

New dimensions in the classroom climate

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Abstract The focus of this study was the classroom climate for Grades 4, 5 and 6 students during mathematics classes in elementary schools in the Arab sector in Israel. The study included 3,786 Arab students. The use of a questionnaire indicated that five major factors related to classroom climate were Satisfaction and Enjoyment, Teacher–Student Relationships, Gender Inequality and Tension, Student–Student Relationships, and Competitiveness. Students were found to be happy, satisfied and to have a sense of unity. Discipline was a ‘sacred’ value that could not be disregarded. Rules and regulations, obedience and respect were integral components of satisfaction and enjoyment. The teacher–student relationship was positive, warm and supportive. The student–student relationship was fairly satisfactory. A feeling of social cohesion and belonging, mutual help and consideration pervaded the classroom. Students were polite to each other and disputes were rare. Low levels were perceived for Competitiveness and the desire for students to be first, achieve high marks and compete for teacher attention.

Keywords Classroom climate · Elementary school · Learning environment · Satisfaction · Teacher–student relationships

Cultural environment

School students spend the majority of their time within the educational environment (Menis 1995). They go through learning as well as social experiences that serve as a basis for their development and shape their self-image, personality, schooling and social functioning (Lambert and McCombs 1998; Lambert et al. 2002). The classroom is a social environment where the students spend around 20,000 hours during the 12 years of their schooling and go through various experiences. Therefore, the quality of classroom life is significant in shaping their feelings and attitudes towards their classmates, teachers, the subjects that they study and the whole educational system, as well as determining such

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things as competitiveness, cooperation, obedience to rules and regulations, disputes and power struggles. These are the challenges that students are expected to face during their future lives (Menis 1995).

Thus, classrooms are social organisations that create learning climates as well as emotional climates (Anderson 1971; Johnson 1976; Levin et al. 1981). Some classes are lively and supportive, while others are quiet, depressing and boring. Some classes are taught by active, energetic and highly-motivated teachers, while others are taught by burnt-out teachers who feel themselves isolated, angry and without enthusiasm. In some classes, students are highly motivated and self disciplined and they obey rules and regulations while, in other classes, students suffer from a lack of interest, feel unchallenged and are undisciplined (Templeton and Jensen 1993).

What is classroom climate?

Schmuck and Schmuck (1978) define the term ‘classroom climate’ as the sum total of all the group processes that take place during teacher–student and student–student interactions. These include interpersonal relationships, emotional intonations and structural aspects of teaching style and classroom organisation, teacher expectations of students and attitudes towards them, level of teacher control, disciplinary problems, the gender and age of the students, etc. Moreover, the term ‘climate’ includes the nationality, ethnicity and the religious affiliation of students and teachers (Raviv and Reised 1990; Stein 2001).

Fraser and Tobin (1991) agree that classroom climate affects students’ behaviours, levels of knowledge, scholastic achievements, motivation, self-image and attitudes towards a certain discipline, the class and school, and schooling and education as a whole. Therefore, researching the factors that affect classroom environment enable us to identify and understand social processes within the classroom, to explain the behaviour of the students at both the emotional and cognitive level.

The major bulk of the existing literature on classroom climate confirms the existence of a close connection between climate and social, personal and learning variables, and that a positive classroom climate raises the students’ self esteem and contributes to the improvement of their school performance. When the classroom climate is competitive, hostile and unsupportive, there exists anxiety, feelings of unease and scepticism that can lead to intellectual and cognitive depression. On the other hand, in classrooms that are warm and supportive, high self-esteem and improvement in cognitive ability are evident.

Lave (1988) and Salomon (1992) claim that, when measuring and testing classroom climate, other variables should be taken into consideration, such as the specific discipline in which classroom climate is being examined, the class type, the character of the State and settlement, personal and cultural variables and the existing teaching methods. There are some who claim that classical theories cannot be applied to non-Western dominant cultures (Happner and Happner 2003, in Mansour 2005).

Based on the above, one can say that classroom climate is interrelated with a wide spectrum of phenomena that can contribute to the personal development of the child in the personal and cultural sphere as well as the learning sphere. The desirable classroom climate for appropriate teaching and learning processes, and for the integration of the student in the social life of the class, must be supportive, egalitarian, democratic and organised according to predetermined rules and regulations. Fisher and Fraser (1990), based on similar studies (Cheng 1993; Martin-Reynolds and Reynolds 1983), also believe

that one of the possibilities for changing and improving the educational system is through the improvement of the classroom climate.

The research question for this study was: “How do elementary school students in the Arab sector in the state of Israel perceive classroom climate in the mathematics classes?”

Sample and research method

For this study, 32 Arab–Israeli settlements were chosen. The settlements were randomly selected, with the participation of one school from each of the small settlements (villages) and two schools from each city. From every participating school class, three classes from Grades 4, 5 and 6 were chosen. All of the classes were coeducational.

The Israeli National education system is divided into two departments, namely, the Jewish department and the Arab one. Both departments reflect the heterogeneity of the Israeli society. Apparently, this division is supposed to reflect accommodation to cultural differences and educational pluralism. Despite the heterogeneity of Israeli society itself, the educational system is in reality a unicultural rather than a multicultural system (Abu-Saad 2004; Al-Haj 1995a; Mar'i 1978).

The Arab educational system faces severe problems, including low achievement levels, a high percentage of dropouts, lack of funding and resources, and low quality of teaching. Other problems are overcrowded classes, an insufficient number of teachers, and other staff, classrooms and facilities, substandard buildings and maintenance, distant location of the schools, and a lack of libraries, laboratories and computer rooms (Zedan 2005).

In addition, Arab society in Israel is homogeneous because its village-type traditional character and its patriarchal family structure (Rinnawi 2003). Therefore, Arab schools do not encourage self-confidence and self-awareness because of its social values and norms and, generally speaking, Arab schools lack a comprehensive perception of the school as a whole. Schools do not attempt to change or challenge accepted social norms and values; on the contrary, they work to preserve them, especially in regard to sexual stereotypes and prejudices concerning the inferiority of girls. The teacher is the source of authority and knowledge and answerable to the school principal, while the student has low status and is passive and indifferent (Espanioly 2005).

The regime of Arab schools is far from democratic. Moreover, the Arab educational system is in a state of deep coma in all aspects related to local initiatives, change, or rejuvenation of the educational environment (Al-Haj 1995b). Besides this, there exists an additional conservatism within the Arab educational system because of its basically conservative nature (Al-Haj 1996). This conservatism manifests itself in different ways:

- lack of sufficient public involvement
- perception of inferiority in the national, religious and civil status of the Arab population in Israel. This situation affects the viewpoint of all public service systems in charge of dealing with the social issues of the Arab minority.

Research tool

Part I of the research tool for this study was a standard questionnaire that assesses classroom climate during mathematics classes in the Arab Education System based on

students' perceptions. This research tool was based on the following classroom climate questionnaires:

- The Classroom Environment Scale (CES) was developed by Moos and Trickett (1974). It includes 90 items, answered 'true' or 'false', that assess nine factors—involvement, affiliation, teacher support, task orientation, competition, order and procedure, clarity of rules and regulations, teacher control, and innovation.
- The My Classroom Inventory (MCI) was designed and developed by a group of researchers (Anderson 1971; Fraser 1989; Fraser et al. 1982; Fraser and Fisher 1983; Prawat and Solomon 1981).

When the questionnaire was adapted to students in the Arab school system, the internal reliability (Cronbach alpha) was 0.84 (Zedan 2001). The values for the internal consistency reliability of the factors (Table 2) are satisfactory taking into consideration that the number of items for each factor is relatively small.

It was taken into account that, in order for a tool to be valid and reliable for studying the classroom climate, it has to be specific and not general, and it must be consistent with a specific educational theory and its objectives. The questionnaire has to be appropriate to the learning context in order to reflect the values and behaviour expected by the education curriculum. Such a tool enables us to understand the mutual relationship between the desired perception and the existing social environment (Bruce and Rubin 1993).¹

The questionnaire has a Likert response scale and includes 38 items. All the questions are closed-answer with students being asked to indicate their degree of agreement with each item using the responses of Not True, True and True to a Certain Degree. A number of items were negatively phrased in order to prevent systematic response bias.

Part II of the research tool encompassed general information about gender, class level, level of achievement in mathematics, teaching method and area of residence.

Analyses and results

In order to examine the way in which Arab elementary school students perceived the classroom climate, a factor analysis was conducted using the varimax rotation method. Five factors emerged (see Table 1). For each factor, items with a loading higher than 0.4 were chosen. The criterion for the number of factors was that the eigenvalue prior to rotation was above 1. The five factors were Satisfaction and Enjoyment, Teacher–Student Relationships, Gender Inequality and Tension, Student–Student Relationships, and Competitiveness.

It is worth noting that two of the questionnaire items failed the factor loading criterion and therefore they were disregarded: “I am used to helping my classmates in mathematics classes” and “Only smart students in class succeed in mathematics”.

Factor 1: Satisfaction and Enjoyment—This factor assesses the extent of student satisfaction and enjoyment while studying mathematics, enjoyment in carrying out mathematical tasks, and satisfaction with the classroom situation and the way in which the class is conducted. It was found that Arab students considered clear rules and regulations to be an integral part of the satisfaction factor. In the first factor, it is easy to identify a high loading with regards to following factors:

¹ In Smadar: http://www.education.gov.il/tochniyot_limudim/download/halacha/smadar10.rtf.

Table 1 Factors analysis of classroom climate factors during mathematics classes according to the varimax rotation method

Items number and wording	Factor loading
Satisfaction and enjoyment (variance = 17.50%, eigenvalue = 7.00)	
1. The mathematics class is interesting, vital and useful.	0.68
2. I feel satisfied in learning mathematics.	0.58
3. I do abide by the rules and regulations of mathematics classes.	0.50
4. I enjoy the task I carry out in mathematics classes.	0.61
5. Learning is very hard in mathematics classes.	0.50
6. The tasks in mathematics classes are very hard.	0.46
7. It is fun to be in a mathematics class.	0.52
Teacher–student relationships (variance = 8.15%, eigenvalue = 3.26)	
1. I get clear instructions from the mathematics teacher to carry out my tasks.	0.40
2. The teacher thinks my advancement in mathematics is highly important.	0.40
3. I do feel that the teacher has great expectations and expects me to succeed.	0.40
4. I have to abide by many behaviour rules during mathematics classes.	0.40
5. I can share my personal problems with the mathematics teacher.	0.43
6. I need to get permission for any learning activity.	0.49
7. The mathematics teacher always praises my success.	0.53
8. Most of the students succeed in mathematics classes.	0.48
9. I get the teacher's help and he/she contributes to my success.	0.64
10. The mathematics teacher gives ample explanations on how to succeed.	0.52
11. The teacher encourages me to participate and take part in the classes.	0.57
Gender inequality and tension (variance = 4.50%, eigenvalue = 1.80)	
1. During mathematics classes, I feel tension with the other students.	0.46
2. The mathematics teacher relates more to boys' questions than to girls' questions.	0.65
3. The boys in the class are more encouraged than the girls.	0.67
4. Mathematics classes make me feel restless and tense.	0.56
5. I feel offended by the mathematics teacher's attitude.	0.51
Student–student relationships (variance = 3.41%, eigenvalue = 1.36)	
1. Many children in the class always want things to be done their way.	0.42
2. Many students can't stand each other in a mathematics class.	0.56
3. Boys and girls participate equally and receive equal treatment.	0.44
4. In mathematics classes, I maintain a good relationship with other students.	0.47
5. In mathematics classes, all students in the class are friends.	0.62
6. During mathematics classes, students always fight with each other.	0.48
7. I am satisfied with the class where I study mathematics.	0.40
8. There are a number of students in class who are not friends of mine.	0.40
9. Some students do not like being in class during mathematics classes.	0.45
10. In class, there are students who behave viciously.	0.53
Competitiveness (variance = 3.10%, eigenvalue = 1.22)	
1. Sometimes students compete to be the first to finish the exercises.	0.52
2. A number of students in my class always want to be first in mathematics.	0.63
3. There are students who brag when they get good grades in mathematics.	0.47
4. In mathematics classes, most of the students want to be better than their mates.	0.61
5. Some students always try to do their work better than others.	0.59

1. The mathematics class is interesting, vital and useful.
2. I feel satisfied in learning mathematics.
3. I do abide by the rules and regulations of the mathematics class.
4. I enjoy the tasks I carry out in mathematics classes.

This factor explained 17.50% of questionnaire variance and all items had a minimal loading of 0.40 (Stevens 1996).

Factor 2: Teacher–Student Relationships—This factor examines relationships between the teacher and students, at both a personal and a professional level, the extent of the teacher’s emotional and schooling support for students, the extent of help, interest and friendship manifested by the teacher towards the students, and the degree to which students feel that the teacher is prepared to provide assistance, support and interest in their achievements. This factor examines the extent to which the mathematics teacher provides clear instructions and is strict about discipline and order, the extent to which students are aware of a clear system of rules and regulations and the consequences of their infringement, the strictness of the teacher in enforcing the rules and regulations, and the teacher’s consistency in punishment for disobeying them and in keeping track of unacceptable behaviour. It also examines the extent to which the student’s success is dependent on the teacher. Examples of items related to the second factor:

1. The teacher is highly interested in my advancement in mathematics studies.
2. I get help from the mathematics teacher who gives me a chance to improve my achievements.
3. The mathematics teacher provides a lot of instructions on how things are carried out.
4. I enjoy the tasks I carry out during mathematics classes.

This factor explained 8.15% of questionnaire variance and all items had a minimal loading of 0.40.

Factor 3: Gender Inequality and Tension—This factor focuses on the extent during mathematics classes of tension and of teacher’s discrimination of girls in comparison to boys. Example of items are:

1. During mathematics classes, I feel tension with other students.
2. The mathematics teacher relates more to boys’ questions than to girls’ questions.
3. The boys in the class are encouraged more than the girls.
4. Mathematics classes make me feel restless and tense.

This factor explained 4.50% of questionnaire variance and all items had a minimal loading of 0.40.

Factor 4: Student–Student Relationships—This factor assesses the system of relationships that exist among students during mathematics classes, their personal ties and the strength of their relationships within the classroom, the closeness of students in class and their unity, the quality of social ties and the extent of group solidarity. This factor encompasses norms of mutual assistance, cooperation and consideration of others, readiness to be tolerant, and positive behaviour. Examples of items for this factor are:

1. I am satisfied with the class where I study mathematics.
2. There are students who behave viciously in class.
3. During a mathematics class, students always fight with each other.
4. Many students can’t stand each other in mathematics classes.

This factor explained 3.41% of questionnaire variance and all items had a minimal loading of 0.40.

Factor 5: Competitiveness—This factor assesses the level of competitiveness among students, the extent to which each student is concerned about higher achievement and perfection of performance of tasks during mathematics classes, the level of competitiveness among the students, and the desire to succeed, excel, get higher grades and win the teacher’s attention. Examples of items of the fifth factor are:

1. A number of students in my class always want to be first in mathematics.
2. In mathematics classes, most students want to be better than their mates.
3. Some students always try to do their work better than others.
4. Sometimes students compete to be the first to finish the exercises.

This factor explained 3.10% of questionnaire variance and all items had a minimal loading of 0.40.

Although the five factors explained 37.0% of the variance, the Cronbach alpha reliability for the five factors ranged from 0.57 to 0.76 and for the whole questionnaire was 0.85 (see Table 2). The value of the reliability coefficient is satisfactory for each scale when taking into consideration that the number of items for each factor is not very large.

Table 2 also shows the mean and standard deviation for each scale. The scores for each item range from 1 to 3. Table 2 shows that the level of Satisfaction and Enjoyment among the students in mathematics classes is high ($M = 2.60$), an indication of high contentment, satisfaction and enjoyment that the student feels while studying mathematics. It’s worth noting that factor analysis showed that students considered that clear rules and regulations lead to satisfaction and enjoyment.

According to Table 2, students perceived the Teacher–Student Relationships positively ($M = 2.49$). This result expresses a positive, supportive and warm system of relationships between teacher and student on a personal level as well as on a professional schooling level. The results also show that the level of Gender Inequality and Tension was very low ($M = 1.38$), thus refuting the widespread belief of discrimination in favour of boys and suggesting equal teacher treatment for boys and girls. The means in Table 2 also suggest that Student–Student Relationships in mathematics classes were above average ($M = 2.26$). This finding expresses the positive relationships among students, showing closeness, cohesiveness and group solidarity among the students in the class. In addition, it is clear that a low level of Competitiveness in mathematics classes existed among students ($M = 1.48$).

Table 2 Cronbach alpha reliability, mean and standard deviation for the five factors for mathematics classes

Factor	Cronbach α reliability	M	SD
Satisfaction and enjoyment	0.73	2.60	0.42
Teacher–student relationships	0.76	2.49	0.37
Gender inequality and tension	0.66	1.38	0.54
Student–student relationships	0.70	2.26	0.39
Competitiveness	0.57	1.48	0.62
Whole classroom climate	0.85	2.42	0.26

Discussion

Factor analysis helped to identify the five factors of Satisfaction and Enjoyment, Teacher–Student Relationships, Gender Inequality and Tension, Student–Student Relationships and Competitiveness. However, a certain amount of overlap exists between these factors and those found in other studies. Moos (1979) found the factors of students' classroom involvement, the extent of friendship among students, a feeling of belonging and mutual trust, teacher support, goal and task orientation, competitiveness among students, control and discipline, order and organisation, and student contribution in classroom activity planning. Zidkiyahu (1988) summed up the main desirable components for classroom climate in terms of the major factors of behavioural and mental openness of teacher and students, teacher support for students, support of students for their classmates at the social, emotional and cognitive levels, egalitarian attitudes of teachers towards their students and of the students towards each other, and the existence of a clear set of rules and regulations for both teachers and students to ensure organisation, order, security and justice.

In a Ministry of Education, Culture and Sport (1993) study, the factors found were: teacher–student relationships, mutual relationships among students, discipline, classroom affiliation, a feeling of unity and solidarity, aesthetics and hygiene, crowdedness, facilities, teaching aids and equipment.

Studies conducted by Anderson and Walberg (1974) and Hofstein et al. (1982) included the factors of solidarity, variety of student interest, formality, rate of development, physical environment (the classroom and its organisation), disputes, tension and resistance, task orientation, favouritism (showing preference towards certain students), clustering (creation of subgroups in the classroom), satisfaction (level of contentment and satisfaction in the classroom situation), order and organisation, degree of difficulty in learning, indifference, democracy (democratic rules and regulations in the classroom) and competitiveness.

Satisfaction and enjoyment

I found a very high level of satisfaction and enjoyment among students in mathematics classes. Arab primary school students perceived clear rules and regulations as being highly important components of satisfaction and enjoyment. In other words, abiding by rules and regulations in mathematics classes increases the level of enjoyment. The satisfaction and enjoyment factor explained a high percentage of variance for the general questionnaire.

Teacher–student relationships

My study showed that students view teacher–student relationships in mathematics positively. That is, the system of relationships between the teacher and elementary school students in mathematics classes is positive, supportive and warm on both professional and personal levels. The standardised Ministry of Education national achievement examination in 2004 revealed that 66% of Arab students indicated having a good relationship with their teachers and 69% expressed satisfaction in school.

Students reported that mathematics teachers give clear instructions, maintain order and discipline in their classes, and enforce a strict set of rules and regulations that are well known to the students, as well as punishing their infringement. The national achievement examination results in 2004 showed that 83% of the Arab students noted the existence of order and that there were clear classroom restrictions.

Haim Omer, a psychology professor at Tel-Aviv University, believes that any program for imposing discipline and eliminating violence has to begin with the restoration of the teacher's status:

The weakening of teacher status leads directly to the dominance of aggressive children over the entire class. Those students are the ones who decide whom to humiliate, whom to boycott, whom to beat, and “which teacher will end up in a psychiatric ward”. Things get worse when these children have the backing of their parents who, in light of the permissive ideology, take the side of their children. [...] when this happens—the level of violence amongst the children rises to a significant extent. (Weiss 2004, p. 20)

Talking about students in the Jewish sector, Professor Omer suggests rectifying the situation in which parents and teachers have become powerless against the destructive activities of the children, with parents losing their position in the family and teachers losing their position in their classrooms. In Arab society, on the other hand, the situation is different. There are clear boundaries between parents and their children, with the leeway being given to children not necessarily affecting family or social order (Najar 2003). Arab students accept the involvement of parents and teachers in their private and school lives, and this is characteristic of the nature of Arab traditional society, which is a patriarchal society in which the father stands at the top of the pyramid and the relationships among family members are almost totally dependent, in all aspects of life, on obedience to the father's wishes and instructions (Barakat 2000). This means that the respect and admiration given to teachers in the Arab sector is higher than that in the Jewish sector.

In a study in 2003 for *Panim*, a periodical dealing with culture, society and education, Smith's Institute surveyed public opinion among 600 practising teachers. The survey examined teachers' attitudes towards the educational system in Israel and the status of the teacher. The following findings emerged from the survey: 74% of the teachers indicated that violence and discipline problems were the primary issues. Two additional problems that were considered as secondary issues were teachers' status/pay and crowdedness—the number of students in a class (50%–56%). Other issues that were ranked low were budget and funding shortages (22%), parents' involvement (19%), education for values (15%), etc. For 28% of teachers, the lack of disciplinary means available to the teacher was the prime cause of violence and disobedience (*Histadrut Hamorim*—Histadrut Teachers Federation in Israel 2003).

The teacher is still viewed as a parental type of authority who is entitled to impose behavioural norms and even punish students. Discipline is characteristic of Arab education, students still regard their teachers with respect, and typically students aren't 'rude' during classes and don't violate classroom norms.

It is worth noting that underprivileged students admire their teachers and regard them as wise and supportive in comparison to students who are well off (Levin et al. 1981). Because the Arab sector suffers continued negligence in terms of budgeting and funding, most students are underprivileged. These students usually appreciate the teachers' support, listen to them and obey their instructions.

Gender inequality and tension

The level of gender inequality and tension among students in mathematics classes is very low. Students did not feel that teachers give more attention to the questions of boys than those of girls, and boys are not given more encouragement than girls in class.

This finding contradicts the conclusions of Ayalon (2000) who describes the Arab society as a conservative one. According to Ayalon, the home and the primary school provide activities that strengthen the tendency of boys to take an interest in the sciences and mathematics. Teachers expect boys to excel in these subjects more than girls. He concluded that the self-image of girls with regard to science, technology and mathematics is low and this affects their achievements and attitudes to classroom climate. One explanation for this attitude towards girls in a conservative Arab society is embedded in the fact that girls do not constitute a threat to boys in the job market in professions that require a scientific education.

The findings of this study contradict the findings of Sadker and Sadker (1986) who examined teacher–student interaction and found that teachers pay more attention to boys than to girls. They also contradict the findings of Klein (2001) who found that boys receive criticism and are praised for their learning more than girls. The findings of this study confirm those of Teh and Fraser (1995) who reported that girls perceive their situation as satisfactory with regard to gender equality.

The sense of this equality in attitude can be explained at several levels:

1. *Schooling and education*: The rise in the number of girls who continue schooling in high schools and academic studies, together with the impressive achievements of some girls, make teachers treat girls differently from the way in which they were treated decades ago. An additional source (OECD 2006—see <http://www.oecd.org/home>) emphasises that the self-image of girls is higher when they relate to their professional future: More and more girls see themselves as being members of the ‘white collar’ sector working in commercial and office service fields.
2. *Feminism*: Zedan (2005) found that 64.3% of mathematics teachers in Arab elementary schools were female teachers. Al-Haj (1996) pointed out that, during 1989–1990, 77.1% of students in teacher training colleges were female. Eilyan et al. (2007) stated that nowadays 92.4% of all Arab students are females who are studying in teacher training colleges. It is likely that female teachers might treat girls more positively and support them both in their studies and morally.
3. *Religious aspects*: The Islamic religion encourages the education of girls. One of the commandments of the Prophet Mohammad is that: “Education is one of the duties of every male and female Moslem.” The Prophet did not make a distinction between the sexes and even recommended the same schooling for boys and for girls.

The rise of the Islamic movement at the end of the 20th century led to a return to religion and altered the values among Moslems worldwide, not excluding Arab Israelis. The majority of Islamic movement supporters are educated people who graduated from secular schools, and they are the product of modernisation (Ali 2004). Arjomand (1984) claims that Islamic fundamentalism gained power because of the rising rate of educated people among the Arab population, thus increasing the involvement of city dwellers and intellectuals in general and students in particular. This new wave also strengthened the status of Moslem women and placed emphasis on their education.

Student–student relationships

Primary school students in the Arab sector feel a sense of unity and solidarity, and have good relationships among themselves. They report good relations between students and their classmates in mathematics classes, which indicates strong interpersonal relationships, strong classroom relationships, positive relationships among the students themselves, and

close ties between students in the classroom. It was found that social ties, affection and group solidarity are highly regarded. This finding is consistent with the finding that 75% of the students in the Arab sector reported good relationships among students (Ministry of Education, Culture and Sport 2004).

Schools in the Arab sector are neighbourhood schools and, in most villages, extended family members live in the same neighbourhood. As a result, classmates are family related, neighbours or acquaintances. They start school together, in kindergarten, and they stay together for 6 years of their primary school studies. Cases of dropouts or transfer from one class to another are rare. Grade 4, 5 and 6 students have already spent 5–7 years together, they spend over 6 hours daily in their classes (i.e. 30 hours per week or about 1,300 hours a year, or a total of about 6,500–9,000 hours up until Grades 4–6. This long time for being together in and out of school brings about a feeling of togetherness and unity.

Competitiveness

It was found that there was a low level of competitiveness among the students as a whole. Students did not compete ‘to be first’ or to win the teachers’ attention. Midgley et al. (1995) found that primary school students regard excellence as being less important than the social aspects—which is typical of this age group compared with other age groups. Confirmation of this view can be found in research by Levin et al. (1981) who reported that competitiveness increases with age (i.e. the older you are, the more competitive you are). Boys perceived the classroom climate as being more competitive than girls perceive it to be (Barker 1979). Levin et al. (1981) found that, in traditional classes, there are differences between boys and girls, especially in perceptions of competitiveness factors. It was also found that most classes in the Arab sector are conducted mainly using the traditional frontal teaching method (Zedan 2005).

Conclusions

This study focused on classroom climate among Grade 4, 5 and 6 students in the Arab sector in Israel. The objectives of this study were to describe the existing classroom climate in the way in which it is seen in the eyes of primary school students in the Arab sector. Altogether 3,786 students took part in the study from different Arab schools in four districts, namely, North, Haifa, Centre and South. The study employed a questionnaire in which the first part contained standard questions for assessing students’ perceptions of the climate in mathematics classes and the second part contained questions that provide general information about the student.

The major findings of the study can be summarised in the following way:

1. Classroom climate encompasses the five factors of Satisfaction and Enjoyment, Teacher–Student Relationships, Gender Inequality and Tension, Student–Student Relationships, and Competitiveness.
2. Arab primary school students generally are satisfied and enjoy their school and feel a sense of unity and solidarity.
3. Rules and regulations are ‘sacred’ and must not be ignored or disregarded by any student. Obedience to teachers’ instructions and teacher respect are integral components of satisfaction and enjoyment because of the traditional conservative nature of the Arab society, in which children listen to and obey their parents and

- elders. According to students, the clarity of rules and regulations are essential for satisfaction and enjoyment. In other words, obedience to rules and regulations intensify satisfaction and enjoyment.
4. Typically teacher–student relationships are positive, supportive and warm on both personal and professional levels. Students reported that teachers demonstrated readiness to help, support and take an interest in them in a friendly way.
 5. Student–student relationships were found to be fairly satisfactory. The classroom was unified and socially cohesive. Mutual help, cooperation and consideration existed. The behaviour of students was polite and students rarely fought. This can be attributed to the fact that most schools are neighbourhood schools and students are either related, acquainted or neighbours.
 6. The level of competitiveness was found to be low with students having little desire to be ‘first’ or get high grades and compete over teacher attention.

Further studies among the Arab population in Israel in general, and in Arab schools and the education system in particular, are still needed. The study of classroom climate, which is connected to achievement and students’ behaviour in class, is highly important especially for major school subjects such as mathematics. I hope that this article will clarify an issue that has not yet been treated and will contribute to further research in a field that has so far been neglected.

A study of classroom climate is of major importance for teachers and policy makers and can contribute to an understanding of the conditions required for the development of a positive classroom climate in mathematics classes. We recommend additional research into classroom climate in junior high and senior high schools among Israeli Arab students, as well as comparative studies of classes in science and other school subjects.

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