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The Relationship between School Climate and Student Performance in the Classroom: An Empirical Study Concerning the Factors that Modulate the School Climate in Primary Education in Greece

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Abstract

The main objective of this particular research is to provide a theoretical analysis and investigate some of the factors that play a crucial role in shaping the psychological climate of the classroom. More specifically, the school climate is considered to be a key factor of school effectiveness as it influences the functioning of the school as a learning community, whereas at the same time it constitutes a place in which students develop socially and emotionally. The specific research presents the results of measuring the school climate in students of Primary Education in northern Greece.

Keywords: School Climate, Learning Community, Emotional Development, Primary Education, Greece

1. Introduction

The term 'classroom climate' refers to the quality that characterises interpersonal relationships in the school classroom and could be defined as a set of internal characteristics that assist in distinguishing one school from another (Pashiardis, 2001: 25).

The way in which each member of the class experiences this particular quality is characterised as 'psychological climate policy' and is determined by social and phenomenological uniqueness of this particular school community, which includes both invisible symbolic elements such as

values, philosophies and ideologies and visible elements such as programs, the objectives of the organization and its structure (Beare, Caldwell and Millikan, 1989: 172). Visible and invisible elements are interrelated in a dynamic structure which is based on the common system of beliefs, values and standards that makes communication and collaboration more effective. The classroom climate is investigated mainly from the perspective of Social Psychology, since it affects the attitudes, moods and emotions of all the members that coexist within the classroom.

According to Matsaggouras (2000: 186-187), the term 'psychological climate of the classroom' refers to the emotional way in which students experience a class and understand the psycho-sociological relationships developed in this particular classroom. The most important elements that make up the psychological climate of the class are the following:

1) The affective field that includes:
   a) Cohesiveness.
   b) Friction.
   c) Cliqueness that a student experiences through interpersonal relations in classroom.
   d) Satisfaction and
   e) Apathy of the student caused by school.
2) The field of social organization that includes:
   a) Democracy.
   b) Competitiveness.
   c) Favouritism, which governs the relations of the members of the class, and
   d) Diversity of the composition of the class.
3) The work field that includes:
   a) Setting objectives (goal direction).
   b) The physical infrastructure (material environment).
   c) Establish operating rules (formality).
   d) The working speed (speed) and
   e) Disruption (disorganization).

All in all, the psychological climate of the classroom could be determined as the atmosphere that exists in each school unit and it is directly related to those involved in it whereas at the same time it constitutes the basis for measuring school outcomes (Sergiovanni & Starratt, 1998: 177). But regardless of the nuances and differences concerning the term of psychological climate of the classroom, the issue we are investigating is the social and psychological context which is formed inside the classroom, which in turn affects the results of school learning. Therefore, it is of crucial importance that it should be explored empirically, since it is able to determine the limits of intervention of the teacher, who wishes to play an essential role in the success and effectiveness of the school as a learning community whereas at the same time it positively contributes to the creation of effective schools (Purkey & Smith, 1983: 432).

2. Literature Review

It is known that inside the classroom a wide network of interpersonal relationships is created, which affects the values and activities of students. According to Jackson (1990: 11), the teacher of the elementary school is involved in more than a thousand interpersonal relationships a day with his / her students. Furthermore, the same researcher also states that if we additionally calculated the interpersonal relationships between students, then indeed it would not be an exaggeration to picture the school classroom with that of the hive. The classroom thus works like a beehive, in which many and varied interpersonal relations are grown, which in turn creates the psychological climate of the classroom. This psychological climate constitutes an important factor in the organisation of the school community as it affects and defines learning, productive work and how students perceive themselves inside school (Pashiardis 2001: 73).

As far as the research part of assessing the psychological climate of the classroom is concerned, in Greece relatively few scientists have studied schools through this lens whereas the situation is better internationally. There is a considerably wide body of research, which studied the psychological climate and the effect it has on various features and mainly in student performance. The most representative of the questionnaires that study the different dimensions of the psychological climate is the Learning Environment Inventory (LEI) of Fraser, Anderson and Walberg (1991), which has one hundred and five questions covering fifteen major dimensions of the psychological climate classroom (Matsaggouras, 2000: 187-188).

Fraser et al. (1991), based on a series of surveys that have been done by using the questionnaire LEI, point out that the psychological climate of the class is associated with the learning outcomes as well as with many of the personal characteristics of students, such as the intelligence quotient (I.Q). Moreover, according to Walberg & Greenberg (1997: 47), satisfaction, proper difficulty, consistency, access to existing infrastructure and democracy are positive correlated with learning outcomes, whereas friction, disorganization and favoritism are negatively correlated with students' learning outcomes.

Based on research data from another survey of 17,805 students in 823 classes of different countries, it has been proved that school learning and self-confidence are positively correlated with coherence, satisfaction, encouragement, cooperativeness, safety, difficulty, organization, democracy and formulation of clear objectives. On the other hand, learning and self-concept are negatively correlated with friction, division, indifference, lack of organization, rejection, competitiveness, irony and insecurity (Haertel, Walberg and Haertel, 1981).

The classroom atmosphere pursues a significant effect on behavior, attitudes, moods and performance of the students. All the known researches lead to the fact that the classroom climate greatly influences (explains a large proportion of the variance) the academic achievement of students and in some cases this effect overcomes the effect of the characteristics of the family environment (Fraser, 1994: 809). Quite similar are the results of another large survey conducted by Goodlad (1984) in 1016 classes of U.S. schools in which data

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were collected from 38 school principals, 1350 teachers, 8600 parents and 17,160 students. The analysis of the data showed that in effective and non-effective classes there were not so major differences as far as the type of teaching was concerned, whereas the type of school climate that prevailed in class was quite different in effective and non-effective schools (Matsaggouras, 2000: 189).

The positive psychological climate promotes school learning by enhancing the self-esteem of the student, which provides opportunities of collective action and experimentation with new ideas and practices. The recognition and acceptance of the student as an important person by the teacher, which is expressed through interest, closeness, communication and collaboration, improve the teacher-student relationships, and they thereby help to improve the psychological climate of the class (Burden, 1995: 224).

The effect, however, of the psychological climate concerns not only school performance and students' academic results but it is also associated with general cognitive and emotional performance: understanding scientific phenomena, participating in elective courses of interest for specific lessons, changing attitudes towards various courses, experiencing satisfaction from participation in courses, self-control, stress, regular school attendance, intelligence, personality, social development, development ambitions etc. (Fraser, 1986: 89).

3. Aims of the Research

The configuration of the climate of the classroom is an area accessible to the educational intervention and for this reason we strongly believe that this field should be the subject of systematic psychological and pedagogical research. The main aims of the research we have conducted are:

1. The correction, supplementation and diversification of the image in relation to the hitherto existing domestic and foreign research.
2. The exploration of some key factors which influence or jointly shape the psychological climate of the classroom such as: the age of children, the composition of the class in terms of the gender of children, class size and the place of origin of students (village - city).

Some other purposes of this study, as noted by researchers and teachers involved in this issue (Fraser, Anderson & Walberg, 1991: 25), are the following:

1. To provide guidance and feedback to the teacher so as to upgrade the quality of the class.
2. To establish the difference between "real" classroom climate and the climate that the teacher thinks that dominates in his / her class.

Through this research we additionally attempt to:

1. Develop a picture of the psychological climate in regular classes of primary schools of our country (Greece),

2. Compare the psychological climate between boys and girls in Primary school,
3. Compare the psychological climate from Primary schools situated in the country with the ones situated in the capital cities of the specific suburb and finally
4. Compare our survey data with data from other similar Greek and foreign researches concerning the psychological climate of the school classroom.

4. Research Methodology

The methodology of this research follows concrete steps, which are presented successively. These steps include: the population and the sample of the research, its objectives – processes – phases, the questionnaire (generally as the basic inquiring instrument and the means of collecting data and specifically as the inquiring instrument for the present research), its reliability, its validity, its restrictions, and finally the method of analysis of the research's data.

The research questions used in the particular survey were the following:

1. The psychological climate is more pleasant in the fourth grade of Primary school (in younger children) than in the sixth grade of Primary school (in older children).
2. If the general human relations of a society are transported to school, which is the mirror of that society, then, the psychological climate of the classroom should be more conducive to a village of a provincial country than in the capital of this provincial country.

As far as our sample is concerned, it comes from two Primary schools from the region of western Macedonia, and more specifically the prefecture of Kozani. More particularly, the research was conducted in the second Primary school of the city of Kozani and in the Primary school of a nearby village of Xirolimni. For this research we used data from 100 students of the fourth and sixth grade. More specifically, 60 fourth grade students and 40 sixth grade students from both of the previous schools took part in our research procedure.

The composition of this sample enables us to make the following comparisons as far as our research is concerned:

1. Compare the psychological climate of the classroom for students of different ages, as we seek to examine what similarities and differences exist between younger children, i.e. children of fourth grade of Primary school and older kids, of the sixth grade, who are about to finish their studies at the primary school and in a few months time they will to be high school students.
2. Compare the psychological climate of a school in the capital city of a suburb with the one of a village in the same area.

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5. Data analysis

The tool used to collect research material in this scientific research, was the written questionnaire. The reason for choosing this tool - the written questionnaire - derived from the fact that it is considered to be the most appropriate instrument to investigate the psychological climate of the classroom. More particularly, we used 'My Class Inventory' (MCI) by B. J. Fraser, G. J. Anderson & H. J. Walberg (1982), which was adjusted to the Greek language by H. Matsaggouras (1987) entitled 'Το ερωτηματολόγιο της τάξης μου' (TET). TET is suitable for Primary school children (8-12 years), however, it has been also proved very useful for children of lower secondary education (BJ Fraser, 1986, 28-29). In our research, as already mentioned before, TET was used in children aged 10-12 years. My Class Inventory (MCI) was simplified from the Learning Environment Inventory (LEI). In 1960s, the LEI was developed and validated in conjunction with the evaluation and research related to Harvard Projects Physics (Fraser, Anderson & Walberg, 1982). MCI is suitable for children in the age of 8 to 12 years age range. Although the MCI was developed originally for use at the elementary school level, it also has been found to be very useful with students at the seventh grade level (i.e. the first year of the high school), especially among students who might experience reading difficulties with the LEI.

The original version of the MCI contained 9 items per scale. Due to the low reliability of several of the original MCI scales, item analysis techniques were applied to improve scale reliability (Fraser, 1977). With further refinement, a new 38-item version of the MCI evolved. It contained 6 items in the Cohesiveness scale, 8 items each in the Friction and Difficulty scales, 9 items in the Satisfaction scale and 7 items in the Competitiveness scale (Fraser, Anderson & Walberg, 1982).

The newly improved MCI contained 5 of the LEI's original 15 scales (Cohesiveness, Friction, Satisfaction, Difficulty and Competitiveness). With the young children in mind, MCI offered several advantageous in terms of simple language and direct response to the questionnaire. The final form of the MCI contained 38 items with a 2-point (YES-NO) response format instead of the original 4-point response format. Subsequently, a short version of 5 scales was developed with the intention of minimizing cost and technology accessibility (Fisher & Fraser, 1981).

Numerous studies authored primarily by the instrument's developers and associates have examined the MCI's psychometric properties, including its reliability and, to a lesser extent, its validity. However, although the MCI-SF has been used in research, only a few investigations have reported on its psychometric properties. Fraser (1982) and Fraser & Fisher (1983) reported, using a very large sample (N = 2,305) of seventh-grade Australian students, the following internal consistency reliability coefficients (Cronbach alphas) for the longer and shorter MCI versions, respectively: Satisfaction .88 and .78; Friction .75 and .71; Competitiveness .81 and .71; Difficulty .73 and .65 and Cohesiveness, .80 and .67.

Two other investigations suggest that the MCI-SF possesses at least some internal consistency. Fraser & O'Brien (1985) reported largely adequate coefficient alphas for class means with an Australian sample of 758 Grade 3 students in 32 classes in eight schools in the Sydney metropolitan area (Satisfaction .68; Friction .78; Competitiveness .70; Difficulty .58 and Cohesiveness .81). Using a sample of 1,675 Australian students in grades 7, 9 and 11, Byrne, Hattie & Fraser (1986) found that the shorter version of the MCI yielded more than acceptable alpha coefficients for each of the scales, ranging from .84 to .93.

The questionnaires were handed out to the students with the assistance of the teacher of each class. Before filling in the questionnaire the researchers gave specific instructions to the students as far as what the questionnaire was about and what exactly they had to do to fill it in. First of all they explained that this was not a knowledge test and therefore there was no right or wrong answer. They also clarified that this test aimed at finding out how the students feel inside the school classroom and therefore each of the students was encouraged to read the 25 statements and circle 'agree' or 'disagree', according to his / her opinion. Students who needed help were allowed to ask questions. In some cases, the items were read to the students. Nearly all of the children required no more than 15 minutes to complete the inventory.

There are 25 items arranged in cyclic order and in blocks of five to enable easy calculation. The first item in each block assesses Satisfaction (SA); the second item in each block assesses Friction (FR); the third item assesses Competitiveness (CM); the fourth item assesses Difficulty (DI); and the last item in each block assesses Cohesiveness (CH) or Belonging. Table 1 that follows gives a brief description of the scales being used.

Table 1: The scales of MCI

Scale Name	Items Per Scale	Description of Scale
Satisfaction (SA)	5	Degree to which students enjoy learning and their class.
Friction (FR)	5	Degree to which students do not get along and are unfriendly to one another.
Competitiveness (CM)	5	Degree to which the students compete with classmates.
Difficulty (DI)	5	Degree to which students experience difficulty in their learning tasks.
Belonging (BE)		Degree to which students feel

	5	a sense of belonging.

Table 2 on the other hand explains which item numbers correspond to each scale and also provides a sample item for each scale.

Table 2: The numbers that correspond to the scales of MCI

Scale Name	Items Per Scale	Item Number	Sample Item
Satisfaction (SA)	5	1,6,10,11,16,21	The students enjoy their project work in my class.
Friction (FR)	5	2,7,12,17,22	Certain students always want to have their own way.
Competitiveness (CM)	5	3,8,13,18,23	Students often race to see who can finish first.
Difficulty (DI)	5	4,9,14,19,24	In my class the project work is hard to do.
Belonging (BE)	5	5,10,15,20,25	In my class everybody is my friend.

The scoring procedure was straightforward for 20 items of MCI in that 3 is given for the 'Yes' response and 1 is given for the 'No' response. However, the reverse scoring procedure was used for the remaining five reverse items in that 1 is given for the 'Yes' response and 3 is given for the 'No' response for questions 6,9,10,16 and 24.

6. Difficulties and barriers faced during the research

The research methodology applied during this particular study, as in any other, includes certainly some restrictive elements (Stamelos & Dakopoulou, 2006). We will attempt to expose below the most important ones.

There were a number of obstacles that needed to be considered when conducting the research especially since the participants of the research were going to be primary school students. More specifically students in primary schools in Greece are not used in participating in research procedures of that kind so there was danger of facing a sense of unwillingness from a number

of students. There is no doubt that people who are not accustomed to taking part in research procedures do sense the fear of the 'unknown', that is the conclusions of the research.

Additionally, we recognized that we might face some difficulty with the issue of consent as mentioned above. Eventually though, we hoped that through discussion and detailed explanation of the whole project and its educational and social implications, students would find the idea interesting and they would cooperate willingly. Additionally, the fact that questionnaires were going to be used as research tools might constitute a problem of bias and subjectivity. There is always the possibility that participants, intentionally or unintentionally, may give inaccurate information about the subject being asked. In this case it is of crucial importance to create a relaxed and safe atmosphere so that the participants will feel free to express their thoughts, feelings and beliefs. To put it in another way we tried to create a psychological contract with the participants of the study so as to motivate them to become useful partners in our research project.

As far as the limitations of the study are concerned they could be summarised in the following:

1. The selected population and sample for the questionnaires were drawn only from two Primary schools of the prefecture of Kozani. Therefore, the research was based on a purposive sample of students and teachers, so it is hard to generalize the results even within the Greek Educational system.
2. Furthermore, the survey instruments used requested children's self-report perceptions of their feelings about the school environment and consequently, the validity of the findings depended on the participants responding honesty to the questions.
3. Limitations of time were also a barrier to extend research and include more participants, which can act as a baseline for recommendations for future research.
4. The cross-sectional character of the present study, the fact that the variables have only been measured at one time, imposes restrictions on the generalisation of the results, which may be counteracted by a longitudinal follow-up.
5. Finally, as is the case in any research, the results might be different if a different sample of participants was taken.

7. Results

7.1 First research question

According to the results of the statistical analysis, our first hypothesis, that the psychological climate is more pleasant in younger children attending the fourth grade of primary school compared to older children attending the sixth grade of primary school, was confirmed. As seen in Table 1 and Table 2 below, the average mean of psychological climate in the children of the fourth grade was 54.57, while for the students of the sixth grader the mean was 53.50.

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Table 1: The psychological climate of children in the fourth grade in Kozani and Xirolimni.

Average	54.56666667
Standard Error	0.629036869
Median	54
Prevailing price	53
Mean square deviation	4.872498634
Variance	23.74124294
Bending	0.358565425
Asymmetry	0.471967116
Range	24
Min	45
Max	69
Sum	3274
Number	60

Table 2: The psychological climate of children in the sixth grade in Kozani and Xirolimni.

Average	53.50
Standard Error	0.750213645
Median	53
Prevailing price	53
Mean square deviation	4.744767699
Variance	22. 51282051
Bending	0.018441417
Asymmetry	0.13189776
Range	22
Min	41
Max	63
Sum	2140
Number	40

From all the aforementioned data, it is quite clear that our initial hypothesis is confirmed but at this point it would be useful to note that the difference of averages is not particularly big, which in turn suggests that the children of the sixth grade also experience a positive psychological climate in the school classroom. This may be due to the fact that they know that this is their last year in elementary school, and soon they are going to be high school students.

As far as the five scales are concerned, it appears that there are no particular differences between the two primary classes in terms of satisfaction and competitiveness, since the satisfaction averages are 13.17 for the children of the fourth grade and 13.45 for the children of the sixth grader, while the corresponding averages indicate competitiveness are 11.9 and 11.3. Finally, as far as our research question is concerned, we must point out that the average referring to the difficulty scale is significantly higher to the students of the fourth grade compared to the children of the sixth grader (7.17 versus 6.60). Therefore, this finding suggests

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that younger children face more difficulty with school work and most of the times they need more help and support from their parents or teachers.

7.1 Second research question

According to the results of the statistical analysis our second hypothesis that the psychological climate of the classroom is more conducive to a village of a provincial country than to the capital city of the same provincial country, is confirmed. The difference is not particularly great, since the average mean of psychological climate of the children who attend school in a village of a provincial country is 54.33, while the mean for the provincial capital of this prefecture is 54.03. The aforementioned data are presented in the following Tables 3 and 4.

Table 3: The psychological climate of children of Xirolimni in the prefecture of Kozani.

Average	54.333
Standard Error	0.671412
Median	53
Prevailing price	53
Mean square deviation	4.02847
Variance	16.22857
Bending	3.809089
Asymmetry	1.441274
Range	20
Min	49
Max	69
Sum	1956
Number	36

Table 4: The psychological climate of children of Kozani in the prefecture of Kozani

Average	54.03
Standard Error	0.656156
Median	53
Prevailing price	53
Mean square deviation	5.249244
Variance	27.55456
Bending	-053684
Asymmetry	-0.02093
Range	24
Min	41
Max	65
Sum	3458
Number	64

As far as the five individual scales are concerned, it appears that there are no particular differences among students of Xirolimni and Kozani regarding difficulty since the average mean of difficulty is 6.95 for children of Xirolimni and 6.97 for children of Kozani. Furthermore, according to our research data, there is a small difference in the scale of satisfaction which is 13.5 for the children of Xirolimni and 13.16 for the children of Kozani.

The greatest difference in averages between children of Xirolimni and Kozani is shown in the scale of competitiveness with the children of Xirolimni experiencing lower levels of competitiveness (11.22), compared to the retrospective of students of Kozani (11.9). Consequently, the above figures show that the competition is much higher in children who study in the capital of a county in relation to the children attending a village in the same area. This may be due to the fact the children of the first category are more interested in acquiring a future job in an urban centre, while the children belonging to the second category may also have second options for their future involvement with activities related to agriculture and cattle raising.

8. Future recommendations

The findings of this research provide a number of recommendations which may be useful to researchers who are interested in studying the psychological climate of the school classroom. Mainly, however, the suggestions could be addressed to teachers already serving in schools, since they can directly influence decisively both the classroom climate, as well as the people responsible for the educational policy of their country.

First of all, we strongly believe that the teachers themselves, with their strong personality, their creative thinking, imagination; flexibility and proper guidance will be able to improve the psychological climate of the classroom.

Teachers play a major role in determining whether students feel that they are cared for and that they are a welcome part of the school community (Osterman, 2000). Taylor (1989) suggested that the quality of a student's relationship with a teacher might parallel that of his / her classmates. In fact, the author found that teachers tend to dislike and reject students who are also disliked by their peers. This is important because students who are rejected by teachers tend to receive less help and more criticism from teachers and perhaps earn lower grades than those who are not disliked by teachers.

Larrivee (2000) suggests that schools must be caring communities where caring is a goal in itself, not a means to an end. Furthermore, the author suggests that schools function as a surrogate family, based on the underlying assumption that students today have fragmented home lives and require greater nurturance in the school. In addition, a fundamental need common to all models for healthy psychological development is the need to belong. Students need to develop a sense of belonging as a member of their school community (Larrivee, 2000). Edwards (1995) suggests that until teachers themselves feel that they have a place and a strong

sense of belonging in the school, they will not be able to foster this same feeling in the students.

> Cook-Sather (2002) states that authorizing student perspectives can directly improve educational practice because when teachers listen to and learn from students, they can begin to see the world from the perspective of the students. When students are taken seriously and attended to as knowledgeable persons in important conversations, they feel empowered and will in turn participate in the education created as an outcome. Students not only feel more engaged but are also inclined to take more responsibility for their education because it is no longer something being done to them but rather something they do (Cook-Sather, 2002).

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