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Preservice physics teacher's beliefs regarding classroom management

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Abstract

The aim of this study is to determine classroom management beliefs of preservice physics teachers. Besides, it is also aimed to examine the effects of gender and classroom management lessons on those beliefs. For this purpose adapted version of Attitudes and Beliefs on Classroom Control-Revised Inventory and Demographic Variables Questionnaire were administered to 109 preservice physics teachers. The results of this study indicated that preservice physics teachers' attitudes and beliefs regarding classroom management are interventionist on the instructional management- and non-interventionist on the people management subscale. Moreover the effects of gender and classroom management lessons on classroom management beliefs were discussed in this research.

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Keywords: preservice teacher education, physics education, classroom management styles

1. Introduction

Classroom management can be defined as the efforts of a teacher for managing students' behaviors, providing student interaction and carrying out class activities regarding teaching (Erden, 2001). Creating efficient learning environments and managing the classroom effectively is very important for students' learning process. However, effective classroom management has been shown to be the most common concern of both preservice and experienced teachers (Sokal, Smith, & Mowat, 2003). Veenman (1987) has examined the studies regarding the

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problems of beginning teachers in primary and secondary education and stated that the first problem encountered by those teachers was classroom discipline and the second one was the student motivation. Similarly, the basic concern of preservice teachers is to classroom control, discipline and motivation of students (Hart, 1987; Merrett, & Wheldall, 1993). Doyle (1986) points out the importance of attitudes and behaviors of students and teachers in terms of students' behaviors and the importance of classroom management for teaching and learning.

In general, teacher behaviors towards classroom management are related with their attitudes and beliefs towards classroom management (Martin, Yin & Baldwin, 1998). Glickman and Tamashiro (1980) have defined three approaches on a continuum of control in teacher-class interaction: non-interventionist, interventionist, and interactionalist. On the one end of the continuum, there are non-interventionists "assumes the child has an inner drive that needs to find its expression in the real world" (Martin, Yin, & Mayall 2008, p. 11). On the other end of the continuum there are interventionists who emphasize "what the outer environment does to shape the human organism in a particular way" (Martin et al., 2008, p. 11). Moreover, the non-interventionist is the least directive and controlling, while the interventionist is most controlling. They also stated that midway between these two extremes, the interactionalists focus on "what the individual does to alter the external milieu, as well as what the environment does to shape the individual" (Martin et al., 2008, p. 11). Moreover, "interactionalists work to find solutions acceptable to both teacher and students and use of the same techniques as non-interventionists and interventionist" (Martin et al., 2008, p. 11).

Martin, Yin, and Baldwin (1998a) developed the Attitudes and Beliefs on Classroom Control (ABCC) Inventory to measure teachers' beliefs and attitudes toward classroom management. This inventory was formerly titled as the inventory of classroom management style (ICMS) and used to measure teachers' perceptions of their classroom management style (Martin & Baldwin, 1994). The ABCC has three dimensions: instructional management, people management, and behavior management. Instructional management (IM) includes activities such as monitoring seatwork, organizing daily class routines, and allocating materials in the classroom. People management (PM) refers teachers' beliefs about students as people and their efforts to create teacher-student relationship. The behavior management (BM) dimension focuses on pre-planned efforts (like giving instructions, providing feedback to students) aimed at preventing misbehavior (Martin et al., 2008). Martin and colleagues investigated the impact of teacher characteristics like gender, age, training educational background on teachers' attitudes and beliefs toward classroom management styles in various researches (Martin, Yin, & Baldwin, 1998b; Martin, Yin, & Mayall, 2006). Recently some of the researchers used this inventory and found that the ABCC has two factor structures which are instructional management and people management (Gencer & Cakiroglu, 2007; Henson, 2003).

In the light of literature review, it is obvious that teachers have a considerable effect in creating effective and efficient learning environments and the learning environments created by teachers with different attitudes and beliefs might indirectly have positive or negative effects on curriculum. For example, teachers with negative attitudes about teaching and classroom discipline may negatively affect the efficiency of the curriculum. Physics curriculum was re-organized in 2007 and based on constructivism. According to the current curriculum, teachers should aim to create democratic learning environments providing an opportunity to the students to develop their self-regulation and lessons would be based on activities. However, it is difficult create such environments with an over-controlled attitude. Moreover, it would be necessary to understand classroom management beliefs of preservice physics teachers to improve the quality of physics teaching-learning environments. The aim of this study is to determine the classroom management beliefs of preservice physics teachers. Besides, it is also aimed to examine the effects of gender and classroom management lessons on those beliefs.

2. Methodology

2.1. Participants

Data were collected from 109 preservice physics teachers. 25 of the subjects were freshman, 20 were second year, 16 were third year, 20 were fourth year, 28 were fifth year preservice physics teachers. Majority of the participants were female (67 %).

2.2. Instruments

In this research, Demographic Variables Questionnaire and Revised Version of the ABCC Inventory (ABCC-R) (Martin et al., 2008) were used. Preservice physics teachers' class, age, gender was asked in demographic variables questionnaire. ABCC-R designed to measure teachers' beliefs of their classroom management styles on a continuum of control suggested by Glickman and Tamashiro (1980). At first, Martin, Yin, and Baldwin (1998a) developed the Attitudes and Beliefs on Classroom Control (ABCC). The ABCC inventory consisted of 48 items under three subscales which were instructional management (IM), people management (PM), and behavior management (BM) (Martin, et al.1998a). However, the research results indicated two factor structure of the ABCC (Henson, 2003; Gencer & Cakiroglu, 2003) which was not the same as the three factor structure suggested by Martin et al. (1998a). Therefore, Martin et al., 2008) created The ABCC-R by revising the wording of several of the original 48 ABCC items and creating additional items. The ABCC-R inventory consists of 20 items and has two subscales, which were instructional management (10 items) and people management (10 items). Each item was scored on a four-point scale ranging as "describes me well" (4), "describes me usually" (3), "describes me somewhat" (2), and "describes me not at all" (1). Both of the subscales measures teachers' classroom management beliefs on a continuum of control ranging from non-interventionist, to interventionist to interactionalist. After reverse scoring items of the PM subscale, high scores on The ABCC-R subscales represents the teacher's interventionist management belief about classroom management and a low score obtained from the subscales represents the non-interventionist management belief of the teacher.

2.3. Factor analysis of the ABCC-R inventory

At first, the ABCC-R inventory translated into Turkish. Three initial translations were made independently by two university lecturers from the department of translation and interpretation translators and by the researcher. All options were reviewed by the researcher. Then, translation choices were discussed by the translators. After that, consensus about the translation was made. Then, Turkish versions of the scale were checked by a professor from the Department of Turkish Language and Literature. After this process the scales were reorganized. Finally, it was controlled by the English experts again. For the construct validity, an exploratory factor analysis with principal component extraction was performed to confirm two factor structure of the ABCC-R inventory. Martin et al. (2008) also used principle component analysis with orthogonal rotation to identify the subscales of the ABCC-R. Initial principle component analysis with varimax rotation yielded a seven factor solution with eigen values greater than one. However, scree plot results indicated that two factors solution should be examined. Based on this result, principle component analysis with two factors conducted. Moreover, unweighted least square extraction was performed to reduce correlation between both factors. In this two factor structure, items with loadings greater than .40 were retained. Therefore, only one item was eliminated in the subsequent analysis. Thus, the instrument used for the final analysis consisted of 10 items for IM Scale, 9 for the PM Scale. According to the subsequent analysis, retained items loaded highly with their own scales as in the original ABCC-R. Factor loadings for the IM scale with 10 items (19 % of the variance) were between .44 and .70 and for PM scale with 9 items (16 % of the variance).42 and .67 (Table1). Both of the scales of the ABCC-R inventory were accounting for 35 % of the variance in the respondents' scores.

The Kaiser Meyer Olkin (KMO) and Bartlett's tests of sphericity tests indicated the adequacy of data for factor analysis. KMO for 19 items was found as .72. and Bartlett's tests of sphericity tests was $\chi^2 = 466.81$ ($p \leq .05$). The minimum KMO value for being eligible for the factor analysis is 0.60 (Pullant 2001). In this case, the observed KMO value of 0.72 is higher than the recommended KMO value and thus the data is suitable for factor analysis. Martin et al. (2008) used item inter correlations minimum as .20 in their research. In this research, as seen in Table 1, the minimum corrected item to total correlation was .29. For the internal consistency, Cronbach Alpha reliability coefficients were computed for both scales of the ABCC-R. In this study, Cronbach α reliabilities for the IM scale and the PM scale found as .75 and .73 respectively. Martin et al. (2008) found Cronbach α reliability coefficient between .70 and .80 for both subscales in different samples. As a result, adapted version of the ABCC-R has an

acceptable level of reliability and validity for the IM and PM subscales. Moreover, the validity and reliability results are consistent with that of Martin et al. (2008).

Table 1. Factor Loadings and the Item Total Correlations of the Adapted ABCC-R

Factor	Items	Factor 1 Loadings	Factor 2 Loadings	Item Total Correlations
Instructional Management	Item 17	.70		.57
	Item 19	.68		.53
	Item 4	.68		.54
	Item 18	.59		.47
	Item 2	.57		.42
	Item 5	.50		.36
	Item 15	.48		.40
	Item 6	.47		.35
	Item 8	.46		.30
	Item 11	.44		.32
People Management	Item 13		.67	.51
	Item 9		.66	.49
	Item 16		.63	.47
	Item 12		.63	.48
	Item 7		.57	.45
	Item 14		.56	.38
	Item 3		.54	.36
	Item 10		.45	.33
	Item 20		.42	.29

3. Results

Descriptive statistics was used in determining attitudes and beliefs of preservice physics teachers towards classroom management. Means and standard deviations of the subscales of the ABCC-R were given in Table 2. Table 2 indicates that preservice physics teachers' beliefs regarding classroom control are high.

Table 2: Means and Standard Deviations of the Subscales of the ABCC-R

	ABCC-R				
		IM		PM	
	N	M	SD	M	SD
Female	73	26.58	4.90	18.92	4.17
Male	36	28.86	4.79	18.72	3.72
Total	109	27.33	4.96	18.85	4.02

Results of the ABCC-R scale revealed that preservice physics teachers believe that they are more interventionist at IM subscale ($\overline{X}$ = 27.33) and noninterventionist at PM subscale ($\overline{X}$ = 18.85). The mean scores of the preservice physics teachers' beliefs regarding IM subscale showed that they preferred interventionist attitude, which points more controlling attitude on the aspects e.g. monitoring seatwork, organization of the daily class routines, and allocating materials in the classroom. On the other hand, the mean scores of the preservice physics teachers' beliefs regarding PM subscale were low. This means, they preferred non-interventionist attitude on developing teacher-

student relationship. Male preservice physics teachers believe that their attitudes are less interventionist at IM subscale when compared to female preservice physics teachers.

T-test was performed to explore whether preservice physics teachers' classroom management styles differed according to gender. Research results revealed that there was a significant mean difference between male and female preservice physics teachers' in terms of the classroom management beliefs on the IM subscale scores. Moreover, any significant correlation was found between male and female preservice physics teachers' classroom management beliefs on the PM subscale scores.

Table 6: Independent T-Test Results with respect to Gender on the ABCC-R Scores

	Gender	N	Mean	SD	df	p
IM	Female	73	26.58	4.90	107	.02**
	Male	36	28.86	4.80		
PM	Female	73	18.92	4.18	107	.81
	Male	36	18.72	3.72		

T test was also used to determine whether there was a difference between the students who took classroom management course and the students who did not take this course regarding classroom management styles. As seen in Table 7, any significant difference between those two groups regarding classroom management styles was found.

Table 7: T Test Results with respect to Student Groups on the ABCC-R Scores

	Classroom Management Course Taken	N	Mean	SD	df	p
IM	No	84	27.33	5.14	107	.99
	Yes	25	27.32	4.43		
PM	No	84	19.01	3.94	107	.45
	Yes	25	18.32	4.28		

4. Discussion, Conclusion and Recommendations

Results of this study revealed that the preservice physics teachers are more interventionist on the instructional management and non-interventionist on the people management regarding their attitudes and beliefs on classroom management. It was also observed that while they are more interventionist in activities such as monitoring seatwork, organizing daily class routines, and allocating materials in the classroom, they are non-interventionist in teacher-student relations. Similarly, in a study carried out by Gencer and Cakiroglu, (2007) it was found that preservice primary science teachers are more interventionist on the instructional management while they are non-interventionist on the people management. This means, that they would have control on seatwork monitoring, selection of tasks, and directing daily routines. Since the physics teacher education programs are more lesson-planning-oriented, it might have caused a more interventionist attitude on the instructional management. The preservice teachers mainly provided by lesson-planning information naturally have non-interventionist attitudes and beliefs on classroom teaching environment. The preservice physics teachers are still students and they are studying together with their classmates during applied courses, therefore, they could believe to have a non-interventionist belief on teacher-student relation.

From gender point of view, regarding the classroom management styles of preservice physics teachers a significant difference was observed only on the instructional management and there was no difference between male vs. female scores on people management. Martin et al. (2008) investigated that male teachers are more interventionist on the instructional management and there is no difference between male and female teachers' scores on the people management.

When the effect of classroom management course on preservice physics teachers' classroom management styles was examined, no difference was observed. The reason for this might be unreal classroom environment when

compared with real physics classes in secondary schools. Merret and Wheldall (1993) point out that the classroom behavior management skills cannot be acquired when instructors taught preservice teachers how to manage the classroom. The results of this study may indicate that classroom management courses in the training of preservice teachers may be sufficient for giving information but insufficient for forming an attitude as the courses are not given in a real classroom environment. During preservice education, creating more real classroom environments is very important to build up classroom management skills. Besides, concentrating on teaching methods like microteaching (which makes preservice teachers active and shows their imperfection) would help preservice teachers to adopt themselves to teach and to create efficient classroom environments.

References

Doyle, W. (1986). Classroom organization and management. In M. C. Wittrock (Ed.), Handbook of research on teaching, 392-431. New York: Macmillan.

Erden, M. (2001). Sınıf yonetimi. Istanbul: Alkım Yayinevi.

Gencer, A.S. & Cakiroglu J., (2007). Turkish preservice science teachers' efficacy beliefs regarding science teaching and their beliefs about classroom management. Teaching and Teacher Education, 23 (5), 664–675.,

Glickman, C. D., & Tamashiro, R. T. (1980). Clarifying teachers' beliefs about discipline. Educational Leadership, 37, 459–464.

Hart, N. I.(1987) 'Student teachers' anxieties: four measured factors and their relationships to pupil disruption in class', Educational Research, 29 (1), 12-18

Henson, R. K. (2003). Relationships between preservice teachers' self-efficacy, taskanalysis, and classroom management beliefs. Research in the Schools, 10 (1) , 53-62.

Martin, N.K., & Baldwin, B. (1994). Beliefs regarding classroom management style: Differences between novice and experienced teachers. Paper presented at the Annual Conference of the Southwest Educational Research Education, San Antonio, TX. (ERIC Document Reproduction Service No. ED 387471)

Martin, N. K., Yin, Z. & Baldwin, B. (1998a). Construct validation of the Attitudes and Beliefs on Classroom Control Inventory. Journal of Classroom Interaction 33 (2), 6–15.

Martin, N. K., Yin, Z., & Baldwin, B. (1998b). Classroom management training, class size and graduate study: Do these variables impact teachers' beliefs regarding classroom management style? Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA. (ERIC Document Reproduction Service No. ED 420671).

Martin, N. K., Yin, Z., & Mayall, H. (2006). Classroom management training, teaching experience and gender: Do these variables impact teachers' attitudes and beliefs toward classroom management style? Paper presented at the Annual Conference of the Southwest Educational Research Association, Austin, TX. (ERIC Document Reproduction Service No. ED494050)

Martin, N. K., Yin, Z. & Mayall, H. (2008). The Attitudes & Beliefs on Classroom Control Inventory-Revised and Revisited: A Continuation of Construct Validation. Journal of Classroom Interaction, 42 (2), 11–20.

Merrett, F., & Wheldall, K. (1993). How do teachers learn to manage classroom behavior? A study of teachers' opinions about their initial training with special reference to classroom behaviour management. Educational Studies, 19 (1), 91–106.

Pullant, J. (2001). SPSS survival manual. A step-by-step guide to data analyses using spss for windows. Philadelphia, PA: Open University Press.

Rimm-Kaufman, S. E., Storm, M. D., Sawyer, B. E., Pianta, R. C., & LaParo, K. M. (2006). The teacher belief Q-sort: A measure of teachers' priorities in relation to disciplinary practices, teaching practices, and beliefs about children. Journal of School Psychology, 44, 141–165.

Sokal, L., Smith, D.G., & Mowat, H. (2003). Alternative certification teachers' attitudes toward classroom management. The High School Journal, 86 (3), 8-16.

Veenman, S.A.M. (1987). Problems as perceived by new teachers, in: N. HASTINGS & J. SCHWIESO (Eds) New Directions in Educational Psychology Vo. 2: Behaviour and motivation in the classroom (Lewes, Falmer Press).