TEXTILE TRAINING IN
A VIRTUAL ENVIRONMENT

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ABSTRACT
The Leonardo da Vinci Operational Objectives aim to facilitate the development of innovative practices in the field of vocational education and training. This entails both development of innovation and transfer of innovation. In both cases, use of ICT to develop innovative ICT-based content is stressed together with the services, pedagogies and practice for lifelong learning. Transfer of Innovation facilitates personal development, employability and participation in the European Labour Market on the part of transferring country. This can lead to improvements in quality and innovation especially in vocational education and training systems, institutions and practices. The aim of this paper is to introduce the first of four textile training modules: Pattern Construction, Fashion Design, Pattern Grading and Sewing. The emphasis is on the Pattern Construction, which is now under transfer, together with Fashion Design module, into Turkish and Romanian as a product of a transfer of innovation project.

Keywords: Textile Training, ICT-based Content, Innovation

1. INTRODUCTION

Virtual reality can be defined as a technology allowing a user to interact with a computer-based environment which may consist of a simulation of the real world or an imaginary world. Many of such virtual environments are based on audio and visual experiences reflected on computer screens. These environments can have additional properties with simulations. These simulated environments can be very similar to the real world. Myron Krueger used "artificial reality" as term in the 1970s, but the origin of the term "virtual reality" can be traced back to the French playwright, poet, actor and director Antonin Artaud. Artaud described theatre as "la réalite virtuelle", a virtual reality "in which characters, objects, and images take on the phantasmagorical force of alchemy's visionary internal dramas" [1]. The earliest use cited by the Oxford English Dictionary is in a 1987 article entitled "Virtual reality" [2]. Michael Heim [3] identifies seven different concepts of Virtual Reality: simulation, interaction, artificiality, immersion, telepresence, full-body immersion, and network communication. To Heim, virtual reality already exists and he deigns to communicate to us via the dead tree medium of books. So strap on your virtual eyephones and open the covers and prepare yourself for a roller coaster ride through the labyrinths of hypertext and cyberspace. Heim also identifies the main points that distinguish our external reality

from virtual reality? His answer is 1) *natality* (we are born), 2) *mortality* (we die), and 3) *temporality* (we remember past happenings). These limits, he says, "impose existential parameters on reality, providing us with a sense of rootedness in the earth (a finite planet with fragile ecosystems)." I would agree with him, except I consider the earth to have a robust ecosystem, to be a robust planet, not a fragile one.

It is a fact that advanced computer and information network technology has revolutionized our teaching and learning approaches and methods and this also changed the learning environment. Thus, ICT strategy is very important and training organisations using ICT are significantly ahead in all respects. In addition, integration of ICT and e-learning is politically important in the EU in terms of internationalisation and globalisation of education, student demand and interest in increasing the quality of education through ICT.

The European textile/clothing (TC) sector will require industrial networks for specialised, high value added products in response to the growing complexity of today's market requirements for product design and development. The multi-stage value chain of the textile and clothing industry is dominated by SMEs, which have been traditionally co-operated in communities and clusters presenting geographical and cultural proximity. Product development in the fashion industry in Europe is undergoing a dramatic change and it changes the way companies are coming together in this new collaboration landscape [4]. One of the major problems of the clothing industry at the moment is that the overall level of skills and qualifications needs to be raised and, therefore, it is also necessary for training modules to respond to the continuous evolution in the workplace so as to confront the problem of unemployment and increased competition [5]. A very recent survey report identified a lack of skilled staff at 42% as one of the strongest change drivers in the clothing industry, while 42% of clothing companies reported difficulty in filling vacancies due to skill shortages. Only about half of those realize that a further increase in skill needs is expected and would now like to plan in-house training [6]. In general, small and medium companies have the biggest problems concerning access to adequate training, as they cannot afford experienced training programmes. They are not well informed on existing training schemes and they fear more than bigger companies interruptions of their production process [7].

2. AIM OF THE PAPER

E-Telestia Trainer, an innovative method of pattern cutting, which was developed by Sitam AB, as part of an EU initiative under the Leonardo da Vinci programme, consists of four modules: pattern Construction, Fashion design, Pattern Grading and Sewing. The first two modules are now under transfer as a transfer of innovation project into Turkish ad Romanian. The aim of this paper is to introduce the first module, Pattern Construction stressing not on details but on the skeleton of the content together with the figures as presented in the virtual environment.

3. PATTERN CONSTRUCTION IN TEXTILE

Pattern Construction Telestia Trainer is an Interactive Multimedia Training Software for Pattern Making Skills. In the "Telestia Trainer: Pattern Construction Course", the objective is to teach how to create any style from scratch, in personal measurements or industrial sizes. A trainee can work all the way through basic blocks and simple designs, right up to some of the most complex garment styles, simply following the multimedia animated simulation procedures and applying pattern drafting theory in practice. The course is interactive and the learner has complete control over the process. "The Pattern Construction Course" provides training in four areas such as: Drafting—how to construct a flat pattern block ready for assembly; Styling—how to manipulate a basic block in order to create new garment styles; Lay planning—how to lay-out your pattern on your chosen material; and, Assembly—basic sewing and assembly instructions. The tool has visual, step-by-step approach to teaching and it allows students to understand and master complicated procedures. Weaker students, working in the specially equipped rooms, are aided by the interactive content and repeated access to the programme as required, achieving a higher level of performance. Thus, a trainee can learn how to use the AB Pattern Construction template and approach to make accurate patterns on any size and combination of measurements in a very short time; he/she can learn how to take accurate measurements and understand their relation to good fit; how to construct a simple block (without a dart), a fitted bodice block (with dart), a dress block and a trouser block; how to use these blocks to achieve perfect fit style manipulation; and go through the learning guidelines and the use of Telestia Trainer in the training process for block construction in any measurements and style manipulation.

4. CONTENT

The content of the tool has three main parts. However, just before presenting the main lessons, the tool gives information about AB Patented Construction Templates and AB Rulers. The following are the interfaces of the module related with pattern construction tools and men's size table.

FIGURE 1. The interfaces of the module related with pattern construction tools

FIGURE 2. The interface of men's size table

4.1. Fit—Theory and Principles

This part consists of information and principles about measurements for the simple basic bodice block, simple basic bodice block, sleeve block, sleeve, measurements for the fitted bodice and dress blocks, fitted bodice block-dart transfer, proportions of the female figure in pattern making, the dart triangle-sizing, classic skirt, usage of the dart triangle for the fitted dress block, fitted dress block (case a", b, c, d), how to alter and correct the symmetrical block, trouser block, trousers, adjustments to the trouser block, block manipulation for industrial use, new flat bodice block, simple instructions for good fit.

FIGURE 3. The interface for the garments of women's bodice and dress blocks
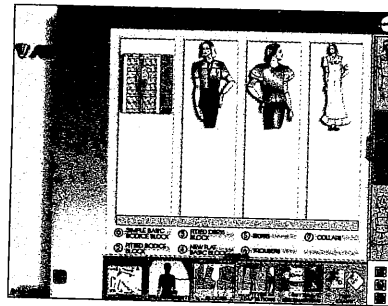
4.2. Style Applications

4.2.1. Skirts: This lesson covers wrap-over classic skirt, circular skirts, flared skirts, skirt with 6 panels, one-panel skirt with frills and side opening, skirt with pocket flaps and 4 pleats, culottes, and short panelled skirt with yoke.

4.2.2. Designs on the Simple Basic Bodice Block: This module is about blouse with square yoke, variations on the blouse with square yoke, blouse with gather or pleats on the shoulder, variations on the blouse with gathers, nightgown with tucked yoke and gathers on the bodice, nightgown with tucks on the "dickie yoke", and short nightgown with long yoke.

4.2.3. Collars: This section covers tuxedo or shawl collar, byron collar, lapel collar, sailor collar, cowl neckline (2 drapes), and frill collar.

4.2.4. Designs on the Fitted Bodice Block: This lesson includes sleeveless fitted vest with vertical seams, two variations of the sleeveless vest, classic shirt with yoke and lapel collar, a variation of the classic shirt without a yoke, a variation of the classic shirt without a yoke, fitted Magyar blouse, fitted Magyar blouse with a flared peplum, wrapover blouse with cap sleeve and slight drape at the front, wrapover blouse with a raglan full sleeve, draped wrapover blouse with princess line, and draped wrapover blouse with drape secured at the princess seam.

4.2.5. Trousers: This lesson consists of pyjamas, pyjamas with short trousers body suit with saddle' shoulder, overalls (Chalopette), classic trousers with front fly and shaped waistband, classic trousers with pleats in front, bell bottoms with shaped

lowered waist, knee-length trousers with reverse, jeans, variation of jeans, straight trousers with waist yoke, early pregnancy trousers, advanced pregnancy trousers, and pregnancy trousers with stretch yoke.

4.2.6. Designs on the New Flat Bodice Block: This module is about jacket with kimono type sleeve, princess fine and pleated skirt, fitted blouse with raglan sleeve, long jacket with front raglan sleeve and back Magyar sleeve.

4.2.7. Designs On The Fitted Bodice and Dress Blocks: This lesson contains two-piece suit with princess line and tailored two-piece sleeve, tailored jacket with a rounded collar and belt bottom two piece sleeve, short fitted jacket with standard lapel collar and side panel, shirt waist dress with pleat detail, shirt waist dress with inverted pleat at the front, Pinafore dress with princess seam, Pinafore dress with square neckline and distinctive skirt flare, wrapover dress with lapel, wrapover dress with shawl collar and flare at the hem, sleeveless fitted dress with small side dart cut on the bias, fitted dress with low shoulder and short raglan sleeve, fitted dress-Empire line, A-Line coat, hiding coat with tailored sleeve, riding coat with raised back neck and Byron type lapel collar, and fitted long dress with cap sleeve and flares at the hem.

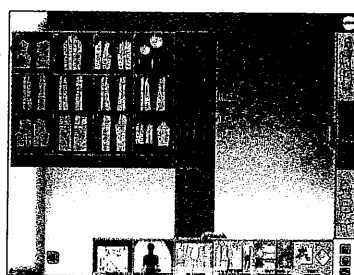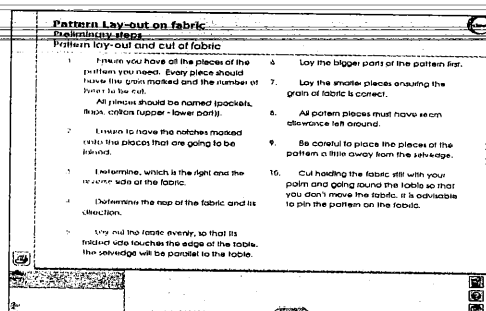FIGURE 4. *The interface for women's fitted bodice and dress blocks*

FIGURE 5. *The interface for children's fitted bodies and dress blocks*

4.3. Part Three

This part is mainly about pattern lay-out on fabric and sewing.

FIGURE 6. *The interface for the principles of pattern lay-out on fabric*

5. CONCLUSION

Product development in the textile industry in Europe is undergoing a dramatic change and it changes the way companies are coming together in this new collaboration landscape.1 One of the major problems of the clothing industry at the moment is that the overall level of skills and qualifications needs to be raised and, therefore, it is also necessary for training modules to respond to the continuous evolution in the workplace so as to confront the problem of unemployment and increased competition. Pattern Construction—Telestia Trainer: Simplified Method Fashion Design (CD-ROM) is a training tool in textile training and it is now under transfer through the LdV Project Excellence in Textile through "Fashion Express" (Project no: LLP-LdV-TOI-2007-TR-061). The training tool is in already English, German, French, Italian, Spanish, and Greek. At the beginning of 2010, Turkish and Romanian versions will be introduced to vocational education and training.

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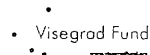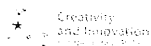# HIGHER EDUCATION,
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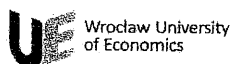
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