

ORIGINAL ARTICLE

Do pre-service kindergarten teachers in Greece intent to include movement education? An application of Planned Behavior Theory•Kosmidou E.¹ & Pavlidou E.²

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¹Faculty of Physical Education & Sport Science,²School of Early Childhood Education**Introduction**

Pre-school children improve their abilities, mental, psychological and motor, in a very rapid way. Education should address in all areas of the self and the importance of

movement in the learning process is supported by anatomical studies, clinical data and pedagogical research. These data show that playground activities that stimulate inner-ear motion, like swinging, rolling and jumping, help children to keep their balance, turn thoughts into actions and coordinate movements, and they also indicate that moderate exercise generally enhances cognitive processing (Jensen, 2005). It is a fact, confirmed by a number of research data, that physical education can positively affect physical, as well as mental, emotional and social development (Bailey, 2006).

Nowadays, the prevalence of obesity among children is high and is increasing (Birch & Fisher, 1998). It is interesting that in a study 12% of children entering kindergarten were obese (Maher, Li, Carter, & Johnson, 2008). In Greece, the prevalence of overweight and obesity among 8- to 9-year-old Greek children was alarmingly elevated between 1997-2007, with the overweight rates rising continuously (Tambalis, Panagiotakos, Kavouras, Kallistratos, Moraiti, Douvis, & Sidossis, 2010). It seems that in early childhood Greek children are already overweight. So, years in kindergarten are significant concerning obesity.

Education in early childhood in Greece advocates interdisciplinary approaches between five basic cognitive areas: “language”, “mathematics”, “environment”, “creativity and expression” and “informatics”. The fourth one includes Physical Education, Music, Theatrical Play and Art as subsections (Pedagogical Institute, 2003). Thought interdisciplinary approaches and projects concern connections between every cognitive area and subsections, this specific categorization does not seem to give the movement education the place it deserves. Contrary, the new kindergarten curriculum (digital

Abstract

Teachers' role referring to young children's needs for movement education in school is important. Purpose of the present cross-sectional study was to explore whether Greek pre-service kindergarten students intent to teach movement education within the Planned Behavior Theory (TPB) framework, including role identity, attitude strength and past behavior. A second purpose of the study was to examine if TPB variables differ between students in different academic year. In the study participated 394 pre-school teachers-students, completing self-referenced questionnaires (pre-post measures). Hierarchical regression analysis of intention on the TPB variables (attitudes toward movement education, perceived behavioral control, subjective norms) and additional variables (role identity, attitude strength, past behavior) plus repeated analysis of variances with two levels were computed. The results of the study revealed that intention was predicted by TPB variables and the model of prediction was increased by attitude strength and role identity. Moreover, senior students, more than freshmen, intended to include movement education, had stronger attitudes and it was found that only perceived behavioral control increased from freshmen to senior students by the curriculum. For future research on the subject a mediation analysis through a longitudinal design is proposed.

Keywords: pre-school students, intention, movement education, Theory of Planned Behavior

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school/minedu.gr, 2011), which is valid from September 2014, give's physical education an equal position with the others, plus it recognizes and promotes the dance education. In any case, kindergarten teachers need to have both the knowledge and the intention to offer adequate chances and appropriate activities for an efficient movement education to their students. It is a fact that in the last decade, the majority of the Greek University preschool education faculties admits and recognizes the importance of movement education and education via movement. This arises through searching disciplines as Physical Education, Psychomotricity, Kinetic Education, Rhythmic and Movement Education etc. into the corresponding undergraduate curricula (Edc.uoc.gr, 2015; Ecedu.upatras.gr, 2015; Nured.auth, 2015; etc. The School of Early Childhood Education (S OF ECE), which belongs to the Faculty of Education of Aristotle University of Thessaloniki, was the first Greek Department that in practice valued the multiple importance of physical education; since 1985, it includes elective lessons concerning the preschooler's movement education; in the following decade, some of them were designated as required courses. More specifically, since 1999, during the first two years of studies, there were two compulsory corpus lessons focused on the child's movement skills, physical education, kinetic expression and rhythmic ability, plus two elective ones of limited audience, as continuity and deepening on the previous lessons. Also, during the two last years of studies in this department, each student chooses one of the four directions offered, based on four scientific sections. In two of them there are compulsory lessons on movement as well: in Aesthetic Education Section's direction, the students deepen in Dance Education and in Pedagogical Section's direction in Physical Education for young children. Also, there is a module of Practical Exercise, during which students teach in local public kindergartens for several days and they are guided to teach physical education and dance. It must be noticed that the Department's curriculum includes also compulsory and elective lessons for Music Pedagogic and Theatrical Education, where rhythmic and expressive movement is often used as a means in the teaching process. So, referring to the studies on education for body movement concerning pre-school childhood, or learning through body movement, a student may be content with the previously stated compulsory corpus lesson, or he/she can enrich his/her knowledge and experience with several more lessons, distributed in all years, depending on his/her preference. The question is: do they intend to include teaching movement education?

Planned Behavior Theory (Ajzen, 1988; 1991) is a psycho-cognitive theory using to explain the prediction of a certain behavior or the intention to behave in a certain way (Conner & Sparks, 1996). It has been widely used to explain of behaviors or intentions to behave (for review see Armitage & Conner, 2001) as smoking (McMillan & Conner, 2003), healthy eating (Bebetsos, Chroni, & Theodorakis, 2002), diet (Lloyd, Paisley & Mela, 1993), alcohol consumption (Kam, Matsunaga, Hecht, & Ndiaye, 2008), physical activity (Jackson, Smith, & Conner, 2003) but also behaviors as breakfast consumption (Wong, & Mullan, 2009), breast feeding (McMillan, Conner, Woolridge, Dyson, Green, Renfrew, et al. 2008), and intention to engage in environmental activism (Fielding, McDonald, & Louis, 2008), intention to violate driving rules (Forward, 2009), using seat belts (Ali, Haidar, Ali, & Maryam, 2011). Also TPB has been used to explain the use of educational technology by pre-service teachers (Cooper, Kenny, & Fraser, 2012; Lee, Cerreto, & Lee, 2010; Teo & Lee, 2010), the intention to teach physical education by preservice primary-school teachers' (Faulkner, Reeves, & Chedzoy, 2004), and the teaching behavior toward constructivist approach by pre-service teachers (Wang, & Ha, 2013).

The theory proposes that a behavior is codetermined by behavioral intention and perceived behavioral control. Intention can be predicted by attitudes toward the certain

behavior, subjective norms and perceived behavioral control. Intention reflects an individual's decision to exert effort to perform the behavior and it is considered to be the immediate antecedent of behavior. Intention is, also, determined by attitudes toward the behavior, behavioral control and subjective norms. Ajzen (2004) proposed that the theory is open to further expansion. So, a number of studies have been conducted examining the inclusion of additional variables, specific to certain behaviors.

In the present study, three additional variables will be examined, role identity, attitude strength and past behavior. Role identity, or self identity, has been proposed as an addition to the TPB in several studies (eg. Sparks & Shepherd, 1992, Theodorakis, 1994). Role identity represents the extent to which individuals perceive themselves as fulfilling a particular societal role (Armitage & Conner, 1999). It serves as a link between the individual self and society (Callero, 1985). Role identity has been based on Burke's identity theory and has been found to be an independent predictor of intentions by several researchers (e.g. Armitage & Conner, 1999; Conner, Warren, Close, & Sparks, 1999; Theodorakis, 1994). A meta-analysis showed that role-identity explained a significant increase of the variance in intention after controlling for the TPB components and also, explained a significant increment of the variance when past behavior and the TPB components were controlled (Rise, Sheeran, & Hukkelberg, 2010). There are also several studies that included both past behavior and role identity, but most of them concerned health behaviors. For example in consumer behavior role identity and past behavior increased both the prediction of behavior (Smith, Terry, Manstead, Louis, Kotterman, & Wolfs, 2008) and in physical activity, self identity and past behavior explained additional variance in intention, over and above TPB variables (Jackson, Smith, & Conner, 2003).

Attitude properties could be conceptualized as indices or dimensions of an unmeasured general property termed attitude strength (Liska, 1984). Attitude strength expresses the direction but also the confidence and strength of the attitudes (Theodorakis, 1994). Krosnick and Petty (1994) have suggested that attitude strength can better be defined in terms of four distinguishing features: persistence over time, resistance to change, impact on information processing and impact on behavior. Strong attitudes are persistent over time, are resistant to change, have strong impact in information processing and, finally, have strong impact on behavior. Studies revealed ten dimensions (extremity, intensity, certainty, importance, interest in relevant information, knowledge accessibility, direct experience latitudes of rejection and noncommitment). According to Krosnick a single model could not account for the covariation among these dimensions (Krosnick, Boninger, Chuang, Berent, & Carnot, 1993). On the other hand, a study with Greek participants (Theodorakis, 1994) supported the single dimensionality of the attitude strength scale. Bebetos and Antoniou (2011) measured also attitude strength as a single factor.

According to Ajzen and Fishbein (2005) past behavior can be a good predictor of later action and can raise the proportion of explained variance to the prediction equation. The influence of one's past behavior is a fundamental and important consideration in understanding one's current behavior (Kidwell & Jewell, 2008). Sherman and his colleagues (Sherman, Presson, Chassin, Bensenberg, Corty, & Olshavsky, 1982) proposed that attitude-behaviour consistency increases for subjects with greater direct experience with the attitude's object. Past behavior has been included in several studies and has been treated as an independent measure of TPB (Hu & Lanese, 1993; Rhodes & Courneya, 2003) or as a measure of habit (Godin, Valois, & Lepage, 1993; Kashima, Gallois, & McCamish, 1993). It seems that past behavior can increase TPB model for some behaviors while for others not. For example concerning exercise, past behavior increased the intention-behavior (Conner, Rodgers, & Murray 2007), but concerning healthy eating, past

behavior was a weaker predictor (Conner, Norman, & Bell, 2002). It is interesting to examine whether intention to teach movement education in preschool teachers can be increased when past behavior (years of participating in sports) is taken under consideration.

Purpose of the present cross-sectional study was to explore whether Greek pre-service kindergarten students intent to teach movement education within the TPB framework including role identity, attitude strength and past behavior. A second purpose of the study was to examine if TPB variables differ between students in different academic year.

Methods

Participants

In the present study participated 394 pre-service pre-school teachers from the Department of Preschool Education Sciences Teachers of Aristotelian University of Thessaloniki). Their mean age was $M=19.47$ years ($SD=2.30$). A hundred and thirty one participants (33.2%) were 1st year students, 2nd year students were 172 participants (43.7%) and 4th year students were 91 participants (23.1%). Most participants were female ($N=387$) and there were only 7 male participants. Three months after the first measure 75 students (42 1st year students, 33 4th year students) completed a post-measure.

Measures

Participants assessing attitudes toward teaching kinetic education, subjective norm, perceived behavioural control, self- identity, and intention to teach kinetic education, past experience with physical activity and sports. These scales were constructed in line with recommendations provided by Ajzen (2002) and have been previously used in relevant studies with Greek participants (Bebetsos & Antoniou, 2011; Theodorakis, 1994; Theodorakis, Natsis, Papaioannou, & Goudas, 2003). It must be mentioned that for all variables, scores on items were recoded when it was necessary, in order to higher scores reflected a stronger presence of the concerned variable (eg. stronger positive attitude, positive intention).

Intention to teach movement education was assessed as the mean of three items, using a 7-point Likert scale (Cronbach's alpha = .79). An example-item is "I intent to teach movement education in my class". Attitudes toward teaching movement education was assessed by the mean of six bipolar adjectives with a response scale ranging from 1 to 7 ("good – bad", "unpleasant – pleasant", "useful – useless", "unattractive – attractive", "boring – interesting", "healthy – unhealthy"; Cronbach's alpha = .66). Perceived behavioral control was assessed by the mean of 2 items using a 7-point Likert scale (Cronbach's alpha was .81). An example item is "teaching movement education is totally up to me". Subjective norm was assessed as the mean of three items (My classmates/ My teachers / Specialists in pre-school education think... I should not teach movement education...I should teach movement education). All items scored on a 7-point Likert scale and Cronbach's alpha was .81. Role identity was assessed via four items based on a scale previously used with Greek participants by Bebetos and Antoniou (2011). Responses ranged from 1 to 7 and Cronbach's alpha was .85. Attitude strength was assessed as the mean of eight items (Bebetsos & Antoniou, 2011; Theodorakis, 1994) (eg. "Is it right for you to teach movement education?"). Answers were given on 7-point scales. The correlation matrix of the 8 items was appropriate for factor analysis ($KMO=.90$, Bartlett test of Sphericity $p<.001$). Only one factor (eigenvalue=4.42) was extracted explaining 55.26% of the total variance. Cronbach's alpha was .86. Past behavior was

assessed by the years of physical activity (organized physical activity or sport) participants were involved in.

Past experience with physical activity or sports was assessed by questioning whether participants were exercising in any physical activity or sport and for how long. The years participating in physical activity were used as past behavior.

Study design

The present study took place during the academic year 2011-2012, which was the last year the curriculum described in the introduction was applied for both four year studies in this Department. All questionnaires were completed in classrooms and a well trained researcher explained the purpose of the study.

Statistical analysis

The data were analyzed using descriptive statistics (means, standard deviations) and Pearson's correlations between the study variables. Then, analysis of variances were used, using the three levels of academic study year as the independent variable and TPB variables to examine mean differences across different study year. Hierarchical regression analysis of intention on the TPB variables (attitudes toward movement education, perceived behavioral control, subjective norms) and additional variables (role identity, attitude strength, past behavior) was computed. In the first step as intention's predictors were used (by enter method) attitudes toward teaching movement education, perceived behavioral control and subjective norms. Afterwards additional variables were included predicting intention (role identity, attitude strength, past behavior) one in each step. Finally, repeated analysis of variances with two levels were used, examining the changes of TPB variables (intention, attitudes, perceived behavioral control, subjective norms, role identity, attitude strength) 3 months after the 1st measure. Statistical significance was set at .05 level.

Results

Differences between academic years in the first measure

Differences between students in different academic year were examined by analyses of variances (ANOVAs). There were significant differences in intention ($F_{2,383}=12.89$, $p<.001$), attitudes ($F_{2,376}=3.61$, $p<.05$), subjective norms ($F_{2,380}=28.07$, $p<.001$), self identity ($F_{2,381}=4.59$, $p\leq.01$) and attitude strength ($F_{2,383}=24.69$, $p<.001$). Post hoc analyses with the criterion of Student-Newman-Keuls revealed that in intention, attitude strength, and subjective norms there were significant differences between all groups and there was an increase from year to year, while in attitudes, self identity there were differences only between 1st and 4th year students (Table 1).

About past exercise behavior, the mean age of participating in a physical activity program was 2.07 years (± 3.21). More precisely, 31.7% had never participated in any program of physical activity, 37.7% used to be an athlete, 26.4% had participated in a recreational physical activity program, and only 4.2% was a current athlete.

Differences between the measures and academic year

Seventy- five students (33.78%) from the 1st and 4th academic year participated in a post- measure 3 months after the first one. Repeated measures ANOVAs were conducted to compare the effect of time and the interaction between academic year and time on intention, attitudes, perceived behavioral control, subjective norms, role identity and attitude strength.

The repeated measure ANOVA determined that only for perceived behavioral control there was an interaction between academic year (1st, 4th) and time points (Pillais Trace=.10, $F_{2,66}=3.70$, $p<.05$). One-way ANOVAs were conducted separately for the 1st measure and for the 2nd measure. There was difference in the 2nd measure where 4th year students scored higher mean than the 1st year students (Table 1).

Table 1. Descriptives, internal consistency and clinical importance (%) for intention, attitudes, perceived behavioral control, role identity, attitude strength and past behavior.

	TOTAL 1 st measure	TOTAL 2 nd measure	%CI	1 st Year		2 nd Year	4 th Year		Cronbach's α	
	M (SD)	M (SD)		M (SD)		M (SD)	M(SD)			
				1 st Measure	2 nd Measure		1 st Measure	2 nd Measure		
Intention	5.87 ± 1.07	6.00 ± 1.27	- 2.21	5.53 ± 1.13	5.57 (1.48)	5.91 (.94)	6.26 (1.09)	6.55 (.64)	.80	.93
Attitudes	6.33 ±.62	6.28 ±.84	0.79	6.23 ±.70	6.21 (.94)	6.34 (.55)	6.46 (.59)	6.36 (.70)	.68	.81
Perceived Behavioral Control	5.11 ± 1.40	5.07 ± 1.36	0.78	5.20 ± 1.28	4.75 (1.53)	4.94 (1.45)	5.32 (1.44)	5.47 (.98)	.81	.80
Subjective norm	6.10 ± 1.01	6.45 ±.91	- 5.74	5.63 ± 1.11	6.15 (1.10)	6.17 (.95)	6.60 (.58)	6.82 (.35)	.86	.87
Role identity	5.61 ± 1.16	5.79 ± 1.09	- 3.21	5.46 ± 1.25	5.50 (1.30)	5.56 (1.21)	5.94 (.81)	6.16 (.62)	.85	.86
Attitude strength	5.66 ± 1.02	6.03 ± 1.10	- 6.54	5.27 ± 1.06	5.66 (1.26)	5.68 (.98)	6.22 (.77)	6.48 (.73)	.86	.94
Past behavior	2.07 ± 3.21	-	-	1.67 ± 2.76	-	2.43 (3.62)	1.91 (2.90)	-	-	-

Prediction of intention

The results of the regression of intention on the TPB variables and additional variables are shown in Table 2. The TPB predictor variables of attitude, perceived behavioral control and subjective norms were entered first (Step 1) and explained 25% of the variance in intention ($F_{3,364}=42.04$, $p<.001$). In Step 1 all variables had significant beta weights in the regression equation (attitude: $\beta=.26$, $t=5.48$, $p<.001$; Perceived Behavioral Control: $\beta=.18$, $t=3.83$, $p<.001$; Subjective Norms: $\beta=.33$, $t=7.16$, $p<.001$).

At Step 2 role identity was entered into the regression equation. This explained significant additional portions of the variance in intention ($R^2\Delta=14\%$), $F_{\text{change}(1,363)}=87.50$, $p<.001$; and had a positive beta weight in the equation ($\beta=.44$, $t=9.35$, $p<.001$). At Step 3 attitude strength was entered into the regression equation, explaining also additional portions of the variance in intention ($R^2\Delta=10\%$), $F_{\text{change}(1,362)}=75.18$, $p<.001$; and had a positive beta weight in the equation ($\beta=.46$, $t=8.67$, $p<.001$). Finally, at Step 4 past behavior was entered into the regression equation but no significant additional portions of the variance in intention was explained, $F_{\text{change}(1,360)}=.20$, $p=.66$.

Table 2. Hierarchical Regressions of intention on attitudes, perceived behavioral control,

	B	SE B	β
Step 1			
Attitude	.45	.08	5.45***
Perceived Behavioral Control	.13	.03	3.83***
Subjective Norms	.35	.05	7.16***
Step 2			
Attitude	.18	.08	2.24*
Perceived Behavioral Control	.07	.03	2.13*
Subjective Norms	.26	.04	5.74***
Role Identity	.41	.04	9.35***
Step 3			
Attitude	.06	.07	.81ns
Perceived Behavioral Control	.06	.03	2.17*
Subjective Norms	.13	.04	3.10**
Role Identity	.18	.05	3.08***
Attitude strength	.49	.06	8.67***
Step 4			
Attitude	.06	.07	.82ns
Perceived Behavioral Control	.06	.03	2.08*
Subjective Norms	.13	.04	2.98**
Role Identity	.19	.05	3.89***
Attitude strength	.49	.06	8.61***
Past behavior	-.01	.01	-.44ns

subjective norms, role identity, attitude strength and past behavior

Note. $N=394$. $R^2=.51$. Step 2, $\Delta R^2=.14$; Step 3, $\Delta R^2=.10$; Step 4, $\Delta R^2=.00$.

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

Discussion

Purpose of the present study was to examine the prediction of intention to teach movement education in pre-service kindergarten teachers. Intention would be predicted by TPB variables (attitudes, perceived behavioral control, and subjective norms), adding new variables (role identity, attitude strength, past behavior). The results of the study revealed that intention was predicted by TPB variables and the model of prediction was increased by attitude strength and role identity. Moreover, senior students, more than freshmen, intended to include movement education, had stronger attitudes and perceived that significant others expected from them to include movement education. After the three months period between first and second measure, perceived behavioral control increased in seniors.

Movement education should be a significant context in preschool education. It was obvious by the results of the present study that TPB could be a suitable theoretical framework examining intention to teach movement education in pre-school students. It was found that only PBC increased from freshmen to senior students by the curriculum. Also, PBC was the only significant predictor of intention to teach movement education. One component of PBC reflects a person's self-confidence in the ability to conduct a certain behavior (Hallam, Burnand, Robertson, Aleh, Davies, Rogers, & Kokotsaki, 2009). Purpose of any curriculum should be to increase confidence of the future teachers in general and in specific contexts, by providing knowledge and experiences. For example in Hallam's et al. study (2009) after one-year training program in relation to teaching in

general and teaching music in particular, it was found that although almost all teachers were confident in their ability to teach general, only half were confident about teaching music, which was the new context, and past experience (playing one or more instruments) increased confidence levels (Hallam et al., 2009). Probably movement education is like music education, mentioned in the study above, a new context. It must be reminded that 64.1% of the participants were in the past in one or another way physical active event not for a long time, and 37.7% used to be an athlete. Being an athlete makes someone capable in a certain context (his/her sport). Teaching movement education is far beyond sports. Teaching movement education should be directed to every child, children with different abilities and different interests. Although there were not many subjects about exercise, there was an improvement in PBC. More directed subjects or seminars should be included to enhance more PBC, or relevant subjects should be scattered in all four studying years in an obligatory way, and not a selective way.

On the other hand, it should be considered to increase more TPB variables, as by that way intention to teach movement education would and could also be increased. First of all, the results of the present study supported other studies in Greek population (Bebetsos & Antoniou; 2011; Theodorakis, 1994) which found that attitude strength is a unidimensional construct. More studies should be addressed to attitude strength. It must be noticed that although attitude toward movement education was quite high in the basic model of TPB, as more variables were included in the prediction model, attitude's prediction power was minimized. A large number of messages have been addressed to young people about the importance of exercise and physical activity, through school context and society. Through these messages, attitude toward physical activity and movement is very positive, but it is not certain that as adults they will be physical active or they will teach movement education. The measurement of past behavior in the present study advocates to the conclusion.

From the present study it was also obvious that as more personal variables were considered, the importance of attitudes were decreased. Interventional programs should be addressed to other personal variables than attitudes. For example, role identity seemed to be a significant predictor of intention. This result consist with previous research examining other behavioral intentions (eg. Charng, Piliavin, & Callero, 1988; Sparks & Shepherd, 1992; Terry, Hogg & White, 1999). According to Terry and her colleagues' study the relationship between behavioral intention and identity was not dependent on the extent to which the behavior has been performed in the past (Terry, et al., 1999). In the results of the present study past behavior was also not a significant predictor of behavioral intention. So, being an athlete or physically active can increase PBC but not role identity.

The present study was a first attempt to examine intention to teach movement education in kindergarten through TPB. There are several limitations of the study. Unfortunately, the study had a cross sectional design and intention could not be measured in a follow-up measurement. In the future mediation analysis should be used through a longitudinal design. Secondly, participants were all students at the same University Department and there are differences in preschool departments. The present research should be replicated in other Universities to explore which curriculum increases most the intention. Finally, the study had a quantitative design and this could be a limitation as only self referenced questionnaires were used. It must be mentioned that in the Faculty of Education of Aristotle University of Thessaloniki, the curriculum is being revised, based on a different philosophy and organizing plan. Nevertheless, courses concerning the preschooler's movement development, with subjects such as rhythmic and kinetic education, music through movement, theatrical play and dance, will keep their position in the new curriculum, equal to others, as they were until now. However, they will adapt to a

new form, as will all courses. It would be of interest to investigate the student's attitude on movement education, right before the end of their studies on this new curriculum.

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