETY AND ATTITUDE LEVELS OF PRE-SERVICE TEACHERS

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Summary: Teachers' self-efficacy belief is one of the main factors affecting their behaviors in the classroom and their students' learning. Considering that the teacher training process is an important process in the development of their self-efficacy belief, it is crucial to determine their self-efficacy beliefs, and reveal the factors affecting these beliefs in terms of planning the process more effectively. This study aims to examine and model the relationship of pre-service teachers' professional self-efficacy beliefs with their occupational anxiety and attitude levels using the Structural Equation Modelling (SEM) technique. The findings obtained indicated that the model was statistically significant and the fit indices of the models satisfied the recommended level of acceptable fit.

Key words: teacher's self-efficacy belief, occupational anxiety, professional attitude, SEM

Conference Topic: Higher Education, Teacher Education

INTRODUCTION

Self-efficacy belief, which was first proposed by Bandura, the pioneer of the Social Learning Theory, is an important feature of one's behavior formation. Bandura (1977) defines the concept of self-efficacy belief as "the individual's own judgment about the capacity to organize and successfully perform the activities necessary to demonstrate a certain performance." According to this definition, the self-efficacy belief reflects the individual's judgments about his or her competences rather than the actual level of competence of the individual in performing a task (Çakir, Kan and Sünbül, 2006: 37).

Self-efficacy belief has been studied in many fields such as education, health, art, sports and technology, and the findings of these studies have shown that the high level of efficacy beliefs of people about their own capacities have positive effects on the relevant situations in the relevant area (Eccles and Wigfield, 2002) . Self-efficacy belief not only increases or decreases an individual's work performance but also determines whether an individual will start performing a task; how much effort he or she will make for the task and how long this effort will last. In other words, having a high level of efficacy belief in individuals results in an effective effort and successful results, whereas individuals with low self-efficacy beliefs are likely to give up making efforts soon and fail in their tasks (Stajkovic and Luthans, 2003). There are a number of studies in the literature that show that individuals with a high self-efficacy belief are more determined and patient to achieve a task, and that they are more resistant to the problems they face in the process (Barling and Beatties, 1983, Renn and

Fedor, 2001, Judge and Bono, 2001; And Peterson, 2002; Brown, Jones and Leigh, 2005; Judge et al., 2007).

One of the areas in which self-efficacy belief is examined is the teaching profession. Self-efficacy belief is defined as one of the main factors affecting the professional competences of teachers which include planning, organizing and implementing the learning-teaching activities which are necessary for the teachers to fulfill their educational goals. It is also defined as the teachers' belief about their own abilities to demonstrate the necessary behaviors in order to be able to successfully fulfill the teaching task and change student behaviors (Tschannen-Moran and Woolfolk Hoy, 2001, Skaalvik and Skaalvik, 2010). Teachers with high beliefs of self-efficacy for their profession have been observed to be making more efforts to deal with possible problems; exhibiting more supportive behaviors for students with learning problems and being more influential on creating learning environments and on students' academic development (Tschannen-Moran, Woolfok Hoy and Hoy, 1998, Gibson and Dembo, 1984, Gibson and Dembo, 1985, Bandura, 1993). In this context, it is important to determine how the self-efficacy belief develops, which components it is composed of and which factors it is affected by in terms of the organization and effective planning of the teacher training programs (Pajares, 1997).

Studies have shown that pre-service teachers' level of occupational anxiety and attitudes toward their profession are among the main factors affecting their self-efficacy beliefs for various subjects. Teaching anxiety can be defined as "emotions that prevent teachers from starting, sustaining or completing any task and hence affect their performance" (Thomas, 2006). The attitude towards the teaching profession is "the generally unconcerned and unexpressed notions that shape teaching, student, class atmosphere and the content" (Güneyli and Aslan, 2009: 314).

The purpose of this study is to reveal and model the relationship of pre-service teachers' professional self-efficacy beliefs with their occupational anxiety and attitude levels using the Structural Equation Modelling (SEM) technique.

In the literature, there are several studies that examine the teachers' self efficacy, anxiety and attitudes towards their profession mostly independently (Stephenson, Linfoot and Martin, 2000) whereas there are few studies that examine the relationship of these three features together (Dadandı, Kalyon and Yazıcı, 2016; Şenler, 2016). In this context, it is expected that this study will make an important contribution to the literature.

In addition, it has been observed that self-efficacy belief is considered as an independent variable affecting the various features/behaviors of pre-service teacher in most studies. In this study, it is emphasized that anxiety and attitude are determinants of self-efficacy belief. The findings of this study are thought to be important in terms of the factors affecting self-efficacy belief.

In the line of its purpose, this study aims to answer the research question given below:

What is the structural equation model that explains the relationship of pre-service teachers' professional self-efficacy beliefs with their occupational anxiety and attitude levels?

METHOD

Type of research: This study is a correlational study designed to reveal the relationship of pre-service teachers' professional self-efficacy beliefs with their occupational anxiety and attitude levels based on the data collected from pre-service teachers.

Participants: The study group consists of 378 senior (4th year) students studying in Mersin University Faculty of Education. 11 participants were not included in the analysis due to the

fact that they did not complete the scales fully. So, in total 367 pre-service teachers participated in the study. There were 246 female (67%) and 121 male students (33%). As for their departments, there were 94 classroom pre-service teachers (26%), 16 science and technology pre-service teachers (4%), 36 primary school mathematics pre-service teachers (10%), 44 English pre-service teachers (12%), 61 Turkish pre-service teachers (17), 55 pre-school pre-service teachers (15%) and 61 psychological counseling and guidance pre-service teachers (17%).

Data Collection Tools: Three scales, whose psychometric properties was given below, was used in obtaining data for the study.

Teachers' Belief of Self Efficacy Scale (Turkish Version): This scale was developed by Tschannen-Moran and Hoy in 2001 and adapted into Turkish by Çapa, Çakıroğlu and Sarıkaya in 2005. It has 24 items which are graded between (1) "insufficient" and (9) "very sufficient". The scale consists of three factors as in the original, Efficacy in Student Engagement, Efficacy in Instructional Strategies and Efficacy in Classroom Management. The alpha reliability of the scale is 0,93 and the reliability of the sub-factors are 0,82, 0,86 and 0,84 respectively.

*Teaching Occupation Anxiety Scale: T*he scale developed by Cabi and Yalçınalp (2013) consists of 45 items that are graded between (1) "I am not anxious" and (5) "I am very anxious" and has 8 sub-factors which are identified as "job oriented" for factor 1, "socio-economic" for factor 2, "interaction with students" for factor 3, "collegues and students' parents" for factor 4, "individual self-development" for factor 5, "occupational exam" for factor 6, "adoption" for factor 7 and "school management" for factor 8. The alpha reliability of the factors varies between 0,67 and 0,94. All the factors explain 65,724% of the total variance.

Attitude Scale Toward Teaching: The scale was developed by Erkuş, Sanlı, Bağlı and Güven (2000) to assess the attitudes toward the teaching profession. It consists of 23 items that are graded between (5) "completely appropriate" and (1) "not appropriate at all". The 13 items on the scale are scored inversely. The scale's alpha reliability is 0,99. It was determined that the scale was a valid scale that distinguishes between pre-service and non-pre-service teachers.

Data Analysis: Initially, descriptive statistics for the demographic characteristics of the pre-service teachers in the study group and mean scores and standard deviations for the total scores of self-efficacy, anxiety and attitude were calculated using SPSS 20.0. Then, a structural model was constructed on the data obtained from the three scales and the effects of independent variables on the dependent variable were analyzed using LISREL 8.72.

Structural Equation Modelling (SEM) is a statistical modeling technique that reveals the causal relationship between measured and unmeasured variables (Hoyle, 1995, Şehribanoğlu, 2005). SEM is used to test the causal relationship between latent and indicator variables. The aim of the SEM is to determine whether the theoretical model is supported by data or whether the model conforms to the data. Structural equation models contain more powerful and alternative methods than multiple analysis techniques such as multiple regression, path analysis, factor analysis, time series analysis and covariance analysis. It is thought that SEM gives more accurate results compared to other methods because it takes measurement errors into account (Şehribanoğlu, 2005; Bayram, 2010: 1). It is assumed that there is a causal structure between the set of latent variables and latent variables can be measured through observed variables (Kline, 2005).

The model was formulated using the constructs described with these scales and the scale items and the compatibility of the model was interpreted with the criteria of goodness of fit.

FINDINGS

The model was constructed with 24 indicator variables predicted by the "self-efficacy" variable, 23 indicator variables predicted by the "attitude toward the teaching profession" variable, and 45 indicator variables predicted by the "occupational anxiety" variable. In the structural equation model, there are three latent variables: attitude and anxiety as the independent latent variables, and self-efficacy as the dependent latent variable. The variables "attitude" and "anxiety" were used to explain self-efficacy beliefs of pre-service teacher.

The origin of relations in the presented model were identified according to the literature in which there are studies indicating that self efficacy on a variety of topics can be explained with anxiety and attitudes towards the related issues (Perepiczka, Chandler and Becerra, 2011; Şenler, 2016). In the model established in this study, the alternative research hypotheses for the latent variables are given below:

Hypothesis 1: As pre-service teachers' level of anxiety increases, their level of self-efficacy decreases.

Hypothesis 2: As pre-service teachers' level of attitude toward teaching profession increases, their level of self-efficacy decreases.

The conceptual diagram of the structural model in SEM is shown in Figure 1 given below.
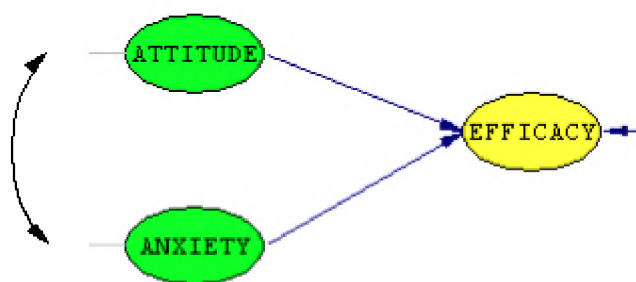
Figure 1: The conceptual diagram of the structural model in SEM

Table 1 shows the fit indices obtained within the framework of various criteria to determine the goodness of fit of the model established with SEM.

Table 1. Criterion values for goodness of fit of the model

Fit indices	Perfect fit	Acceptable fit
RMSEA	$0,00 \leq RMSEA \leq 0,05$	$0,05 \leq RMSEA \leq 0,10$
NNFI	$0,95 \leq NNFI \leq 1$	$0,90 \leq NNFI \leq 0,95$
CFI	$0,95 \leq CFI \leq 1$	$0,90 \leq CFI \leq 0,95$
SRMR	$0,00 \leq SRMR \leq 0,05$	$0,05 \leq SRMR \leq 0,10$

(Schermelleh-Engel and Moosbrugger, 2003, Klein, 2005)

The fit indices obtained for the model are given in Table 2.

Table 2: Fit indices of the model

	df	X^2	p	RMSEA	CFI	SRMR	NNFI
Basic model	4091	12111.3	<0.001	0.079	0.93	0.075	0.93

When the fit indices given in Table 2 is compared with the criterion values in Table 1, it is possible to say that the fit indices obtained for the model have satisfied the recommended level of acceptable fit and therefore the model is a statistically significant model. The fit indices of the model are within the acceptable ranges. Also χ^2_{4091}=12111,3; χ^2/df =2,96<3 is another statistical indication that the model is fit. That is, the hypothetical model applies to all data sets, hence the theory is consistent with the data. The standard path values and t values of the structural models to test the hypotheses are given in Table 3.

Table 3: The standard path values and t values of the structural models to test the hypotheses

Hypotheses	Paths	Standard Parameter Estimates	t Statistic	Result
Hypothesis 1	Anxiety-Efficacy	-0.42	-6,93	Confirmed
Hypothesis 2	Attitude-Efficacy	0.19	3,69	Confirmed

When Table 3 is examined, it is clearly seen that the relationships between attitudes, anxiety and self-efficacy beliefs of pre-service teachers are statistically significant, thus the established hypotheses are confirmed. In the Structural Equation Model, standardized parameter estimates (factor weights) that link the latent variables to indicator variables are denoted by λ. When the links/paths in the model are examined, it can be seen that the relationship between self-efficacy and anxiety is significant and negative whereas the relationship between self-efficacy and attitude is significant and positive. The regression equation obtained for the described model can be derived from these values as following:

$$\text{SELFEFFICACY} = 0{,}19 * \text{ATTITUDE} - 0{,}42 * \text{ANXIETY} \quad (R^2 = 0{,}77)$$

From this regression equation, it can be understood that a 1 unit of increase in pre-service teachers' anxiety levels causes a 0,42 unit of decrease in their self-efficacy levels while a 1 unit of increase in their attitudes causes a 0,19 unit of increase in their self-efficacy levels. As a result of the analysis, it can be stated that the positive attitudes and the low level of occupational anxiety of the pre-service teachers increase their beliefs about their own competences in teaching occupation.

Kelloway (1998) emphasizes the importance of stating the determination coefficient (R^2) as well as the other fit indices in the research results. R^2, which is defined as the explained variance, is the coefficient that determines how much of change in the latent variables is explained by the indicator variables. That the determination coefficient is 0,77 indicates that pre-service teachers' attitudes and anxiety towards their profession explain 77% of their beliefs of their own proficiency in profession. The unexplained portion of 33% is considered to be explained by other variables.

DISCUSSION AND RECOMMENDATIONS

The main purpose of this study was to examine and model the relationship of pre-service teachers' professional self-efficacy beliefs with their occupational anxiety and attitude levels using the Structural Equation Modelling (SEM) technique. The findings obtained indicated

that the model was statistically significant and the professional self-efficacy beliefs of pre-service teachers can be explained by the levels of occupational anxiety and attitudes towards their profession. They also indicated that the relationship between self-efficacy and anxiety is significant and negative whereas the relationship between self-efficacy and attitude is significant and positive.

According to the results of the study, pre-service teachers with a high level of anxiety about their teaching profession have lower beliefs about their own proficiency in an effective teaching profession. Moreover, pre-service teachers, who have a positive attitude towards the teaching profession, also rely more heavily on their competence in teaching effectively. In other words, pre-service teachers with a positive attitude toward their teaching profession and with low levels of occupational anxiety can be more effective in dealing with the situations they will encounter during their profession, and thus, their self-efficacy beliefs towards their teaching profession can be considered to be high, as well. These findings are in line with studies in the literature (Erdem, 2015; Perepiczka, Chandler and Becerra, 2011; Şenler, 2016).

This study reveals practical results for the development and implementation of programs related to the education of pre-service teachers. When teachers realize that they do not have the knowledge and skills about the various situations they meet in the real classroom environment, they start to feel inefficient (Dembo and Gibson, 1985). Ashton (1984) suggests that the sources of inefficacy the teachers experience in their classroom environment should be identified. Considering that the teacher training process is an important process in the development of their self-efficacy belief, it is crucial to determine their self-efficacy beliefs, and reveal the factors affecting these beliefs in terms of planning the process more effectively.

In this study, self-efficacy beliefs of pre-service teachers were examined in relation to the variables of anxiety and attitude. It can be suggested that similar studies can be carried out by considering various factors (such as gender, class, seniority, branch, faculty, motivation, burnout level, job satisfaction etc.) that are thought to affect the self-efficacy belief.

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References

Ashton, P. (1984). Teacher Efficacy: A Motivational Paradigm for Effective Teacher Education. *Journal of Teacher Education,* 35(5), 28-32.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.

Bandura, A. (1988). Self-efficacy conception of anxiety. *Anxiety Research,* 1(2), 77-98. http://dx.doi.org/10.1080/10615808808248222

Bandura, A. (1993). Perceived Self-Efficacy in Cognitive Development and Functioning, *Educational Psychologist,* 28(2), 117-148. http://dx.doi.org/10.1207/s15326985ep2802_3

Barling, J. and Beattie, R. (1983). Self-efficacy beliefs and sales performance. *Journal of Organizational Behavior Management* 5(1), 41-51. http://dx.doi.org/10.1300/J075v05n01_05.

Bayram, N. (2010). Yapısal eşitlik modellemesine giriş amos uygulamaları. Bursa: Ezgi Kitabevi.

Brown, S.P., Jones, E., Leigh, T.W. (2005). The attenuating effect of role overload on relationships linking self-efficacy and goal level to work performance. *Journal of Applied Psychology,* 90(5), 972-979. http://dx.doi.org/10.1037/0021-9010.90.5.972

Cabi ve Yalçınalp (2013). Occupational anxiety scale for prospective teachers: a study on validity and reliability. *Hacettepe University Journal of Education*, 44, 85-96.

Çapa, Y., Çakıroğlu, J., ve Sarıkaya, H. (2005). The development and validation of a Turkish version of teachers' sense of efficacy scale. *Education and Science,* 30 (137), 74-81.

Çakır, Ö., Kan, A. and Sünbül, Ö. (2006). Öğretmenlik meslek bilgisi ve tezsiz yüksek lisans programlarının tutum ve özyeterlik açısından değerlendirilmesi. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, 2(1), 36–47.

Dadandı, İ., Kalyon, A., Yazıcı, H. (2016). Teacher Self-Efficacy Beliefs, Concerns and Attitudes Towards Teaching Profession of Faculty of Education and Pedagogical Formation Students. *Bayburt Eğitim Fakültesi Dergisi,* 11(1), 253-269.

Dembo, M. H., and Gibson, S. (1985). Teacher's sense of efficacy: An important factor in school improvement. *Elementary School Journal*, 86, 173-184.

Eccles, J.S., and Wigfield, A. (2002). Motivational beliefs, values, and goals, *Annu. Rev. Psychol.,* 53, 109–32

Erdem, E. (2015). The relationship between self-efficacy and attitudes of chemistry teacher candidates. *Problems Of Education in the 21st Century*, 63, 62-70.

Erkuş, A., Sanlı, N., Bağlı, M.T., and Güven, K. (2000). Developing an attitude scale toward teaching as a profession. *Education and Science,* 25 (116), 27-34.

Gibson, S., and Dembo, M.H. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology,* 76(4), Aug 1984, 569-582. http://dx.doi.org/10.1037/0022-0663.76.4.569

Güneyli, A. and Aslan, C. (2009). Evaluation of Turkish prospective teachers' attitudes towards teaching profession. *Procedia Social and Behavioral Sciences.* 1, 313–319.

Hoyle, R. H. (1995). *The structural equation modeling approach: Basic concepts and fundamental issues.* In Structural equation modeling: Concepts, issues, and applications, R. H. Hoyle (editor). Thousand Oaks, CA: Sage Publications, Inc., pp. 1-15.

Judge, T.A., Bono, J.E. (2001). Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology*, 86(1), 80-92. http://dx.doi.org/10.1037/00219010.86.1.80

Judge, T. A., Jackson, C. L., Shaw, J. C., Scott, B. A., and Rich, B. L. (2007). Self-efficacy and work-related performance: The integral role of individual differences. *Journal of Applied Psychology*, 92(1), 107-127. http://dx.doi.org/10.1037/0021-9010.92.1.107

Kelloway, E. K. (1998). Using lisrel for structural equation modeling: A researcher's guide, USA: Sage Publications.

Kline, R. B. (2005). Principles and practice of structural equation modeling (2nd ed). New York: Guilford Press.

Luthans, F., Peterson, S.J. (2002). Employee engagement and manager self-efficacy, Journal of Management Development, 21(5), 376 – 387.

Pajares, F. (1997). *Current directions in self-efficacy research.* In M. Maehr and P. R. Pintrich (Eds.). Advances in motivation and achievement. (Vol. 10, pp. 1-49). Greenwich, CT: JAI Press.

Perepiczka, M., Chandler, N., and Becerra, M. (2011). Relationship between graduate students' statistics self-efficacy, statistics anxiety, attitude toward statistics, and social support. The *Professional Counselor: Research and Practice,* 1(2), 99–108

Renn, R.W., and Fedor, D.B. (2001). Development and field test of a feedback seeking, selfefficacy, and goal setting model of work performance. *Journal of Management*, 27, 563–583.

Schermelleh-Engel, K. and Moosbrugger, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8, 23-74.

Skaalvik, E.M. and Skaalvik, S. (2010). Teacher self-effi cacy and teacher burn put: A study of relations. *Teaching and Teacher Education*, 26, 1059-1069.

Stephenson, J., Linfoot, K., and Martin, A. (2000). Behaviours of concern to teachers in the early years of school. *International Journal of Disability, Development and Education*, 47(3), 225-235.

Stajkovic, A. D., and Luthans, F. (1988). Self-efficacy and work-related performance: A meta-analysis. Psychological Bulletin, 124(2), 240-261.

Stajkovic, A.D., and Luthans, F. (2003). Social cognitive theory and self-efficacy: Implications for motivation theory and practice. In L. W. Porter, G. A. Bigley, & R. M. Steers (Eds.), *Motivation and work behavior (7th ed.):* 126–140. Burr Ridge, IL: Irwin/McGraw-Hill.

Şehribanoğlu, S. (2005). Structural Equating Models and an Application, (Unpublished graduate dissertation), Yüzüncü Yıl University, Van, Türkiye.

Şenler, B. (2016). Pre-service science teachers' self-efficacy: The role of attitude, anxiety and locus of control. Australian Journal of Education, 0(0), 1-16. http://dx.doi.org/10.1177/0004944116629807

Thomas, B. (2006). Composition studies and teaching anxiety: A pilot study of teaching groups and discipline- and program-specific triggers (Unpublished doctoral dissertation). Bowling Green University, Bowling Green

Tschannen-Moran, M., Hoy, A. W. and Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research*, *68* (2), 202-248.

Tschannen-Moran, M. and Woolfolk Hoy, A. E. (2001). Teacher efficacy: capturing an elusive construct. *Teaching and Teacher Education*, 17, 783-805.

Game-based Activity for Teaching Non Functional Requirements in Software Requirement Analysis Class

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Abstract

In our paper we present a game-based learning activity-which was applied to teach software engineering students of the Software Engineering Department of the College of Art Media and Technology, Chiang Mai University, on non-functional requirements. According to earlier experiences, software engineering students had great difficulties with understanding non-functional requirements when traditional lectures on the subject were provided.The authors of this paper were given the opportunity to design lectures for a pilot class of 21st century education. The applied agile method utilizes a game-based learning activity in order to improve student engagement enhancing the efficiency of the whole learning experience as a shift from the traditional lecturing. Our methodology (4IN) is composed of 4 main tasks which are: introduction, in-class activity, inclusive discussion, and intermediate feedback. In the introduction phase a short, traditional-style lecture is given on the basic related information. Next, students are assigned to groups and a game-based learning activity is carried out with lecturer support encouraging cooperation, further deepening of knowledge and a "learning-by-doing" way of problem solving. In the inclusive discussion phase, students present their ideas and an open-discussion with the involvement of all stakeholders is established. Finally in the feedback phase the students share their experiences and ideas regarding the applied teaching method which serves as the basis of a continuous improvement of the game-based activity.

Keywords: agile methodology, game-based learning, in-class activity, requirement engineering, software engineering
Main Conference Topic: Computer Science

1. Introduction

In the software development process, the requirement phase is an early process phase with great impact on the next phases. Software engineers need to lay big stress on the requirement phase to reduce the number of possible future, Requirement engineering is a multi-disciplinary subject. The software engineer should be able to classify the functional requirements (FR) that have a direct impact on the system and the non-functional requirements (NFR) that have an indirect impact on the system. Moreover, non-functional requirements are decision making factors of a distributed architecture of the large-scale system [1]. Non-functional requirements are necessary because they represent the quality attributes of the product and therefor have a great impact on the satisfaction of the user. User acceptation can be considered as the success of the project. Hence software engineering students should study non-functional requirements in details.

The subject Requirement engineering seems to enable the soft skills of the students which are the most important skills to make the software development successful [2]. The students are inexperienced that is why they can hardly understand related concepts, abstract principles, and specific process models of the software engineering subjects; these subjects also bring up the difficulty of pedagogy [2,3]. Most subjects of the software engineering curriculum lack both entertainment and practical knowledge transfer. Based on our experience, applying an active-learning method as a means to improve the pedagogical process is an effective way to maximize the students' learning performance. [2,4,5]. Teaching and learning in universities shifts from traditional learning approaches towards active learning methodologies; according to leading theories, the students tend to learn more by doing that by listening to the lecturers alone [6].

The software engineering activities in the class should adopt the concept of game-based learning to enable a new way of learning [7]. Game-based learning can solve the problem of non-entertaining classes thus, the challenging issue of game-based learning is how we can design in-class activities that are both fun and informative [8, 9]. Rules and goals of the game design are dimensions that facilitate student engagement enhancing motivation and performance [10]. Therefore, designing a game-based in-class activity can ensure the engagement of students and the better comprehension of the lesson.

In game-based learning, students hold the role of the player who needs to solve problems. Game-based learning is not only associated with happiness and willingness to play but also with interaction, practice, and immersion in the game environment [9]. Learning with joy helps the learner overcome boredom associated with the abstract content and complicated theories resulting in positive learning outcomes.

2. Literature Review

All engineering programs have the same objective of improving the student engineers' abilities. Collaborative learning allows students to communicate with each as part of their learning process [11, 12]. An educational objective can only be successfully reached if the students pay attention to the class, or with other words, if the students are sufficiently engaged [5]. This is the reason why group activities can be suitable for the engineering education.

It is important to train the software engineering professionals efficiently during their college education period because being an expert in software engineering requires both technical knowledge and practical skills [5]. Software engineering's pedagogy faces problems related to the teaching of complex and abstract theories [2]. Software requirement engineering is recognized as an applied discipline covering such areas as customer communication, developer cooperation, software artifacts, and process communication [12, 13]. Learning happens when the learner solves a creative problem, that is why the software engineering education focuses on the skills of solving practical problems rather than on the understanding of particular programming languages [2,14]. Understanding the learner's needs, applying an appropriate scenario, and defining the engaging learning activities are the requirements of a successful learning design for engineers [14].

There are some researches related to software engineering education. Soka et al., integrate project-based learning and collaborative learning as a practical exercise in the software engineering lectures of the Mechatronics Engineering Bachelor at the Ostbayerische Techinische Hochschule (OTH Regensburg), and their exercises are accepted by students [5]. Zowghi shared her experience in teaching an online requirements engineering course to the students in Iran who were denied of higher education by using role-play activities [13]. Hoffmann proposes a conceptual approach to teach requirement engineering using the theatre technique, she also suggests doing an improvisation game workshop [15]. Abke et. al, created a new approach of collaborative learning in software engineering focusing on an embedded systems course at the University of Applied Sciences Aschaffenburg by using wiki system [3]. Baker et. al, use the physical card game to simulate the software engineering process for teaching; according to their experience, they claimed that for their students playing a card game in the class is not only a useful lesson but also an enjoyable experience; they plan to improve their research with the computerized version of the card game [16].

3. Research Methodology

The research methodology (4IN) is composed of 4 main tasks which are: introduction, in-class activity, inclusive discussion, and intermediate feedback as shown in Fig.1. The non-functional requirements examples and the categories of non-functional requirements are from the book called "Mastering the Requirements Process" [17].

3.1. Introduction

In the first phase, the teacher holds the classic lecturer position to teach students. The students are briefly informed about the non-functional requirements definitions and its use, measurable requirements characteristics, and categories of non-functional requirements. The teacher then separates the students into teams for the coming activity.

3.2. In-class activity

This activity is basically a matching game. Team members need to match the given 53 non-functional requirements with 8 non-functional requirement categories which are: requirements of look and feel, usability and humanity requirements, performance requirement, operational and environmental requirements, maintainability and support requirements, security requirements, cultural and political requirements, and legal requirements. When the teacher asks the students to play the game, they have to learn more about the non-functional requirements and then discuss with the team before they start to classify the non-functional requirements into categories. The teacher also provides sticky notes of different colors for different teams. The students have to write the requirements into the sticky notes.As the activity progresses, they stick the sticky notes on the wall according to the suitable categories of non-functional requirements (the teacher have to identify the position of each categories). During the activity, the teacher acts as a peer-instructor.
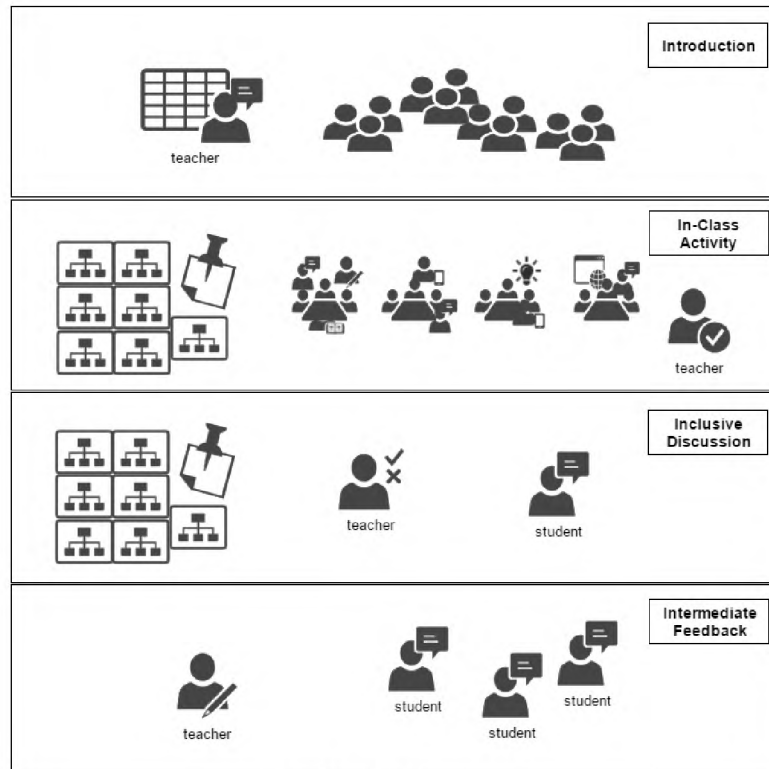
Fig. 1. 4IN-Overview

3.3. Inclusive Discussion

Within the time limit, every team has to finish the game. The lecturer holds the modulator position in this phase. The modulator randomly asks the teams to present their answers (1 group/1 category). After the representative of the team presented their answers, the modulator gives them the answer key. If the team members don't agree with the answers, a discussion session is started.

3.4. Intermediate Feedback

At the end of the class, the teacher holds the listener position; the students are asked to give feedback to the teacher on advantages, disadvantages, and suggestions on the game activity. Besides, the teacher analyzes the lesson learned and best practices of the activity.

4. Result and Discussion

The case study for this game-based learning for teaching non-functional requirements in the software analysis class is held in the Software Engineering Department of the College of Art Media and Technology, Chiang Mai University. The lecturers of this subject were granted to be the organizers of a pilot class for 21st century education. 42 international students and an instructor team (2 teachers, and 1 teaching assistant) participated in the game-based activity. This game-based learning activity was built up based on students' feedbacks from the previous classes on functional requirements. The students concerned about the example of requirements. They couldn't find out new requirements due to a lack of experience. After the lecturer had given them examples, they still kept asking for more

examples. This subject utilizes an activity-based, agile methodology, where the lecturers always ask feedback from the students. An instructor team is also in charge of the improvement of upcoming class activities. The instructor team holds different roles in the various phases of the classroom activity.

Fig.2. below shows the process of the game-based learning activity for non-functional requirements in the software analysis class in details. This game starts when the teacher is assigned to teach the non-functional requirements and ends with feedback tasks.
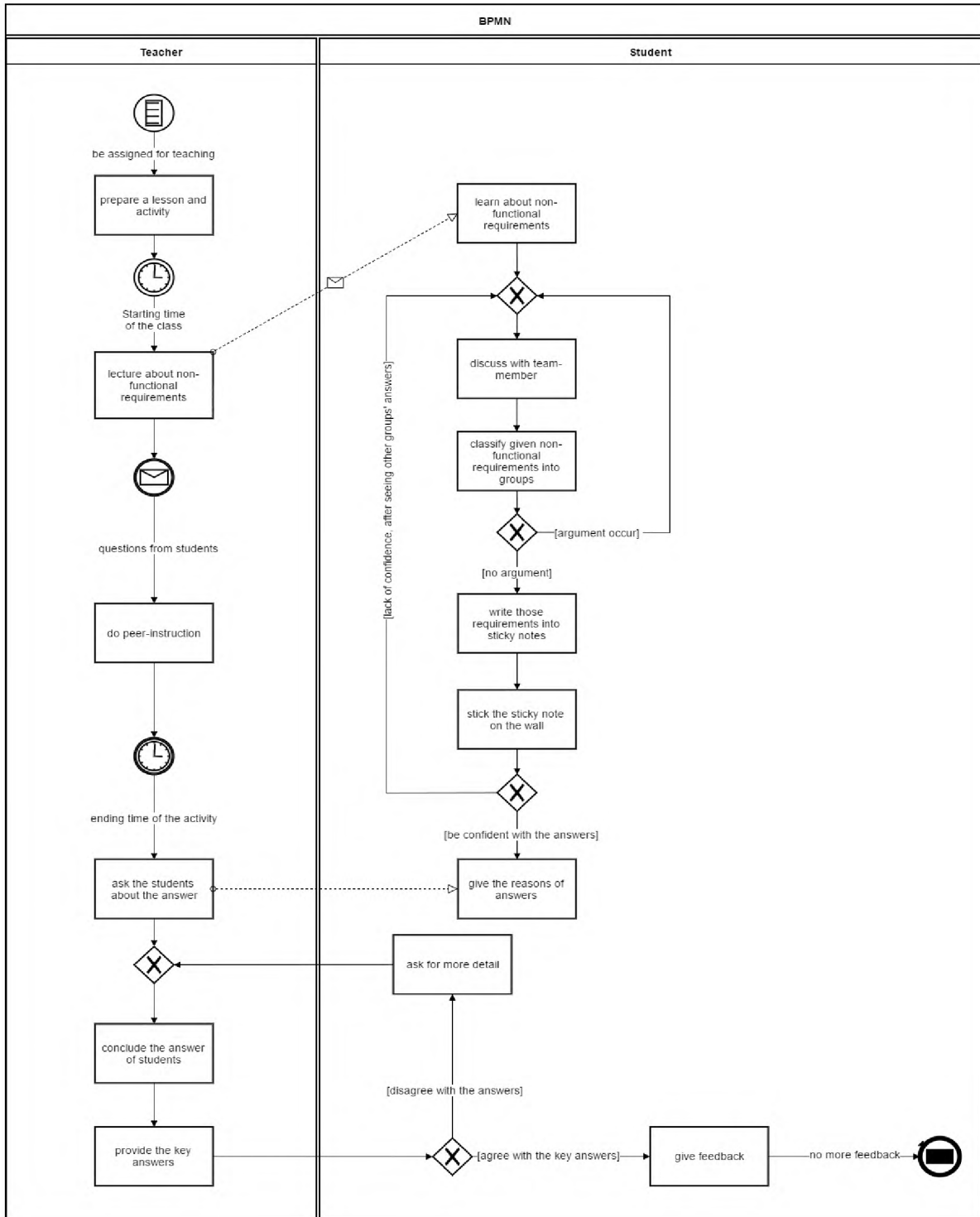
Fig. 2. BPMN of the game-based activity

4.1. Understanding

This activity took 3 hours with a ratio 30:90:60 (introduction: game: discussion). First the instructor team introduces the topic "non-functional requirements". Next, the lecturer separates students into 8 groups of equal sizes.. Doing the group work brings benefits to the class, for instance, by enhancing students' social skills, increasing students' confidence, improving the quality of work by reviewing others.

4.2. Game

During the game the instructor team instructs students. When students face ambiguities, the instructor team assists them. They are allowed to learn from various channels. They can go out from the class and bring books from the library. Some students surf on internet to get more information. The teacher also provides a presentation and extra reading materials on the CMU e-learning website (e-learning of Chiang Mai University). Their core task is to assign the given 53 non-requirements to the right category on the wall. Luckily, we have a big room (150 seats) for this subject. Therefore, we have enough space for sticky notes. Students can take a break anytime that they want. Moreover, when the time is over, every team has to stop. Fig.3. shows the game-based learning activity in the class.

Fig. 3. Game-based learning activity in the class

4.3. Discussion

Different groups get different colors of sticky notes, therefore it is quite easy to separate the answers of each team. In this phase, the instructor team acts as a modulator. Each team has to send a representative to present their answers on only one category because of the time limitation. After that, the instructor team gives the answer key with explanations. The discussion on the answer key was surprisingly impressive. The students and the instructor team discuss each answer and try to reach consensus. Students can turn to the instructor team after discussing with their own teammates. It turns to be a big continuous discussion. The instructor team also analyzes the answers of each team as shown in fig. 4.
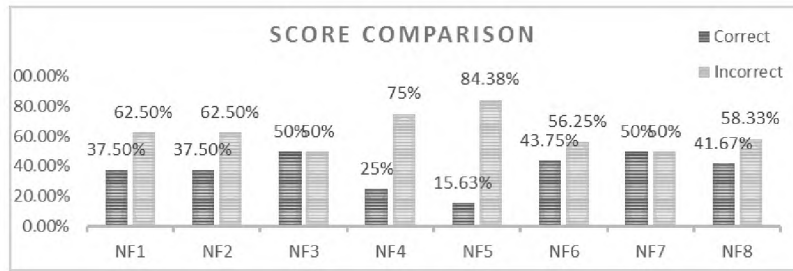
Fig. 4. The comparison of correct and incorrect answers

Fig 4. shows the comparison of correct and incorrect answers of each non-functional requirement category (NF1: requirements of look and feel (3 requirements), NF2: usability and humanity requirements (10 requirements), NF3: performance requirements (15 requirements), NF4: operational and environmental requirements (8 requirements), NF5: maintainability and support requirements (4 requirements), NF6: security requirements (6 requirements), NF7: cultural and political requirements (4 requirements), NF8: legal requirements (3 requirements)). In total, the percentage of correct and incorrect answers is approximately 40 and 60 respectively. NF2 and NF7 got the highest amount of correct answers, 50%. The highest percentage of mistakes, 84.48 percent, relates to NF5. The smallest gap between correct and incorrect answers (12.5%) refers to NF6.

4.4. Feedback

All stakeholders of this game can provide feedback (pros, cons, and suggestions) to improve this activity because different roles have different perspectives. The instructor team lets the students give feedback by interviewing. If the students have an opinion to share but they want to make it anonymously, they can write it down for the teaching assistant.

(a) Lecturer:

Pros:
- Game activity can engage the students with the activity.
- Group activity can support the students' creativity.

Cons:
- Some team could not finish on time.

Suggestions:
- The amount of requirements has an effect on the score, therefore, each group should have the same amount of requirements. Controlling the number of requirements and doing the analysis in the final phase is easier.
- The instructor should analyze each non-functional requirement and identify the keywords to define the category.

(b) Teaching Assistant

Pros:
- The instructor allows the students to learn from various sources.
- The instructor team makes the students earn more confidence about their work during the activity.

Cons:
- The problem of separating close friends into different groups

Suggestions:
- Some students have problems with friends, therefore, the instructor team should be aware of this issue when grouping students.
- The students should accept the group that the instructor assigns.

(c) Students

Pros:
- This activity is the most relaxing activity that they ever had in this class because it is a game.
- The students don't feel like they are studying.
- The students can really get a good picture on non-functional requirements.
- There are many examples.

Cons:
- Language barrier exists.
- The time is very limited.
- Some teams should work faster to be on time. They should not ask for extra time.

Suggestions:
- The instructor should let the students choose their teams by themselves.
- The instructor should have more game activities.

5. Conclusion

This research applies a so-called agile methodology. The instructors participate in every phase of the activity. The feedback of the activity is analyzed iteratively to improve the upcoming activity for the class. The phase starts with the introduction on non-functional requirements. The next phase is about an in-class activity which covers a matching game between the given non-functional requirements and its categories. Next, the phase of discussion is performed to provide the answer keys for the students. The last phase is the feedback session, the feedback is very necessary for creating the activity in the class.

The function of this game-based learning activity for non-functional requirements in software requirement analysis class is 'role and goal' the authors focused on the students' motivation and performance. In conclusion it can be stated that an activity-based learning activity that allows students to cooperate with each other engages them with even such a tough subject matter as requirement engineering. The enhanced engagement level of learners is clearly indicated by the vivid discussions at the end of the class. This enhanced engagement results in a better learning performance.

As a result of our pilot sessions, some recommendations can be made. The amount of non-functional requirements is not limited to 8 categories, it depends on the source of information. The amount of non-functional requirement categories should be the main criteria to define the amount of student teams. To enhance the difficulty level of game-based learning, students can be required to separate functional and non-functional requirements. In addition, it can be stated that as the success of the group work is heavily dependent from cooperation, an extra attention needs to be paid on the grouping of students.

References

[1] Feldgen, M., & Osvaldo, C. (2014). Teaching effective requirements engineering for large-scale software development with scaffolding. In *2014 IEEE Frontiers in Education Conference (FIE) Proceedings*. IEEE.

[2] Tao, Y., & et al. (2014). Just-in-Time Teaching in software engineering: A Chinese-German empirical case study. In *2014 IEEE Global Engineering Education Conference (EDUCON)*. IEEE.

[3] Abke, J., & et al. (2013). A new approach to collaborative learning in software engineering focussed on embedded systems. In *Interactive Collaborative Learning (ICL), 2013 International Conference on*. IEEE, p.6.

[4] Claypool, K., & Mark C. (2014). Teaching software engineering through game design. In *ACM SIGCSE Bulletin*. Vol. 37. No. 3. ACM, 2005.

[5] Soska, A., Irmgard S., & Jürgen M. (2014). Implementation of practical exercises in software engineering education to improve the acquirement of functional and non-functional competences: A field report about project-based learning in software engineering. In *Interactive Collaborative Learning (ICL), 2014 International Conference on*. IEEE.

[6] Dewi, D., & Mohana, M. (2014). The agility of agile methodology for teaching and learning activities. In *Software Engineering Conference (MySEC), 2014 8th Malaysian*.

[7] Polack-Wahl, J., & Karen A. (2012). Workshop: Learning agile through active learning activities. In *2012 Frontiers in Education Conference Proceedings*. IEEE.

[8] Lin, S., & et al. (2015). Using Constructivism as a Basic Idea to Design Multi-situated Game-Based Learning Platform and ITS Application. In *Advanced Applied Informatics (IIAI-AAI), 2015 IIAI 4th International Congress on*. IEEE.

[9] Huynh-Kim-Bang, B., J. Wisdom, & J. M. Labat. (2010). Design patterns in serious games: a blue print for combining fun and learning. Project SE-SG.

[10] Garris, R., Robert A., & James, E.D. (2002). Games, motivation, and learning: A research and practice model. In *Simulation & gaming* 33.4, pp.441-467.

[11] Neill, C. J., Joanna, F. D., & Raghvinder, S. S. (2016). Improving collaborative learning in online software engineering education. IN *European Journal of Engineering Education*, pp.1-12.

[12] Gannod, G. C., Janet E. B., & Michael T. H. (2008). Using the inverted classroom to teach software engineering. In *Proceedings of the 30th international conference on Software engineering*. ACM.

[13] Zowghi, G. (2009). Teaching requirements engineering to the Baháí students in Iran who are denied of higher education. In *Requirements Engineering Education and Training (REET), 2009 Fourth International Workshop on*. IEEE.

[14] Ivanova, M. S. (2007). Development of Reusable Units for Active Engineering Learning. In *EUROCON, 2007. The International Conference on &# 34; Computer as a Tool&# 34;*. IEEE.

[15] Hoffmann, A. (2008). Teaching soft facts in requirements engineering using improvisation theatre techniques. In *Third international workshop on Multimedia and Enjoyable Requirements Engineering-Beyond Mere Descriptions and with More Fun and Games, Barcelona, Catalunya*.

[16] Baker, A., Emily O. N., & André V. D. H. (2005). An experimental card game for teaching software engineering processes.In *Journal of Systems and Software* 75.1, pp.3-16.

[17] S. Robertson and J. Robertson. (2006). Mastering the Requirements Process. 2nd Edition, Addison-Wesley.

Raising the Environmental Awareness of Preschool Students through Cultural Children's Game and Toys

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Abstract

The aim of this study is that raising the environmental awareness of preschool students through children's toys. This study was designed with the qualitative research method. The data were gathered through semi-structured interviews and video records conducted with 12 preschool students who study at one of the preschool in Eskisehir/Turkey. The descriptive analysis was used to come to a conclusion. Some children's toys and waste materials were determined to carry out instruction process. Before the instruction, interviews were made with all students about the waste materials and measured waste material's weight. After the instruction, the measurement was made again. Thus, using the waste materials to make children's toys was observed tangibly. According to the children's previous opinions, while most children did not have any idea about the waste materials, few children described waste materials as a rubbish, secondhand and consumed materials throw away. Depending on the children's interview responses, the waste material can reuse by means of making children's toys, pictures and recycling. In accordance with benefiting from the waste materials to make cultural children's toys, the children observed tangibly through 200 gram waste materials which were used to make toys. In conclusion, after the application most children had idea about the waste materials, their reusing and contribution to recycling by means of making children's toys. Depending on these conclusions, similar applications or activities can be applied to raise environmental awareness on the more preschool students benefiting from the cultural children's toys in their teaching process.

Keywords: Cultural toys, waste material, recycling, environment, pre-school
Main Conference Topic: Science Education

Introduction

Recently some reasons such as; being consumption society, disposable, extravagance, not enough waste utilization, lack of education have caused to use natural resources extremely. Waste issues which are in the important recent environment problems lead to surface and underground waters pollution, soil unproductivity, air pollution and epidemic disasters. For these reasons people do one's part of themselves in order to deal with environmental problems (Erten, 2003). Environmental awareness is not only universal value but it also social value to be gained in early childhood. The children who grow up with this awareness will be informed, consistent and sensitive in terms of keeping clean their environment in the future. Due to pre-operational term of pre-school student, intangible conceptions must be objected in the teaching process (Bilaloglu, 2005).

Environment is threatened by pollution and degradation. Children must learn to preserve its quality and restore it. Educational strategies that help develop environmental awareness (Hungerford et. al.) There are different strategies using in order for concretization science conceptions which are the intangible most of them (Şaşmaz, Ören & Avcı, 2004). The plays and toys are also one of those. Game plays important role on improvement of children's imaginary world, power of creative thinking, problem solving skills and development of self-confidence (Bayat, Kılıçarslan & Şentürk, 2014).

Recent years, in the literature on the subject there is little research describing the environmental awareness of children at preschool (Lubomira, 2004). Previous studies which are related to environmental awareness teaching process show that these studies generally put emphasis on relation of people and the natural environment apart from gaining environmental awareness, environmental perceptions, environmental attitudes, using mobile learning to increase environmental awareness (Lynn & Diamond, 2010; Ozturk, Olgan & Tuncer, 2011; Ozden, 2008; Uzunboylu, Cavus & Ercag, 2009). There were no subjects about raising the environmental awareness through cultural children's play and toys for preschool students in the literature. Depending on these reasons this study has significant importance for literature. Thus, benefiting from the children's toys will contribute to improve environment awareness and materialize teaching process.

The main aim of this study is that raising the environmental awareness of preschool students through cultural children's toys. Depending on the main purpose, three sub-goals had been determined like these questions;

➢ What are the opinions of preschool students about the waste materials?
➢ How can we contribute to recycle reusing waste materials?

Model

This study was designed with the qualitative research method. Study group consists of 12 children studying one of the preschools in Eskisehir/ Turkey. Study group was determined using convenience sampling which is one of the non-random sampling methods. Data was collected via "semi-structured interview form" and "video recording". Semi-structured interview form constructed by researchers includes seven open-ended questions and it was constructed by taking into account opinions of one professor and one assistant professor who are expert in science teaching. This form was applied before instruction to all children. Interview questions were directed by researchers to children verbally because they hadn't known how to read and write during the research process. Their answers were written on the interview form by researchers and recorded via tape recorder at the same time. All data was analyzed using descriptive analyze method. Before not starting to the instruction firstly depending on the literature review cultural children's toys were revealed. Secondly, waste materials were determined to do cultural children's toys. Thirdly, interview was carried out with children to learn their opinions about waste materials and their reusing for recycle. Eventually, waste materials was quantified not making culture children's toys. The research process was given in the Table 1.

Table 1: Process Steps

Before Instruction	During Instruction	After Instruction
Determining cultural toys	Practicing cultural toys with the waste materials	Post-quantified waste materials
Determining waste materials		
Interview		
Pre-quantified waste materials		

While cultural children's toys were determined like; "baby doll, bobo doll, slingshot, paper airplane, paper ship, toy car, phone" (Karaalioglu & Genc, 2013), waste materials were determined to make them like; "waste cloths, waste socks, waste papers, waste magazines, plastic bottles, bottle tops, juice boxes, waste egg cartons, waste kinder eggs boxes". Waste materials were quantified two times before and after instructions to observe perceptibly differences between the pre-quantified and post-quantified of waste materials' total amount.

Results

1. Concerning the first research question

The analysis of our data in regard to our first research question, namely preschool students' ideas about the waste materials. To present findings regularly interview questions and responses turned into main code and child codes. Main code and child codes gained from interview questions were given in the Figure 1. The comments, "P" refers to preschool students, respectively. Each child codes were explained the following.

Figure 1: Main code and child codes

1.1 Description of waste materials

Depending on the "What is the waste materials?" interview question, description of waste materials child code was constructed. There were obtained different opinions about waste materials from preschool students. According to the preschool students' opinions, all

students answered this questions. While eight preschool students think that waste materials are rubbish (P2, P4, P7, P8, P9, P10, P11, P12), three students indicated that they did not hear until now ever before (P1, P3, P6). One student said *that "waste materials were consumed and secondhand things (P5)"*. Preschool students' opinions were given in the Figure 2.
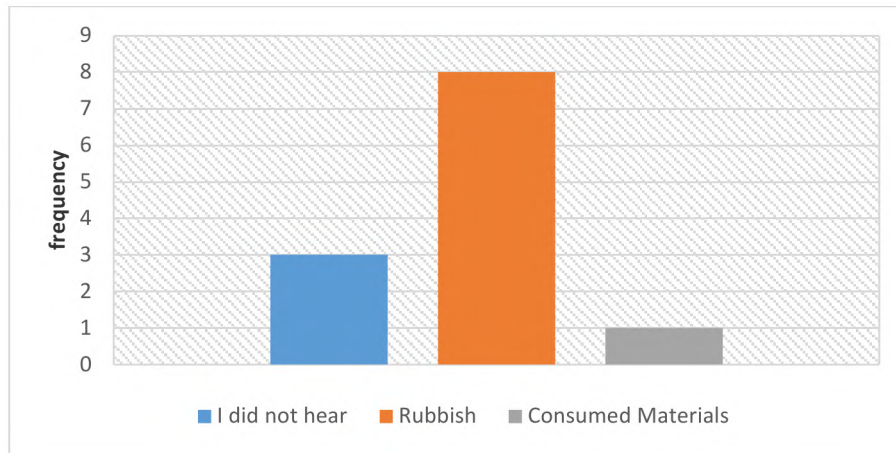
Figure 2: Preschool students' opinions about waste materials

1.2 Recycling of waste materials

In order to learn preschool students' opinions about meaning the sign of "recycling" was showed to all students during the interview. There were obtained different opinions about recycle and its figure from preschool students. According to the preschool students' opinions, all students answered this questions. While four preschool students said correct answer (P4, P5, P7, P9, P10, P12), four preschool students said that they do not know about it (P2, P6, P8, P11). In addition, two preschool students said that *"rubbish box sign (P1, P2)"*, one student indicated that *"reusing (P4)* and one student said that *"box which is put waste battery (P7)"*.

1.3 Recyclable materials

According to the preschool students opinions, recyclable materials were indicated such as; eggcup, waste paper, battery, old camera, plastic glass, broken glass cup, plastic battle, juice box, waste toys.

1.4 Reusing of waste materials

Depending on the "How can we reuse waste materials?" interview question, reusing child code was constructed. There were obtained different opinions about reusing waste materials from preschool students. According to the preschool students' opinions, all students answered this questions. While six preschool students indicated that *"waste materials can reuse doing toys such as, puppet and toy car (P1, P2, P8, P10, P11, P12)"*, one student indicated that *"waste paper can use for drawing (P4)"*. In addition three student said *that "waste materials can reuse put in to the recycle box (P5, P7 and P9)"*. One preschool student stated that *"instead of buying a lot of toys we can make toys through waste materials. Thus, we can contribute to recycle (P11)"*.

1.5 Requirement of waste materials' recycling

The "requirement of waste materials' recycling" child code was constructed via the question of "Why the recycle is important our environment?" Preschool students gave answer differently. Their statements were given in the Table 2.

Table 2: Statements of preschool students

Main code	Child code	Statements
Waste materials	Requirement of recycle	To protect environment
		To avoid pollution
		To protect living organism
		To avoid cutting trees
		To keep clean playground

According to the Table 2, preschool students indicated that recycle is necessary to protect our environment and planet (P4, P9), avoid pollution (P5, P12), protect living organism (P1, P6), avoid cutting trees (P7, P8, P11) and keep clean playground (P3, P10). There were two preschool students opinions in the below.

P5: *"If we reuse waste material for recycle, our planet is not covered rubbish. If every waste materials throw away, we do not walk around easily".*

P9: *"We can protect our environment through recycling. In the place of waste materials throw away we can make puppet using plastic bottle".*

2. **Concerning the second research question**

In order to show how we can contribute to recycle reusing waste materials, cultural children's toys were made by using waste material during the instruction. Beginning of the instruction whole waste materials were quantified using weighbridge. Waste materials were divided into equal amount for each students. They started to make cultural children's toys determined before instruction. End of the instruction remained waste material were gathered in the huge package to do post-quantified. In the Table 3, there were given pre-quantified and post-quantified of waste materials.

Table 3: Pre-quantified and post-quantified of waste materials

Pre-quantified	Post-quantified
1100 g	900 g

According to the Table 3, before instruction amount of waste materials were measured as 1100 g. After instruction amount of waste materials were measured as 900 g. Depending on the difference between the pre-quantified and post-quantified 200 g waste materials were used to make cultural children's toy. Thus, preschool students showed intangibly how waste materials can be reused or how we can contribute recycle.

Conclusion

The findings of this study indicated that most of the preschool students (8/12) participated in the study think waste materials are rubbish or they did not hear anything about waste materials (4/12). To develop a strong environmental consciousness or awareness is considered as having to benefit a lot from an early start (Wilson, 1993). Thus, young children can be educated environmental friendly as teaching correct conceptions in early term of education. 6/12 preschool students were aware of both meaning of recycle and the sign of recycling. 2/12 preschool students were aware of the sign of recycle but they did not what it stands for. In addition, 4/12 preschool students were not aware of both meaning of recycle and the sign of recycling. There are similar study in the literature as in the research by Ergazaki, Zogra and Grekou (2009) but results are not the same. The study made in Greece, it was found that just 4/28 preschool children aware of both meaning of recycle and the sign of recycling. Most of the preschool children (12/28) in the study were not aware of both meaning of recycle and the sign of recycling. In this study, recyclable materials were indicated such as; eggcup, waste paper, battery, old camera, plastic glass, broken glass cup, plastic battle, juice box, waste toys. Similar to this finding literature supports our results. Generally old toys, waste paper or old bicycle are accepted recyclable materials by preschool children (Grodzin´ska- Jurczak et al., 2006; Ozturk, Olgan & Tuncer, 2011). Taking into account preschool students' ideas, they suggested that we can reuse waste material doing toys, putting into recycle box and using for drawing. Likewise this results, preschool children mentioned that they can contribute to recycle giving his/her old toys to someone (Ozturk et al., 2011). In this study preschool mentioned that recycle is necessary to protect environment, avoid pollution, protect living organism, avoid cutting trees and keep clean playground. According to Ozturk et al. (2011), recycling is necessary for paper protection, environment protection, caring about wild animals and water protection. Environmental issues like energy and water consumption, pollution, preservation of plants and animals and recycling need to be integrated in early childhood education programs (Schultz, 2002). In this study, preschool students showed how we can reuse waste materials doing cultural children's toys. In literature, preschool children's attitudes and opinions towards environment was used to determine preschool children's environmental awareness (Ergazaki et al., 2009; Ergazaki & Andriotou, 2010; Gülay, 2011; Ozturk et al., 2011). However, children at an early age should be given opportunities to take in active role in the instructions. In this way, an important step should be taken in raising environmental awareness similar applications or activities can be applied on the more preschool children benefiting from the cultural children's toys in their teaching process.

References

[1] Bayat, S., Kılıçaslan, H., & Şentürk, Ş. (2014). Fen ve Teknoloji Dersinde Eğitsel Oyunların Yedinci Sınıf Öğrencilerinin Akademik Başarısına Etkisinin İncelenmesi. Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 14(2).

[2] Bilaloğlu, A. (2005). Erken çocukluk döneminde fen öğretiminde analoji tekniği. Çukurova Üniversitesi Eğitim Fakültesi Dergisi, 2(30), pp. 72-77.

[3] Deniz Kahriman-Ozturk , Refika Olgan & Gaye Tuncer (2012) A Qualitative Study on Turkish Preschool Children's Environmental Attitudes Through Ecocentrism and Anthropocentrism. International Journal of Science Education, 34 (4), pp. 629-650.

[4] Ergazaki, M., & Andriotou, E. (2010). From "Forest Fires" and "Hunting" to Disturbing "Habitats" and "Food Chains": Do Young Children Come up with any Ecological Interpretations of Human Interventions within a Forest? Research in Science Education, 40, pp. 187-201.

[5] Ergazaki, M., Zogra, V., & Grekou, A. (2011). From preschoolers' ideas about decomposition, domestic garbage fate and recycling to the objec- tives of a constructivist learning environment in this context. Review of Science, Mathematics and ICT Education, 3(1), pp. 99-121.

[6] Erten, S. (2003). 5. sınıf öğrencilerinde" çöplerin azaltılması" bilincinin kazandırılmasına   yönelik bir öğretim modeli. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 25(25).

[7] Grodzin ´ska-Jurczak, M., Ste̜pska, A., Nieszporek, K., & Bryda, G. (2006). Perception of environ- mental problems among pre-school children in Poland. International Research in Geographical and Environmental Education, 15(1), pp. 62–76.

[8] Gülay, H. (2011). Reliability and Validity Studies of the Turkish Version of the Children's Attitudes toward the Environment Scale-Preschool Version (CATES-PV) and the Analysis of Children's Pro-environmental Behaviors According to Different Variables. Asian Social Science, 7(10), pp. 229-240.

[9] Hungerford, H., Litherland, R. A., Peyton, R. B., Ramsey, J. M., Tomera, A. M. & Volk T.L. (1992). Investigating and evaluating environmental issues and actions: Skill development modules. Champlain: Stipes Publishing Company

[10] Lubomira, D. (2004) Environmental Education at Pre-school. International Research in Geographical and Environmental Education, 13(3), pp. 258-263.

[11] Lynn M. Musser & Karen E. Diamond (1999) The Children's Attitudes Toward the Environment Scale for Preschool Children. The Journal of Environmental Education, 30(2), pp. 23-30.

[12] Özden, M. (2008). Environmental awareness and attitudes of student teachers: An empirical research. International Research in Geographical and Environmental Education, 17(1), pp. 40-55.

[13] Ozturk, D. K., Olgan, R., & Tuncer, G. (2012) A Qualitative Study on Turkish Preschool Children's Environmental Attitudes through Ecocentrism and Anthropocentrism. International Journal of Science Education, 34 (4), pp. 629-650.

[14] Schultz, P.W. (2002). Knowledge, information and household recycling: Examining the knowledge-deficit model of behavior change. New Tools for Environmental Protection-Education, Information, and Voluntary Measures. (Ed. Thomas Dietz and Paul C. Stern). National Academy Press. Washington. pp. 67- 82.

[15] Şaşmaz Ören, F., & Erduran Avcı, D. (2004). Eğitimsel oyunla öğretimin fen bilgisi dersi "güneş sistemi ve gezegenler" konusunda akademik başarı üzerine etkisi. Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi, 18, pp. 67-76.

[16] Uzunboylu, H., Cavus, N., & Ercag, E. (2009). Using mobile learning to increase environmental awareness. Computers & Education, 52(2), pp. 381-389.

[17] Wilson, R. A. (1993). Fostering a sense of wonder during the early childhood years (Columbus Ohio: Greyden Press).

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Investigation of the Cultural Children's Game and Toys Effects on Preschoolers' Science Conceptions Learning

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Abstract

This study was to aim that investigation of efficiency cultural children's game and toys to teach science conceptions in the preschool education. This study was designed by using one group pre-test and post-test which is one of the experimental research methods. Effectiveness of the cultural children's game and toys applied one group was investigated depending on the differences between the results of pre-test and post-test. The verbal questions-responses asked before and after instructions were used as a pre-test and post-test. In the research process the data was collected via "video recording". This study was carried out with 13 preschoolers at one primary school in Eskisehir, Turkey. The descriptive data analysis methods was used. The results showed that number of science conceptions used and cultural game and toys known by preschoolers had been increased depending on before and after instruction. In conclusion, we can state that cultural children's game and toys used to teach science conceptions in the preschool science teaching have had dramatic impact on student's meaningful science learning and their development of cultural game knowledge. In accordance with these results, using children's cultural game and toys to teach science conceptions should not only apply in the preschool science teaching, but it also use in elementary and middle school to teach science conceptions. Thus, using children's cultural game and toys to teach science conceptions will contribute to cultural transmission.

Keywords: Cultural game, cultural toy, science conceptions, preschool
Main Conference Topic: Science Education

Introduction

Children learn via game, know world and themselves with game and express best themselves in the game, gain critical thinking skills in the game process. The game is language for them or in other words, play is their work (MEB, 2013) (Ministry of National Education). The pre-school national teaching curriculum states that benefiting from the game and toys in order for students' cognitive developments, language developments; social developments and motor developments provide active learning having fun in the courses. Particularly in the pre-school education, benefiting from the game and toys to teach intangible science conceptions will make easier science teaching process. Conceptions which relate to science are important teaching correct, objective and articulately in the establishment of the pre-school education. Intangible science conceptions learning is difficult for pre-school children because they are in the pre-operational term. In this term, intangible conceptions are associated with objective conceptions (Bilaloğlu, 2005). The children at the ages of 3–6 need science education so that they could learn about the environment they live in, natural occurrences, and generate original ideas (Mirzaie, Hamidi & Anaraki, 2009). They need to

learn a deeper understanding of concepts. Thus, teachers and educators need to design the learning contexts that would help to science teaching process in the preschool education (Roychoudhury, 2014). For these reasons, benefiting from cultural game and toys to teach intangible science conceptions provide both correct and permanent learning and transmission of our traditional game and toy to new generation. There are many educational research focused on learning sciences aimed at preschool. In most of them processes are directed toward achieving the construction of certain scientific notions in children, development of science concepts, science activities effects, availability of science activities, environmental awareness (Gallegos et. al., 2009; Hadzigeorgiou, 2002; Mirzaie et. al., 2009; Ogelman, 2014). There were no subjects about investigation of the cultural children's game and toys effects on preschoolers' science conceptions learning in the literature. Depending on this reason, this study can contribute to literature in order for being an example of science teaching practice in the preschool science education. Thus, benefiting from the cultural children's game and toys will help to teach intangible science conceptions both correct and permanent learning and transmission of our traditional game and toy to new generation.

This study was to aim that investigation of cultural children's game and toys effects on preschoolers' science conceptions learning. For the purpose that one sub goal had been determined following;

➢ How the cultural children's game and toys have effect on preschoolers' science conceptions learning?

Model

This study was designed by using one group pre-test and post-test which is one of the experimental research methods. Due to lack of number of students, study group had not been divided into control group and experimental group. Effectiveness of the cultural children's game and toys applied one group was investigated depending on the differences between the results of pre-test and post- test. The convenience sampling method which is one of the non-random sampling methods was used in order to determine study group. This study was carried out with 13 preschoolers at one primary school in Eskisehir, Turkey. Before the instruction, science conceptions were determined with study group's teacher according to student's level. After that cultural children's game and toys related to these science conceptions was found and science teaching activities were designed using founded cultural children's game and toys by researchers. "Force and Movement", "Endangered Species" and "Sense Organs" were determined as science conceptions for instruction. In order to teach science conceptions mentioned above some cultural children's game and toys were correlated with these conceptions and used. These cultural children's game and toys are "dart", "tambourine", "peg top", "hopscotch", and "blind man's buff". Science activities were carried out three weeks by the cultural children' s game and toys based instruction. Research process was given in the Table 1.

Table 1: Process steps

Weeks	Pre-verbal Questions	Instruction		Post-verbal Questions
		Science Conceptions	**Game and Toys**	
1st week		Force and Movement	Dart; Peg top	
2nd week		Endangered Species	Hopscotch	
3rd week		Sense Organs	Blind man's Buff; Tambourine	

The verbal questions-responses asked before and after science teaching activities were used as a pre-test and post-test. In the research process data was collected via "video recording". Data obtained from video records was analyzed using the descriptive data analyze method which is one of the qualitative data analysis methods. In order to explain differences between the children's pre-responses and post-responses, data was constructed under the main and child codes.

Results

1. Concerning the first week instruction findings

In the first week "Force and Movement" concept was taught via "dart" and "peg top". While the dart was played outdoor (school garden), peg top and bobo doll activities were carried out in the classroom. Before "Force and Movement" instruction researcher directed question, *"Have you ever thought that what is the force and movement or how can we move from somewhere to some place? Can you explain an example from your life?"* According to the video recording, preschoolers' pre-responses and post-responses was collected main and child codes depending on the frequencies of preschoolers' responses similarity. Pre and post responses were given in the Table 2. The comments, "P" refers to preschoolers, respectively. Each main and child codes were explained the following.

Table 2: Preschoolers' pre and post responses about force and movement

Before Instruction	After Instruction
➤ Walking	Force
➤ I don't know	➤ Pull force
➤ Jumping	➤ Driving force
➤ Walking to home	➤ Table
	➤ Using dart
	Motion
	➤ Rotational motion
	➤ Rocking motion
	➤ Stopping
	➤ Peg top
	➤ Bobo doll
	➤ Car
	➤ Toy cradle
	➤ Bobo doll

According to the Table 2, before instruction while preschoolers described movement walk or jump, they did not have any idea about force. Before instruction one preschooler said that *"when I move from school to home with my mum, I am walking (P8)"*. Contrary to the pre-responses, after instruction there were positive increasing preschoolers' ideas about force and movement. There were composed two main codes and eleven child codes. In order to show differences between the preschoolers' pre and post-responses, there were given "P8" preschooler's ideas. Whereas "P8" preschoolers had limited knowledge about force and movement before instruction, after instruction he mention that *"when we move table from somewhere to some place, we use driving force to push it (P8)"*.

> **Researcher:** *"Can you give an example from life to explain motion?"*
> **P1:** *"Cars can move and peg top is an example for rotational motion."*
> **P5:** *"We can use pull force for playing dart."*
> **P11:** *"Trees are stopping."*

2. Concerning the second week instruction findings

In the second week "Sense Organs" science concept was taught via "Blind man's Buff" and "Tambourine". Activities were carried out in the classroom. Before "Sense Organs" instruction researcher directed question, *"Who do you know our sense organs and their functions for our life"* According to the video recording, preschoolers' pre-responses and post-responses was collected main and child codes depending on the frequencies of preschoolers' responses similarity. Pre and post responses were given in the Table 3. Each main and child codes were explained the following.

Table 3. Preschoolers' pre and post responses about sense organs

Before Instruction	After Instruction
Sense Organs	Sense Organs
➢ Kidney	➢ Tongue
➢ Tail	➢ Eye
➢ Ear	➢ Ear
➢ Hand	➢ Nose
➢ Mouth	➢ Skin
	Functions

In the second week to explain sense organs, "blind man's buff" and "tambourine" cultural children's toys were used. Using these toys *"What are the functions our sense organs?"* and *"Touch, taste, smell and guess"* activities were made with preschoolers in the classroom. Before these activities preschoolers mentioned that *"our sense organs are kidney, tail, ear, hand and mouth"*. Even though some preschoolers had misconceptions about sense organs, some preschoolers knew sense organs apart from their real functions. Before instruction, sense organs were be confused other organs, particularly mouth confused tongue sense organ and hand confused skin sense organ. Despite preschoolers' previous ideas, after instruction all preschooler answered the questions. Preschoolers' comments were given in the following;

> **Researcher:** *"What are the functions of our sense organs used blind man's buff and tambourine cultural children's toys" , which sense organs were used?"*
> **P9:** *"Eye and ear"*
> **P10:** *"Skin"*
> **Researcher:** *"How?"*
> **P10:** *"When we were trying to catch my friends we used our hands. Doing so we used sense of touch."*
> **Researcher:** *"How did P7 and P12 find sound direction?"*
> **P8:** *"Their eyes closed but their ear opened. They found sound direction thanks their ears."*

3. Concerning the third week instruction findings

In the third week of instruction "Endangered Specious" science concept was taught via "Hopscotch" and "Riddle". Activities were carried out in the classroom. To evaluate preschoolers' knowledge about special endangered species researcher asked them *"Do you know endangered specious our environment?"* and *"Why their life hang by a threat?"* Beginning of the instruction researcher showed pictures of some endangered specious to preschoolers. Their responses were recorded. According to the video recording, preschoolers'

pre-responses and post-responses was collected main and child codes depending on the frequencies of preschoolers' responses similarity. Pre and post responses were given in the Table 4. Each main and child codes were explained the following.

Table 4. Preschoolers' pre and post responses about endangered specious

Before Instruction	After Instruction
Die out because of pollution	Endangered Species
Because of hunting	➢ Bradypus
I don't know	➢ Flamingo
Die out for coat	➢ Kuala
Panda	➢ Waldrap
	➢ Panda
	Threats for their life
	➢ Hunting
	➢ Natural Disasters
	➢ Human destructions
	➢ Water pollution
	➢ Air pollution

According to the Table 4, before instruction preschoolers mentioned that *"endangered species become extinct because of pollution, hunting and using their peltry"*. However, they did not comment about special endangered specious. In contrast to before instruction, study showed that preschoolers' ideas vary after instruction thanks to "Hopscotch" and "Riddle" based activities. After instruction their responses were collected under the two main codes and ten child codes. Some preschoolers' comments were given in the following;

Researcher: *"Do you know endangered specious our environment? And why their life hang by a threat?"*

P13: *"I know a panda as a special endangered species. They die out because of hunting."* (Before instruction)

P13: *"I learned several endangered species such as; flamingo and waldrap living in Turkey. They become extinct because their habitation and nature is destroyed by the humans."* (After instruction)

Conclusion

The findings of this study indicated that there were differences between the preschoolers' pre-responses and post-responses about force and movement, sense organs and endangered specious. This finding is supportive of other research that has taken place in play-based contexts. According to the Fleer (2009), the findings showed clearly that young children need to playful contexts for learning science concepts. In this study supported that children can learn science conceptions easily and enjoyable because they are in active learners in the classroom. In literature, there are many advantages to letting children engage in play with others. For example, play enhances children's capacity for reflecting before acting, role taking, perspective-taking, empathy, altruism, and emotional understanding and regulation (Ashiabi, 2007). Furthermore, in play with peers, children's negotiation and problem-solving skills are promoted, as are their abilities to cooperate with others, share, work in a group, and get along with others. Play also promotes children's ability to read intentionality in others. The evidence reported above suggests that although the teachers in the study were enthusiastic, they had different understandings of the purposes and benefits of the active learning approach (Ashiabi, 2007). In this study, some misconceptions were emerged by cultural children's game and toys based instruction. Similar to this finding,

preschool teachers mentioned that preschoolers have misconceptions about science activities. According to their opinions, "stones growing" is special misconceptions. It also confirmed that teachers believe abstract concepts, such as those involving forces and electricity are hardest for children in preschool science education (Pine, Messer & John, 2001). Contrary to this finding, preschoolers learned force and motion easily thanks to cultural children's game and toys. In literature, science teaching in preschool education was constructed with inquiry based instruction (Howitt & Lewis, 2011). The current work's limitations suggest a number of areas of future concentration for advancing understanding of the role of quality classroom practices on young children's science readiness (Greenfield et. al., 2009). However, children at an early age should be given opportunities to take in active role in the instructions. Research designs need to be conducted play based instruction for increasing teacher practice and increasing children's science achievement. In addition to these suggestions, using children's cultural game and toys to teach science conceptions should not only apply in the pre-school science teaching, but it also use in elementary and middle school to teach science conceptions. Thus, using children's cultural game and toys to teach science conceptions will contribute to cultural transmission.

References

[1]   Ashiabi, G. S. (2007).Play in the Preschool Classroom: Its Socioemotional Significance and the Teacher's Role in Play. Early Childhood Education Journal, 35(2), pp. 199-207.

[2]   Bilaloğlu, A. (2005). Erken çocukluk döneminde fen öğretiminde analoji tekniği. Çukurova Üniversitesi Eğitim Fakültesi Dergisi, 2(30), pp. 72-77.

[3]   Fleer, M. (2009) Supporting Scientific Conceptual Consciousness or Learning in 'a Roundabout Way'in Play-based Contexts, International Journal of Science Education, 31(8), pp. 1069-1089.

[4]   Gallegos Cazares, L., Flores Camacho, F., Calderon Canales, E. (2009). Preschool science learning: The construction of representations and explanations about color, shadows, light and images. Review of Science, Mathematics and ICT Education, 3(1), pp. 49-73.

[5]   Greenfield, D. B., Jirout, J., Dominguez, X., Greenberg, A., Maier , M., & Fuccillo, J (2009) Science in the Preschool Classroom: A Programmatic Research Agenda to Improve Science Readiness. Early Education and Development, 20(2), pp. 238-264.

[6]   Hadzigeorgiou, Y. (2002). A Study of the Development of the Concept of Mechanical Stability in Preschool Children. Research in Science Education 32, pp. 373–391.

[7]   Howitt, C., Lewis, S. W., & Upson, E. (2011). 'It's a mystery!': A case study of implementing forensic science in preschool as scientific inquiry. Australasian Journal of Early Childhood, 36(3), pp. 45-55.

[8]   MEB (2013). Milli Eğitim Bakanlığı Okul Öncesi Eğitim Programı, Temel Eğitim Genel Müdürlüğü, Ankara.

[9]   Mirzaie, A. R., Hamidi, F., & Anaraki, A. (2009). A Study on the Effect of Science Activities on Fostering Creativity inPreschool Children. Journal of Turkish Science Education, 6(3), pp. 81-90.

[10]   Ogelman, H. G. (2012). Teaching Preschool Children About Nature: A Project to Provide Soil Education for Children in Turkey. Early Childhood Education Journal, 40, pp. 177-185.

[11]   Pine, K., Messer, D., & John, K. (2001). Children's Misconceptions in Primary Science: ASurvey of teachers' views. Research in Science & Technological Education, 19(1), pp. 79-96.

[12]   Roychoudhury, A. (2014). Connecting science to everyday experiences in preschool settings. Cultural Study of Science Education, 9, pp. 305-315.

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Enneagram Personality Types Extension to Psychological Dimension of User Models for Adaptive Distance Education Systems

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Abstract

For the achievement of student-oriented education in distance education, the need for adaptive system was discussed in many studies. In order for these adaptations to be capable of yielding desired outcomes, the accuracy of designed user models and overlapping with real life are vital. It is seen that studies on how the personality characteristics can be used for adaptivity of distance education couldn't reach at sufficient maturity, and that there is no consensus on this subject. In this study, it was investigated if Enneagram personality types' characteristics can be used in developing adaptive and smart systems in distance education by employing the data obtained via data-mining. This study was performed by determining the Enneagram personality types, academic achievements, and distance education attitudes of students using Likert-type online scales and by subjecting to statistical analyses. In parallel with the results, it was seen that the academic achievement and distance education attitudes of students didn't differ significantly by the personality types. On the other hand, certain differences were determined in descriptive statistics. At this point, in accordance with the aim of study, the examples of how the Enneagram personality types can be used for adaptivity of distance education are presented.

Keywords: Enneagram Personality Types, Distance Education, Adaptive Systems, User Model

Main Conference Topic: Distance Education

Introduction

The education is a process that continues throughout the life of an individual. Many studies are carried from various aspects out in order to solve the problems and to offer more qualified education that is capable of meeting the necessities of time. As a result of creative and innovative researches, the necessity of classes even in fundamental education has started to be questioned (Gray & Riley, 2013; Griffith, 2010; Kirschner, 2008), while the development of distance education method and technologies, scope of application of which gradually enlarges, keep advancing. The opportunities and advantages such as the translation of technological developments into educational environment more rapidly, flexibility of space and course program, advancement in parallel with personal studying and learning speed, and saving from the educational costs allow the distance education to be an attention-drawing alternative for meeting the society's increasing and changing educational needs. But, since it addresses more crowded user masses having different characteristics in proportion to classroom environment, the distance education environment has brought the difficulties in determining the criteria for determining the limits of content, presentation method, and systemic flexibility (Wu, De Kort, & De Bra, 2001). Since the researchers' use of "User Model" for the solution of this problem for the first time in 1978/1979, they are in search of developing adaptive systems (Martins, Faria, De Carvalho, & Carrapatoso, 2008). For an

adaptive system, 3 essential factors have been defined in literature (Martins et al., 2008; Wu et al., 2001); "Domain Model" (DM) determining how the information context of system will be structured, a well-defined "User Model" (UM), and an "Interaction/Adaptation Model" (AM) operating in parallel with the rules defined through accurate interpretation of DM and UM data.

Through their model on UM, Martins et al. (2008) have divided the system's independent data into "General Profile" and "Psychological" ones in UM architecture. While the data such as name, age, gender, background info, and settings are presented in general profile, the learning style and personality traces are mentioned in psychological domain, where it was also stated that the data in psychological domain are obtained through the tests and psychological exams. In this dimension, which Brusilovsky and Millán (2007) have specified as "Individual Personal Characteristics" in their user model, it can be seen that they have mentioned about "Cognitive Style" and "Learning Styles", and but these domains are not at the point of providing practical path for adaptive systems despite they are important personal characteristics data. They have not discussed the personality trace or similar deeper psychological dimension possibly because it has not been seen useful. In summary, as Martins et al. (2008) have stated, the adaptivity of a system significantly depends on the conclusiveness of user characteristics types and number. But, the results regarding how the cognitive style or learning style would reflect on the user interface preferences and how these psychological characteristics would be utilized in practice could be achieved (Brusilovsky & Millán, 2007). The key point for knowing the user in person and to consider the differences seems to be the psychological characteristics. It can be seen that multidisciplinary studies, especially the domains of psychology and user model definitions, are needed for overcoming this limitation. In psychology, many researchers such as Freud, Jung, Adler, and Horney have carried out important studies on learning the individuals and human nature and developed different theories. Each of them has asserted certain opinions about important subjects such as factors and development dynamics constituting the personality (Schultz & Schultz, 2007). Among the promising personality type models, Enneagram having its own discourse, high capacity of translation into practical implementations and drawing gradually increasing attention attracts attention (Bartlett, 2008; Komasi, Soroush, Nazeie, Saeidi, & Zakiei, 2016; Na, Lee, Kim, Song, & Hur, 2012; Tippins & Brent, 2010; Wagner & Walker, 1983).

Enneagram investigates the "reason" for individual differences and the development of personality based on the ground of temperaments. The temperament is the "structural processing core" shaping the personality and traits and, according to Enneagram model, there are 9 different temperament structures. Each of the structures has specific perception and orientation priorities, and assessment and definition styles, motivation, avoidance and requirements. All of the environmental conditions (education, culture, parental attitudes, events, and etc.) are perceived, assessed, interpreted by this temperament structure and the results such as response, attitude, and belief are formed by the person. Thus, the whole of observable and non-observable mind-emotion-sensation and behavior forms constitutes the personality (Acarkan & Özdemir, 2014). In Enneagram model, there is a very dynamic system process consisting of sub—types and the health levels depending on the centers, wing effects, separation-unification directions (Beatrice Chestnut, 2008; Palmer, 2010; Riso & Hudson, 2009). Essentially the main type and wing information are needed at the point of understanding the individual and predicting his potential and personality image. Main type indicates in which one of 9 Enneagram types the person is. Wing effect is to be affected from the neighbors of this type (especially from one of them) and to carry some of its characteristics depending on the level of dominance (Palmer, 2010).

As specified by Baymur (1997); "Knowing the human is possible only by knowing what he expects from the life and under which effects he behaves". Under favor of the

structure that it establishes on the ground of possibility and potential of basic core, Enneagram seems to be capable of presenting us the most essential life expectations independent from the external factors (gender, culture, family), and thus allowing us to predicts the outputs of a limited area of effect (i.e., distance education system). It is the issue of concern if studying the psychological effects among the weakest link in defining the user model from the aspect of Enneagram would be useful. In this study, it was aimed to determine if there is any differentiation in distance education attitudes and academic achievement by the main-type of university students according to Enneagram and the wing effect in each of types.

Methodology

Based on the use of data obtained from random samples in natural environment, the "Comparative General Survey Model" (Karasar, 1984) was employed in our study. In implementation, totally 256 students registered to Marmara University in educational year of 2015-2016 were accessed. For determining the personality types of participants, they were asked to respond the "Enneagram Personality Type Test", "Demographical Info Questionnaire" and "Scale for Attitude towards Distance Education" surveys.

Scale for Attitude towards Distance Education (SADE) was developed by Kışla in year 2005, and it is a scale consisting of 35 items and having reliability coefficient (Cronbach's Alpha) of .89 (Kışla, 2005). The Enneagram Personality Type Test used for determining the participants' temperament types according to the Enneagram Model has been developed by "Mizaç Harita Corporate and Personal Consultancy Co." (reliability and validity studies have also been made by the same company), it consists of 72 questions and its final reliability (Cronbach's Alpha) coefficient has been calculated to be .88 (Yıldırım, 2016). As an indicator of academic achievement, the participants were asked to note their GMAG (General Mean Academic Grade) on demographic survey.

Results

First, the descriptive statistics by personality types are presented in Table 1, while some descriptive statistics by the wing effect are presented in Table 2. Using ANOVA test, it was analyzed if there is a differentiation in distance education attitudes and academic achievement of them by Enneagram personality types and wing effects.

Table 1: Descriptive statistics by the personality types

Enneagram Types	Attitude			Achievement		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation
1	33	103.12	31.46	32	2.89	0.69
2	70	90.67	27.41	71	2.72	0.62
3	4	121.25	44.02	4	3.04	0.24
4	27	90.22	23.79	27	2.72	0.74
5	9	99.11	28.02	10	2.64	0.63
6	34	90.08	25.51	36	2.54	0.52
7	13	103.46	27.2	16	2.71	0.74
8	7	108	14.09	8	2.09	0.61
9	33	94.84	18.89	31	2.66	0.31
Total	230	95.03	26.7	235	2.69	0.61

The results of attitude analysis (Table 3) indicate that there is no significant difference between the students' distance education attitude scores by the personality type and wing types (Attitude$_{maintype}$: F (8, 221) = 1.79, p>.05; Attitude$_{wing}$ F (16, 212) = 1.64, p>.05). In other words, the distance education attitudes of students do not significantly vary depending on either their personality type or their wing type.

- *Table 2: Some descriptive statistics by the wing effect*

Enneagram Wing Types	Attitude			Achievement		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation
12	18	97.88	31.57	17	2.87	0.78
19	15	109.4	31.21	15	2.92	0.59
21	47	89.63	26.05	52	2.81	0.55
23	23	92.78	30.5	19	2.48	0.73
43	15	93.46	25.13	15	2.79	0.75
45	12	86.16	22.4	12	2.64	0.67
65	9	93.55	32.21	10	2.5	0.33
67	25	88.84	23.3	26	2.56	0.58
76	3	120.33	12.5	4	3.13	0.67
78	10	98.4	28.79	12	2.57	0.73
91	28	94.5	18.95	25	2.71	0.31
98	5	96.8	20.6	6	2.44	0.23

- *Table 3: ANOVA results of students DE attitude scores by the personality type*

	Sum of Squares	SD	Mean of Squares	F	p
Intergroup	9947.315	8	1243.414	1.792	.080
Intragroup	153339.472	221	693.844		
Total	163286.787	229			

Results of the academic achievement analyses (Table 4) indicate that there was no significant difference between the GMAGs of students by their personality type and wing type (Achievement$_{maintype}$: F (8, 226) = 1.94, p>.05; Achievement$_{wing}$: F (17.217) = 1.59, p>.05). In other words, the general academic mean grades of students do not significantly vary depending on the effects of either personality type or wing types of students.

- *Table 4: ANOVA results of students GMAG scores by the personality type*

	Sum of Squares	SD	Mean of Squares	F	p
Intergroup	5.647	8	.706	1.946	.054
Intragroup	81.987	226	.363		
Total	87.634	234			

Conclusion

The results obtained from the statistical analyses indicated that neither the academic achievement nor distance education attitudes of students varied depending on their personality types. Given the consistency, extensity, and accuracy of Enneagram personality types, it helped us better understanding the system, even though it seems like a contradiction at first sight. As stated in relevant literature, Enneagram is not a static classification but a dynamic system. Thus, this system provides us with the data such as individuals' motivation and priorities in quest and perception (Riso & Hudson, 1999) and helps us predicting the potential outputs that may arise as a result of interactions such as environmental conditions and relationships (Acarkan & Özdemir, 2014; Palmer, 2010; Riso & Hudson, 1999). Depending on what the person revealed from his own potential as a result of his life story, the achievement and attitude approaches will vary for each type (Acarkan & Özdemir, 2014). Thus, Enneagram types do not provide us with exact prediction opportunity for achievement or attitude by the personality type or a strong predictive power through the single data (only the main type or wing info). But, through a single personality type data, it may allow us to make strong predictions regarding what would be useful in increasing the achievement, attitude, happiness, and gratification. At this point, in parallel with the aim of this study, it was attempted to determine the adaptation recommendations that might be realized in practice in case that the Enneagram personality type indoor is used in "User Model" in distance education systems. It is believed that, considering the Enneagram and distance education literature, these recommendations would be useful in revealing the confusions in practice. The possible arrangements that may be performed depending on the types are discussed below.

It is seen that 1s' attitude rank is 4, and achievement rank of them is 2. The dominant characteristics of this personality type are high moral values, high principles, perfectionism and workaholism, regularity-productivity and suppression of the feelings (Riso & Hudson, 2009). Considering the effects of wing types on distance education attitudes, it can be seen that they are consistent with the expectations of Enneagram system (Attitude; X_{12}: 97.88, X_{19}: 109.40). The characteristics of wing 2 and characteristics of 1 contradict to a certain extent. Wing 2 smooths the judgmental attitudes of 1, and increases the need for sociality (Riso, 2003). Increasing sociality and need for relationship may be the cause of decreasing distance education attitudes. Characteristics of wing 9 corroborate the characteristics of 1. 1s with wing 9 are more inward-oriented and cooler than 1s with wing 2 (Riso, 2003).

2s' attitude rank is 7 and achievement rank is 4. According to Enneagram system, low level of 2s' distance education attitudes is an expected situation. Since 2s being weak and insufficient in terms of direct relationships would not meet the most fundamental needs and expectations, their attitudes will be inevitably low. This situation may be affected positively through the effective use of student-student and student-educator communication channels. Even though it is virtual, the commitment of 2s to the system would be increased in systems, where a level of classroom environment is established, through the student-student interactions by helping others and being appreciated or allowing the private posts (such as personal photo) visible-to-others on their profile pages. Higher achievement than the attitudes may be explained with the wing effects (Attitude; X_{21}: 89.63. X_{23}: 92.78 - Achievement; X_{21}: 2.81. X_{23}: 2.48). On one side of 2s, there is a perfectionist wing 1, as well wing 3 prioritizing the achievement on the other side. While it can be ensured through well-defined tasks, and regular and well-limited contexts for 2s with wing 1, 2s wing 3 may require being allowed to manifest themselves through their achievement, as well as being appreciated and rewarded (Acarkan & Özdemir, 2014).

3s seem to be in rank 1 in terms of both of attitude and achievement. Self-motivated students in this group, who manifest themselves through their achievement and achievements,

are generally the achievementful students to the extent of their intelligence and opportunities (Acarkan & Özdemir, 2014). Since, by ignoring or immediately solving any sort of negative factors including their own feelings, they aim to keep moving (Acarkan & Özdemir, 2014), they will focus on moving in their path despite the deficiencies and negativities rather than being stuck in the problems of system, they generally enjoy the positive and energetic atmosphere (Palmer, 2010). This characteristic allows them to be well ahead in terms of attitude and achievement.

Despite the fact that 4s are significantly far behind (rank 8), it can be seen that they are in relatively better position in terms of achievement (rank 3). Since 4s focus on the necessity and meaning of course and school starting from their school lives, their desire towards the school life may be with ups and downs; they may sometimes "willing and eager" and sometimes "unwilling and uninterested" towards the school and having education (Acarkan & Özdemir, 2014). In the course of time, it can be thought that they might develop coping strategies based on these emotional fluctuations and wing effects. Yet, 4s with wing 3 are seen to be more achievementful and provident than 4s with wing 5 (Attitude; X_{43}: 93.46. X_{45}: 86.16 – Achievement; X_{43}: 2.79. X_{45}: 2.64). For positively affecting their negative perceptions, preparing a profile page that is visible to their classmates and other persons and allowing them to post freely may be a solution. In order to hinder their feeling of superficiality, insincerity, and being-ignored, direct communication with a consultant or educator and taking them into a follow-up system may allow them to feel better.

It can be seen that the attitude rank of 5s (rank 5) is better than their rank in achievement (rank 7). Unless they trust in the source of information, they wouldn't be eager to receive the information, and they may reach at the point of ignoring or underestimating the information environment that they do not trust and they consider invaluable. Also known as "Researcher", 5s are also shown that the topics are deep and comprehensive and the information sources are reliable and include accurate information in order to allow 5s to develop positive attitude towards the environment of knowledge acquisition. For this purpose, it may be useful to ensure the citation and reference sections that are very rich and consists of primary sources as long as possible. Wing effects would significantly affect the personality image of 5s. The characteristics of wing 4 may sometimes contradict with the main type, but this environment of contradiction prepares the ground for artistic and intellectual achievement. The characteristics of wing 6 generally corroborate the characteristics of main type, and make them persons, with whom it is hardest to have and sustain a relation. On the other hand, the members of this group are generally hardworking when healthy, and the most important thing in their lives is their job and tasks (Riso, 2003). These reflections of wing effect were also observed in descriptive statistics, and 5s with wing 4 fell far behind 5s with wing 6 in terms of attitude and achievement (Attitude; X_{54}: 67.5. X_{56}: 108.14 – Achievement; X_{54}: 2.01. X_{56}: 2.80).

It can be seen that 6s are at final ranks in terms of attitude (rank 9) and achievement (rank 8). This may originate from the 6s' mind structures creating fears and anxiety based on the search for trust (Palmer, 2010). Despite the fact that 6s are those studying their lesson and make effort for learning, they may fall into the circle of negative possibilities when they feel that they fall behind others. In such cases, they need the support and appreciation of competent and, by extension, reliable source (Acarkan & Özdemir, 2014). System shall meet the guidance and support needs of 6s via real persons. Otherwise, 6s cannot overcome their reliability anxieties, and cannot achieve positive outcomes.

7s are seen to be in rank 3 in terms of attitude and rank 5 in terms of achievement. Since they are incapable of sustaining the monotone processes lasting longtime in same place (Acarkan & Özdemir, 2014), many classical classroom environments are boring and difficult for them. Timing, control of the allocated time, variety and interaction of contexts, and

allowing them to freely determine how much attention they will assign to which would allow 7s to lean towards distance education. But, they have difficulties in tolerating the difficult and boring things, details, and contexts that are not based on the practical utility. Theoretical and non-practical topics and lessons based on memorization are the fields, where 7s have difficulties in (Acarkan & Özdemir, 2014). 7s' achievement in system may be improved by providing short contexts, presenting the detailed information by ranking with fundamental ones, providing a summary at the end of section, and providing separate or interactive contexts. It is attention-grabbing that the wing effects on 7s are at high levels in terms of both of attitude and achievement (Attitude; X_{76}: 120.33, X_{78}: 98.40) (Achievement; X_{76}: 3.13, X_{78}: 2.57). It can be seen that 7s behaving in more controlled manner and carefully under the effect of wing 6 are a step ahead from 7s behaving in more uncontrolled manner under the effects of wing 8.

Despite their high level of attitudes (rank 2), it is interesting that 8s have lower academic achievement (rank 9). They are in exact vividness, but they also follow their intrinsic instincts without control that much. As the intrinsic energy increases, their attitude towards uncontrolled action also increases and they start to bear strong feelings towards anything they do (Riso & Hudson, 2009). This personality of them and their high self-esteem may be the reason for their anormalistic high attitudes that do not affect their achievement. In order to contribute to 8s' academic achievement, they must be allowed to realize their impatient and result-oriented personality and to question their perspective approving this characteristic (Acarkan & Özdemir, 2014). In order for them to be able to keep in contact with mental activities for long time, they must be encouraged in behaving patiently.

It is seen that the attitude and achievement ranks of 9s are the same (rank 6). Having the basic search for "compliance and balance", 9s (Riso & Hudson, 2009) would avoid from positive and negative peaks in their feelings, preferences, and responses. Considering this characteristic of them, their rank in terms of attitude meets the expected level. For 9s, who generally behave slowly and do not appreciate competitive and struggle environments, a virtual classroom environment may be more relaxing than the real classrooms and it may be more suitable for their learning speed. But, since they tend to keep their energy and attention away from the important subjects and the desires of others are more effective than their own ones in their perspective (Palmer, 2010), they may have difficulty in starting studying on their own within the course of daily life. In order to improve their achievement, providing a studying plan, which is assigned by an educator or the system and where they can make whichever change they want, would save 9s from the load of decision-making. Under favor of this implementation, studying not upon their own decision would become a part of their daily life.

In this study, there may normally be limitations since it is one of the first papers on "User Model" and "Enneagram" multidisciplinary literature. This cooperation seems to be promising and significant advances would be obtained with further studies.

References

- Acarkan, İ., & Özdemir, L. K. (2014). *Dokuz Mizaç Modeline Göre Çocuklarda Mizaç Farklılıkları ve Kişilik Gelişimi*. İstanbul: Kurtuba Publishing.
- Bartlett, C. (2008). Viewing therapy through a new lens. *Annals of the American Psychotherapy Association*, *11*(1), 30–35.
- Baymur, F. (1997). *Genel psikoloji*. İstanbul: İnkılap Publishing.
- Beatrice Chestnut PhD, M. A. (2008). Understanding the development of personality type: Integrating object relations theory and the Enneagram system. *The Enneagram Journal*, *1*(1), 22.

- Brusilovsky, P., & Millán, E. (2007). The Adaptive Web. P. Brusilovsky, A. Kobsa, & W. Nejdl (Ed.) (3–53). Berlin, Heidelberg: Springer-Verlag.
- Gray, P., & Riley, G. (2013). The challenges and benefits of unschooling according to 232 families who have chosen that route. *Journal of Unschooling and Alternative Learning, 7*(14), 1–27.
- Griffith, M. (2010). *The Unschooling Handbook: How to Use the Whole World as Your Child's Classroom.* Crown/Archetype.
- Karasar, N. (1984). *Bilimsel araştırma yöntemi: kavramlar, ilkeler, teknikler.* Ankara: Hacettepe Taş Publishing.
- Kışla, T. (2005). *Üniversite öğrencilerinin uzaktan eğitime yönelik tutumları* (Thesis). Aegean University.
- Kirschner, D. H. (2008). *Producing unschoolers: Learning through living in a U.S. education movement* (Ph.D.). Ann Arbor, United States.
- Komasi, S., Soroush, A., Nazeie, N., Saeidi, M., & Zakiei, A. (2016). Enneagram of Personality as an Effective Model in the Prediction of the Risk of Cardiovascular Diseases: A Case- Control study. *Journal of Cardio-Thoracic Medicine, 4*(3), 468–473.
- Martins, C., Faria, L., De Carvalho, C. V., & Carrapatoso, E. (2008). User Modeling in Adaptive Hypermedia Educational Systems. *Educational Technology & Society, 11*(1), 194–207.
- Na, B. J., Lee, K., Kim, K., Song, D., & Hur, Y. (2012). Experience of Developing and Implementing a Motivation Induction Course for Konyang University Medical College Freshmen. *Korean Journal of Medical Education, 24*(2), 141–152.
- Palmer, H. (2010). *Ruhun aynası enneagram'a yansıyan insan manzaraları.* (Edited by S. Çiftçi, Translated by O. Gündüz) (2nd Edition). İstanbul: Kaknüs Publishing.
- Riso, D. R. (2003). *Kişilik tipleri: enegramla kendinizi keşfedin.* (Translated by G. Talay). İstanbul: Kuraldışı Publishing.
- Riso, D. R., & Hudson, R. (1999). *The wisdom of the Enneagram.* New York: Bantam.
- Riso, D. R., & Hudson, R. (2009). *Enneagram İle Kişilik Analizi.* (Translated by G. Aksoy) (1st Edition). İstanbul: Butik Publishing.
- Schultz, D. P., & Schultz, S. E. (2007). *Modern psikoloji tarihi.* (Translated by Y. Aslay). İstanbul: Kaknüs Publishing.
- Tippins, S., & Brent, W. (2010). The Enneagram as a Personal Finance Tool. *Insights to a Changing World Journal*, (4), 47–54.
- Wagner, J. P., & Walker, R. E. (1983). Reliability and Validity Study of a Sufi Personality Typology: The Enneagram. *Journal of Clinical Psychology, 39*(5), 712–717.
- Wheatley, K. F. (2009). Unschooling: A growing oasis for development and democracy. *Encounter: Education for Meaning and Social Justice, 22*(2), 27–32.
- Wu, H., De Kort, E., & De Bra, P. (2001). Design issues for general-purpose adaptive hypermedia systems. *Proceedings of the 12th ACM Conference on Hypertext and Hypermedia* (141–150). ACM.
- Yıldırım, A. (2016, Mart 27). Mizaç Harita Enneagram Testi Geçerlilik-Güvenilirlik Sonuçları. (İ. Acarkan, Ed.). Date of Access: 18.10.2016. http://www.mizacharita.com/images/upload/guvenirlik-99-20160327052638.pdf

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Motivating Students – How Great Teachers Should Be?

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Abstract

Education is a continuous process for individuals that should make them change in a positive manner (personal and professional development). For sure, teachers have a great impact on the educational process as a whole and on each individual separately.

This paper aims to assess the main characteristics "great teachers" should have, as perceived by students. The paper is built on literature review, on observations during the educational process in Bucharest University of Economic Studies, Romania, and on a questionnaire applied to a sample of 115 students studying business in English. A series of qualitative answers (text data) were processed with QDA Miner Lite software, in order to interpret students' perceptions (by assigning codes).

Results of this study show that students are primarily motivated by particular teaching methods, some particular teacher's attitudes and by carefully looking at the assessment process.

Keywords: business higher education, students, motivation, teachers
Main Conference Topic: Education, Teaching and Learning

Introduction

As human beings, we all want to learn as many things as possible. Sometimes we are intrinsically motivated when studying and there are other times in which we need the "help" of the instructor, who does not have only the role of teaching us the knowledge and abilities we should learn, but also the role of motivating us during the whole learning process. Thus, it is clear that we need to know how a great teacher should be in order to be able to motivate students.

Great teaching should lead all the positive characteristics of good teaching towards their bests. However, it is quite difficult to express even what "good teaching" is. In order to form an opinion, I performed a literature review and then I analyzed the responses of my students regarding what a teacher should do in order to motivate their students and to keep them motivated during the whole educational process.

Literature Review

Motivation in education refers to all the factors stimulating and energizing the learning process of individuals (Hrbackova & Suchankova, 2016; Ryan & Deci, 2000). Understanding the different types of extrinsic motivation is very important, since (1) it is not possible to rely only on the intrinsic one and (2) intrinsic motivation can and should be stimulated also by some external factors that depend on the teacher's approach.

According to social constructive theories (Woolfolk, 2001), social interaction is an integrative part of the learning process. Thus, teamwork deepens the learning experience and promotes active learning (van Offenbeek, 2001). A very interesting issue to be considered is related to the fact that, in collaboration learning, students learn more when giving an explanation than when receiving one. Action learning should be used more in business higher education (and in education in general), as every process is only "felt" when "doing things" (Radu, 2012).

Many researchers have looked at the way students perceive the needed qualities of a teacher in order to benefit from a better educational process.

Feldman (1976) grouped the needed characteristics into four categories: knowledge on the subject, teaching methods, relations with students and fairness of assessment. Goldstein and Benassi (2006) described two main dimensions: process and structure. Sockett (2008) identified four teaching models: scholar-professional (focused on acquiring knowledge), nurture-professional (anchored on instructor-student relations), reflective and adaptive model (focused on adjusting teaching strategies to students' needs) and moral agent professional model (with a focus on ethics). Anderson et al. (2012) identified three main drivers: synergist, transformer and enthusiast. Hativa (2015) described two main dimensions of teaching: cognitive and affective, while, more recently, Nasser-Abu Alhija (2016) analyzed five teaching dimensions: goals to be achieved, long-term student development, teaching methods, relations with students and assessment qualities.

Kember and Wong (2000) approached the topic in a slightly different way, by looking not only at what good teaching is, but also at what poor teaching is.

For sure, students and teachers do not necessarily have the same opinion regarding what good teaching is (Nasser-Abu Alhija, 2016; Goldstein & Benassi, 2006) and the interaction between the teaching style and the learning styles is very important. As Ajzen (1974) noticed, individuals use their own qualities as criteria for assessing the others' characteristics. Kim and MacCann (2016) found that students do have some personality preferences for teachers that are strongly linked to students' own personality.

No matter the categories teachers' characteristics are grouped into, it is clear that it would be useful to look at the students' perceptions on the educational process and their opinions regarding the need for a better-motivated student (Nasser-Abu Alhija, 2016; Miron & Mevorach, 2014; Scarboro, 2012).

Guryan, Kim and Park (2016) examined if incentives in education could be more effective for less-motivated students. They found that rewards work better for intrinsically motivated students and this is not a good strategy for increasing educational investments by less-motivated students. This finding is according to my expectations and observations during my teaching activity.

However, teachers' motivating style is very important (Reeve, 2009). Jang, Kim and Reeve (2016) adopted a dual process model in order to investigate why students sometimes tend to rise engagement and other times tend to rise disengagement. Moreover, they found that high levels of disengagement lead students to perceive teachers rising control and falling autonomy support. I consider this could lead to a continuous negative cycle. Thus, teachers should aim for engagement of students from the very beginning.

Methods

In May 2015 I applied a questionnaire to students learning business through the medium of English in The Bucharest University of Economic Studies, Faculty of International Business and Economics (REI).The aim at that moment was to identify opportunities and challenges related to using EMI (English as a Medium of Instruction). Part of the questions, however, referred to the teaching process in general.

One item of that questionnaire (*Please write some suggestions for making the courses more interesting to you and for motivating students in general.*) was used in order to analyze how students perceive the role of the teacher in motivating students.

I had 115 respondents, which is a large sample of students (they were 202 in total). The sample is representative in terms of gender (Figure 1).
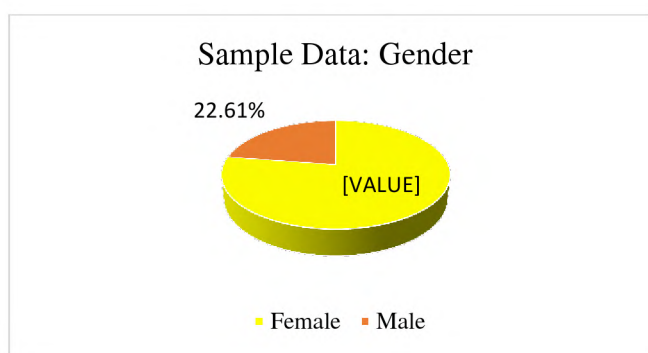

Figure 1: Distribution of respondents (gender)

Text data was processed by using QDA Miner Lite software, by assigning codes. By looking at the answers, I grouped all the information into 3 main categories:

1. **Grading** – *Score and Extra-points and other rewards*;
2. **Teacher's attitude** – *Positive attitude, Sense of humor, Being an example and Patience*;
3. **Methods** – *Interaction, "Special" activities, Games and competition, Applicability, Real business and life examples, Critical analysis, Visuals and music.*

Main Findings and Discussion

The following three tables summarize the frequency of codes. The total number of codes was 269 (assigned to the 115 cases).

Table 1: Grading – Frequency of codes

Category	Code	Count	% Codes	Cases	% Cases
Grading	Score	7	2.60%	7	6.09%
Grading	Extra-points and other rewards	14	5.20%	13	11.30%

While I cannot say that the frequencies are as big as the ones of the following two categories, I have to admit that they exceeded my expectations.

I will provide some examples for each of the code, in order to understand the main ideas:

1.   Score
- *"[...] assess us in order to see what we practically learn, not only theoretically [...]"*
- *"[...] high grades [...]"*
- *"[...] For students, a compulsory presence is the key to come at the course and then they may become more interested in the subject. [...]"*
- *"[...] maybe some regular test or forms of evaluation would motivate students to learn more during the semester, and not leave everything for the final exam. [...]"*
- *"[...] Stop giving us team assignments - I always to those on my own with very little help from my colleagues and then we all get the same mark. [...]", etc.*

As we can see, students are interested into finding a series of assessment methods that are more appropriate to them and consider a suitable assessment method will motivate them to learn more.

2.   Extra-points and other rewards
- *"[...] more rewards [...]"*
- *"[...] bonuses when responding to questions at the course [...]"*
- *"[...] Rewards, not necessarily in terms of marks. Projects that can highlight the strengths of each student. [...]"*
- *"[...] Extra points for reading some bibliography would help. [...]", etc.*

Students consider the extra-rewards even more important than the assessment for the normal score, which prove the fact they are competitive by nature. Sometimes they want some other rewards unrelated to marks at all, but rather related to a recognition of their personal development.

The distribution of codes referring to grading is graphically expressed in Figure 2.
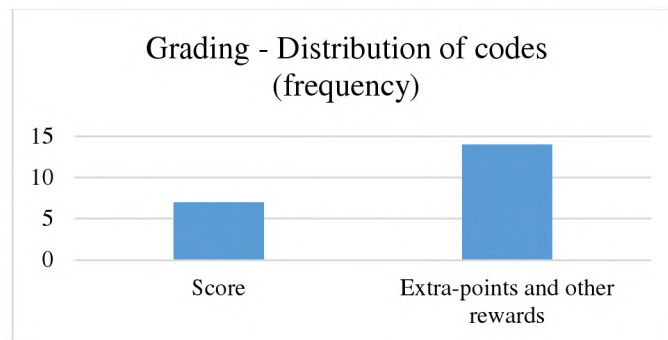

Figure 2: Grading – Distribution of codes

Table 2 summarizes the distribution of codes for the second category – teacher's attitude.

Table 2: Teacher's attitude – Frequency of codes

Category	Code	Count	% Codes	Cases	% Cases
Teacher's attitude	Positive attitude	28	10.41%	23	20.00%
Teacher's attitude	Sense of humor	12	4.46%	12	10.43%
Teacher's attitude	Being an example	16	5.95%	15	13.04%
Teacher's attitude	Patience	12	4.46%	11	9.57%

3.   Positive attitude

- *"[...] just to make everyone feel confident in their knowledge achievements [...]"*
- *"[...] being positive and trying to understand the students [...]"*
- *"[...] being nice and friendly with students, smiling a lot [...]"*
- *"[...] When we feel valued and important we develop a need for not disappointing that teacher. [...]"*
- *"[...] Encouraging - students need more encouraging because it's tough to appreciate your own work (or lack of it). [...]"*
- *"[...] Give frequent, early, positive feedback in order to support students' beliefs that they can do well. [...]", etc.*

Many students expressed their need for a positive attitude from their teachers.

4.   Sense of humor

- *"[...] making jokes [...]"*
- *"[...] Increasing humor in the class room is a good way of giving the students more energy and create a dynamic environment. [...]"*
- *"[...] full of fun [...]", etc.*

As expected, students appreciate teachers' sense of humor, in order to make courses more appealing.

5.   Being an example

- *"[...] being an example for the students [...]"*
- *"[...] respect and trust [...]"*
- *"[...] Those who came to school (and not to work) are extraordinary teachers with their own personality and character. [...]", etc.*

A great teacher is for sure an example – an example of great teaching and also an example of being human.

6.   Patience

- *"[...] not all the students are brilliant, or know-it-all persons, so they must have patience, because we are not all the same. [...]"*
- *"[...] some subjects are too hard to study for my level. [...]"*
- *"[...] they need to guide us and be patient with us. [...]", etc.*

As expected, students consider that patience is an important trait of a great teacher.

The distribution of codes referring to teacher's attitude is graphically expressed in Figure 3.
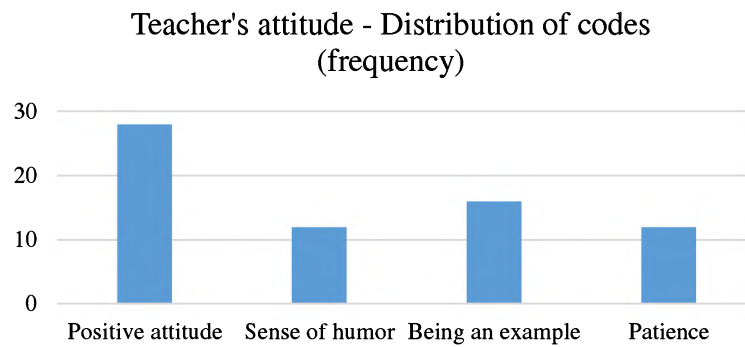
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Figure 3: Teacher's attitude – Distribution of codes

Table 3 summarizes the distribution of codes for the third category – teaching methods.

Table 3: Methods – Frequency of codes

Category	Code	Count	% Codes	Cases	% Cases
Methods	Interaction	49	18.22%	48	41.74%
Methods	"Special" activities	20	7.43%	18	15.65%
Methods	Games and competition	36	13.38%	36	31.30%
Methods	Applicability	42	15.61%	41	35.65%
Methods	Real business and life examples	12	4.46%	12	10.43%
Methods	Critical analysis	9	3.35%	9	7.83%
Methods	Visuals and music	12	4.46%	11	9.57%

7. Interaction

- *"[…] more interactive activities […]"*
- *"[…] debate more with students […]"*
- *"[…] human interaction can never be boring […]"*
- *"[…] open discussions with no fear of judgements […]", etc.*

Interaction is the most frequent code in all the study.

8. "Special" activities

- *"[…] outdoor learning […]"*
- *"[…] teambuilding games […]"*
- *"[…] go in visits to managers at companies and see exactly what they are doing[…]"*
- *"[…] having sessions one-to-one from time to time […]"*
- *"[…] research opportunities […]", etc.*

The above are some of the examples of activities think they need and they are considered "special" because there are not many teachers providing them.

9. Games and competition
- *"[...] games are always a good way to make the courses interesting [...]"*
- *"[...] public speaking contests [...]"*
- *"[...] playing more interactive games [...]", etc.*

This is the third code in terms of frequency and shows the competitive nature of students and the need for "user-friendly" learning activities.

10. Applicability
- *"[...] more applicable in the real life [...]"*
- *"[...] more concentrating on the way in which those concepts can be put into practice (how they will help us in the future) [...]"*
- *"[...] apply the acquired knowledge in practical projects [...]", etc.*

This was the second code in terms of frequency. As it can be observed, applicability refers both to usefulness in the future and to experiential learning as a suitable method.

11. Real business and life examples
- *"[...] connect the courses with real life events [...]"*
- *"[...] professors to come with successful people that tell us about their experience [...]"*
- *"[...] real cases would make courses more interesting [...]", etc.*

Real business and life examples help students to understand in an easier way the usefulness of the theory (and even the theory by itself).

12. Critical analysis
- *"[...] cause-event-effect explanations [...]"*
- *"[...] if someone doesn't know the answer don't tell him the answer; put him questions in order to get to the answer [...]"*
- *"[...] teachers should stimulate our brains [...]", etc.*

Students acknowledge the role of critical thinking in their learning process.

13. Visuals and music
- *"[...] colorful slides [...]"*
- *"[...] watching more motivational movies [...]"*
- *"[...] Sometimes oriental music could be an interesting solution, as some students learn through the use of music [...]", etc.*

Most of the answers coded like this referred to videos, but the answer related to music draw my attention and made me reconsider the name of the code (which was initially only "visuals").

The distribution of codes referring to teaching methods is graphically expressed in Figure 4.
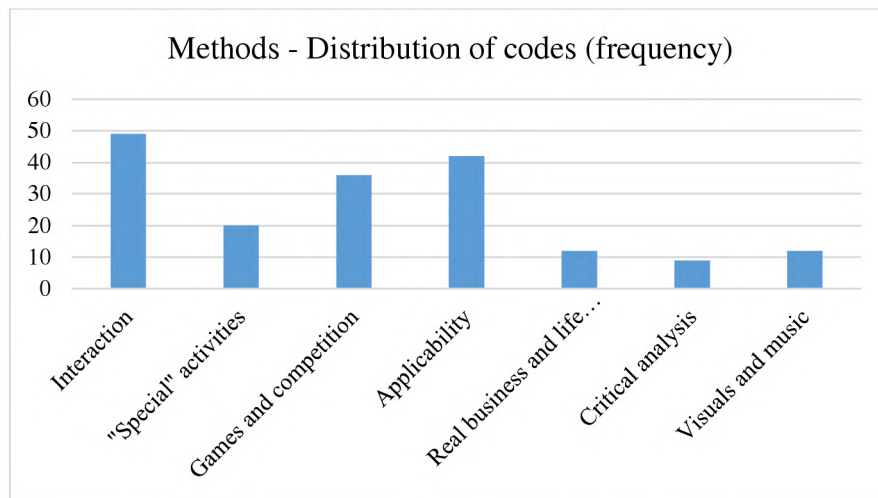

Figure 4: Teaching methods – Distribution of codes

Conclusions

Results of my qualitative study showed that students appreciate the use of particular methods of teaching, consider teacher's attitude very important when motivating students and take almost always into consideration the assessment methods when decided if they like a course or not.

While the results express very well the reality of the context in which my research took place, it cannot be generalized and in other contexts other factors might appear even more important.

I should also note that results can reflect only one side of the educational process (the learner), while it should be important to also consider the other side's perceptions (the teacher). This will be continued in a further study.

References

[1]   Ajzen, I. (1974). Effects of information on interpersonal attraction: Similarity versus affective value. Journal of Personality and Social Psychology, 29, 374–380, http://dx.doi.org/10.1037/h0036002.

[2]   Anderson, M.; Ingram, J. M.; Buford, B. J.; Rosli, R.; Bledsoe, M. L., & Onwuegbuzie, A. J. (2012). Doctoral students' perceptions of characteristics of effective college teachers: A mixed analysis. International Journal of Doctoral Studies, 7, 279–309.

[3]   Feldman, K. A. (1976). The superior college teacher from the students' view. Research in Higher Education, 5(3), 243–288.

[4]   Goldstein, G.; Benassi, V. (2006). Students and instructors' beliefs about excellent lecturers and discussion leaders. Research in Higher Education, 47(6), 685–707.

[5]   Guryan, J.; Kim, J.S.; Park, K.H. (2016). Motivation and incentives in education: Evidence from a summer reading experiment. Economics of Education Review, 55, 1–20.

[6]   Hativa, N. (2015). What does the research say about good teaching and excellent teachers?, in Nasser-Abu Alhija, F. (2016). Teaching in higher education: Good

teaching through students' lens. Studies in Educational Evaluation, 30, 1-9, http://dx.doi.org/10.1016/j.stueduc.2016.10.006.

[7] Hrbackova, K.; Suchankova, E. (2016). Self-determination approach to understanding of motivation in students of helping professions. Procedia - Social and Behavioral Sciences, 217, 688-696.

[8] Jang, H.; Kim, E.J.; Reeve, J. (2016). Why students become more engaged or more disengaged during the semester: A self-determination theory dual-process model. Learning and Instruction, 43, 27-38.

[9] Kember, D.; Wong, A. (2000). Implications for evaluation from a study of students' perceptions of good and poor teaching. Higher Education, 40(1), 69-97.

[10] Kim, L.E.; MacCann, C. (2016). What is students' ideal university instructor personality? An investigation of absolute and relative personality preferences. Personality and Individual Differences, 102, 190-203.

[11] Miron, M.; Mevorach, M. (2014). The good professor as perceived by experienced teachers who are graduate students. Journal of Education and Training Studies, 2(3), 82–87.

[12] Nasser-Abu Alhija, F. (2016). Teaching in higher education: Good teaching through students' lens. Studies in Educational Evaluation, 30, 1-9, http://dx.doi.org/10.1016/j.stueduc.2016.10.006.

[13] Radu, C. (2012). Business higher education "in action". Review of International Comparative Management, 13(2), 275-283.

[14] Reeve, J. (2009). Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive. Educational Psychologist, 44, 159-178.

[15] Ryan, R.M.; Deci, E.L. (2000). Intrinsic and extrinsic motivations: classic definitions and new directions. Educational Psychology, 25, 54–67.

[16] Scarboro, A. (2012). Student perception of good teaching. International Journal of New Trends in Arts Sports & Science Education, 1(1), 49–66.

[17] Sockett, H. (2008). The moral and epistemic purposes of teacher education, in Nasser-Abu Alhija, F. (2016). Teaching in higher education: Good teaching through students' lens. Studies in Educational Evaluation, 30, 1-9, http://dx.doi.org/10.1016/j.stueduc.2016.10.006.

[18] van Offenbeek, M. (2001). Process and outcomes of team learning. European Journal of Work and Organizational Psychology, 10(3), pp. 303-317

[19] Woolfolk, A.E. (2001). Educational Psychology, Boston: Allyn and Bacon.

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The effect of web-based structured grids and concept maps on the concept achievement and misconceptions of students about the subject of human and environment

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Abstract

The primary objective of this study is to research the effects of web based concept maps and structured grids prepared for the unit of human and environment, which is in the curriculum of primary school 7th grade science and technology lesson, on students' concepts and misconceptions. The sample of this study which was conducted with quasi-experimental research approach consisted of 64 students in two different classes of a primary school in Samsun (Control:32, Experimental:32). In the control group, classic structured grids and concept maps were used in addition to traditional teaching approach. In the experimental group, web-based structured grids and concept maps were used. Three stage concept achievement test, which was a reliable and valid test developed by the researchers, was conducted on both groups as pre-test and post-test. Independent t test was applied on the data obtained from concept diagnosis test with the help of SPSS 21 package program. At the end of the study, a difference was found in concept achievement in favor of the experimental group. In addition to this, the decrease in misconceptions was found to be higher in the experimental group.

Key Words: Science education, Concept map, Structural communication grid, Tree tier tes

Main Conference Topic: Science Education

Introduction

Teaching concepts meaningfully and permanently is very important in science teaching. When it is considered that learning is a process, this situation becomes much more important in science teaching (Çepni et al., 2006). 7th grade science and technology curriculum includes significantly abstract concepts which are difficult to learn. That is, pre concepts and subjects should be learned well for meaningful and permanent learning of science concepts. Thus, researchers are continually in search of new approaches, materials, methods and techniques in the effective teaching of science concepts. If students learn scientific concepts incompletely or incorrectly outside their scientific and correct meanings, this situation influences their future learning negatively (Yağbasan and Gülçiçek, 2003). Correcting incomplete, incorrect learning and misconceptions in students' learning is much more difficult than the correct and scientific teaching of concepts for the first time.

Various graphic learning and teaching tools are used in eliminating misconceptions. One of these graphic tools is concept maps and they are used widely in science and technology teaching (Novak, 1990; Ruiz-Primo & Shavelson, 1996; Chang et al., 2001; Gouli, et al., 2003). They are tables which schematize the concepts in a subject and the associations between these concepts two dimensionally. They are quite effective in associating new learned concepts and previously learned concepts meaningfully in mind.

Researches show that classical (with pen and paper) concept maps are insufficient in eliminating misconceptions (Tsai et al., 2001; Chang, Sung and Chen, 2001).

Structured grids which is among alternative assessment activities, is an assessment technique aiming at revealing both students' misconceptions and is composed of small boxes. In this assessment technique that is different from the multiple choice test technique, students are expected to define the boxes that convey the most suitable responses and to number the boxes in the correct order. Therefore, this technique is called structured grids "structural communication grid" (Jonstone, Bahar, & Hansell, 2000). It consists of rows and columns and one can place pictures, figures, scripts etc. in the bricks depending on the level of students. Furthermore, the number of bricks might vary depending on the group (Durmuş & Karakırık, 2005). This flexibility is thought to enable the person using SG to make a more objective assessment and evaluation over a wider population (Bahar 2003, Durmuş & Karakırık, 2005). This technique has a great importance since it measures meaningful learning and determines the misconceptions in the information network (Jonstone et al., 2000). Solas (1992) underscores the importance of using structured grids for assessment purposes. Durmuş and Karakırık (2005) argued that it is an alternative to multiple-choice tests

Method

This study was conducted with quasi-experimental research approach, which is an experimental research method. The sample of the study consists of 7th grade students in a primary school of Samsun city center. Two classes were randomly assigned as experimental (32) and control (32) groups. In the experimental group, lessons were taught with web based concept maps and structured grids in addition to normal teaching. In the control group, classical concept maps and structured grids were used in addition to traditional teaching. The application lasted for three weeks. Three stage concept achievement test, which was developed by the researchers, was conducted on both groups as pre test and post test at the beginning and the end of the study. For the validity of the diagnostic test, the test was presented to two field experts, one field educator and two experienced science teachers. Content validity was achieved with feedback from them. Reliability was tested with KR-20 formula on the data obtained from the pre-test results. Reliability coefficient of the diagnostic test was found as r=0,662.

The data obtained from data collection tool was analyzed with the help of SPSS 21 package program. Parametric analysis t-test was used since the diagnostic test was at the level of equal interval scale, the sample was chosen randomly from the universe, the data were normally distributed, the variance was homogenous, the number of samples was more than 30 and two sample groups from the universe were being compared.

Results

Concept diagnosis test was applied on both groups as pre-test and post-test. The data obtained were analyzed with independent t-test and the results were presented below.

t-test results of pre-test and post-test achievement test scores of experimental and control groups.

	Groups	Number of Students	Averages	Standard deviation	T-test results	Significance
Pre-Test	DG	32	47,3750	10,45343	-,615	,541
	KG	32	45,5625	13,00357		
Post-Test	DG	32	69,2188	11,35848	-3,653	,001
	KG	32	58,3125	12,49629		

When Table 1 is examined, no difference is found between both groups in terms of concept achievement for human and environment unit according to pre-test results (p>,05). On the other hand, when the post-test values of experimental and control groups were examined after the application, it can be seen that concept achievement average was higher in favor of the experimental group. This difference was statistically significant at the level of p<,05. Changes between two groups in concept achievement are given in figure 1.
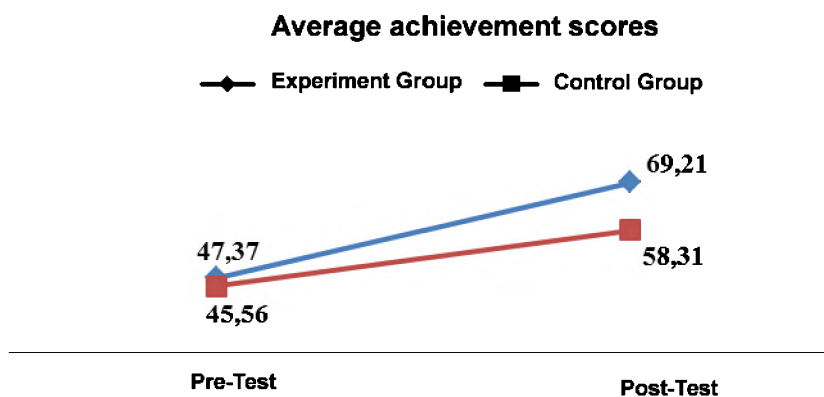

Figure 1: The averages of the sampling

When the pre-test and post test results of the sample were examined, the distribution of students' misconceptions for human and environment unit were given in table 2.

Table 2. Misconception percentages of the control group in terms of questions (%)

Misconceptions	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Pre-Test	28	34	56	38	25	28	44	28	25	38	19	34
Post-Test	53	34	50	19	47	31	47	28	28	22	22	56

When Table 2 is examined, it can be seen that the control group students had misconceptions in questions 2, 3, 4, 7, 10 and 12 in the pre-test. After the application, the students were found to have misconceptions in questions 1, 2, 3, 5, 7 and 12.

On the other hand, when the pre-test results of the experimental group were examined, it can be seen that they had misconceptions in questions 2, 3, 4, 6, 7 and 12. At the end of the study, it can be seen that they still had misconception in question 4 (Table 3).

Table 3. Misconception percentages of the experimental group in terms of questions (%)

Misconceptions	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Pre-Test	16	35	38	53	28	32	33	19	6	22	19	37
Post-Test	12	24	25	53	25	19	13	19	9	19	16	17

For the control group, question 4 in the post-test is the misconception value.

Table 4 gives the misconceptions of both experimental and control group students in pre-test and post-test.

Table 4. Percentages of the questions that were found to have misconceptions

Misconceptions	Control Group		Experiment Group	
	Pre-Test %	Post-Test %	Pre-Test %	Post Test %
(Q1) The number of animals does not affect population size.	28	53	16	12
(Q2) In the forest ecosystem, all the living beings are visually big.	34	34	35	24
(Q3) Living beings in water have to take precaution to decrease water loss.	56	50	38	25
(Q4) Snakes can't live in desert ecosystem.	38	19	53	53
(Q5) Biological diversity is not effective in protecting the balance of the ecosystem. Q5 Biological diversity does not affect our health.	25	47	28	25
(S7) Keeping orchid seeds in seed bank does not have any effects on protecting the generation. (Q7) growing plants which are under the danger of extinction in greenhouses do not influence the protection of this species' generation.	44	47	33	13
(Q12) The rays of the sun are received more with greenhouse effect. (S12) When the amount of rays entering the world increase, greenhouse effect emerges.	34	56	37	17

Conclusion

1-Concept achievement of experimental group students increased 22% at the end of the unit. On the contrary, the concept achievement in the control group increased about 12%.

2-There was a statistically significant difference in students' concept achievement in favor of the experimental group at the level of $p < .05$.

3-In the control group in which classical concept maps and structured grids were used; students' misconceptions increased 7% at the end of the application.

4-Experimental group students' misconceptions about the unit of human and environment at the beginning of the application decreased by 10% at the end of the application with the help of web based tools.

References

Chang, K. E., Sung, Y. T, & Chen, S. F. (2001). Learning through computer-based concept mapping with scaffolding aid. Journal of Computer-Assisted Learning, 17 (1), 21-33.

Çepni, S., Taş, E., & Köse, S. (2006). The Effects of Computer-Assisted Material on Students' Cognitive Levels, Misconceptions and Attitudes Towards Science, Computer & Education, 46 (2), 192.

Durmuş, S. ve Karakırık, E. (2005). A computer assessment tool for structural communication grid. The Turkish Online Journal of Educational Technology, 4(4), 3-6

Gouli, E., Gogoulou, A. & Grigoriadou, M. A (2003). Coherent and Integrated Framework Using Concept Maps for Various Educational Assessment Functions. Journal of Information Technology Education, 2.

Johnstone, A. H., Bahar, M., & Hansell, M. H. (2000). Structural communication grids: A valuable assessment and diagnostic tool for science teachers. Journal of Biological Education, 34(2), 87-89.

Novak, J. D. (1990). Concept maps and vee diagrams: Two metacognitive tools for science and mathematics education. Instructional Science, 19, 29-52.

Ruiz-Primo, M. A. & Shavelson, R. J. (1996). Problems and issues in the use of concept maps in science assessment. Journal of Research in Science Teaching, 33(6), 569-600.

Solas, J. (1992). Investigating teacher and student thinking about the process of teaching and learning using autobiography and repertory grid. Review of Educational Research, 62 (2), 205-225.

Tsai, C.-C. 2001a. Lin, S. S. J. ve Yuan, S.-M., Students' use of web-based concept map testing and strategies for learning, Journal of Computer Assisted Learning, 17, 72-84.

Yağbasan, R. & Gülçiçek, Ç. (2003). Fen öğretiminde kavram yanılgılarının karakteristiklerinin tanımlanması. Pamukkale Üniversitesi Eğitim Fakültesi Dergisi, 1(13), 102-120

Brief biographies of the authors

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The Effect Of Web-Based Conceptual Teaching On Environmental Awareness Of 7th Graders

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Abstract

The research was conducted in a period of three weeks with the participation of 7th grade science lesson students. Web-based concept maps and structured grids were used in teaching subjects of the "Human and Environment Interaction" unit. The objective of this study is to determine the effect of students' conceptual learning on their environmental awareness. This study used quasi-experimental design, which is one of the experimental research methods. Two different classes were assigned randomly as the experimental and control group. While the web-assisted concept teaching materials were used in the experimental group, they were not used in the control group. In order to determine students' awareness of environmental problems, environmental awareness attitude inventory was applied as pre-test and post-test. The inventory has items which measure students' attitudes about environmental problems besides local environmental problems. Reliability cronbach alpha coefficient of the inventory, which has a total of 34 items, is ,774. The data obtained were analyzed with independent groups t test, by using "SPSS 17" program. Data analysis showed that students' environmental awareness attitudes were significantly different in favor of experimental group students. The results of our study show that activities that support students' conceptual learning influence students' environmental awareness positively.

Keywords: Science teaching, human and environment interaction, attitude, environmental awareness.
Main Conference Topic: Science Education.

Introduction

The purpose of "attitude", which is a subfield of the "perception" learning field within the teaching program of science lesson, is to enable students to develop positive attitudes towards science and help them like learning about science. In science lessons, it is not considered sufficient for students to gain only information, comprehension and skills, it is also necessary for students to acquire specific scientific attitude and values (Ministry of National Education of Turkey, 2013).

Attitude is a mental, emotional and behavioral response tendency that an individual rationalizes towards himself/herself or an object based on his/her experience, knowledge, emotion and motivation (İnceoğlu, 2011). Affective, cognitive and behavioral components, which are the components of attitudes, take part fully in established and strong attitudes. Since they have these three different elements, it can be said that attitudes have not a simple, but a complicated structure. Elements turn an attitude into a system that is consistent within

itself. In other words, attitude is a complicated tendency that prepares an individual to behavior (İnceoğlu, 2011). For an attitude to become a behavior, a process should be followed that includes all the stages of education. Thus, behavioral reflections of student attitudes will also emerge (Ek et al., 2009). Students tend towards behavior as a result of the attitudes they have. By assessing students' attitudes, it is possible to find out their behaviors or to find out the characteristics of their behaviors (İnceoğlu, 2011).

In order to be able to see the reflections of student attitudes in daily life, the information given to student should be internalized. Students should have realized their conceptual learning before they can make sense of information. It has been emphasized that concept teaching is very important in science teaching (Atasoy, Tekbıyık and Gülay, 2013; Özdemir and Dindar, 2013; Kolçak et al., 2014). The success within the process of learning concepts in science teaching also influences students' success. A meaningful learning can take place in science teaching by internalizing information rather than memorizing. The objective of science teaching is not making students memorize information, but making students learn concepts in a meaningful way. If information learned is only memorized, it is not possible to keep information in mind for a long period of time and new concepts cannot form a meaningful connection in students' cognitive structure. For meaningful learning, a connection has to be made between new learned concepts and the previously learned ones (Timur and Timur, 2006).

It is thought that conceptual teaching will be effective in forming environmental awareness in children. Fast depletion of natural resources and our natural living spaces destroyed unconsciously by human beings have started to become an important problem. For this reason, rapidly increasing environmental problems will become irreversible in the future. In such an environment, the subject of human and environment interaction becomes very important (Demir & Yalçın, 2014). The purpose of a conscious environment education is to teach students how to recognize the environment they live in and how to use natural resources in a balanced way. With this aspect, the unit of "Human and Environment Interaction" has an important place in our study.

With conceptual learning, it will be possible to increase students' environmental awareness and this situation will have positive reflections on students' attitudes. The objective of this study is to determine the effect of students' conceptual learning on their environmental awareness.

Method

The research was conducted with the participation of 7th grade science and technology lesson students. The study, which measured students' environmental awareness attitudes about the unit of "Human and Environment Interaction" was conducted on students for a period of three weeks (10 hours).

This study used quasi-experimental design, which is one of the experimental research methods. Classes were assigned randomly as the experimental and control group. While teaching the subjects of the unit, web-assisted structural grids and concept maps were used in the experimental group. In the control group, web-assisted materials were not used. "Environmental Awareness Attitude" inventory was conducted on the groups before and after the study. Reliability cronbach alpha coefficient of the inventory, which has a total of 34 items, is ,774. The pre-test and post-test data obtained were analyzed with independent groups t test, by using "SPSS 17" program.

Results

This section includes the pre-test and post-test data of the study which was conducted to measure students' environmental awareness attitudes.
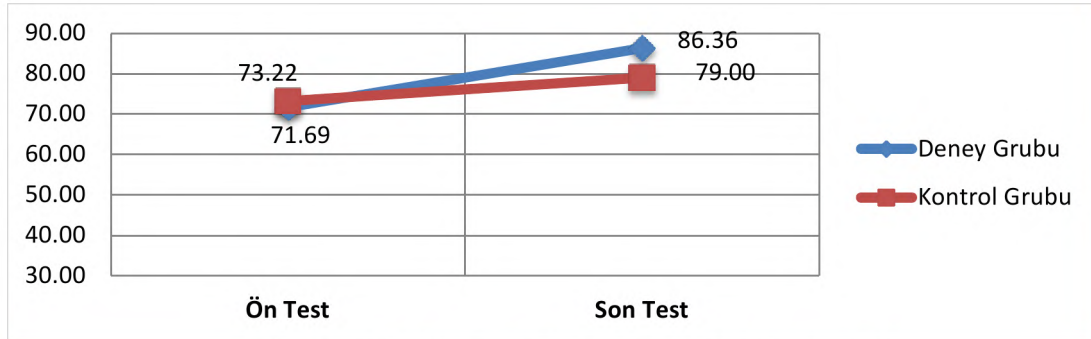

Figure 1. Pre test-post test attitude score averages

Pre-test attitude score averages can be seen to be similar in experimental and control group (Figure1). While the post-test attitude average of experimental group students was 86,36, post-test attitude average of control group students was 79,00. Independent groups t test was conducted on the data obtained in order to find out whether this situation caused a significant difference.

Table 1. T-test results of experimental and control groups pre-test and post-test attitude scores

Tests	Groups	N	Averages	Standard Deviation	t-test results	Significance
Pre Test	EG	32	71,6944	13,19268	,468	,641
	CG	32	73,2222	14,46989		
Post Test	EG	32	86,3611	9,72523	-2,966	,004
	CG	32	79,0000	11,27576		

P>0.05

When the pre-test data of experimental and control groups were analyzed, it can be seen that the averages were close to each other. Analysis results show that there was no significant difference between groups before the application. In the analysis of post-test data, it can be seen that attitude score averages of both groups increased positively. However, when groups were compared with each other, a significant difference was found in favor of the experimental group.

Table 2. T-test results of pre-test and post-test attitude scores of experimental and control groups

Groups	Tests	N	Averages	Standard Deviation	t-test results	Significance
EG	Pre Test	32	71,6944	13,1926	-5,369	,000
	Post Test	32	86,3611	9,72523		
CG	Pre Test	32	73,2222	14,4698	-1,890	,063
	Post Test	32	79,0000	11,2757		

P>0.05

Statistical analysis of pre-test/post-test data of experimental group students was made. Analysis results showed that students' environmental awareness attitudes increased positively with a significant difference. In addition, control groups also formed a positive significant difference in their environmental awareness attitudes.

Conclusion and Discussion

At the end of the study, a significant difference was found in students' environmental attitudes in favor of experimental group students. These positive attitudes should not be expected to be reflected in students' behaviors within a short period of time. For attitudes to turn into behaviors, environmental education should be given in every stage of education (Ek et al., 2009). In creating a more livable world, it is a very important need to be able to raise students with high environmental awareness. As a result of giving a conscious environmental education to students, awareness can be created in the country and the world (Yalçınkaya, 2012).

Contemporary teaching approaches point out that permanent learning is not operational, but conceptual (Ayas, 2014). By learning information at the level of concepts instead of memorizing, a more effective science teaching will be possible (Yeşilyurt and Gül, 2012). Techniques such as concept maps and structured grids which help students to participate actively in the process should be included in science lessons. It has been expressed that making use of visual aids which can support students in solving problems they come across in daily life will be effective in conceptual development (Sepeng, 2013; Türkoğuz and Cin, 2014).

This study used web assisted concept maps and structured grids on the basis of conceptual learning in order to create environmental awareness in children. Pre-test data analysis shows that students' environmental awareness attitudes are at the same level in experimental and control groups. When post-test and pre-test data were compared, a significant difference was found in favor of the experimental group. It can be concluded that conceptual learning is effective in the result that experimental group students had higher environmental awareness attitudes than control group students.

Recommendations

It is recommended that conceptual teaching techniques should be used more in developing environmental awareness attitudes. This way, students' environmental awareness can be increased significantly. In studies about humans and the environment, other concept teaching techniques are recommended to be included in addition to concept maps and structural grids. Using web based interactive materials is recommended by researchers in teaching concepts.

References

[1]   Atasoy, Ş., Tekbıyık, A., ve Gülay, A. (2013). Beşinci Sınıf Öğrencilerinin Ses Kavramını Anlamaları Üzerine Kavram Karikatürlerinin Etkisi. Türk Fen Eğitimi Dergisi, 10(1), 176-196.
[2]   Ayas, A. P. (2014). Kavram Öğrenimi. In S. Çepni (Ed.), Kuramdan Uygulamaya Fen ve Teknoloji Öğretimi (pp. 174-202). Ankara: Pegem Akademi.

[3] Demir, E., & Yalçın, H. (2014). Türkiye'de çevre eğitimi. Türk Bilimsel Derlemeler Dergisi, 7(2), 07-18.

[4] Ek, H. N., Kılıç, N., Öğdüm, P., Düzgün, G., ve Şeker, S. (2009). Adnan Menderes Üniversitesinin farklı akademik alanlarında öğrenim gören ilk ve son sınıf öğrencilerinin çevre sorunlarına yönelik tutumları ve duyarlılıkları. *Kastamonu Eğitim Dergisi, 17*(1), 125-136.

[5] İnceoğlu, M. (2011). *Tutum Algı İletişim*. Ankara: Siyasal Kitabevi.

[6] Kolçak, D. Y., Moğol, S., ve Ünsal, Y. (2014). Fizik Öğretiminde Kavram Yanılgılarının Giderilmesine İlişkin Laboratuvar Yöntemi ile Bilgisayar Simülasyonlarının Etkilerinin Karşılaştırılması. Eğitim Ve Bilim, 39(175), 154-171.

[7] Ministry of National Education of Turkey, (2013). Primary Schools Science Lessons (3.-8. Classes) Curriculum, Ministry of National Education, The State Directorate Of Printing Office Books. Ankara, Turkey.

[8] Özdemir, A. M., ve Dindar, H. (2013). İlköğretim Fen ve Teknoloji Dersinde Kavramsal Değişim Yaklaşımının, Öğrencilerin Öğrenme Stillerine Göre Başarılarına Etkisi Bartın Üniversitesi Eğitim Fakültesi Dergisi, 2(1), 288-299.

[9] Sepeng, P. (2013). Using Concept Cartoons and Argumentative Writing Frames in Mathematical Word Problem Solving. Mediterranean Journal of Social Sciences, 4(11), 129.

[10] Timur, B., ve Timur, S. (2006). Fen Eğitiminde Analojilerin Kullanımına Yönelik Bir Araştırma. Paper presented at the VII. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi, Gazi Üniversitesi Eğitim Fakültesi 07–09 Eylül. Özetler Kitabı, 387.

[11] Türkoğuz, S., ve Cin, M. (2014). Argümantasyona Dayalı Kavram Karikatürü Etkinliklerinin Öğrencilerin Kavramsal Anlama Düzeylerine Etkisi. Buca Eğitim Fakültesi Dergisi(35), 155-173.

[12] Yalçınkaya, E., 2012. İlköğretim 6. Sınıf Öğrencilerinin Çevre Sorunları Farkındalık Düzeyleri. Marmara Coğrafya Dergisi, 25, 137–151.

[13] Yeşilyurt, S., ve Gül, Ş. (2012). Ortaöğretim Öğrencilerinin Taşıma ve Dolaşım Sistemleri Ünitesi ile İlgili Kavram Yanılgıları. Kuramsal Eğitimbilim Dergisi, 5(1), 17-48.

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Multidisciplinary Academic Conference

HIGHER EDUCATION AND HUMAN CAPITAL IN RUSSIA AND ABROAD: A COMPARATIVE CONTEXT

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This article is devoted to the role of higher education in human capital formation. The author gives a comparative context the role of education in human capital formation in Russia and abroad. Studying the issue, the author notes that the relevance of education in human development is supported by the fact that this component is considered to be one of the most lucrative investments currently. The investments in education and science has provided in past, advancing the development of Europe and North America in comparison with other countries. Today, according to estimates most experts investing in human capital of developed countries are much more efficient than investments in fixed assets. The author emphasizes in the article that in many European countries formation and development of human capital, especially at the basic level, is carried out at the national level, given the characteristics of a country.

Keywords: higher education, human capital, life- learning education, highly skilled workforce.

Main Conference topic: Education, Teaching and E-learning

INTRODUCTION

The importance of successful modernization of an economy`s state, strengthen its competitive advantages and ensuring socio-economic security in conditions of global competition`s aggravation is increasingly actualizes the issues of formation and effective of internal resources' use development of a country[1]. It is understandable and natural for the advancement of human factors` studies in the priority areas in the context of such a question.

Today, human capital is recognized as the most valuable resource, much more important than natural resources or any other. It is human capital rather than the material means of production, is the main indicator of competitiveness and economic growth of a state. Human capital in the national wealth of the country occupies a dominant place. For example, physical capital (usually calculated and interpreted as national wealth), or accumulated wealth, make up only 16 % of the total wealth in the world: natural resources or natural capital is estimated at 20 %; the human capital – the accumulated investments in human make up 64 % of world wealth[2].

The leading role in human capital`s formation, creating a knowledge economy, is given to scientific and cultural sphere, due to the general rise of living standards in modern conditions. Investing in education, students and their parents, said G. s.. Becker, compares the expected marginal rate of return from such investment with returns on alternative investments (per cent on Bank deposits, dividends on securities, etc.)[3].

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[1] Chilikova V. (2014): *Educational innovations in the context of the formation of human capital* // Economics of education. – 2014. - № 2 (81). – 10-19.

[2] *The results of researches of the World Bank Human Development Report,* 1996. http://www.worldbank.org.

[3] . Bekker G.S. (2003): *Human behavior: economic approach. Selected works on economic theory.* M.: GU VSHE, 2003, 672 c.

According to American researcher A. Delhi: «...the cost of skills' acquisition to enhance performance is similar to investment in physical capital, which is expected to bring income in future»[4].

The importance of education is especially increasing in connection with the complex problems facing modern society. The most important of them are:
− exhaustion of certain types of energy resources;
− lack of food due to population growth in underdeveloped countries;
− environmental pollution (water, air, soil, radioactive waste, ozone layer);
− biological hazards: genetic influence on human nature, addiction, etc.

Now the potential of evolutionary development of society is almost exhausted, and humanity is on the threshold of a new stage where the education system plays a crucial role.

The importance of education in human development is confirmed by the fact that it is considered to be one of the most profitable types of investment today. According to calculations of The World Bank, in the national wealth of the United States the basic production assets (buildings, machinery and equipment) account for only 19 %, natural resources – 5 %, and human capital – 76 %. In Western Europe the corresponding figures - 23,2 and 74 %; in Russia – 10.4 and 50 %. Therefore, the majority of researchers believe human capital is the most valuable resource of the postindustrial society, much more important than natural or accumulated wealth. Now in all countries, human (intellectual) capital determines the rate of economic development and scientific and technological progress. Accordingly, there is also a growing interest to the education system as the foundation of the capital's production of this capital.

EDUCATION AND HUMAN CAPITAL IN EUROPE AND THE USA

An important indicator of increasing importance of higher education becomes its direct link with the success of a person's professional career.

It is the investment in education and science has provided the rapid development of Europe and North America in past in comparison with other countries. Studies of civilizations' development in past centuries show that human capital is a determining factor in the development behind the success of some countries and the failure of others.

At a certain historical period the Western civilization wins global historical competition with the more ancient civilizations due to the faster growth of human capital, including education, in the middle ages. At the end of XVIII century Western Europe surpassed one and a half times China (and India) per capita of gross domestic product and twice the literacy rate of the population. The latter circumstance was determining factor in the economic success of the Europeans and the United States and other Anglo-Saxon countries.

Human capital's influince for economy's growth is demonstrated on the example of Japan. In the land of the Rising Sun, adhering to an isolationist policy for centuries has always been a high level of human capital, including education and life expectancy. In 1913 the average number of schooling years of adult population in Japan was 5.4 years, in Italy – 4.8, in the United States – 8.3 years, and average life expectancy – 51 years (approximately, as in Europe and the United States). Therefore, Japan was prepared in the XX-th century to make a technological leap for the start level of human capital and be among the advanced countries of the world.

Investment in human capital in developed countries is much more efficient than investment in fixed assets. For example, over the past decade in the United States rates of

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[4] Delhi A. (2002): *Human capital* // Human resource Management. SPb.: Peter, 2002.

return of higher education was located in the range of 8-12 %, whereas the average rate of return of real capital amounted is about 4 %[5].

The state of modern education sets a country's development for many years ahead. No wonder the members of the European community, stressed in the Memorandum on the reform and development of higher education 1995 «....it is the production of educational and training systems determine a country`s production level and, consequently, its competitiveness», and «...higher education is a key element of these systems to ensure sustainable human

. In the table 1 shows that the share of education expenditure in GDP is above the EU average (4.9 %), especially in Eastern and Central Europe. For example, in Hungary and Poland (9.1 %), Bulgaria (11.2 %)[6].

Table 1

Spending on education and health of POPS in selected EU countries (% of GDP)

Country	Education	Health system	Total
Austria	5,1	10,1	15,2
Belgium	5,6	10,3	15,9
Bulgaria	11,2	7,2	18,4
Great Britain	4,7	8,5	13,2
Hungary	9,1	8,3	17,4
Denmark	5,8	10,6	16,4
Spain	4,7	9,4	14,1
Italy	4,6	9,0	13,6
Luxembourg	3,0	7,3	10,3
Netherlands	5,1	9,7	14,8
Poland	9,1	6,2	15,3
Portugal	6,5	10,2	16,7
Finland	5,3	8,2	13,5
France	5,0	11,0	16,0
Germany	4,3	10,6	14,9

Formation and development of human capital in UA, implement at national level, given the characteristics of the country. Thus, underlying the goal of Strategy «Europe 2020»[7] is to provide a certain level of education to achieve sustainable growth parallel to the increase in welfare (individual and collective, tangible and intangible). Human capital`s formation and development means mobilizing not only public but private resources, ranging from education in the family to life-long learning.

However, as such the evolution of system education in framework of democratization, differentiation, diversification itself does not guarantee social mobility. And, despite the fact of the government is trying to resolve unfavorable for human capital`s development problem. For example, in France since the early 1980-ies in disadvantaged suburbs with a large share of immigrants created «priority education zones» (zones d'éducation prioritaires, ZEP). These areas will receive additional targeted funding to ensure alignment to the school system through positive discrimination. To combat social inequality ZEP provide «educational differentiation», the creation of a «two-speed school system».

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[5] Gregory P., Stuart R. (2002): «Comparative economic systems» USA, W. «N. S.», 2002, 980 .

[6] Dobrynin A.I., Dyatlov S.A., Tsyrenova E.D. (1999): *Human capital in transitive economy.* M.: Nauka, 1999, 312.

[7] European Commission (2010a). *Europe 2020: A European Strategy for Smart, Sustainable and Inclusive Growth.* http: unito.it›... 14-07-2014/europe2020...commission.

Since 1986 in the framework of state policy (Educational priority policy) in the Netherlands act 70 of «zones of priority education». In 1991 in the UK was the Plan of modernization of national[8].

The main purpose of such zones is the social component that is a partnership between school and parents. However, in France (where ZEP financed by the state) and the UK (where in order to attract funds from the private sector) this scheme was not efficient.

The leader is the Republic of Korea, where the number of citizens with higher education (25-64 aged group) more than 60% o. The leaders of Global innovation index and the index of the knowledge economy – Switzerland and Sweden show a little more than 40% of the value of this indicator.

In Belgium, due to the presence of a tertiary education diploma (compared to high school diploma) benefits in salary up to 30 %, and in Hungary – even 117 %. Gender implications in the age of 25-64 years in Spain, Ireland, the Netherlands, Great Britain advantages in wages more for women than for men (in the presence of a diploma of tertiary education)[9].

THE ROLE OF EDUCATION IN HUMAN CAPITAL IN RUSSIA

Russian economy modernization is impossible without investment in human capital. Our country lags behind world leaders on level of human development currently and takes 55 places in the world[10].

This situation is mainly due to the underdevelopment of health and education systems that the human potential is mostly used for other purposes. Russia is a country with excessively-low level of education in relation to the structure of the real economy. According to the Strategy «Innovative Russia – 2020» Russia occupies one of the first places on the share with higher education (23,4 % of the population employed in the economy), which corresponds to the level of some leading countries such as the UK, Sweden, Japan and ahead of the level of Germany, Italy, France[11].

It is also determined by the existing problems of domestic higher education institutional arrangements which are significantly inferior to the Western model of education. Statistics show that in the last few years almost 50 % of all selected students` specialties are the Humanities and economic directions. The share of specialties, on which depend the prospects of development of the country: energy, metallurgy, electronics, computer science and engineering account for less than 11%[12].

For comparison, in such countries as China (Hong Kong), South Korea, Finland, Germany, the largest proportion of graduates of science, engineering and technology profile[13].

Today, one of the main problems is the growing disparity between the education system and labour market. Young professionals appear to be noncompetitive because of the mismatch of supply and demand for qualified personnel.

[8] Hatcher R., Leblond D.(2001). *Education Action Zones and Zones d'Education Prioritaires* // Keele Paper. 2001. June 27-29. http://www2.cytanet.com.cy/fanerom-dim/zep/EAZ_and_ZEP_a_comparison.pdf.

[9] Klinova M.V. (2012). *The Human capital in the European Union: public and supranational context* // Problems of Economics. – 2012 (8), 80-97.

[10] *International Human Development Indicators* / UNDP.http://hdrstats.undp.org/en/tables/.

[11] *The strategy of innovative development of the Russian Federation for the period till 2020* «Innovative Russia – 2020»http://www/www/economy.gov.ru/minec/activity/sections/innovations/doc20101231_016?presentationtemplate=docHTMLTemplate1&presenttiontemplateid=2dd7bc8044687de796fof7af753c8a7e.

[12] Zubkov V.G. (2012): *Innovative educational technologies as a tool for improving the quality of human capital* // Human capital. – 2012 (1), 81- 84.

[13] UNESCO. *Institute for Statistics.* http://stats.uis.unesco.org.

However, the average number of accumulated years of education in Russia is among the world leaders, sharply standing out among the emerging economies. Also it is important that effectiveness of the state`s economic depends to a great on how much money invests in the education of citizens. For example, in the United States, Japan and Israel the share of investment in human capital is more than 10 % of GDP. The share of such investments in Russia amounted to 5.5% of GDP[14].

But measures are taken. The presidential decree of 7 may 2012 «On long-term state economic policy» includes the following target indicators of socio-economic development:

- create and modernize 25 million highly-productive jobs by 2020;
- increase investment by at least 27 % of the gross domestic product by 2018;
- increasing the share of high-tech products and knowledge-intensive industries in the gross domestic product in 2018 to 1.3 times compared with 2011;
- increase labor productivity by 2018 by 1.5 times compared with 2011;
- improving the position of the Russian Federation in the world Bank's doing business from 120 in 2011 to 20 in 2018.

CONCLUSIONS

In summary, would like to emphasize that today education is the only real capital, and the development of public education is the most important means of capital formation. The more knowledge and skills accumulated in the process of education, formal and non-formal education, the higher quality level of human capital, the greater probability of obtaining a higher income and a high standard of living

Brief biographies of the author

Tsiguleva Olesya was born in 1973. In 1997 graduated from the Faculty of Foreign Languages East Kazakhstan State Pedogical University. In 2001 - graduated from the Faculty of Business Novosibirsk State Technical University.

In 2006 she defended her scientific paper on pedagogy. Now O. Tsiguleva is a PhD, a professor of Novosibirsk State Pedagogical University.

References:

1. Bekker G.S. (2003) *Human behavior: economic approach.* Selected works on economic theory. M.: GU VSHE, 2003, 672.

2. Viktorova E.V. (2011) *Higher education and human capital in innovative economy //* Innovations. 2011, (6), 100-107.

3. Delhi A. (2002): *Human capital //* Human resource Management. SPb.: Peter, 2002.

6. Dobrynin A.I., Dyatlov S.A., Tsyrenova E.D. (1999): *Human capital in transitive economy.* M.: Nauka, 1999, 312.

10. Klinova M.V. (2012). *The Human capital in the European Union: public and supranational context //* Problems of Economics. 2012, (8), 80-97.

11. *Convention on the recognition of qualifications concerning higher education in the European region* (1997): Paris: UNESCO, 1997, 870.

13. Loskutova I.M. (2012): *Features of human capital accumulation (educational aspect) //* Economics of education. 2012. (6), 19-29.

---

[14] Loskutova I.M. (2012). *Features of human capital accumulation (educational aspect)* // Economics of education. – 2012, (6), 19-29.

14. *The results of researches of the World Bank Human Development Report (1996):* New York, 1996. http://www.worldbank.org.

15. *Statistics of Russian education.* Additional statistics. http://stat.edu.ru/stat/dop_stat.shtml.20.10.2011.

16. *The strategy of innovative development of the Russian Federation for the period till 2020 «Innovative Russia – 2020»* http://www/www/economy.gov.ru/minec/activity/sections/innovations/doc20101231_016? presentationtemplate=docHTMLTemplate1&presenttiontemplateid=2dd7bc8044687de796 fof7af753c8a7e.

17. *The decree of the President of the Russian Federation dated 7.05.2012 No. 596 «On long-term state economic policy».* http://graph.document.kremlin.ru/page.aspx?1;1610833.

18. Tsiguleva O.V. (2015): *The Role of education in forming human capital at the present stage //* Siberian pedagogical journal. 2015. (2), 19.

19. Chilikova V.V. *(2014): Educational innovations in the context of the formation of human capital //* Economics of education. 2014. (2), 10-19.

20. Gregory P., Stuart R. (2002): *«Comparative economic systems» USA,* W. «N. S.», 2002, 980.

21. European Commission (2010): *Europe 2020: A European Strategy for Smart, Sustainable and Inclusive Growth.* http:unito.it>...14-07-2014/europe2020...commission.

22. International Human Development Indicators / UNDP. http://hdrstats.undp.org/en/tables/.

23. Hatcher R., Leblond D. (2001*): Education Action Zones and Zones d'Education Prioritaires //* Keele Paper. June 27-29. http://www2.cytanet.com.cy/fanerom-dim/zep/EAZ_and_ZEP_a_comparison.pdf.

24. UNESCO. *Institute for Statistics.* http://stats.uis.unesco.org.

THE CRISIS OF PROFESSIONAL DEVELOPMENT:
IS IT POSSIBLE TO PREVENT IT?

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The author describes professional work of a teacher as the process, underlining the connection of this process with professional challenges/difficulties that a teacher has to face. The process of overcoming professional challenges has both negative and positive consequences. Negative consequences can cause crises of professional development of a teacher. The author distinguishes pre-crises stages/phases. Full consciousness of negative influences on the pre-crisis stage enables a teacher to prevent crisis. The purpose of the article is to systematize methods and forms of prevention of negative influences and consequences of a crisis.

Keywords: crises of professional development, pre-crises stages
Main Conference topic: Education, Teaching and E-learning

INTRODUCTION

The process of professional development of teachers is complex and controversial. In modern psychological-pedagogical literature the notion of professional development of a teacher is viewed not only as the growth, development, integration and implementation of professionally significant personal qualities, professional knowledge, competences and skills in the course of professional work but also as an active qualitative transformation of the inner world of a teacher leading to its fundamental reformation and reconstruction of a teacher's life style[1]. The pedagogical aspect of teacher's continuous development during the period of overcoming emerging problems can be studied in the perspective of the paradigm of new formations, taking into account the fact that new formations can have a positive and a negative influence on the professional development of a teacher. The prevention of undesirable and negative outcomes of the professional activity of a teacher for the sake of his/her professional growth and development creates an acute scientific problem in pedagogical science.

DISCRETE PROFESSIONAL DEVELOPMENT OF TEACHERS

The process of professional development of a teacher goes through more or less stable, stable and unstable phases. The dynamics of the development of various aspects of professional experience of a teacher can be characterized by the presence of the mechanism of depreciation of prior experience or its parts, certain characteristics and qualities. This devaluation, as a rule, causes a deep personal response from a teacher. In philosophical and psychological terms this state can be determined as the state of maximum intensification of contradictions. Their unconstructive resolution can lead to the crisis. The process of the development of a professional experience of a teacher is

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[1] Altinikova N.V., Gerasev A.D. (2013): *Strategic priorities of development of modern pedagogical University* // Siberian pedagogical journal. 2013 (5), 26-31.

connected with the process of overcoming numerous problems, difficulties and resolving a diverse range of theoretical and practical contradictions. We view the difficulties as an essential element of a teacher's continuous work on the acquisition of professional experience. Pedagogical difficulties that are attributed to regulatory norms should encourage professional development due to the fact that their elimination causes a renewal of personal resources of an individual. But in certain cases the growth or extension of difficulties can result in a sharp increase or intensification of the negative states and feelings of a teacher that can lead to dissatisfaction with the results of his/her professional work. **The extension** of difficulties is understood as the quantitative increase of professional difficulties as well as their penetration in a variety of spheres of a teacher's professional activity[2].

It seems important to us to talk about teacher's competence in taking control over the process of intensification of pre-crisis states. This aspect of competence should become the subject of psychological and pedagogical researches.

The overview of scientific literature allows us to identify particularly relevant and insufficiently studied aspects of dealing with pedagogical difficulties as a phenomenon closely related to "crisis-pre-crises" state.

In most studies difficulties are viewed in a negative sense without disclosure of their constructive role.

The connection of internal and external resources in the resolution of urgent contradictions of professional development is not brought into a state of optimal coordination.

Indeed, the growth of difficulties can trace its influence on various levels of teacher's work and personal-psychological level. If it influences personal-psychological state of a teacher it can result in the state of long-term or short-term reflection. Very often such periods of reflection and focusing on professional problems are accompanied by a constant desire of a teacher to master the experience of finding constructive ways of solving the problems resulting in acquiring positive professional experience.

If the state of "growing difficulties" influences the professional activity of a teacher, it will manifest itself in the inability of implementation of organizational pedagogical and communicative competence for solving the crises of problematic states. Professional development is a continuous process of self-movement and difficulties on this path are inevitable.

A.K. Markova highlights a group of "regulatory" difficulties, i.e., those which are caused by continuous achievements of professional goals. But the author notes that these difficulties "shouldn't hinder the work of a teacher"[3]. It is obvious that adopted measures of dealing with difficulties should protect a teacher from stagnation and should give way to realization of stimulating function.

While solving the aims of research we could identify three main areas of teacher's personality in which the difficulties of professional development of teachers, their growth is particularly obvious: the individual characteristics of the personality of the teacher; experience and skill of self-organization and organization of activities; psychological state.

The entire volume of the growing difficulties can be differentiated into two phases, marked by the presence of the vivid pre-crisis and crisis states.

The crisis of professional development (greek. "the decision, a turning point" – a condition caused by the problem that a person has to face and from which a person cannot escape and which cannot be solved in a short time with trivial methods (serious illness,

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[2] Chesnokova G.S. *Pedagogical Foundation for the prevention of crises professional development of teachers in the process of professional development :* abstract. dis. kand. PED. Sciences. Tomsk, 1999, 20.

[3] Markova A.K. (1993): *Psychology of teacher's labor.* M.: Education, 1993, 192.

the change of living conditions, changes in appearance, crisis of the age, etc.) (L. I. Malenkov).

But the states of growing of professional difficulties and the state of increasing of emotional and psychological tension do not always reach a stage of crisis. We distinguish the pre-crisis stage of professional development of teachers.

Pre-crisis state of professional development of teachers is a phase-imbalance of the emotional-volitional, intellectual and analytical functions of consciousness and professional identity of the teacher (V. S. Merlin, V. N. Myasischev), an increase of the inconsistency in the processes of a decision making and pedagogical actions that go beyond the average norm[45].

The pre-crisis state at any given time only shows the likelihood of crisis. Work with the pre-crisis is essentially the work on prevention of professional development. Until the teacher is able to analyze the situation, react to it adequately, the negative state can stimulate the creative impulse and, consequently, can result in professional growth of a teacher.

In what terms can we describe the prevention of crises of professional development?

The relationship of emotionally negative states and ways of overcoming the difficulties of professional development is ambiguous. Taking into account psychological view, negative states are associated with the growth of dissatisfaction with professional activity and its results.

PREVENTION OF CRISES PROFESSIONAL DEVELOPMENT

As pedagogical category the negative states are often accompanied by the accumulation of unsolved problems and difficulties that leads to the occurrence of a crisis professional development, which leads to the inability to work with the contents of the old methods and ways. But, as practice shows, very often the teacher does not take into account the educational function of going through difficulties, and a teacher does not fulfill pedagogical reflection, he or she does not update teaching experience and gets to the crisis stage.

Preventive work we consider as special organized system of educationally oriented activities aimed at the formation of the teacher's ability to confront natural challenges of professional development. Pedagogical prevention is, in our opinion, in great demand and it is one of the most popular scientific directions in education, it gives a new quality to the emerging system of continuous professional education of teachers[6].

Methods of prevention of crisis states of professional development of teachers. The most important is the formation of readiness to work in circumstances of readiness to professional difficulties. As a rule, this readiness includes three components: informational, methodological-technological, and emotional-psychological. This is the theoretical model of this issue. In practice, it is difficult to separate the preventive action so clearly. Most often they are closely intertwined. Ideally, during the period of pre-crisis conditions the success in one area is a resource for resolving difficulties in another. The

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[4] Borovikov L.I. (1998): *Ontogenesis of Professional teacher identity* // problems of psychology-pedagogical support of the educational programs. Novosibirsk, 1998. 37-39.

[5] Chesnokova G.S. *Pedagogical Foundation for the prevention of crises professional development of teachers in the process of professional development* : abstract. dis. kand. PED. Sciences. Tomsk, 1999, 20.

[6] Chesnokova G.S. *System approach to the prevention of crises professional development of teachers* //Bulletin of the Kostroma state University. N.. Nekrasov . 2012. (2), 41-45.

teacher who is able to use the crises preventive measures can react very easily to difficulties.

Undoubted the ability to prevent crisis states depends on the teacher's knowledge of theoretical issues of crisis, his awareness of the likelihood of professional crises, familiarity with the methods of diagnostics of a crisis state and main ways of their prevention. It is necessary to do such courses as "the Crisis State of Professional Development of Teachers", etc. A teacher as a participant of the competitions, attestation procedures or when he/she is included in innovative projects should be aware of developmental factors and possible stagnant professional development effects. Only formed in this plane professional commitment will allow the teacher to maintain mental health and to expand the scope of professional experience, go to professional development at a higher level. Educational institutions, in particular members of the administration, psychologists are important to help the teacher with the choice of forms of professional expression. Thus, the number of teachers due to formed readiness to professional activity and due to individual characteristics do not feel the influence of precipitating factors. In other cases, it is necessary to take into account the feature of the contests, namely in their publicity. Not every teacher, even a very good specialist, has a good feeling of a stage, in situations of rapid response to the contents' tasks.

It is also very important for a teacher to acquire the skills of pedagogical management. The teacher, who provides himself/herself with opportunities of professional development, knows how to organize time for work and personal time, is able to prioritize activities, and focus on priorities, to predict current and long-term goals, to organize his/her professional activities so as to prevent the accumulation of unsolved problems, the production of "rush working hours", to accomplish all the tasks to adequate allocated time. In the case of emergency situations, stress, when there are things that are not planned time and other resources (physical strength, material resources, etc.), the teacher is able to revise the plans and to correct the already existing and well-established order of his/her work.

It would be appropriate to apply to such well-known educational forms and methods of work as: mentoring, teacher clubs, creative laboratories etc. Can anyone learn to drive from books? It may be possible. We cannot state it for sure. But teaching profession requires interaction with the bearers of proficient knowledge and experience. And it is necessary, for young teachers, as well as for experienced teachers. In such interaction young teachers learn from the experience of creative working teachers: accept (or reject) this experience, forming their own unique style of teaching. And for experienced teachers participation in various open lessons, workshops, creative platforms, conferences helps with the process of self-actualization, sharing teaching experience.

CONCLUSIONS

Professional development does not tolerate the stagnation. Continuous development, intensive communication with colleagues enables teachers to upgrade their teaching experience. And thus prevent its crisis states[78]. In our view the most important phenomenon in the prevention of crises is a well-formed emotional-psychological readiness to professional activities related to the permanent solution of professional tasks. As a rule, teachers who have consciously chosen their

[7]Morozova O.P. (2013): *The Heuristic potential of the APE in the formation of vocational education community* // Siberian pedagogical journal. 2013. (6), 89-93.

[8] Chesnokova G.S. *Pedagogical Foundation for the prevention of crises professional development of teachers in the process of professional development* : abstract. dis. kand. PED. Sciences. Tomsk, 1999, 20.

profession have this emotional-psychological readiness to professional activities. A lot of work on this issue should be carried out with students of pedagogical universities, who have mastered the methods of teaching and upbringing of children but who are not psychologically prepared to frequently changing requirements, non-standard pedagogical situations, requiring making decisions, finding solutions, building relationships. Ultimately, they are not ready to respond to emerging problems and difficulties.

Brief biographies of the author

Galina Chesnokova was born in 1957. In 1979 graduated from the Novosibirsk State Pedagogical Institute. In 1991 - graduated the Faculty of Practical Psychology of Novosibirsk State Pedagogical Institute.

In 2000 she defended her scientific paper on pedagogy. Now G. Chesnokova is a PhD, a professor of Novosibirsk State Pedagogical University.

References:

1. Altinikova N.V., Gerasev A.D. (2013): *Strategic priorities of development of modern pedagogical University* // Siberian pedagogical journal. 2013 (5), 26-31.

2. Borovikov L.I. (1998): *Ontogenesis of Professional teacher identity* // problems of psychology-pedagogical support of the educational programs. Novosibirsk, 1998. 37-39.

3. Kuzmina N.V. (1985): *Abilities, endowments, talent of the teacher.* L.: publishing house leningr. University press, 1985, 32 .

4. Markova A.K. (1993): *Psychology of teacher's labor.* M.: Education, 1993, 192.

5. Morozova O.P. (2013): The *Heuristic potential of the APE in the formation of vocational education community* // Siberian pedagogical journal. 2013. (6), 89-93.

6. Chesnokova G.S. *Pedagogical Foundation for the prevention of crises professional development of teachers in the process of professional development* : abstract. dis. kand. PED. Sciences. Tomsk, 1999, 20.

7. Chesnokova G.S. *System approach to the prevention of crises professional development of teachers* //Bulletin of the Kostroma state University. N.. Nekrasov . 2012. (2), 41-45.

Computer assisted learning of Japanese verbs
- Analysis of errors in usage by Croatian students

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Abstract

This article deals with a specific topic in e-learning – acquisition of language grammar with the help of application designed to follow language class curriculum, and the analysis of errors collected by the application. Specifically, we are interested in Japanese language and Croatian learners. For the purpose of this research, we have analyzed all the Japanese verbs and grammatical forms for A1 and A2 levels, and systematically added them to a simple application, which was distributed to students for a six months trial usage. Based on the user inputs, we have analyzed the most common lexical and grammatical errors. This article provides detailed information about the most commonly mistaken Japanese verbs and grammatical forms, and explains the most likely reasons behind these errors. The purpose of this research is to promote e-learning and CALL in Japanese education, and help teachers and learners of Japanese language in Croatia and wider. Since most data is not language dependent, results of this research can be used by any Japanese language instructor or student.

Keywords: educational software, Japanese language teaching, CALL, Japanese verbs conjugation
Main Conference Topic: E-learning

Introduction

Japanese language is becoming more and more popular major of choice in Europe, and Croatian universities enroll around thirty new students every year at the University of Zagreb and University of Pula each. Even though it is still a relatively small field, its usefulness in business, tourism and translation is getting more widely recognized across Europe, and in Croatia as well.

Working in the field of Japanese language education, one can recognize various problems students may encounter in their study. We have specialized in defining and handling those problems in our project MemAzija, funded by European Union social funds. So far we have tackled the issue of Japanese script (Librenjak, Vučković and Dovedan Han; 2012) and vocabulary acquisition in our previous publications. As we established in our survey with 105 Croatian learners (Janjić, Librenjak and Kocijan; 2016), Japanese grammar is considered problematic for many beginners.

Japanese is an agglutinative language with no case and number, at least not to the extent that is present in Slavic languages such as Croatian. It does not have many exceptions and many tenses. Thus, in the beginning, it could seem that Japanese verb conjugation is extremely simple and needs no special exercises. However, this seemingly simple system becomes complicated for many learners. This is due to the fact that verbs express things which are not verbal, rather lexicalized, in Indo-European languages, e.g. the tense which

expresses doing things in advance to be safe in the future. A learner often gets confused with Japanese verbs in two distinct manners: confusing the tense itself, or confusing the derivational rules. Since Japanese tends to be very elliptical in its constructions (i.e. omitting anything not crucial to the meaning) correct verbal phrase often carries most of the meaning. When speaking, reading, writing or listening, one must be quick and accurate in determining the correct tense and form.

In order to devise the best method to teach students to produce verb forms quickly and accurately, we have resorted to computer-assisted learning method. We wanted to give them systematic and accurate, yet simple software which could be used for drilling all the grammatical forms they have learned during the class time.

Second purpose of this software was to consensually collect data from the users, forming a large database of correct and incorrect answers. From this database we can learn a lot about which verbs and which verb tenses and forms Croatian students find most difficult, and thus should be explained and practiced more in the class. We can suggest that this data would be indicative for other Slavic language learners as well, and some even for most Indo-European language learners, but to be certain of that fact, language-specific research should be performed.

First part of this article will present the current status of e-learning and Japanese language in Croatia. Secondly, we will describe the method of developing the software we used for this research. The software can be adapted to learning any language with flexion. Thirdly, we discuss its implementation in the classroom and advise the best practices to implement it alongside with the classes. Lastly, we present the typology of errors, providing the information about most common difficulties in specific tenses, as well as the lists of most commonly mistaken verbs, tenses and forms. We believe this data is useful for both students and teachers of Japanese language internationally, and the software portion could be adapted to various research projects if necessary.

E-learning and Japanese language in Croatia

In Croatia, Japanese language is taught in dozen language schools and at two universities. The number of students is equal to other non-dominant languages at universities, which is relatively large number for a small country. Although there is a lot of e-learning resources for Japanese language, almost all of it is taught in English or Japanese. For beginners in Croatia, we developed the Croatian language materials which follow the curriculum and most common textbooks. It was proven in various case studies (Altiner, 2011) that flashcard based programs help vocabulary retention in students, so we have used them as a basis for the materials which deal with vocabulary.

Along with the vocabulary and sentence exercises, there was a need for a e-learning component which enables student not only to memorize lexical items, but also to practice verb derivation. In this research, we will describe the latter.

So far, one can use Japan Foundation materials for instruction in English-Japanese language pair, with future possibility of other major world languages to be paired with Japanese. In the case of Croatian e-learning materials, during the MemAzija project we have provided lexical materials on the Memrise website and character learning and memorizing assistance with Anki spaced repetition software.

Unfortunately, for the verb and adjective derivation, there was no satisfactory pre-made software, and it had to be made by researchers. This will be further described in the next chapter.

Development of software for computer assisted learning of Japanese verbs

In order to develop the software for computer assisted learning of Japanese verbs, we needed to divide the work in several phases. As similar programs were already developed for other Asian languages, e.g. Chinese (Tam and Huang, 2012), we expected good reception from the students. First phase is the analysis of Japanese verbs and adjectives, comparison to coursework and division by types in order to implement it better. Second step is the planning and computational implementation in Java programming language. Third phase is execution and testing. After the testing was complete, and the application positively evaluated by beta-tester students, it was ready for the classroom implementation. Figure 1 shows the model for the development of this software.
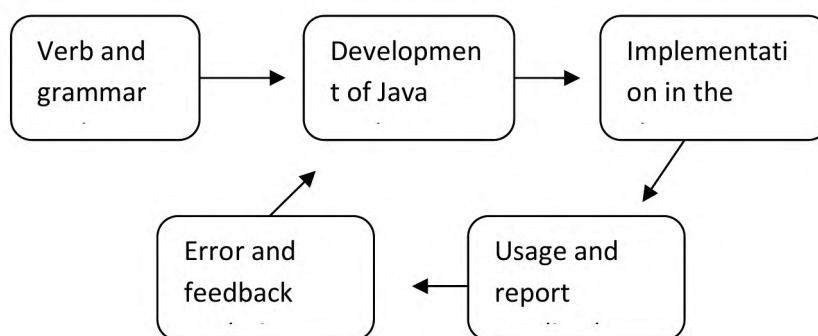
Figure 1: Japanese verb practicing software development cycle

In the first phase, we consulted the Genki I and II textbooks which are used in the universities in Croatia, and in many other countries as well, being considered one of the best Japanese textbooks. We divided the verb and adjective grammar into lessons and described the models for their formation in order for them to be digitally emulated. Since most students of Japanese in Croatia follow Genki textbook, it was decided that sorting the data using this approach would benefit most students. Since Japanese adjectives conjugate in a similar manner to verbs, we decided to include adjective grammar forms as well. Table 1 shows the grammar forms included in the software, and theoretical basis for their formation.

Table 1: Grammar forms for verbs and adjectives included in the application

Level	Grammar meaning	Base	Suffix	Lesson in Genki
1	Polite forms	Stem	-masu, masen, -mashita	3,4
2	Te-form	dictionary form	-te, -ite, nde,..	6
3	Permission, forbidding	te-form	-te kudasai, -te mo ii, -te wa ikemasen	6
4	Going to do an action	Stem	-ni iku, kuru, kaeru	7
5	Continuous form	te-form	-te iru, -te inai, -te ita..	7
6	Short forms	dictionary form	various forms	8, 9
7	Thinking and saying	short form	-to omou, omotta, -to iu, itta...	8
8	Likeing to do	short form	-no ga suki, kirai	10
9	Intention	short form	-tsumori, -tsumori ja nai	11
10	Wanting	Stem	-tai, -takunai, -takatta	11

Level	Grammar meaning	Base	Suffix	Lesson in Genki
11	Experience	short past	-ta koto ga aru/nai	11
12	Doing more activities	short past	-tari tari shimasu	12
13	Overdoing	Stem	-sugiru, sugimasu	8, 12
14	Please do / do not	negative stem, short past	-naide kudasai, -ta houga ii	12
15	Must	negative stem	-nakereba ikeani, -nakya ikenai	13
16	Potential	dictionary form	-eru, -rareru, -emasu, -raremasu	13
17	Try, do in advance, to by accindent	te-form	-te miru, -te oku, -te shimau	13, 15, 18
18	Maybe do	short form	-kamoshirenai, -kamoshiremasen	14
19	Conditional	short form, short past	-tara, -nara	14, 17
20	Intention II	o-stem	-ou to omou	15
21	Doing and receiving favors	te-form	-te ageru, -te kureru, -te morau	16
22	Not having to	negative stem	-nakute mo ii	17
23	Regretting (not) having done	e-stem	-ba yokatta	18
24	Doing at the same time, way of doing	Stem	- nagara, -kata	18,23
25	Easy/difficult to do	Stem	-yasui, -nikui	20
26	Passive	dictionary form	-rareru, -areru	21
27	Causative	dictionary form	-sareru, -aseru	22
28	Causative-passive	dictionary form	-saserareru, -aserareu	23

Alongside with the grammar exercises, we included the verbs which are taught on A1 and A2 levels of Japanese course (CEFRJ), so the user can choose on which set of verbs the exercise is performed. Any combination of verbs and forms would be possible. Figure 2 shows some examples of choosing amongst different options using the graphical user interface.
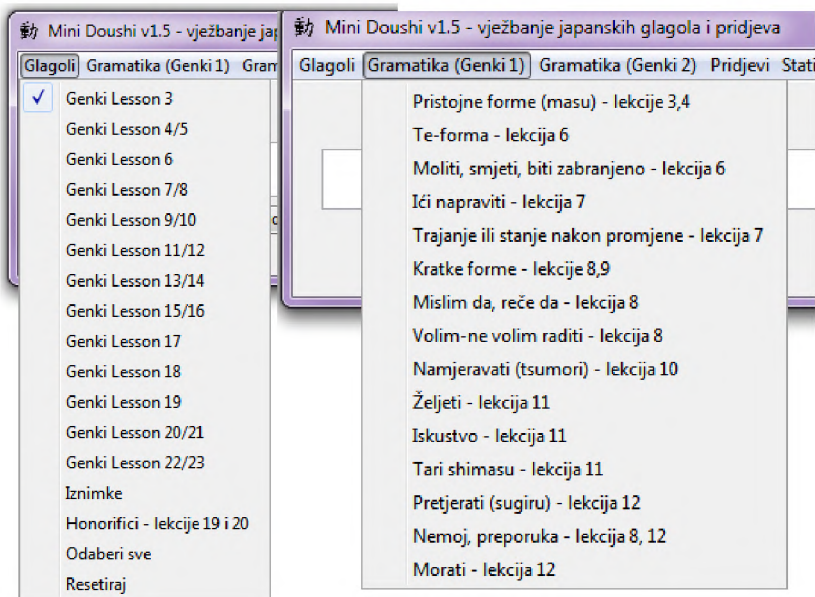
Figure 2: Possible options for verbs and grammar exercises

In the second phase, the actual software development took place. We have used the Java programming language, so the application could be used on Windows, MacOS and Unix platforms without difficulties. Application is named Mini Doushi (jap. "mini verb"). It was developed as a standalone application usable without the need for installation, logging in or internet connection. The only exception to this is the reporting function, which sends the user session data to our server upon user's request. Figure 3 shows the interface of the application.
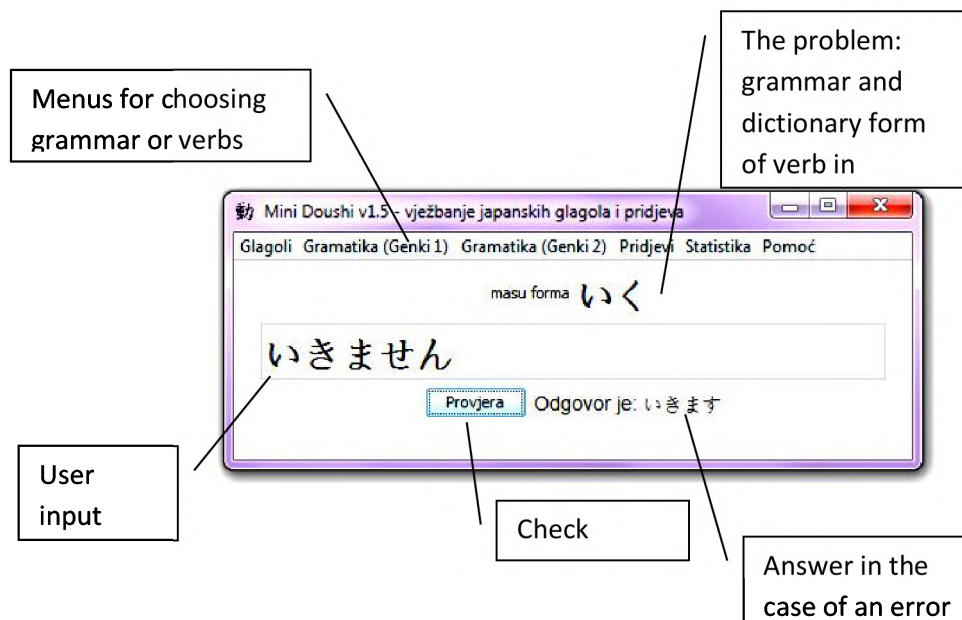
Figure 3: Japanese verb exercise application interface

As we can see from the Figure 3, the application is developed to be exceedingly simple to use by anyone, and only requirement is to have any Japanese input method available. If user does not know the answer, any input followed by an enter key will show the correct answer, but until it is typed (without the ability to copy and paste), one cannot proceed to the next task. Basic usage statistics are provided for the user, while more detailed reports are sent

to our server. We have logged the time of usage, the verb, correct form and all the user's inputs. All these reports are sent deliberately by a user and no data is collected automatically. We have used these reports for error analysis in order to improve the proposed teaching methods.

Implementation in classroom and feedback

After the completion of testing and error checking of the first version of our application, we have implemented it in few classrooms. We have chosen one A1.2 Japanese course which has around 15 participants, one A1.1 Japanese course with 7 participants, one A2 course with 5 participants, and one B1 course with 4 participants for the first wave of classroom implementation. They have used the application consistently during one semester, and regularly sent the reports. Although there were more beginners then more advanced learners, we have chosen as many as possible students to test the majority of data in the application. The application covers at least two years of university study materials (A1 and A2), but for many students, reaching the A2 takes more than a year or two. There is also a considerable number of B1 (and above) students who have wanted to use the application in order to improve their proficiency in some more complex grammar forms which are often mistaken, such as passive or causative.

The application was used for six months from March 2016 until September 2016 by 31 constant users, and a number of irregular users who used it at will but not as a part of their coursework. In this period we have collected more than 10.000 individual inputs from users, the properties of which will be discussed further in the following chapter. Additionally, the qualitative feedback from the users was collected on an irregular basis during the classes.

Most users reported satisfaction with the application, and agreed that it improves their speed of understanding and producing grammatical forms for verbs and adjectives. Bellés-Fortuño and Ramírez (2015) argue that motivation is the key success in second language acquisition. Generally, the students who were otherwise highly motivated to study Japanese used the application more and improved more, while the users who lacked motivation before the usage also procrastinated on the exercises and did not improve as much. It must be noted that additional survey is needed in order to understand students' feedback more thoroughly, since we have collected only qualitative data. This article mainly deals with the properties of the software and the analysis of users' outputs during six months usage, so detailed evaluation is not collected in this phase. We can only notice that it was used mostly enthusiastically during the classes.

Usage and error analysis results: typology of errors in learning Japanese verb conjugations

During the 6 months of usage by around 30 regular students and an unknown number of free users, we have collected 10.769 pieces of data with our application. The reports contained information, as it is shown in Figure 4, of the usage time, correctness of an answer, user input, the desired input, the verb in infinitive form and a Croatian language query.

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10877	24.9.2016 20:52	T	もたなかったといっていましたもたなかったといっていましたもつ			reče da nije (prošlost)	
10878	24.9.2016 20:53	T	かえったとおもいます	かえったとおもいます	かえる	mislim da je (prošlost)	
10879	24.9.2016 20:53	F	のまないといっています	のまないといっていました	のむ	reče da ne..	
10880	24.9.2016 20:53	T	のまないといっていました	のまないといっていました	のむ	reče da ne..	
10881	24.9.2016 20:53	T	つくるとおもいます	つくるとおもいます	つくる	mislim da..	
10882	24.9.2016 20:53	T	おきないとおもいます	おきないとおもいます	おきる	mislim da ne..	
10883	24.9.2016 20:53	T	つけなかったといっていましたつけなかったといっていましたつける			reče da nije (prošlost)	
10884	24.9.2016 20:54	T	あらったといっていました	あらったといっていました	あらう	reče da je (prošlost)	
10885	24.9.2016 20:54	T	あめがふったとおもいます	あめがふったとおもいます	あめがふる	mislim da je (prošlost)	
10886	24.9.2016 20:54	T	のらないといっていました	のらないといっていました	のる	reče da ne..	

Figure 4: The format of user generated reports

The reports were then purged from the empty inputs, the nonsensical answers or Latin letter inputs, and results were organized in order to get as much data as possible. We were interested to find out the following:

1. How much do students err while learning new grammar;
2. What types of errors can a student make when conjugating verbs;
3. What types of errors are generally most common;
4. Which grammatical forms provided least accurate responses;
5. Which verbs produce most errors;
6. Which verbs are most likely to be confused by type (u- and ru-);
7. Which verbs are most likely to be confused during derivation;
8. Which verbs are most likely to be mistaken due to irregularity in verb.

Using our data, we have found answers to all these questions. Following paragraphs will describe the results and present them in tables. Even though the research was performed with Croatian students, a number of this statistics can be applied to any language. For example, easily mixed up verbs are usually confused in any language, because of their Japanese properties, and this rarely has connection with a students' mother tongue. Language dependent information is marked in the tables with the asterisk sign.

Out of all unique users' inputs, there were 1400 errors, out of which some were subtracted as typos or written using wrong script by accident, which left us with 979 unique error out of 9168 unique user inputs. The average accuracy for all levels was 89,32%, i.e. only 10,67% tasks were not performed correctly on the first try.

A closer look at the errors enabled us to notice two large error making patterns – derivational errors and lexical errors, as well as the blank answer (complete yielding). Derivational errors constitute of grammar errors such as missing syllable in the pattern (e.g. *nomasu* where should be *norimasu*), extra syllable where it should not be present (e.g. *taberimasu* instead of *tabemasu*), wrong syllable somewhere in the suffix (e.g. *hanagemasu* instead of *hanasemasu*). Since Japanese has a syllabic script, most errors occur on this level. The expectation for derivational errors is the type of error where whole derivational logic was wrong, and not only one syllable (e.g. *mite ikimasu* instead of *mi ni ikimasu*). Most of the errors are logical due to the mix-up of the verb type, not knowing the rules, or lack of attention to a verb which was difficult to pronounce.

The second type of errors were lexical errors. They are caused by not knowing the nature of the verb in question, e.g. irregular verbs, mixing phonetically similar verbs (e.g. *tsukau* – to use, *tsukuru* – to make, *tsukeru* – to turn on), confusing u-verbs and ru-verbs[1] or i-/na- adjective types.

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[1] Japanese verbs conjugate differently based on their stem type. Ru-verbs behave simply, just by subtracting last –ru syllable and adding a suffix, while u-verbs have a larger set of rules. There are also homophonic verbs which seem like one type, but conjugate like another, so this is often a source of confusion for some students.

We did not specially analyze blank answers, typos or those which are related to technical errors. For the errors which could be analyzed, Table 2 provides the information of their frequency.

Table 2: Error typology and frequency in all user inputs

General type	Subtype	Count	Frequency
Derivation	Missing syllable	84	9%
	Extra syllable	49	5%
	Wrong syllable	176	18%
	Grammar uknown	144	15%
	Total	**453**	**46%**
Lexical	Irregular verb error	112	11%
	Mixed similar verbs	58	6%
	Confusing u- and ru- verbs	286	29%
	Confusing i- and na- adjectives	16	2%
	Total	**472**	**48%**
Blanks		53	5%
Total		979	100%

As we can see, students err approximately equally often with both grammar and verb (lexical) knowledge. The most prominent type of error is confusing verb types, so we can stress its importance in the classroom. Teachers should provide special exercises to easily confused verbs. Also, adding wrong syllable in derivation, or not knowing the conjugation pattern (confusing with another grammar) is a prominent error. This information by itself is not enough – we need to understand which grammar patterns cause the most such errors. Irregular verbs are fourth most common error, so a special attention should be given to memorizing exceptions as well. It should be noted that our software has a special mode where you can practice only on irregular verbs, but we did not include a special mode for practicing easily confused u-verbs and ru-verbs. Before the analysis of this data, that was not possible, due to the fact that we did not have information about the verbs that are most easily confused.

The next version of this software will certainly include the mode for practicing verbs which are often confused or mistaken. Since this information is language-independent, we here provide the list of the most confused verbs. Table 3 shows three different types of information: the verbs which are confused by type (u-verb or ru-verb, which was the most common error all-around with 28%), the verbs which are mistaken during derivation due to their properties (any derivational error), and the verbs which are confused due to their irregularity (11% of all errors, on a relatively small set of verbs).

Table 3: Most commonly confused Japanese verbs

Rank	Confusing u- and ru-type	Confused because irregular	Most common derivational errors
1	かえる kaeru	いく iku	かく kaku
2	おきる okiru	くる kuru	いく iku
3	いる iru	しる shiru	かえる kaeru
4	ねる neru	する suru	おきる okiru

Rank	Confusing u- and ru-type	Confused because irregular	Most common derivational errors
5	しる shiru	つれてくる tsurete kuru	はなす hanasu
6	たべる taberu	もっていく motte iku	よむ yomu
7	みる miru	もってくる motte kuru	のむ nomu
8	すわる suwaru	ある aru	まつ matsu
9	つける tsukeru	みる miru	おそくなる osokunaru
10	はいる hairu	つかう tsukau	ねる neru
11	つかれる tsukareru		くる kuru
12	きめる kimeru		たべる taberu

In order to learn more about grammatical (derivational) errors, we needed to understand what was it that users were practicing using this software, and where have they made mistakes. 82 different grammar forms were practiced at least once in six months of usage of the application, but the Table 4 shows the most commonly practiced tasks.

Table 4: Most commonly practiced grammatical forms and their accuracy

Rank	Grammatical form	Number of entries	Percentage	Accuracy
1	Te-form	1141	10,72%	90%
2	**Negation – short**	**1137**	**10,68%**	**84%**
3	Past – short	1071	10,06%	87%
4	Negative past – polite	922	8,66%	85%
5	*Invitational form*	*299*	*2,81%*	*79%*
6	Vollitional form	272	2,56%	85%
7	**Negation – polite**	**259**	**2,43%**	**82%**
8	Non-past – polite	236	2,22%	93%
9	Wanting – negative	214	2,01%	86%
10	Overdoing form	197	1,85%	89%
11	*Negative past - short*	*194*	*1,82%*	*68%*
12	Wanting – past	183	1,72%	90%
13	**Wanting – past negative**	**169**	**1,59%**	**83%**
14	Doing more activities	163	1,53%	86%
15	Wanting – non past	155	1,46%	88%
16	Having the experience	138	1,30%	91%
17	*Potential – polite*	*129*	*1,21%*	*64%*
18	Not having the experience	124	1,16%	86%
19	*Intentional – negative*	*122*	*1,15%*	*76%*
20	*Continious – te form*	*121*	*1,14%*	*74%*
21	Doing more activities – past	117	1,10%	85%
22	Intentional – past negative	112	1,05%	87%
24	Contiuous – negative past	110	1,03%	90%
25	*Potential – short*	*108*	*1,01%*	*73%*

Out of these grammatical forms, some have had a surprisingly low accuracy. Grammatical forms which are 5% or more below the average accuracy of 89% are marked bold in the Table 4, and those which are more than 10% below are marked bold and italic.

After careful analysis and overview of the properties of the grammar forms, they were combined in Table 5, which shows the most important result of this research – the grammar forms which are most difficult to accurately conjugate on A1 and A2 levels of Japanese language. They are described in English with definitions used by textbooks, with Genki series as a reference. Also the information for derivational basis is provided, in order to reflect which underlying grammatical knowledge may be lacking in students.

Table 5: Most commonly confused Japanese grammatical form

Rank	Grammatical form	Japanese suffix	Percentage of errors	Derivational basis	Genki lesson
1	Potential form	*-rareru, -eru*	26%	dictionary form	13
2	Doing by accident*	*-te shimau*	14%	te-form	18
3	Doing in advance*	*-te oku*	14%	te-form	15
4	Thinking that..	*- to omou*	12%	short form	8
5	Being forbidden	*- te wa ikenai*	12%	te-form	6
6	Continuous form	*- te iru*	11%	te-form	7
7	Wanting	*-tai*	11%	stem	11
8	Short forms	*various*	11%	short form	8, 9
9	Please do..	*-te kudasai*	11%	te-form	6
10	Volitional form	*- mashou*	11%	stem	5, 6
11	Saying that..	*- to iu*	10%	short form	8
12	Going to do activity	*-ni iku*	10%	stem	7
13	Invitational form	*-masen ka*	10%	stem	3
14	Permission form	*-te mo ii*	10%	te-form	6
15	Intentional form	*-tsumori*	9%	short form	10
16	Polite form	*-masu*	9%	stem	3
17	Doing few activities*	*-tari suru*	9%	short past	11
18	Experiential form*	*-ta koto ga aru*	9%	short past	11
19	Te-form	*-te, -ite, -nde..*	8%	dictionary form	6
20	Doing too much*	*-sugiru*	5%	stem	12

This data can be helpful to both students and teachers, even though each student may have individual difficulty or easy portions of grammar acquisition. Those marked with asterisk symbol may be language dependent, because such forms are not gramaticalized in Croatian language, but rather expressed through lexical choices, so one can argue that they would be more difficult for a student to memorize. However, since they are not present in any Indo-European language either, we believe that this data is still useful not only to Croatian user, but to most Indo-European language speaking Japanese instructors and students.

Conclusion

In this article, we have dealt with very specific issue in Japanese language acquisition – the verb conjugation and their acquisition in matters of accuracy and speed of production. In order to improve these areas in Croatian students, we developed a simple Java application for all desktop platforms and tested it in use during the 6 months period of time. User inputs were sent in form of reports to our server, and amongst around 10.000 entries we have performed the analysis on most common grammatical errors.

We have found that students equally make grammatical and lexical errors, but most of the inputs were correct (89%). When divided by different grammatical forms, these numbers differed significantly. For example, students made most mistakes while learning potential form (26%), or some forms which do not exist in their mother tongue (*to do by accident*, *to do in advance* with 14% errors). Closer analysis found that some students may not have sufficient basic knowledge of underlying forms which are necessary for derivation, such as te-form or short form.

As for lexical errors, we have concluded that students most often confuse two main verb types in Japanese (u-verbs and ru-verbs) which follow different patterns, producing 26% of error. We have also found that irregular verbs should be studied more closely, and provided a list of common verbs which are easily confused simply due to their phonological properties.

Although the application was positively received amongst students, there was no official evaluation, which is planned after new version becomes available. Next version of the application will include all the information about common errors, in order to enable students to differentiate more precisely amongst most difficult verbs or grammar forms.

In conclusion, we believe that this way of drilling grammar is not only helpful to a student, especially if it follows the classroom lessons, but also provides valuable insight into error typology. Most of these are applicable to any learner of Japanese language, and not only Croatian students, so the results of this research could serve both teachers who seek to improve their curriculum, and students who want to improve their grammatical skills in Japanese language.

References

[1] Altiner, C. (2011) *Integrating a computer-based flashcard program into academic vocabulary learning*. Graduate Theses and Dissertations. Paper 10160.

[2] Anki - powerful, intelligent flashcards. (2016). Ankisrs.net. Retrieved in November 2016, from http://ankisrs.net/

[3] Banno, E., Ohno, Y., Sakane, Y., Shinagawa, C., Takashiki, K., Japan Times, ltd., & JP Trading, Inc. (1999). *Genki: An integrated course in elementary Japanese = shokyū Nihongo "genki"*. Tōkyō: Japan Times.

[4] Banno, E., Ohno, Y., Sakane, Y., Shinagawa, C., Takashiki, K., Japan Times, ltd., & JP Trading, Inc. (2011). *Genki II: An integrated course in elementary Japanese = shokyū Nihongo "genki"*. Tōkyō: Japan Times.

[5] Bellés-Fortuño B., Ramírez, N. O. (2015) *Motivation: A key to success in the foreign language classroom? A case study on vocational training and higher education English courses*. 1st International Conference on Higher Education Advances, HEAd'15, DOI:http://dx.doi.org/10.4995/HEAd15.2015.431

[6] Council of Europe. (2001). Common European framework of reference for languages: Learning, teaching, assessment (CEFR). Cambridge, the United Kingdom: Cambridge. Retrieved from http://www.coe.int/t/dg4/linguistic/cadre_en.asp. Framework_EN.pdf in November 2016.

[7] Janjić M., Librenjak S., Kocijan K. (2016) *Croatian Students' Attitudes towards Technology Usage in Teaching Asian languages - a Field Research.* Proceedings of the 39th International Convention MIPRO, Rijeka. 1051-1055.Codd, E. (2005). Decoupling checksums from the transistor in DHCP. IEEE, USA.

[8] Japan Foundation, e-learning portal. https://minato-jf.jp/ Retrieved in November 2016.

[9] Librenjak S., Vučković K., Dovedan Han, Z. (2012) *Multimedia assisted learning of Japanese kanji characters.* Proceedings of the 35th International Convention MIPRO, Rijeka. 1284-1289.

[10] MemAzija official website. (2016). Retrieved in November 2016, from http://memazija.ffzg.hr.

[11] MemAzija online course list on Memrise. (2016). Retrieved in November 2016, from http://www.memrise.com/user/Memazija/courses/teaching/.

[12] Memrise - Learn something new every day. (2016). Memrise. Retrieved in November 2016, from http://www.memrise.com/

[13] Tam, V., & Huang, C. (2012). *An intelligent e-learning software for learning to write correct Chinese characters on mobile devices.* Interactive Technology and Smart Education., 9(4), 191–203

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IMPLEMENTATION OF ACADEMIC MOBILITY PROGRAMS AT THE NOVOSIBIRSK STATE PEDAGOGICAL UNIVERSITY

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This article describes the external and internal factors of academic mobility in Russia. We give purpose and objectives of the organization of academic mobility in Russian universities. Complex of programs is presented. It allows to expand academic mobility, for example, one of the largest Russian pedagogical universities

Keywords: academic mobility, development, foreign language, international activities, Higher education.

Main Conference topic: Education, Teaching and E-learning

INTRODUCTION

Today, the modern world provides a tremendous amount of opportunities for students not only to get acquainted with different cultures and learn a foreign language, but also to travel to various cities for the purpose of training. The Bologna Declaration, adopted by 29 European countries, calls to increased mobility of students, teachers, administrative staff of universities. Russia is also a member of the Bologna Process since 2003 year, maintaining relations with European countries and the United States to harmonize education systems.

Academic mobility is seen as part of the Bologna process, the main quality of which will be not applicable requirement of higher education in the European mills. In recent years, academic mobility is becoming one of the most effective means to increase the human capital in terms of quality. Due to globalization is spreading rapidly exchange of countries in matters relating to science and education. This method leads to the expansion and strengthening of partnerships among the various countries, an increase in the competitiveness of the state education system.

Let`s examine the academic mobility`s concept from two perspectives. First, academic mobility is defined as the opportunity for students, teachers and administrative staff of universities move from one institution to another in order to exchange experiences, obtain the opportunities for any reason are not available in your high school, overcoming national isolation and the acquisition of a pan-European perspective. And secondly, academic mobility includes a time-limited period of study in the country of which he is not [1]. Clarify the concept on the basis of definitions that have been outlined above. Students' academic is a model of organization

of the educational process of students is to teach in a foreign university for a certain period of time and then return to the main institution for the purpose of its end.

Academic mobility is a social elevator, which helps to get up on it, not only by the participants in the exchange, and universities participating in these programs. Exchange programs contribute to the image and reputation of education. In addition, academic mobility gives the opportunity to strengthen the position of the region and country on the world stage. States and institutions, using the mobility program, it is necessary to carry out various activities related to the care, support and development of international exchanges among young people. In these activities can be included such activities as raising material to inform potential participants concerning mobility programs, formation of normative and methodological support.

Note that the following academic mobility objectives specified in the Bologna Declaration:

• to promote mobility by overcoming obstacles to effective implementation of freedom movement: for students; - Access to educational institutions and related services; for teachers, researchers and administrative staff;

• recognition and validation of periods spent in European countries, in order to research, teaching and training, without violating their status and the legitimate rights [3].

Academic mobility can be external and internal.

1. External academic mobility - students' training, research and the work of faculty and staff of national universities in universities and research institutions abroad.

2. Internal academic mobility - students' training, research and the work of university faculty and staff in leading national universities and research centers (possibly with the involvement of foreign professors) [2].

This type of mobility contributes to the development of educational and professional skills of participants, due to the fact that in the classroom, students receive information on other educational principles and technologies from foreign teachers. Moreover, the students have a chance to improve their own skills for direct communication with representatives of other states [4].

The educational process at the Novosibirsk State Pedagogical University is not limited to couples and offsets. Our university is innovation, modern material and technical base, international training programs. So NSPU students participate in academic mobility programs. We have a lot of programs of internal mobility with well-known universities of Siberian region such as National Research Tomsk State University, Tomsk State Pedagogical University, Krasnoyarsk State Pedagogical University, Omsk Pedagogical University and others.

Our university can provide students with a choice of many grants and programs of academic mobility abroad:

• Grant programs in China, language courses from six months. Our students can choose a school like Southwest Jiaotong University / Southwest Jiaotong University - University, included in the top 50 of China, developing partnerships with Russian companies and one of the largest Alma Mater academics and researchers in China.

• scholarships for German language courses in Germany. This scholarship allows students to take summer courses German in Berlin University by Humboldt.

• Mikhail Prokhorov fund. Foundation announces an open competition for charitable funding travel-grants to participate in scientific conferences and seminars, work in archives and libraries, training in scientific institutions abroad. The grant amount is determined individually depending on academic program and duration of the trip and includes the payment of scientific training (if costing), accommodation, travel to the destination and back, mandatory health insurance, as well as funds for the purchase of scientific literature and copying archival documents (in the case of a justified need). The trip was organized by the linguistic center of the university. Thus, for example, students visited Belgium, the University named by Hogeschool. Students could study subjects such as English grammar, practice writing and speaking during

their visit. On request, they could learn Dutch. One of the most important things, according to our view is possibility to break through a language barrier and of course practice of speaking English. As a result of these contacts now some students work in Beijing English teachers.

• University of Iceland. These scholarships are intended for students of modern Icelandic language in our university. Students must complete at least the first year of university and have a basic knowledge of the Icelandic language in accordance with the undergraduate program at the Icelandic as a second language.

• Initiative projects of fundamental research, conducted jointly by the RFBR and the Austrian Science Foundation (ANF). Competition task - development of international cooperation in the field of fundamental research, financial support for action research projects carried out jointly by scientists from Russia and Austria.

CONCLUSION

So, programs of academic mobility open new opportunities for education itself. Participating in these programs of our university`s students have access to higher-quality educational programs, courses and research opportunities, and then return to their home country with the luggage of new knowledge, academic and cultural experience, which is more important for their future profession and for themselves.

Brief biographies of the authors

Alina Shevchuk was born in 1995. In 2013 finished school and then admitted to the university NSPU.

Now Alina is a student in NSPU from the Faculty Institute of Childhood, studying for 4 course and is actively involved in research activities.

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References:

1. Mikova I.M. Concept and essence of academic mobility of students: theoretical bases // Siberian Pedagogical Journal. 2011. 10. 266-273.

2. Drutsko N. A. Multilevel approach to foreign language teaching in the context of academic mobility // Humanities research. 2015. 1-1 (41). 66-71.

3. Bespalov A. A. Academic mobility in the countries of Russia and the Czech Republic // Scientific notes of the Tambov branch ROSMA. 2016, 5. 1-7.

4. Tsiguleva O. V. Development of academic mobility in Russia // Psychology and pedagogy: methods and problems of practical application. 2011, 19-2. 215-218.

The role of foreign language in preschool children`s

socialization with a profound visual impairment

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Abstract

In this article refers to the importance of foreign language in the socialization of children with disabilities, including children in the educational environment. The role of English in the development of preschool children with visual impairments.

Keywords: education, training, visual impairment, socialization of children
Main Conference topic: Education, Teaching and E-learning

INTRODUCTION

Today practically everyone, who wants to achieve success in life and in chosen field of activity, understands the importance knowledge of foreign languages. The capability to communicate in other language the circle of contacts allows to expand new prospects before people with knowledge of a foreign language. Numerous researches showed that learning of foreign languages promotes increase in general I.Q. At the same time memory, attention and thinking when studying language constantly improve.

Foreign language is one of important and rather new objects in system of training of the modern younger school student in the conditions of the polycultural and polylingual world. The knowledge of language promotes socialization of all people, including people with a profound visual impairment. English can help integration blind and visually impaired with information space. For example, studying English on internet is one of the main ways of communication. Listening to information in English by means of audio programs, blind person will be capable to gain a lot of new knowledge which are absent in Russian. By means of special programs and devices communications with foreigners who can help with socialization is possible and offer the help in the organization of life.

In general, it is possible to allocate the following purposes for studying of foreign (English) language by children with deep violation of sight:

1) Practical purpose assumes language acquisition as the means of communication, and also a number of public abilities (ability to work with specialized books, logically and consistently to state the thoughts, to make educational entries in Braille's language, to use modern technologies of training) providing efficiency of language acquisition in the set parameters.

2) General education purpose assumes use of a target language for increase in the general culture of students, expansions of an outlook, knowledge and the country of a target language and – by means of language – about the world around in general.

3) Educational purpose is implemented through the student's relation to language and culture of its carriers and assumes solutions of the tasks providing formation: respect for language, other culture, people; tolerances, etc.

4) Developing purpose is shown in activity of a teacher aimed at the development of language abilities of pupils, cultures of speech behavior, interest in studying of language, properties of the personality (positive emotions, strong-willed qualities, memory, etc.)

5) Strategic objective consists in formation of the secondary language personality, that is such level of proficiency in language which is inherent in the native speaker (the language personality).

Each of parents wants to see the child independent and competitive in life. Training of blind children for adulthood and, further, their inclusion in relations of production is also the major social task.

Due to above, studying of English is extremely important for visually impaired persons of all age. Rather will reveal ways of training in English of such people, because it will be easier for them to adapt to life and, respectively, to become a full-fledged part of society.

The analysis of literature describing specifics of mental and physical development of blind and visually impaired children clearly shows (and this situation becomes already an axiom) that there are no functional differences of the child`s brain with defect of vision organs from the child's brain with normal sight. According to Russian speech pathologist G. I. Troshin stated at the beginning of the century according to which between normal and abnormal children there is no basic difference is the cornerstone of such statement. Development of that and others is subordinated to the same regularities; the difference consists only in a way of development. That is it is only about other trajectories and rates of development of blind children in the separate directions while on others they can quite overtake able to see children of the same age. And these "other" ways of development are of special interest [7, page 3].

The serious lack of visual aids available to tactile and visual perception blind and visually impaired is felt; total absence of education guidance printed with the integrated and relief and dot font, and the available education guidance for mass school are inaccessible for children with sight violation [1, page 261].

The means of presentation used during the work with blind younger school students can be divided on acoustical, tactile, olfactory and flavoring. Most effectively transfer to combine different types of presentation, involving as much as possible safe analyzers. [2, page 30]

The foreign language as a subject makes a noticeable contribution to culture of mental labor of school students with sight violation. It is possible to use game technologies in educational process with children of any age category.

Blind children with normal development of intelligence and lack of organic speech` defeats centers «the speech develops approximately in the same terms, as well seeing children» as deep violation or lack of sight does not interfere with emergence in the speech` child.

The first feature is difficulties in mastering the correct pronunciation and articulation of sounds of the speech. It coherently with the fact that the child is deprived of an opportunity to watch the movement of speaking adult`s lips, his mimicry, the corresponding certain intonation with which each phrase is said. Therefore the speech of blind child usually happens a little expressive, muffled, a little legible.

The second feature of speech development is discrepancy between the word used by a child in the active speech and understanding of its value. This feature is directly connected with development of a child`s cognitive activity. The student is deprived of visual information on surrounding objects and phenomena, and information obtained him by means of touch, hearing and if it is available, residual sight, is very poor. He did not learn to use safe sense organs adequately yet. Therefore the new recognizable words, not always have for him clear meaning.

We were faced to a task to bring together experimental group of children of preschool age, from 5 to 7 years, as a part of four people: two participants without deviation in development and with normal visual analyzer; one examinee with total loss of sight; one examinee with the residual visual analyzer and ZPR.

Each person possesses to some extent the developed sense organs. Considering specific features of the personality, it is possible to tell with confidence that at everyone they are

developed definitely differently, according to abilities to perceive and acquire different types of information.

Summing up the result, it is possible to assume that able to see and blind children study differently, it is also connected with their features of perception, memory, attention and thinking.

In training of foreign languages dominating role at perception and digestion of new material is carried out by organs of vision and hearing. In this case, the situation cardinally changes as there are difficulties in the presence of a limited opportunity to perceive information visually. At the same time it is also necessary to consider a ratio of internal and external motivation to development of the subject [5]. Students who has problems with sight need to provide more time for mastering new material, formations and development of foreign-language skills and abilities, understanding of the phenomena and realities. The main thing is to provide repeated repetition of the studied phenomenon, to achieve automation of necessary actions and to avoid losing of already created skills and abilities.

All process` algorithm of training is important to teacher to use accurate and logical instructions and explanations which remove possible difficulties and misunderstanding at children, organize process of training [6].

As a result, we can draw a conclusion the children with violation of the visual device need more time and opportunities on assimilation of a foreign language, but the most important aspect remains the motivation of the students. Because, then the child is interested, we will be able to achieve a dramatic increase in rates of diagnosed characteristics.

CONCLUSIONS

This work was carried out for the purpose of studying specifics training of children with violation of visual device to a studying foreign language and diagnostics of children` level readiness of preschool age to development of English.

Having conducted diagnostic testing, we could learn opportunities and abilities of children with visual impairment to development of English language. In this regard, urgent and demanded is a question of earlier as possible of training in foreign languages of children with sight violation, since preschool age.

Brief biographies of the author

Margarita Ananina was born in 1996. In 2013 finished school and then was matriculated to the university NSPU.

Now Margarita is a student in NSPU at the Faculty Institute of Childhood, training direction: Pedagogical education (preschool education) and English. Works with preschool children, takes an active part in the scientific life of the university.

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References:

1.   Amonashvili Sh.A. Psychological features of mastering a second language by younger schoolboys // Foreign Languages in 1986, №2.

2.   Belyaev B.V. Essays on the psychology of learning foreign languages. - M.: Education, 1965.- 229 c.1.

3.   Krestinskiy I.S. The history of foreign language teaching methods: research methodology // Vestnik TSU, number 2, 2014, p. 138-146.

4.   Ogluzdin T.C. The development of the concept of «linguistic competence» in the history of linguistics and theory of learning foreign languages // Bulletin of Tomsk State Pedagogical University, № 2, 2011, p. 91-94.

5.   Vinogradova E.M. Technique of training to audition in English blind and partially sighted // Almanac of modern science and education, №12 (43), 2010. Tambov: Diploma, 2010. - p. 120-124.

6.   Wetlands L.A., Ilyin E.A. Psychology and Pedagogy: Lecture notes. - M: MIEMP 2005. - 68, 2005.

7.   Winter I.A. Psychology of teaching foreign languages in school. - M.: Education, 1991. - 222 p.

Teacher: as adult learner in pedagogical leadership in schools providing compulsory education

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Abstract: Teachers are the foundational component in school system. Especially in recent decades, more and more teachers have been asked to respond to various educational activities. In order to fulfill all the responsibilities, in the career life of a teacher, he/she not only is a teacher, but also as an adult learner. While teacher learning obviously involves knowing one's content matter and the ways in which content matter can be learned, it also involves managing the relationship with school leaders and students. It is this latter aspect that constitutes my primary area of interest, which is teacher's role in pedagogical leadership. In order to fulfil the research aims, in this study, data was collected by semi-structured interview with the teachers and other relevant stakeholders from 5 schools. Results shows, there are three main categories about how is pedagogical leadership support teacher learning, and there are feel there are three main factors limit the learning process.
Key words: Pedagogical leadership, teacher development, adult learner, compulsory education
Main Conference Topic: Education, Teaching and Learning

1 Introduction

Teachers are the foundational component in school system. Especially in recent decades, more and more teachers have been asked to respond to various educational activities. For instance, they are required "not only to be experts in their content area, but are also expected to be fluent in child psychology, skilled in communication, execute brilliant classroom management strategies, and navigate the unrelenting gauntlet of educational politics (Beavers, 2009, p.25)". Teachers' unique teaching knowledge comprised of an interrelated set of knowledge and beliefs that gives direction to their actions. In order to fulfill all the responsibilities, in the career life of a teacher, he/she not only is a teacher, but also as an adult learner. While teacher learning obviously involves knowing one's content matter and the ways in which content matter can be learned, it also involves managing the relationship with school leaders and students. It is this latter aspect that constitutes my primary area of interest, which is teacher's role in pedagogical leadership, although I consider these all as intertwined.

This introduction consists of a description of one of the incidents that caused me to reflect upon the teachers' role in pedagogical leadership and the quality of pedagogical leadership. Because one headteacher had changed my circumstance by giving me new roles and new responsibilities to support me when I was on teaching practice, I automatically began to act more in the manner of a teacher. In other words, the new roles and new responsibilities that I had been given, had unconsciously altered my responses towards the pupils. Although the time of teaching practice was limited, I developed patience, knowledge and a feeling of responsibility for pupils in my daily work. Beyond this, the experiences of working in close cooperation with several colleagues had enabled me to observe that some teachers had developed few specific approaches towards pedagogical leadership with their school leaders and students.

Having several discussed the matter of pedagogical leadership with teachers and headteachers, and knowing something of the way they reasoned, I could understand that they established it for various reasons. Some reasons were tied to practical considerations, and some related to wider concerns. My observation was that the approach adopted by teachers deeply intertwined with their sense of pedagogical leadership, but that they also used complex deliberation to link their approach to broader circumstances. However, after various conversations with teachers and headteachers in both primary schools and lower secondary schools, I discovered that it became more difficult for both teachers and headteachers to demonstrate qualities of pedagogical leadership as schools grew larger and more complicated. Apart from this, it appeared as if certain educational political decisions had been made without enough consideration for the development of pedagogical leadership and participation of teachers in schools providing compulsory education. All of my teaching experiences and conversations with teachers and headteachers led me to conclude that teachers as adult learner in pedagogical leadership and the quality of pedagogical leadership are both important and underemphasized.

Thus a study of teacher as adult learner in pedagogical leadership in Czech schools providing compulsory education as framed from the literature across cultures seems of current interest. This study will articulate the general literature with research into the perceptions of teacher on this important contemporary aspect of school leadership. What follows are the primary questions for this study.

- What is the character of pedagogical leadership (from both the perspective of different stakeholders) in particular Czech schools that provide compulsory school education?
- As adult learners, how do and teachers perceive as the main features determining the quality of pedagogical leadership in their school?

2 Theoretical Framework
2.1 Pedagogical leadership

Most contemporary theories of leadership are suggested that leadership cannot be separated from the context in which it is exerted (Leithwood, 2003). Their (1994) has used the concept of pedagogical leadership in situations where both the management and the pedagogical touch are combined. In order to approach pedagogical leadership, there is little consensus about what pedagogical leadership is, how it emerges and how it relates to education and management. Traditionally, debate has focused on the purpose of pedagogical leadership (Ellett & Teddlie, 2003; OECD, 2013). As schools have been granted more and more autonomy, which adds the complexity of pedagogical leadership.

Some researchers are using instruction as a synonym for teaching or pedagogy at some point. However, there are arguments between pedagogical leadership with instructional leadership. Some researchers were states that "Although 'instructional leadership' is an effective model for achieving compliance with government reforms and achieving a narrow standards agenda, teachers' creativity and constrains school innovation, but 'pedagogical leadership' appears to offer much greater possibilities for developing teaching and promoting both pupil and teacher learning" (Webb, 2005). Macneill and his colleague compared the instructional and pedagogical leadership and summarized 9 key differences between them (Macneill et al., 2005). Besides, other studies showed that instructional leadership is a specific strategy with which School Management Teams pursue the agenda of particular national policy and program through vision and mission statements. However, pedagogical leadership is connoted a practical strategy where School Management Teams work with teachers in their classrooms to make sure learner achievement and quality of learning is enhanced. (Tang et al., 2010).

For conceptualizing pedagogical leadership, there is little consensus about what

pedagogical leadership is, how it emerges and how it relates to education and management. Traditionally, debate has focused on the purpose of pedagogical leadership (Ellett & Teddlie, 2003; OECD, 2013). For instance, MacNeill (2007) argues that pedagogical leadership results in improved student learning. However, delineating the concept of pedagogic leadership requires a more precise specification of the construct and different viewpoints focused on different areas.

In this study, pedagogical leadership refers to the following means:

• Pedagogical leadership is a series of acts that motivates others, facilitating the acquisition of new knowledge, beliefs or skills for the learner;

• Headteachers' pedagogical leadership is involved in setting and monitoring teaching goals, providing appropriate resources, supervising the teaching programme and, by observing and providing feedback to teachers, ensuring a high quality teaching and learning

2.2 Characteristics of adult learner

Adults, unlike children, have their own unique learning needs (Knowles et al., 2005). As adult learners, teachers have their own characteristics. They do not approach learning situations as empty vessels. They have ideas about what and how students learn and have to learn and about what and how to teach. These mostly implicit theories of action have a powerful effect on their learning and development as well as on pedagogical leadership.

Teachers are adult learners in pedagogical leadership and their development is a form of adult education, which shifts the focus of professional development to the needs of teachers and the different contexts in which they learn and teach (King & Lawler, 2003), which adds more challenges of the implement of the pedagogical leadership. Knowles made several assumptions about the needs of adult learners (Knowles et al., 2005).

- Adults learn what they need to know;
- Adults are responsible for their own learning, based on the assumption that adults have their own concept of self that is responsible for the direction of their own lives;
- The role of the learners' experiences is also very important in the process of adult learning;
- Adult learners are they must be ready to learn; thus, it is important to schedule learning experiences to coincide with periods of readiness to learn;
- Adults are problem-centred in their orientation to learning; they are motivated to learn if they perceive that what they learn will be immediately applicable to their life or work situations
- Adult learners respond to external motivators, but internal motivation is more powerful

Besides, another researcher stated, as an adult learner, teachers are problem solvers, develop a broader awareness for educational opportunities outside of their classroom and good teachers value the respect of their colleagues, utilizing those supports and resources (Collinson & Sherrill, 1997; Beavers, 2009).

2.3 Teachers' professionality

Professionals are always situated within a certain time and place. Teacher development has emerged over the last decade as a recognised area of study. A growing body of literature (e.g. Fullan & Hargreaves, 1992; Darling-Hammond, 1994; Day, 1999) focused on teacher development. Leithwood (1990) makes an important contribution by conceptualizing three dimensions of teacher development: professional expertise, psychological development, and career-cycle development. Liethwood (1992, p.86) described teacher development as "arguably the most central function of educational leadership". He went on to explain the difficulty principals face in fulfilling this function, saying: "Even principals who

acknowledge their responsibility to foster teacher development often claim that this is not a function they feel capable of performing well" (p. 86).

Besides, in Bell and Gilbert's research (1994, p. 493), "Teacher development can be viewed as teachers learning, rather than as others getting teachers to change. In learning, the teachers were developing their beliefs and ideas, developing their classroom practice, and attending to their feelings associated with changing". And they identify and describe 'three main types of development': personal, professional and social.

However, Current research notes how difficult it is to bring about changes in teachers' preferred pedagogies (Stigler & Hiebert, 1999; King and Newmann, 2001) because teaching is a culturally embedded act and very difficult to change. Professional development has had very little effect on teachers' practices because most of the professional development that is available (e.g. conferences) banks knowledge and skills for possible future use.

3. Methodology

Qualitative paradigm

Qualitative research takes an in-depth approach to the phenomenon it studies in order to understand it more thoroughly and need greater awareness of the perspectives of program participants (Weiss, 1998), and it is "a form of inquiry that explores phenomena in their natural settings and uses multi-methods to interpret, understand, explain and bring meaning to them" (Anderson & Arsenault, 2005, p.126). The research adopted qualitative paradigm to explore the headteacher's pedagogical leadership in schools providing compulsory education. There are mainly two reasons to chosen qualitative paradigm:

Firstly, this study is aimed at analyzing the characteristic of the pedagogical leadership and finally answer the main features of the quality of pedagogical leadership in selected schools. All of those aspects of pedagogical leadership need to be researched in-depth approach. The qualitative paradigm of research can meet all the requirements. Secondly, pedagogical leadership relates to the personal behavior and attitude of a person, and its includes different stakeholders, which it need greater awareness of the program participants. The qualitative paradigm is appropriate because of this manner.

Data collection

In order to fulfil the research aims, data was collected by semi-structured interview with the teachers and other relevant stakeholders from 5 schools. The interview questions are mainly including two parts: how is teacher's professional development provided and how they perceive the pedagogical leadership. The specifics of these interviews were conducted in English language (the essential criterion for choosing participants is their ability to speak in English language on B2 level at least which can be found in some of Czech schools).

Data analysis

Qualitative data analysis is "a systematic process that organizes the data into manageable units, combines and synthesizes ideas, develops constructs, themes, patterns or theories and illuminates the important discoveries of your research" (Anderson & Arsenault, 2005, p.138). According to Corbin and Strauss (2015), the analysis of data, which goes throughout the research, is an art and a science, and involves interpretation. They emphasize that the interpretation is based on data and are always under scrutiny and validated against further data; meanwhile, they point out that researchers must be flexible and creative in the use of analytic procedures, thus to construct a coherent and explanatory theory which feels right to the researcher (Corbin & Strauss, 2015).

To keep the accuracy of the data, data collected through interview will be transcribed immediately after the researcher finishes the interview. The video record will be transcribed

to present a thick description. In this study, three levels of coding process will be conducted, from open coding, axial coding to selective coding.

4 Results

4.1 How is pedagogical leadership going to help me achieve my goals?

Adults need a practical approach to learning, adult learners understand the importance of keeping up with changes impacting their life or their profession, but they are rarely satisfied to learn about some information for future use. They want immediate applicability. They learn best when they perceive there is a connection between the training and their goals.

In the Czech Republic, headteachers have a high degree of autonomy to manage teachers, but many of them still lack preparation for their responsibilities, particularly in the area of leading teaching and learning (OECD, 2013). In this study, pedagogical leadership was emphasized, especially in schools providing compulsory education. During the interview, participants mentioned there are three main categories about how is pedagogical leadership support their development are listed below:
• Exchange of learning
• Specialist seminar
• Peer learning

In Czech schools, teachers have expanded opportunities for learning. According to the participants' responses, every teacher in a school have opportunities to go on study exchange trips. Most of the study exchange trips last 2-3 weeks, and these trips depend on the teachers' willingness and their workload. Besides, attending 3-5 days' seminar is a good choice for most of the teachers, meanwhile, more and more specialist seminars are held in compulsory stage schools. Generally speaking, 1-2 specialist seminars are held in one academic year for a school. In such specialist seminars, teachers receive teaching theory training and they can ask questions about their daily work. As for peer learning, participants agreed that in various forms, it played an important role in their school, and it's more frequent happened in teachers who taught the same subject, such as English, Math etc.

Furthermore, Adults learn best when they are treated like adults. Respect, trust, comfort, collaboration, and freedom to participate are important for their learning environment. For teachers learning in pedagogical leadership, the positive school climate is highlighted as well.

4.2 As an adult learner in pedagogical leadership am I doing OK?

Adults tend to set exacting goals for themselves. Adults can be impatient with their own errors or become discouraged if they do not think they are making progress towards their goals. Teachers as adult learners in pedagogical leadership have the same questions. In general situation, giving adult learners an opportunity to identify achievable goals which are related to their learning, making a commitment of what they will do, and providing strategies and opportunities to assess their own progress are supportive in adult learning. However, teaching is always happening between teachers and students, the unique character of teaching requires different assessment for teachers in pedagogical leadership. In this study, we focused on the analysis and interpretation the data from interviews.

As adult learner in pedagogical leadership, teachers in Czech schools' feel there are several factors that limit the learning process:

Firstly, they have less time available to be engaged in learning due to their many responsibilities. Teaching workload, student consulting, marking exercise and etc. running out of teachers' time. For most of the teachers, the time they spend in any training must be viewed as a worthwhile investment. Secondly, pressures of normal daily works limit teachers' attention span, it's more and more difficult for them to focus one task in a certain time. One participate said: "I can't help myself to think about my teaching plan for next week when I'm

in the seminar". Thirdly, teachers do not only view themselves as learners, they are parents, spouses, breadwinners, and/or professionals. Different roles of teachers decide their willingness to learn.

5 Conclusion

Even though the teaching is a culturally embedded act and very difficult to change, the teacher's development requires more attention. Lundgren (1998) has made the point that different conceptions of schooling infer "quite different school system with quite different tasks" (p. 153). As an adult learner in pedagogical leadership, teachers are in a process of acquiring new knowledge and skills. As Whiteford said, "Perhaps the most powerful professional development happened as those in PDS (Professional Development Schools) sites planned and experimented with innovative arrangements" (Whitford, 1994, p. 86). Despite there are many gaps in understanding pedagogical leadership in the learning process of teachers, especially with regard to a particular school context. And the way of evaluate pedagogical leadership is various as well. However, the picture that emerges is beginning to show its distinct features of strong pedagogical leadership.

Acknowledgements

Reference:

[1] Anderson, G., & Arsenault, N. (2005). *Fundamentals of educational research (2nd ed.).* Philadelphia, PA: Taylor & Francis e-Library

[2] Bell, B., & Gilbert, J. (1994). *Teacher development as professional, personal, and social development. Teaching and Teacher Education*, 10, 483-497.

[3] Beavers, A. (2009). *Teachers as learners: Implications of adult education for professional development. Journal of college teaching and learning*, 6(7), 25.

[4] Collinson, V., & Sherrill, J. (1997). Changing Contexts for Changing Roles: Teachers as Learners and Leaders. *Teaching Education*, 8, 55-63.

[5] Corbin, J., & Strauss, A. (2015). *Basics of qualitative research: Techniques and procedures for developing grounded theory.* Sage publications.

[6] Darling-hammond, L. (Ed.) (1994). *Professional Development Schools: schools for developing a profession,* New York, Teachers College Press.

[7] DAY, C. (1999). *Developing Teachers: the challenges of lifelong learning*, London: Falmer.

[8] Ellett, C.D., & Teddlie, C. (2003). Teacher evaluation, teacher effectiveness and school effectiveness: Perspectives from the USA. *Journal of Personnel Evaluation in Education*, 17(1), 101-128.

[9] Fullan, M. & Hargreaves, A. (1992). Teacher development and educational change. In: M. Fullan & A. Hargreaves (Eds) *Teacher Development and Educational Change* (London, Falmer), pp. 1–9.

[10] Julie. L. (2009). *Guide to Organizing Semi-Structured Interviews With Key Informant.* Library and Archives Canada.

[11] Knowles, M. S. (1980). *The Modern Practice of Adult Education: From Pedagogy to Andragogy*, Wilton CN: Boston Press.

[12] King, M. B. & Newman, F.M. (2001). Building school capacity through professional development: conceptual and empirical considerations. *The International Journal of Educational Management*, 15(2),86-94.

[13] King, K. P., & Lawler, P. A. (Eds.). (2003). New perspectives on designing and

implementing professional development of teachers of adults. *New Directions for Adult and Continuing Education*, 98, San Francisco: Jossey Bass.

[14] Leithwood, K. (1990). The principal's role in teacher development. In B. Joyce (Ed.). *Changing school culture through staff development* (pp. 134 – 170). Alexandria, Va: ASCD.

[15] Leithwood, K. A., & Poplin, M. S. (1992). Transformational Leadership. *Educational leadership*, 49, 5.

[16] Leithwood, K. A., & Riehl, C. (2003). What do we already know about successful school leadership, *AERA Division A Task Force*, Washington: AERA.

[17] Lundgren, Ulf P. (1998). The making of curriculum making: Reflections on educational research and the use of educational research. In S. Hopmann & B. B. Gundem (Eds.), *Didaktik and / or curriculum: an international dialogue* (pp. 149-162). New York: P. Lang.

[18] Macneill, N., Cavanagh, R., & Silcox, S. (2005). Pedagogic Leadership: Refocusing on Learning and Teaching. *International Electronic Journal for Leadership in Learning*,9. Retrieved from http://iejll.journalhosting.ucalgary.ca/iejll/index.php/ijll/article/view/402.

[19] MacNeill, C.N. (2007). *Pedagogic Obsolescence: A curtain call for school principalship.* Retrieved from http://www.aare.edu.au/data/publications/2007/mac07041.pdf.

[20] OECD. (2013). *The appraisal of school leaders: Fostering pedagogic leadership in schools, in Synergies for Better Learning: An International Perspective on Evaluation and Assessment*, OECD Publishing. http://dx.doi.org/10.1787/9789264190658-11-en.

[21] Stigler, J., & Hiebert, J., (1999). *The teaching gap*. New York: The Free Press.

[22] Their, S. (1994). *Pedagoginen johtaminen* (Pedagogical leadership). Maarianhamina: Mermerus.

[23] Tang, K. N., Zaheena. A., & See, C. M. (2010). Teacher leadership and school effectiveness in the primary schools of Maldivesmald, H. U. *Journal of Education*, 39: 255-270.

[24] Webb, R. (2005). Leading Teaching and Learning in the Primary School: From 'Educative Leadership' to 'Pedagogic Leadership'. *Educational Management Administration & Leadership*, 33: 69-91.

[25] Weiss, C. H. (1998). *Evaluation methods for studying programs and policies (2nd ed.).* Upper Saddle River, NJ: Prentice Hall.

[26] Wittmann, E. (2006). Reducing school administration to a technicality? Philosophical reflections of senior German school administrators in the context of New Public Management-based vocational school reform. *International Journal of Leadership in Education*, 9(2), 111-128.

Job Satisfaction among School Counsellors in Preschools and Primary Schools

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In Turkey until 2012, school counsellors were employed only in primary, elementary and high schools. The Ministry of National Education (MoNE) allowed them to be employed in preschool institutions from that year, but the Council of State overruled this in 2014, and was in turn overruled the following year. Surprisingly, given the controversy surrounding these changes, detailed research related to counselling services in Turkish preschools remains rare. In particular, it would seem worthwhile to address the difficulties individual counsellors face as a result of having been trained to work with older pupils than those they are now actually responsible for. Prior research suggests that counsellors' job satisfaction will help determine the efficacy of their services. Comparing the job satisfaction of preschool counsellors against that of counsellors in primary schools may therefore be especially useful as a guide for future policy and practice. The participants in this study were 70 school counsellors, 35 working in preschool institutions and 35 in primary schools. Data collection was conducted using a semi-structured interview protocol developed by the researchers and analysed through the word-list technique. Qualitative data analysis indicated that half of the primary school counsellors, but only around a third of preschool counsellors, had high levels of job satisfaction. A markedly higher proportion of the preschool participants also reported that the type of school they worked in had a negative impact on their job satisfaction.

Keywords: School counsellors, job satisfaction, preschool institutions, primary schools

History and Status of Educational Psychology in Iran: A View from Inside

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Abstract

Educational psychology is a ground of psychology relating to the scientific study of education and learning, which studying the processes of teaching and learning from cognitive and behavioural point of view. Educational psychology tries to improve educational processes and activities and to facilitate learning mechanism in different educational systems across the generations. The starting point of this new and growing field of study dates back to the late eighteenth century (e.g. the work of Johann Herbart); although, it can date back to the time of Aristotle and Plato. This new field of knowledge has faced with rapid development and growth as a profession among European nations and the United States during the past fifty years.

In Iran, scientific perception about teaching and psychological approach to education came into sight in the 1950s; nonetheless prior to that, there are several traces of interest towards and practices of educational psychology in the country. For instance, in 1851, Amir Kabir, known as Iran's first reformer established the first modern university. In addition, from the age of the Persian Constitutional Revolution (1905-1907) onwards many efforts had been done to develop the modern knowledge of education. However, knowledge of educational psychology scientifically formed in Iranian public and higher education in the 1970s.

This article shall describe the historical journey and position of educational psychology in Iran. To this aim, this work briefly portrays the growth of this field of study around the world, and then it explains how this modern psychology and education have been moved to and developed in Iran. This paper shall also indicate who were (and still are) involved in forming/ reforming educational psychology in the country; and then it depicts the current status and the application of educational psychology in Iran.

Keywords:

Educational psychology, Iran, history of education, history of psychology

THE USE OF EDMODO IN CREATING AN ONLINE LEARNING COMMUNITY OF PRACTICE FOR LEARNING TO TEACH SCIENCE

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This study aimed to create an online community of practice by creating a virtual classroom in the Edmodo application and ascertain the opinions of pre-service primary teachers about the effects of Edmodo on their learning to teach science and availability of Edmodo. The research used a case study, which is one method of descriptive research. During the implementation process, pre-service primary teachers used Edmodo to share activities they had designed that centred on the scientific concepts taught in primary science education programmes. They also shared their diary entries that outlined their experiences and views after they had practised their activities in a real classroom. 58 pre-service primary teachers participated in the study. The author developed a questionnaire and it included one closed-ended and six open-ended questions; the questionnaire was used as the data collection tool. The pre-service primary teachers used Edmodo for 12 weeks. Descriptive and content analysis methods were used to analyse the data obtained from the study. The results obtained from the data analysis showed that pre-service primary teachers generally had positive views about the use of Edmodo in teacher education programmes. Most pre-service primary teachers stated that Edmodo provides the possibility of sharing knowledge, experiences and views. However, some pre-service teachers stated that Edmodo has some limitations; for example, the fact that it requires the user to have internet access. As a result, it can be said that Edmodo can be used to create an online community of practice in teacher education programmes.

Keywords: Edmodo, teacher education, online community of practice.

The Relationship between the Social Networks Adoption and Learning Strategies of ICT Pre-Service Teachers

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The people have found a new way to communicate on social networks. Nearly almost university students are using social networks in their daily life in Turkey. The aim of this study was to investigate what the learning strategies and social network adoption of ICT pre-service teachers were and to elucidate the relationship between learning strategies and social network adoption. Therefore, the present study investigated who studied as a student at department of Computer Education and Instructional Technologies in Turkey. The data collection tools of the study are "Personal Information Form" designed by the researcher, Social Network Adoption Scale and Learning Strategies Scale. The sample group of this study comprised of 283 ICT pre-service teachers. Percentage, frequency, t-test, ANOVA and Pearson correlation test were used for the statistical analysis of the data. At the end of the research, status of the ICT pre-service teachers to adopt social networks was medium. There was not significant difference in average points of cognitive learning strategies between female pre-service teachers and male pre-service teachers. There was a significant relationship between the social network adoption levels of ICT pre-service teachers and their academic success.

Keywords: Pre-service teachers, social networks adoption, learning strategies

Development of Pre-service Teachers' Science Process Skills Through Mobile Learning

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Science education programs in Turkey changed in 2000 2004 and 2013 in parallel to the development of world. In updated program of 2013, main vision of science education curriculum identified as "to train all the students as science literate individuals ". In the same program the term science literacy was described as "basic information on the science and the scientific process skills have discovered for the natural environment". In other words, one of the main objectives of science learning, is to gain scientific process skills. Teachers are practitioners of the curriculum in schools. Therefore, prospective teachers have graduated with science process skills is an important step for students to gain these skills. At this point the technology, particularly mobile technology brings many advantages in terms of scientific research with their ability to; collecting, organizing, storing and sharing the data. As part of this research, the teachers will use mobile learning applications to develop scientific process skills and it is planned to test the effectiveness of the mobile environment.

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Using the Game in First Reading and Writing Instruction

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First reading and writing period is a crucial period for individuals. Individuals reading they will use throughout their lifetime, they won their writing skills during this period. Preschoolers also listening and speaking skills they start earning their living as they develop during this period effectively. The individual is the most important stage of the process of training teachers regarding life has been the subject of much research, it will continue to be subject; continuation is also important, is required. The aim of this study was to investigate how to handle the game in the first reading and writing instruction. In this study, qualitative model and this model is one of the technical document analysis and content analysis was used. Research data were collected in three stages. First, the Ministry of Education Board of Education Curriculum downloaded from the website of the Turkish primary school and primary school class 1 Turkish textbooks have been provided. Turkish Primary Education program in Grade 1, were investigated Whether the gains associated with the play of the game and place the word teaching techniques. In the third stage of the data collection process, grade and writing textbooks, game-themed texts, was prepared with the play of words and technical education activities, whether there are sayışmaca; It was investigated using toys to use in the event. The data obtained in this study were obtained using descriptive and content analysis techniques. Comments on the findings and results considering ranked as sub-problems were discussed.

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Predicting the Science and Technology Course Achievements ; Using Artificial Neural Networks

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The purpose of this study is to predict the Science and Technology course achievements in the teaching program of Elementary Education. With this purpose, this research was designed on the basis of one of the general survey models, the descriptive approach, and relational analysis. The study was conducted with 80 pre-school teaching student from two different state universities. Artificial neural network was used to predict the scores of Science and Technology course final exams. The correlation results of a number of predictions by artificial neural networks and the real scores from the students had been checked and 10 artificial neural network had partaken in the study.

Considering this study's findings, prediction performance of constructed artificial neural network is high between between the predicted and actual scores. which are positive and statistically significant correlations ranging from $r = .68$ ($p < .01$) to $r = .41$ ($p < .05$).

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THE EFFECTIVENESS OF TBL IN MEDICAL ETHICS EDUCATION IN TERMS OF KNOWLEDGE RETENTION, IN-CLASS ENGAGEMENT AND LEARNER REACTIONS

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In our medical school, we changed from a lecture-based method to a team-based learning (TBL) method to teach *"informed consent"*, *"patient rights"*, *"physician rights"* and *"medical errors and malpractice"* in the Medical Ethics clerkship starting from 2014-2015 academic year.   This study aimed to compare the effectiveness of lectures and TBL conducted by the same instructor with the same students in terms of knowledge retention, in-class learner engagement and learner reactions. First, we determined in-class engagement and satisfaction scores of the students participating in the TBL session and lectures in 2013-2014 academic year. Then, end-of-clerkship theoretical exam scores and numbers of correct answers for TBL and lecture topics were recorded. Additionally, we determined individual and group readiness test scores in TBL sessions. We performed two retention tests (follow-up exams) on May 2015 and 2016 when the participating students at 5th and 6th year of medical education respectively. There was no difference between correct answer numbers for TBL and lecture topics in the end-of clerkship exam. However, we found better knowledge retention, in-class_engagement and high student satisfaction in favor of TBL method. Our results seem promising for use of TBL in Medical Ethics education.

Key Words; Informed consent, patient rights, physician rights, medical errors and malpractice, team-based learning

Learning / Teaching Methodologies and Assessment

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How Teacher Education System Should Be? The History of Teacher Education Process in Turkey

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Abstract

The purpose of this study is to examine teacher education system of Turkey after the declaration of Turkish Republic. Teacher education process in Turkey began with "Darülmuallimin" which is founded in İstanbul on March 16, 1848. Looking at that, it is possible to say that the country has a long tradition about the teacher education system. There are many developments in the teacher training system in Turkey but there is no educational policy, educational philosophy which has internal consistency in the Turkish teacher education system. The educational policy of Turkey has been affected all changes of the country. Not the educational changes affected the country but the country's changes has affected the educational process. Especially teacher education process was affected from the changes of country. And it is clear that every government of Turkey had changed the educational system of the country according to the their political views. So, every grade of students has affected from this kind of reforms. The recent developments and changes in Turkey has also influences educational field so much. Turkey, with the influences of both its social dynamics and various international facts is important in educational process of the country.
Keywords: teacher education, teacher training, educational policies, teacher education in Turkey

Main Conference Topic: Teacher Education, Higher Education, Learning Teaching Methodologies and Assesment

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