

A Study on Preservice Preschool Teachers' Recycling Intentions in Relation to Parents' Educational Level and Recycling Opportunities

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Preservice preschool teachers' intentions to recycling and influential factors in their intentions were analyzed in this study through Theory of Planned Behavior (TPB). The data of the study were collected from 181 preservice preschool teachers via a survey to measure their attitude, subjective norms, perceived behavioral control, and intention regarding recycling. After three steps of analyses, the results indicated that preservice preschool teacher exhibited high scores on the level of attitude, subjective norms, and intention compared to perceived behavioral control. On the other hand, perceived behavioral control was shaped by recycling opportunities in their childhood, college campus and city that they live in. And finally, the linear combination of recycling attitudes, subjective norms, and perceived behavioral control were found to be significantly related to their intentions. These predictors were explained 25% of variance in preservice preschool teachers' behavioral intentions on recycling.

Keywords: preservice preschool teachers, recycling behavior, recycling intentions, recycling opportunities, theory of planned behavior (TPB).

INTRODUCTION

"The Limits of the Growth" (1972) informed the societies about the consequences of the rapid economic development and proposed that if the global economic development continues, non-renewable resources will run out of before the year 2072 (Meadows, Meadows, Randers, & Behrens, 1972). In this respect, World Commission on Environment and Development's Bruntland Report (WCED, 1987, p. 43) advocated a balance between the needs of the environment and humankind indicating Sustainable Development (SD) discourse throughout the world. SD is "development that meets the needs of the present without compromising the ability of future generations to meet their needs". When the concept of Sustainable Development has arisen, at the same time Education for Sustainable Development (ESD) has been discussed since education was regarded as a key in achieving aims of

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sustainable development (UNESCO, 1992; UNESCO, 1997) starting from early childhood education.

Though primary and secondary education have a long-lasting history of engagement with ESD (Gough 2006; Tilbury, Coleman & Garlick, 2005), Early Childhood Education (ECE) has been much slower to introduce processes and practices of ESD (Elliott & Davis, 2009). ESD in ECE is regarded as a “natural starting point” for a lifespan learning (The Gothenburg Recommendations on Education for Sustainable Development, 2009). Since early years of human development when foundations of long lasting perceptions, attitudes, and practices are being shaped, ESD in ECE should be considered as the way of preventing all these environmental, economic and social problems (Davis, 2014). Obviously, ECE has a clear significance for a sustainable future and ECE educators have contributed to this process by providing a variety of experiences to young children. Samuelsson (2011) discussed readiness of young children for ESD and highlighted that children are mature enough to communicate about ESD issues since they can experience and recognize what is going on around the world they live (p. 107). The only young children need is component adults guiding and modeling them. Teachers are regarded as behavioral role models who are facilitating the life for a more sustainable future (Vining & Ebreo, 1992). As a result of these finding, one may conclude to encourage or motivate individuals to recycle, these factors should be take into consideration.

According to Elliott and Davis (2009), early childhood educators have a powerful window of opportunity to play an active and significant role in assisting young children to understand sustainability issues, concepts and practices. Considering their influence on young children, it is important to answer that how they behave for a sustainable future and which factors affect their behaviors.

When the relevant literature is reviewed, particular behaviors in relation to sustainable development in terms of recycling, waste management, and conservation of natural resources were investigated (Vining & Ebreo, 1992; Hopper & Nielsen, 1991). Among them recycling behavior is emerged as a promising approach to promote sustainable development (Cheung, Chan, & Wong, 1999).

In fact, researchers agreed that acquisition of recycling behavior can be end of many environmental problems humanity faced today. Moreover, reducing the quantity of solid waste deposited in landfills is crucial to improve the opportunities for a sustainable life (Hopper & Nielsen, 1991; Vining, Lin, & Burdge, 1992). According to Turkish Statistics Institution (2012) 13 million tons of household waste is recyclable and if all these household waste product separated completely, the volume of the waste to be stored would decrease with a rate of 35%. Hence, it could be inferred that recycling behavior which has a very important role in sustainable future, is not a common in our country.

When the determinants of recycling behavior were reviewed, Theory of Planned Behavior proposed by Ajzen (1991) was referred as a framework explaining the predictors of recycling behavior (Bagozzi, & Dabholkar, 1994; Boldero, 1995; Cheung, Chan & Wong, 1999). Ajzen (2005) stated that there are three theoretically independent predictors of behavioral intention identified as the attitude toward the behavior, subjective norm and perceived behavioral control. Attitudes towards the behavior means evaluation of the behavior by the individual as good or bad; subjective norm refers the social pressure an individual perceives in relation to behaving in a certain way; and perceived behavioral control indicates how easy or difficult one find to perform a certain behavior (Ajzen, 1991; Ajzen & Driver, 1992). Ajzen (1991) claimed that behavioral intention is the ultimate factor influencing the

behavior. In summary, attitude, subjective norm, and perceived behavioral control predicts behavioral intention and behavior.

The theory of planned behavior has recently been referred in the educational studies (Tekkaya, Kilic & Sahin, 2011; Knabe, 2012). Given the significance of recycling process for sustainable futures and role of prospective preschool teachers, this research aimed to explain determinants of recycling behaviors of preservice preschool teachers utilizing Ajzen's theory of planned behavior. Furthermore, significant predictors of attitudes, subjective norms, and perceived behavioral control in the context of recycling were investigated as proposed by the theory of planned behavior. To my best knowledge, no study has identified preschool teacher's particular behaviors promoting sustainable future. In this regard, the current study aims to make contribution to limited literature about preschool preservice teachers' recycling behavior in a Turkish context by using the TPB. Accordingly, the following research question guided this study:

1. How accessible conditions and opportunities to recycle in their childhood residence shape preservice preschool teachers' attitude, subjective norms, perceived behavior controls, and intentions regarding recycling?
2. How accessible conditions and opportunities to recycle in their college campus and the city where they live shape preservice preschool teachers' attitude, subjective norms, perceived behavior controls, and intentions regarding recycling?
3. To what extent could preservice preschool teachers' recycling intentions be predicted by their attitude, subjective norms, and perceived behavioral controls?

METHOD

Sample

A total of 181 preservice preschool teachers pursuing a degree program at different faculties of the one of the biggest campus university in Turkey participated in the present study. Of the participants, 156 were female and 25 were male. The mean age of the whole sample was 21.54 (SD = 2.04) and 21.0% of them was living in the campus, (i.e. in dormitories) and 79.0% was in the city (within the borders of a municipality that offers accessible conditions and opportunities to recycle). Table 1 presents some information about the details of sample.

Table 1. Information about the sample of the study.

		Frequency (f)	Percentage (%)
Gender	Female	156	86.2
	Male	25	13.8
Mother Education Level	N/A	26	14.4
	Primary School	89	49.2
	Secondary School	16	8.8
	High School	36	19.9
	University	12	6.6
	Missing	2	1.1
Father Education Level	N/A	10	5.5
	Primary School	54	29.8
	Secondary School	23	12.7
	High School	44	24.3
	University	27	14.9
	Missing	23	12.7

Instrument

The data were gathered by using a TPB survey developed by Tekkaya, Kilic, Sahin (2011). Original scale includes 87 items and 11 parts, but 4 parts were used in current study. These were Attitude [17 items, i.e. “recycling the recyclable materials (paper, glass, plastic, etc.) is easy/difficult for me], Subjective Norms [2 items, i.e. “the people that views are important for me, expect me to recycle”], Perceived Behavioral Control [4 items, “if I want, it is possible for me to recycle the recyclable materials (paper, glass, plastic, etc.) regularly for next months.], and Intention [3 items, i.e. “I am planning to recycle the recyclable materials (paper, glass, plastic, etc.) regularly for next months.”]. The survey also included some socio-demographic variable and statements assessing the each component of the TPB (see Tekkaya, Kilic, & Sahin, 2011). Data were analyzed by using descriptive and inferential statistics.

RESULTS

The first result of this study is related to recycle opportunities in preservice preschool teachers’ childhood residence. Accordingly, 37% of them reported that they had recycle opportunities in their childhood residence, but 63% of them did not have. Examining the related results in terms of their college campus and in their city, the recycling opportunities were very high compare to their childhood residence. For instance, they had recycling opportunities at 87.8% in their college campus and 84.0% in their city. Table 2 indicates the results of the reported recycling opportunities by preservice preschool teachers.

Examining the level of attitude, subjective norms, perceived behavioral controls, and intention of preservice preschool teachers, the results revealed that relatively high level of scores for Attitude ($M=6.10$, $SD=.74$), subjective Norms ($M=5.75$, $SD=1.18$), and Intention ($M=5.55$, $SD=1.14$) compare to Perceived Behavioral Control ($M=4.98$, $SD=1.12$).

To examine the parents’ education level and relations with attitude, subjective norms, perceived behavioral controls, and intention of preservice preschool teachers, simple correlation analyses were conducted. The results showed that the higher education level of mother and father of preservice preschool teachers were, the higher score on Subjective Norm part. In other words, if the education levels of preservice preschool teachers’ parents is higher, they consider the views of people that are important for them. Table 3 indicates the results of simple correlations.

And then, a set of independent sample t-tests were conducted to investigate the differences on attitude, subjective norms, perceived behavioral controls, and intention of preservice preschool teachers in terms of the opportunities of their childhood residence, their college campus, and their city. Accordingly, the preservice preschool teachers’ perceived behavioral control scores exhibit variability with respect to all of these places [$t(179)=2.377$, $p<.05$] for childhood residence; $t(179)=2.492$, $p<.05$] for college campus; $t(178)=3.709$, $p<.05$] for city]. Table 4 shows the independent sample t-tests.

Table 2. The reported recycling opportunities by preservice preschool teachers.

<i>Recycling opportunities in...</i>		Frequency (f)	Percentage (%)
Childhood Residence	Yes	67	37.0
	No	114	63.0
Campus	Yes	159	87.8
	No	22	12.2
City	Yes	152	84.0
	No	28	15.5
	Missing	1	.6

Table 3. The results of simple correlations.

		Attitude	Subjective Norms	Perceived Behavioral Control	Intention
Mother Education Level	Pearson Correlation	-.046	.158*	-.065	.063
	Sig. (2-tailed)	.544	.035	.389	.398
	N	179	179	179	179
Father Education Level	Pearson Correlation	.076	.213**	.014	.140
	Sig. (2-tailed)	.344	.007	.860	.079
	Sig. (2-tailed)	158	158	158	158

** Correlation is significant at the .01 level (2-tailed).

* Correlation is significant at the .05 level (2-tailed).

Table 4. The results of independent sample t-tests.

<i>For Childhood Residence</i>		M	SD	df	t-test score	p
Attitude	Yes	6.14	.70	179	.456	.649
	No	6.08	.77			
Subjective Norms	Yes	5.99	1.04	179	1.134	.258
	No	5.68	1.25			
Perceived Behavioral Control	Yes	5.24	1.06	179	2.377	.018*
	No	5.53	1.16			
<i>For Collage Campus</i>						
Attitude	Yes	6.08	.72	179	-.915	.362
	No	6.24	.88			
Subjective Norms	Yes	5.74	1.19	179	-.477	.634
	No	5.87	1.15			
Perceived Behavioral Control	Yes	5.06	1.10	179	2.492	.014*
	No	5.42	.97			
<i>For City</i>						
Attitude	Yes	6.14	.75	178	1.613	.109
	No	5.89	7.2			
Subjective Norms	Yes	5.75	1.20	178	.087	.931
	No	5.73	1.09			
Perceived Behavioral Control	Yes	5.12	1.12	178	3.709	.000***
	No	4.98	.99			

* $p < .05$, ** $p < .01$, *** $p < .001$

Finally, the last analysis was conducted to examine how well main three predictor explained preservice preschool teachers' recycling intentions. The regression analysis indicated that the linear combination of three predictors; attitude, subjective norms, and perceived behavioral control were significantly correlated with preservice preschool teachers' recycling intentions [$R^2 = .25$, $F(3, 177) = 19.820$, $p < .001$]. Furthermore, about 25% of variance in preservice preschool teachers' behavioral intention scores could be accounted by the linear combination of the predictors. The standardized beta weights meant that behavioral intentions were positively correlated with attitude ($\beta = .235$), subjective norms ($\beta = .229$), and perceived behavioral control ($\beta = .325$). Table 5 presents the results of regression analysis.

Table 5. The results of regression analysis to explain preservice preschool teachers' recycling intentions.

Predictors	β	Standard error β	Standardized β	t
Attitude	.235	.110	.152	2.136*
Subjective Norms	.229	.067	.236	3.442**
Perceived Behavioral Control	.325	.070	.318	4.663***

N=838; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

DISCUSSION

Recycling behavior has been receiving a considerable amount of attention in the research areas of social science and education. A wide range of variables were tested to examine recycling behavior. Given the significance of recycling process for sustainable futures, and role of prospective preschool teachers, this research aimed to explain intentions as the main determinant of recycling behaviors of teacher candidates utilizing Ajzen's theory of planned behavior. Moreover, significant predictors of attitudes, subjective norms, and perceived behavioral control in the context of recycling were investigated as proposed by the theory of planned behavior. Accordingly, the results of the current study revealed that the more preservice preschool teachers' poses promising attitudes, subjective norms, and perceived behavioral controls, the more their behavioral intention increases. In other words, the findings of the present study support the applicability of TPB in understanding the recycling behavior. The three constructs in terms of attitude, subjective norm and perceived behavioral controls were all found to be significant predictors of behavioral intentions as similarly tested by Tekkaya, Kilic and Sahin (2011b). Researchers tested the model on 232 teacher candidates and proved the application of TPB in educational science. Hence, the present study provides strong support to the use of TPB in the recycling behavior of preservice preschool teachers.

Additionally, it was aimed in the existing study to identify whether the parent educational level associated with Turkish preservice preschool teachers' recycling behaviors. Findings indicated that subjective norms of preservice preschool teachers' increases with the increasing parent educational level. To clarify specifically, preservice preschool teacher's decision to engage in recycling seems influenced by the expectations of people who they esteem. Furthermore, when the parent education level increases, preschool teacher candidates becomes more willing to recycle (Tekkaya, Kilic and Sahin, 2011b). Thus, these results emphasize the importance of normative pressure. Family, peers, and instructors of preservice preschool teachers' seem to ease recycling for them (Vining & Ebreo, 1992). Based on these findings, it can be concluded that if preschool teachers become role model for their students to do recycling, they may facilitate recycling behavior for them.

The findings indicated that most of preschool teacher candidates did not have recycling opportunities in their childhood residence while their college campus and the city they live now provided them more recycling facilities. Thus, the perceived behavioral control of preservice preschool teacher's varies with respect to their recycling opportunities in childhood residence; college campus; and the city they live now. According to Boldero (1995) and Davies et al. (2002) although individuals poses positive attitudes towards recycling, they do not engage in recycling behavior since they do not have necessary opportunities, skills or resources. On the other hand, Vining, Linn, and Burdge (2012) also emphasized that individuals having more recycling opportunities seemed to more engaged in recycling behaviors. Hence, recycling behavior can be assumed to be influenced not only by one's personal motives, attitudes, and beliefs, but also by community service as well (De Young, 1986). To clarify, one may conclude that if preservice preschool teachers have appropriate situations to recycle, their perceived behavioral control about ease of recycling increases. This means that perceived behavioral control differs based on situations and actions, which results in a person having varying perceptions of behavioral control depending on the situation.

To my best knowledge, this study is first to investigate the differential effects of parent educational level and recycling facilities in childhood and now on the recycling behavior of preservice preschool teachers. When the limitations of the current study were examined, sample characteristics should be taken into account. The participants were preservice preschool teachers and the results could be

generalized to in-service preschool teachers; however, further research should be conducted to clarify in-service preschool teacher's recycling behavior since their crucial role in guiding behaviors of young children for a sustainable future. In the current study, in the light of TPB (Ajzen, 1991), behavioral intention and the three main predictors of it in terms of attitude, subjective norm and perceived behavior were tested on preservice preschool teachers' recycling behavior. Future research should consider the beliefs as predictors and measure behavior to test complete model.

This research attempted to fulfill the gap identifying the determinants of preservice preschool teachers' recycling behavior in Turkey. Findings indicated that preservice preschool teachers are candidates' willingness to recycle. Being considered recycling behaviors of preservice preschool teachers by curriculum developers and early childhood education professionals can make contribution to the improvement of the quality of education for sustainable development in preschool education. It should be concerned that preservice preschool teachers are prospective teachers and their role on young children is ultimate.

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