Examination of the Concept of School Climate from the Perspective of Physical Education and Sports Teacher Candidates

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Abstract

School climate, which is the sum of behaviors in a school, is also defined as the character of the school. A school's climate has a significant impact on the quality of education, and on student success or failure. From this point of view, this study aims to examine the school climate from the perspectives of physical education and sports teacher candidates. To this end, the "School Climate Scale for University Students", developed by Ali R. Terzi, was applied to 303 physical education and sports teaching department students with three sub-factors. The data obtained were first subjected to a structure analysis and then to the reliability validity test, and the validity of the scale was determined. According to the type of variables, independent groups t-tests, one-way analysis of variance tests, post hoc tests, or effect size (Eta-square) tests were applied. While the answers given by the teacher candidates did not differ according to gender, a significant difference was found according to the grade they were studying in (in favor of first and fourth year students).

Keywords: school climate, physical education, teacher candidates, confirmatory factor analysis

1. Introduction

The effect of school climate on student behavior and learning outcomes has been the subject of many studies on learning effectiveness (Adelman, 2011; Hattie, 2003).

In school environments where students, teachers, administrators, and even parents are considered important, the perceived school climate contributes greatly to student happiness and school efficiency (Ayık & Savaş, 2014). In addition, it has been observed that recreational activities conducted in the school climate contribute positively to students' adaptation, anxiety, assertiveness, and quality of life (Bahadır, 2020). Many educators, researchers, and politicians have acknowledged that school climate contributes significantly to the development and support of schools (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013). In relation to school climate, it is observed that children aged 10–11 who participate in steppe and folk-dance activities in schools have increased psycho-social development (Baydar, Bayazıt, Tuncil, Bahadır, Uçar, & Dolu, 2018).

Multiple studies have discovered associations between positive school climate and decreases in substance abuse, mental health problems (LaRusso, Bates, & Selman, 2008), peer bullying, and violent behaviors in schools (Gregory, 2010). Another study found that high school dropout rates were lower in high schools with a positive school climate (Cornell, Gregory, Huang, & Fan, 2013). In light of this information, the school climate in general, in addition to being the quality and character of school life, is also based on the patterns of people's school life experiences. Therefore, it reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures (Cohen, McCabe, Michelli, & Pickeral, 2009). Many similar studies have found that a positive school climate is associated with academic achievement and positive youth development (Berkowitz & Bier, 2005; Greenberg et al., 2003; Griffith, 1999). For example, Griffith (2002) found that school climate perceptions at both the student and school levels are positively correlated with students' grade point averages. Similarly, Gareau et al. (2009) found a positive relationship between school climate factors and student achievement results at all organizational levels. Cohen (2001) concluded that a safe, caring, and responsive school environment can encourage

effective risk prevention and health promotion efforts.

Researchers have also shown that a positive school climate encourages cooperative learning. A positive climate enhances group cohesion and can help create a positive environment for learning by allowing for respect and mutual trust among students (Finnan, Schnepel, & Anderson, 2003; Ghaith, 2003). Therefore, to improve the quality of education in schools, it is extremely important to examine the school climate using the right variables. The study of school climate should not be limited only to the students as it also affects teachers. Teachers who perceive the school and the students favorably have a significant positive effect on their students and school. In contrast, teachers with a negative perspective generate negative effects (Lacks, 2016). Most school climate research is based on student perceptions and neglects teachers' perspectives. However, researchers agree that "it is required to evaluate teachers' perceptions of school climate" (Liu, Ding, Berkowitz, & Bier, 2014). It is especially important for teachers, who are the foundation of the school, to be motivated and at peace. Therefore, all teachers should be aware of the importance of school climate during their university education and develop skills to be equipped to solve the problems they may encounter. The aim of this study is to help address the deficiency in the literature concerning teachers' perspectives by examining the school climate perceptions of physical education and sports teachers in their education life before starting their profession.

2. Method

The research was carried out using a descriptive survey model. The descriptive screening model is a screening method in which participants' views or characteristics, such as interests, opinions, thoughts, and attitudes regarding a subject or event are determined (Büyüköztürk, 2018).

2.1 Sample Group

The sample group used in this study was selected from 1283 teacher candidates studying at Trakya University Kırkpınar Faculty of Sport Sciences. The sample group consisted of 303 volunteer student teachers, of whom 144 were female and 159 were male. A 95% confidence interval ($\alpha = 0.05$) was taken as the margin of error for sample selection. According to Tabachnick, at least 218 elements are considered sufficient to represent a 1283-element universe with a sampling error of ± 0.05.

2.2 Data Collection Tool

The scale used as a data collection tool in the research, that is the "School Climate Scale for University Students" was developed by Ali R. Terzi (2015) with three sub-factors (school engagement, communication, and learning environment). Data were collected on a total of 17 items representing sub-divisions: 5 items for school engagement, 6 items for communication, and 6 items for learning environment. The validity (cultural adaptation) study of the scale was carried out with the AMOS program and the data analysis was carried out with SPSS25.0.

2.3 Validity and Reliability Study of the Scale Used

We checked the construct validity of the scale with the IBM AMOS 24 program, and applied confirmatory factor analysis. Structural equation modeling is used in psychology, sociology, educational research, political science, marketing, etc. It is a technique used in research (Dow, Jackson, Wong, & Leitch, 2008), and is a combination of factor analysis and regression analysis. The technique tests the conformity of the estimated covariance matrix created according to the theoretical model to the covariance matrix of the observed data (Hox & Bechger, 1995). In other words, it checks whether the scale can measure the features it wants to measure, the formation of its factors, and whether it is suitable for the culture we are studying.

The results of the model should be examined using fit indices (Albright and Park 2009). These fit indices take names such as chi-square ($\chi 2$), chi-square / degrees of freedom (2 / df), absolute fit indices (GFI, AGFI), approximate root mean square error (RMSEA), and residual-based fit index (RMR). Fit indices are very diverse, but it is reported that there is no complete consensus on which of these fit indices will be accepted as standard (Munro, 2005; Şimşek, 2007). Table 1 shows the fit indices and normal values of the "School Climate Scale for University Students."

Table 1. Goodness of Fit Indices and Normal Values

Index	Good Fit	Acceptable Fit	S. Mental D. Scale
χ2 "p" Value	p>0.05	-	320.476
χ2/sd	<3	<5	2.836*
GFI	>0.95	>0.90	0.891
AGFI	>0.95	>0.90	0.852
CFI	>0.95	>0.90	0.927*
RMSEA	<0.05	<0.10	0.078*
RMR	<0.05	<0.10	0.085*

Fit indices have been determined as good fit and acceptable fit in many studies and constitute a criterion for the validation of the model. (Munro, 2005; Schreiber, Nora, Stage, Barlow, & King, 2006; Şimşek, 2007; Hooper & Mullen, 2008; Schumacker & Lomax, 2004; Waltz, Strcikland & Lenz, 2010; Wang & Wang, 2012).

When we look at the fit indices of the research scale; the x^2 value is a good fit (320.476), $x^2 \div x^2$ / degree of freedom is an acceptable fit (2.836), the CFI value is an acceptable fit (0.927), the RMSEA value is an acceptable fit (0.078), and the RMR value is an acceptable fit (0.085). In general, the scale we used in the study was found to be compatible with the original and served its purpose by confirmatory factor analysis.

The diagram of the model obtained by confirmatory factor analysis is given below.

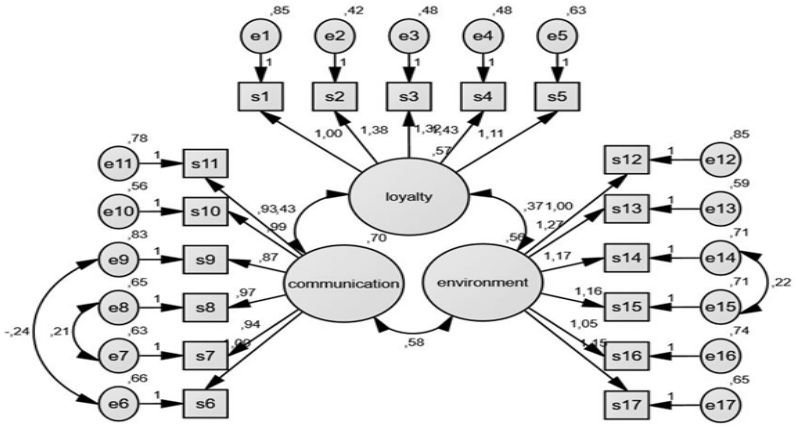

Figure 1. Confirmatory Factor Analysis

To calculate the reliability of the scale consisting of 17 items under three sub-dimensions, we calculated the Cronbach Alpha reliability coefficients as an indicator of internal consistency to determine the internal consistency coefficients. The values obtained are listed in Table 2.

Table 2. School Climate Scale Reliability Study for Preservice Teachers

Scale Sub-Dimensions	Reliability Coefficients of the Scale
Commitment to school	0.88
Communication	0.85
Learning Environment	0.86
Whole scale	0,92

From the values given in Table 2, we can state that the sub-dimensions of the scale consisting of 17 items have high reliability and the result obtained from the whole scale is also highly reliable and can be used alone. The items in the scale were arranged on a five-point Likert scale (1–Never, 2–Rarely, 3–Sometimes, 4–Mostly, 5–Always). The option that belongs to the average measurements was calculated with the formula [4 intervals / 5 answer options = 0.8 range of distribution]. According to this, the intervals were: 1 - 1.8 Never, 1.8 - 2.6 Rarely, 2.6 - 3.4 Sometimes,

3.4 - 4.2 Mostly, 4.2 - 5 Always.

2.4 Analysis of Data

The kurtosis and skew of the data were examined to determine whether the data was normally distributed. Studies have shown that data with values between -1 and +1 are normally distributed, and data with values that are not between -1 and +1 are not (Tabachnick & Fidell, 2013; George & Mallery, 2010). From the results of the study it is evident that the kurtosis and skewness values were between -1 and +1. In addition, upon examining the histogram of the data one can see that it is normally distributed. According to the findings, we decided to use parametric tests. We used an independent samples t-test for independent variables, and a one-way analysis of variance for the grade levels of the students. In the Anova design, we used the eta-square (effect size) (η^2) coefficient to calculate the strength of the relationship between variables (Büyüköztürk, Bökeoğlu, & Köklü, 2008).

3. Results

The results of the independent sample t-test conducted to determine whether there is a statistically significant difference between the answers given by the teacher candidates, are as follows:

Table 3. Effect of Gender on the School Climate

Dimensions	Gender	N	$\bar{x}$	S	df	t	p
School Commitment	*Woman*	144	3.25	.97	301	0.395	0.693
	Male	159	3.30	1.02			
Communication	*Woman*	144	3.32	.88	301	0.21	0.834
	Male	159	3.34	.89			
Learning Environment	*Woman*	144	3.16	.95	301	1.316	0.189
	Male	159	3.30	.92			

According to the unrelated samples t-test conducted to determine whether the gender of the teacher candidates had a significant effect on the answers given to the sub-dimensions of school engagement, communication, and learning environment, there was no statistically significant difference in the three sub-dimensions ($p > 0.05$) due to gender.

The results of the OneWayAnova test conducted to determine whether there is a statistically significant difference between the answers given to the scale according to the grade levels of the pre-service teachers, are as follows:

Table 4. Effects of Grade Level on the School Climate

School Commitment	N	$\bar{x}$	ss	Sum of Squares	df	Average of Squares	F	P	The Source of the Difference	Impact Value
1st grade	91	3.58	1.01	19.072	3	6.357	6.717	.00*	1-4	0.06
2nd grade	91	3.23	0.83							
3rd grade	40	3.38	0.98	282.973	299	0.946				
4th grade	81	2.93	1.06							
Communication										
1st grade	91	3.56	0.90	12.252	3	4.084	5.433	.001*	1-4	0.05
2nd grade	91	3.36	0.83							
3rd grade	40	3.34	0.79	224.768	299	0.752				
4th grade	81	3.03	0.90							
Learning Environment										
1st grade	91	3.61	0.86	35.712	3	11.904	15.454	.00*	1-4	0.13
2nd grade	91	3.24	0.85						2-4	
3rd grade	40	3.41	0.90	230.318	299	0.77				
4th grade	81	2.72	0.91							

* $p<0.05$

As shown in Table 4, the opinions of the teacher candidates about the school climate differ significantly according to the grade they study in.

Eta-square value: n^2 = Sum of squares between group/Sum of squares formula. The eta-square (η^2) values calculated according to the formula have medium and large effects, taking values between 0.05 and 0.13 (Cohen, 1988). However, although the F statistic shows that there is a significant difference between classes, it does not indicate where this difference is. For this reason, we performed Tukey and Bonferroni tests, which are post hoc tests, to determine the direction of differentiation and the groups between which significant differences were determined.

The mean scores of the answers given to the school climate scale by 303 preservice teachers from 4 different classes were compared with the one-way analysis of variance for unrelated samples. In the sub-dimension of school commitment, the average score of the answers given by the first year students is $\bar{X}_{CS1} = 3.58$, the average score of the answers given by the second year students is $\bar{X}_{CS2} = 3.23$, the average score of the answers given by the third year students is $\bar{X}_{CS3} = 3.38$, and the average score of the answers given by the fourth year students is = 2.93. A statistically significant difference was observed between at least two classes. [F (3-299) = 6.717, $p < 0.05$]. The effect size calculated as a result of the test ($n^2 = 0.06$) shows that this difference is medium. From the results of the post hoc multiple comparison test, we observe that there was a significant difference between the scores of the first and fourth year students.

The average score of the answers given by the first-year students to the communication sub-dimension is $\bar{X}_{C1} = 3.56$, the average score of the answers given by the second-year students is $\bar{X}_{C2} = 3.36$, the average score of the answers given by the third-year students is $\bar{X}_{C3} = 3.34$, and the average score of the answers given by the fourth year students is $\bar{X}_{C4} = 3.03$. A statistically significant difference was observed between at least two. [F (3-299) = 5.433, $p < 0.05$]. The effect size calculated as a result of the test ($n^2 = 0.05$) shows that this difference is moderate. From the results of the post hoc multiple comparison test, we observe that there was a significant difference between the scores of the first and fourth year students.

The average score of the answers given by the first year students to the learning environment sub-dimension is $\bar{X}_{LE1} = 3.61$, the average score of the answers given by the second year students is $\bar{X}_{LE2} = 3.24$, the average score of the answers given by the third year students is $\bar{X}_{LE3} = 3.41$, the average score of the answers given by the fourth year students is $\bar{X}_{LE4} = 2.72$, and a statistically significant difference was observed between the two. [F (3-299) = 15.454, $p < 0.05$]. The effect size calculated as a result of the test ($n^2 = 0.13$) shows that this difference is high. From the results of the post hoc multiple comparison test, we observe that there was a significant difference between the scores of the first year and fourth year students, and the second and fourth year students.

Below, we have graphically represented our findings to concretize our analysis and show the clear relationship between the variables.

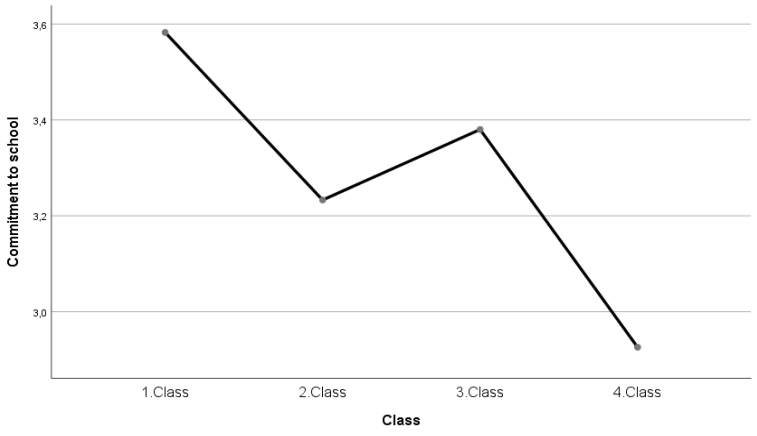

Figure 2. School Commitment by Grade Level

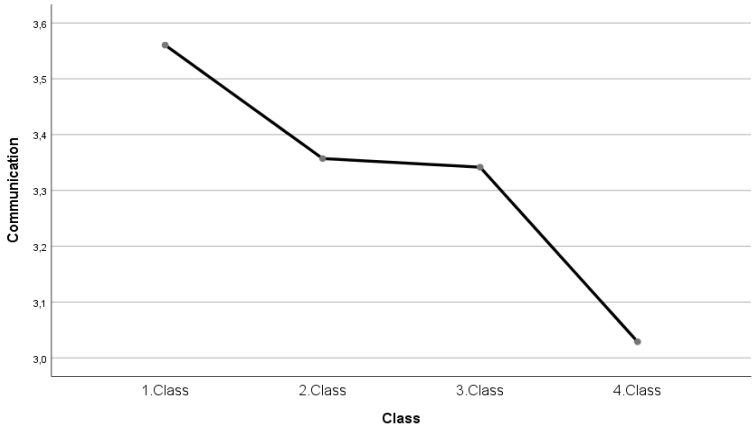

Figure 3. Communication by Grade Level

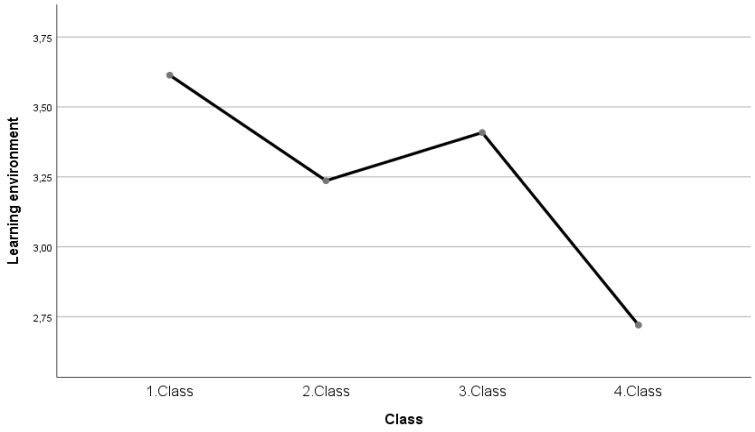

Figure 4. Learning Environment by Grade Level

Upon examination of the graphs of the three dimensions, we determine that pre-service teachers have a positive climate perception in all dimensions, and as grade level increases, there is a tendency toward negative thoughts regarding the school climate.

4. Discussion

The aim of this study is to examine the school climate from the perspectives of physical education and sports teacher candidates according to the variables of gender and grade level. Due to the requirements of the analysis, the variables are discussed individually.

The responses of the teacher candidates to the items according to the gender variable indicate that there is a moderate positive climate perception. Men and women generally answered “sometimes” for certain dimensions. In our study, we found that the gender variable did not cause a significant difference in all three sub-dimensions. In Sezgin and Kılınç (2011), on studying the answers given according to gender, it was concluded that teachers' perceptions of the school climate did not differ significantly according to gender. These results are similar to the results of our study. Göktaş and Şentürk (2019) concluded that men have a higher climate perception than women. In contrast, Kandemir (2009) stated that girls exhibit a more constructive attitude than boys in the course of schooling. Similarly, Göcen and Kaya (2013) found that male teachers had more positive perceptions of school climate than female teachers. Although the results of the study show similarities with the findings of this study, in some dimensions, the results may differ. Therefore, some studies indicate that women have higher perceptions of school climate, while other studies find the opposite.

The responses of the teacher candidates to the items according to the grade level variable indicate that as the grade level increases, in all three dimensions, their opinions about the school climate decrease. New students' thoughts about school engagement, communication, and learning environment change. They initially believe in a good school climate, whereas senior students perceive a poor school climate. A significant difference was found between grade levels in the statistical processes performed. Özdemir et al. (2010) stated that there is a negative relationship between school climate and class level. They concluded that with an increase in the class level, perceptions of school climate decreased. This result is similar to that of our study.

Aydın (2019) stated that: "Different climatic characteristics are encountered between classes in the same school." Although this statement is not related to grade level, it advocates a similar view that in our study on the differentiation between classes. Göktaş (2019), in his study with high school students, noted the perceptions of ninth grade students on school climate.

When we look at school climate research on different topics, studies have found that a positive school climate increases collaborative working and academic achievement. (Berkowitz and Bier, 2005; Greenberg et al., 2003; Griffith, 1999). In addition, it is observed that the school dropout rate of students decreases in schools with a positive climate (Cornell, Gregory, Huang, & Fan, 2013). In warm school environments where teachers are optimistic and understanding, low substance addiction and low incidence of violence are among the many striking results (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013; LaRusso, Bates, & Selman, 2008)

5. Conclusion and Recommendations

We conclude that among seniors there is a decrease in terms of school commitment, learning environment, and communication. Based on this, it can be said that school-centered practices and activities should be developed to provide students with a positive opinion about the school climate. Faculty members and school administrators should use a supportive and positive communication style for students. Course content, curriculum, and consultancy services should be utilized to improve students' sense of school attachment. Improving the physical environment and facilities of the school is important to the school climate and help improve student success. For future research we suggest a deeper investigation into the factors that decrease the school climate perception of senior students. This study uses a relational survey model. In order to determine the variables that affect students' perceptions of a positive school climate, research on cause-effect relationships can also be conducted. In addition, qualitative research methods such as observation, interview, and document analysis can be used to further examine students' perceptions of school climate.

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