

Student Feedback as a Predictor of Learning Motivation, Academic Achievement and Classroom Climate

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DOI: 10.26907/esd.16.2.03

Submitted 16 August 2020; Accepted 8 April 2021

Abstract

This research was conducted to examine students' perceptions of their teachers' dominant characteristics - the feedback they provide, how feedback is related to students' achievements and learning motivation level, and how all of these relate to classroom climate. It was conducted with 2,599 elementary school, junior high and high school students. Data were collected by means of structured questionnaires. The results were significant: learners attribute much importance to the feedback they give their teachers and they evaluate them positively regarding pedagogy and didactics. In addition, learners reported an average or slightly above average score for the general classroom climate. Girls reported more positive perceptions than boys at all age levels. Elementary school students reported more positive perceptions than junior high and high school students. Mathematics was more highly rated than other disciplines. Female teachers were preferred to male teachers and younger teachers to older teachers. Positive teacher evaluations resulted in a higher motivation level and improvement in learning achievements, as well as a positive perception of classroom climate, but teacher feedback and motivation were found to be the most important factors in predicting learning achievement.

Keywords: Teachers' evaluation, feedback, learning motivation, classroom climate, academic achievement.

Оценка учебного процесса учащимися как предиктор учебной мотивации, академической успеваемости и климата в классе

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DOI: 10.26907/esd.16.2.03

Дата поступления: 16 августа 2020; Дата принятия в печать: 8 апреля 2021

Аннотация

Настоящее исследование было проведено с целью установления взаимосвязи между представлениями учащихся об учителях, достижениями учеников и общей атмосферой в классе. В исследовании приняли участие 2599 учащихся начальных, средних и старших классов. Данные были собраны с помощью структурированного опроса. Были получены следующие результаты. Для развития учеников очень важна оценка, которую они дают своим учителям, их педагогической и дидактической квалификации. Эта оценка (в целом положительная) коррелирует с оценкой общего климата в классе (средняя и выше среднего). У девочек восприятие более позитивное, чем у мальчиков, во всех возрастных группах. У учащихся начальной школы – более позитивное, чем в средних и старших классах. Преподавание математики оце-

нивается выше других предметов. Педагоги-женщины – выше педагогов-мужчин. Молодые учителя – выше опытных. Положительная оценка учительского труда приводит к высокому уровню мотивации и улучшению успеваемости, к благоприятному психологическому климату в классе.

Ключевые слова: оценка работы учителя, отзыв ученика, мотивация к обучению, климат в классе, академическая успеваемость.

Introduction

Evaluation is one of the essential components of teaching, learning and education. Furthermore, evaluating teachers' teaching processes is just as important as evaluating learners' learning processes. It is important to note in this context that teaching quality is directly derived from teachers' level of excellence, i.e., it may be assumed that the better the teacher, then his or her teaching level will be correspondingly higher (Rivkin, Hanushek & Kain, 2005). The teacher's performance level plays a crucial role in promoting the educational system and its institutions (Reichel & Arnon, 2005).

Studies have shown that teacher quality can make a major contribution to improving teaching and advancing learners (Reichel & Arnon, 2005). Thus, it is very important to capture the image of the excellent teacher in the eyes of his or her students. In a comparative study that was performed on factors influencing student achievements, it was found that the most influential factor was the teachers' level and quality of teaching (Barber & Mourshed, 2007).

The central objective of the current study is to examine learners' perceptions of their teachers' dominant qualities and describe the feedback given by them, to examine how this feedback is related to learners' achievements and motivation level and how all this is related to classroom climate. In other words, to investigate whether learners' perception of the teaching and education they receive from their teachers can explain factors of their success.

Theoretical background

Teacher feedback provided by students

Based on the view of teaching as a profession based on a progressive approach, it is important for the teacher to evaluate his or her work. But such an evaluation is likely to be highly subjective. Thus researchers (Peterson & Peterson, 2006) recommend that teachers receive feedback about their performance from external sources, including their students. This is likely to provide much information about their performance, professional and human behavior, expertise and relations with their students. Such evaluation can provide a more objective mirror than any process of self-evaluation, which is mainly subjective (Darling-Hammond, 2000). Marsh and Roche (1992) indicated three basic characteristics of student evaluation of teachers: student evaluations are reliable and consistent, they relate to various dimensions of the teacher's performance and personality, and they are valid regarding different characteristics of effective teaching.

It is important to note that using student feedback is likely to serve a number of objectives, for example, improving the teacher's work, facilitating decisions regarding the teacher's advancement, increasing or minimizing his or her number of teaching hours, transferring the teacher to a different class, or awarding permanent positions. These assessments are also likely to encourage positive competition among teachers. Furthermore, they confer on students the right to evaluate the level of the teaching they experience (Paone, 2008).

Alongside all the benefits to be derived from students' assessment of their teachers, it is important to pay attention to, and emphasize, the biases that are liable to influence the results. For example, they might be influenced by student achievements so that students may evaluate their teachers based on the grades they have been given or expect to receive.

Alternatively, bias can stem from a teacher's characteristics: strict teachers might be given lower scores than less demanding ones (Tippin, Lafreniere & Page, 2012).

Classroom feedback

Educational research deals extensively with feedback that is in response to an action, a criticism or awarding a grade for an activity. It also constitutes information provided from an external or internal source with the purpose of improving performance and furthering achievement, as well as encouraging high-quality performance (Solomon, Klein & Politylo, 2012). Feedback constitutes a means of improving teaching by promoting positive classroom processes in which learners provide feedback to their teachers, both directly and indirectly. This includes expressing involvement or indifference, concentration or a lack thereof, and good behavior as a positive response and bad behavior as a sign of protest (Sweigart, Landrum & Pennington, 2015).

“Teacher assessment” is a concept made up of three components: *teacher competence*, which relates to the repertoire of his or her talents and abilities; *teacher performance*, relating to what the teacher does while at work; and *teacher effectiveness*, relating to how the teacher influences student achievement. Effectiveness not only depends on skill and performance, but also on students' responses to them (Glackin & Hohenstein, 2018). From this it appears that teachers' assessment is directed towards aiding them in understanding how they teach. Assessment relates to evaluation and feedback regarding the teacher's abilities, their application in the classroom and how effective they are in reality (Linse, 2017).

Danielson (2013) has developed a teaching evaluation tool made up of four main measures. The first deals with perception of the teacher's role and his or her professional ethics; the second deals with knowledge; the third deals with organizing and managing the lesson; and the fourth expects school teachers to apply personal development and learning to teaching and display an informed understanding of the link between teaching and learning (Liu & Liao, 2019).

Assessing didactic level

On the didactic level, high-quality teachers are those that adopt the approach of constructing knowledge for the purpose of advancing learners' critical thinking and creativity. Such teachers will create an optimal situation for learners in which they succeed in expressing their ideas and clarify strategies for finding solutions. This is accomplished by means of combining a variety of teaching methods and demonstrations and improving learners' investigative skills (Wiener & Lundy, 2013). Familiarity with, and deep understanding of, the content and material to be covered are extremely important for good teaching, alongside proficiency in teaching skills (Wiggins, 2012).

Assessing pedagogic level

High-quality teachers on a pedagogic level are those that enable quality teaching that furthers learners' social and emotional needs by organizing a classroom climate that promotes positive relations among learners and encourages the acquisition of linguistic and scientific skills (Burchinal, Vandergrift, Pianta & Mashburn, 2010). High-quality teachers are those that apply rules of clarity, variety, enthusiasm, task-centeredness, critical thinking, indirectness, learning opportunities, designing comments, variety in question level and cognitive activity. They devote considerable time to explaining processes clearly, going over homework and evaluating it and checking whether learners have mastered this skill. The purpose of all the above is to raise the teaching and learning to the level of excellence (Williams, Mayer & Minges, 2011).

In addition, student feedback indicates that they require a humanitarian attitude on the part of the teacher who encourages and supports them, and they require that the teacher be available for guidance and suggestions, as well as for helping to solve personal problems. Thus, consideration for learners as individuals, listening to their problems and relating to them positively enables them to feel secure during the learning process (Liu & Liao, 2019).

Classroom climate

The classroom is a social-educational organization that can create varied didactic and emotional climates. The classroom climate is the sum total of communal processes that take place in interactions between teachers and learners and among the learners themselves, with teachers playing a central role (Zedan, 2008; 2010). "Classroom climate" has been given an integrative definition by many researchers as an intellectual, social, emotional and physical environment in which students learn and which is determined by a set of interactions among different factors, including teacher-student relations, relations among students, demography, stereotypes, different perspectives, etc. (Patrick, Kaplan & Ryan, 2011; Reyes, Brackett, Rivers, White & Salovey, 2012). Zedan (2011) described classroom climate as a function of the educational culture present in the classroom, while emphasizing the impact of the teacher's image, his or her qualities and teaching style on that climate. The teaching method according to which the lesson is organized, the type of class, student and teacher characteristics, the nature of the country and the community and the school, as well as social and individual variables all play their part (Zedan, 2010).

Studies (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013; Zedan, 2010) emphasize the importance of the relationship between students and teachers and among themselves in shaping classroom climate, in addition to the style of classroom dialogue in which the teacher has an impact, for better or worse, on learners' achievements and motivation.

Learning Motivation

Motivation is defined as an internal force that impels the individual to make an effort for a period of time to achieve objectives that were determined beforehand (Glynn & Koballa, 2006). In other words, motivation is in effect the desire to invest time and effort in an activity, even if it involves difficulties and failures. It is a process that stimulates, guides and preserves people's behavior in order to achieve a particular goal (Glynn, Brickman, Armstrong & Taasobshirazi, 2011; Vedder- Weiss & Fortus, 2012).

The learner will feel comfortable in the classroom and will be motivated to learn when he or she experiences the teacher as someone who believes in his or her ability to achieve learning goals; when the teacher invites him or her to take an active role in what occurs in the classroom; when the teacher relates to him or her as a special person who has strengths alongside weaknesses; when the teacher conveys a clear message that the class belongs to all those who enter it; and when the learner is aware that the teacher is seeking a variety of ways to present the material, so that all learners will succeed (Ryan & Deci, 2017).

It is essential that learning materials be challenging. Integrating and applying a variety of teaching and assessment methods is a necessary condition for increasing learning motivation (Ryan & Brown, 2005). Studies identified a consistent correlation between motivation and learning achievements. The results indicated that a trend towards internal motivation would result in higher learning achievements (Kusurkar, Kruitwagen, Ten-Cate & Croiset, 2010).

In light of this theoretical background, the study seeks to examine the following research questions:

1. How do learners assess their teachers by means of structured written feedback? Are there differences among learners when assessing their teachers based on gender and age group? Are there differences in assessing teachers according to the subject being taught?

2. What is the learners' motivation level? Are there differences among learners' motivation level based on their age group and gender? Are there differences among them based on their teachers' characteristics?

3. How do learners perceive the climate prevalent in their classrooms? Are there differences among learners in perceiving classroom climate based on the subject being taught, their gender or age group? Are there differences in perception of classroom climate based on teacher characteristics (gender, age and educational level)?

4. Are there correlations between learners' teacher assessment, perception of classroom climate, motivation level and learning achievements? Does assessment of teachers and classroom climate in its various aspects succeed in predicting learners' achievements as mediated by motivation level?

Method

The present study was conducted according to a paradigm of the "ex post facto" type as a quantitative, correlative, descriptive field study (Zedan, 2018). This paradigm requires the use of tests and statistical indices to test the research hypotheses. For the purpose of testing the current research hypotheses, center and scatter indices are used, correlation tests by Pearson's correlation coefficient, variance analysis and difference testing, and multiple linear regression analysis.

The research population

The research study was conducted with school students from the entire Arab community in Israel (Muslim and Christian Arabs, Druze, Circassians, and Bedouin.) attending elementary schools, junior highs or high schools belonging to the secular state educational system.

The educational system in the Arab community suffers from serious difficulties. There is a low achievement level, as indicated by national and international examinations (the Pisa Examination has recently indicated the severity of the problem). There is a high dropout level, low budgets and resources, overcrowded classrooms, a lack of suitable facilities and buildings, a rise in violence, a lack of clarity regarding future orientation and career choices among high school students due to lack of employment opportunities and an unwillingness to integrate Arab citizens into national institutions, and a general situation of social, educational, economic and political neglect/discrimination (Balas, 2018; Haddad-Haj, Yichia and Rodnitzky, 2018).

The Sample

In the present study 2599 learners participated, selected from approximately 80 Arab elementary schools, junior highs and high schools from northern and central districts and the Haifa area. Questionnaires were distributed by surveyors who visited the schools and selected entire classes to participate in the study. While students were requested to complete the questionnaires, the surveyor was on hand to answer any questions they might have. It is important to note that it is not customary in schools for learners to assess their teachers and fill out evaluation forms, so they had no prior experience of this before the current study. Their completion of the teacher assessment questionnaires was for the sole purpose of conducting the research study.

Table 1. Characteristics of students and their teachers

	<i>variable</i>	<i>frequency</i>	<i>percentage</i>
Subject	Languages	1077	41.4
	Sciences	668	25.7
	Mathematics & computers	490	18.9
	Other	339	13.0
	Missing	25	1.0
Student gender	male	1139	43.8
	female	1431	55.1
	Missing	29	1.1
School level	elementary	1755	67.5
	Secondary	696	26.8
	High	112	4.3
	Missing	36	1.4
Teacher gender	male	455	17.5
	female	1477	56.8
	Missing	667	25.7
Teacher age	Up to 30	204	7.8
	31-40	1074	41.3
	41-50	461	17.7
	51-60	240	9.2
	60 over	47	1.8
	Missing	573	22.0
Teacher seniority	beginning Teacher	26	1.0
	Up to 10	120	4.6
	11 - 15	548	21.1
	16-20	873	33.6
	21-30	403	15.5
	30 over	28	1.1
	Missing	601	23.1
Total		2599	100.0

Research tools

The research used a structured questionnaire that consisted of four parts:

1. A learning motivation questionnaire to measure learners' motivation level, based on numerous studies in the field (Schunk, Pintrich & Meece, 2008) and adapted for the needs of the present research. The questionnaire was composed of 15 statements.

2. Teacher feedback – A questionnaire to assess the teacher and the lesson. This was developed for the purpose of the present study and partially based on Awad, Zoabi and Khalil (2010). It was made up of 23 statements whose purpose was to describe the level and quality of the teacher and the lesson regarding pedagogical, didactic and organizational level.

3. A questionnaire to measure and describe how students perceive classroom climate. A structured questionnaire was developed based on Zedan (2008), which was used in previous studies (Zedan, 2010; Zedan, 2011); It consisted of 40 statements describing classroom interactions and situations.

The replies were on a five-point Likert scale. A factor analysis was performed for three parts of the questionnaire.

Table 2. Dimensions of each section; Statements (items) for each dimension; Cronbach Alpha values for each dimension and each section

<i>Cronbach Alpha</i>	<i>Statements (items)</i>	<i>Dimensions</i>	<i>section</i>
0.775	1, 2, 3, 6	Evaluation of the lesson (order and organization)	Teachers' evaluation by students (feedback)
0.608	5, 4	Evaluation of the subject (difficulty)	
0.836	7, 8, 9, 10, 11, 14, 17, 227	Teacher evaluation at the didactic level	
0.868	12, 13, 15, 16, 18, 19, 20, 21	Teacher evaluation at the pedagogical level	
0.888	(*23,*5,*4)1-23	General evaluation	Motivation for learning
0.849	1, 2, 3, 5, 6, 7, 8, 9, 10, 13, 14, 15	Motivation	
Omitted	12, 11, 4	Indifference and lack of motivation	
0.775	(*12,*11,*4)1-15	General motivation	
0.775	1, 7, 9, 11, 12, 23, 35	Satisfaction, enjoyment and pleasure	Classroom climate
0.786	2, 6, 10, 20, 22, 24, 30, 33, 34, 36, 39	Teacher-student relationship	
0.735	15*, 18*, 19*, 29*, 31	Gender tension and inequality	
0.694	3*, 4*, 5, 21*, 27*, 28*, 32*	Student-student relationship	
0.661	13*, 17*, 26*, 38*, 40*	Competitiveness	
0.611	*25,*16	Difficulty of the subject	
0.795	1-40 (3, 4, 13, 15, 16, 17, 18, 19, 21, 25, 26, 27, 28, 29, 31, 32, 37, 38, 40)	Classroom climate	

*negative item

The variables and their dimensions were constructed by calculating the average of the replies regarding the statements making up each dimension and variable according to the above table. Each participant received a numerical value from 1 to 5, where a high value indicated a higher perception of the dimension or variable.

Results

The first question

How do learners assess their teachers by means of structured written feedback? Are there differences among learners when assessing their teachers based on gender and age group? Are there differences in assessing teachers according to the subject being taught? Are their differences in assessing teachers by learners based on teachers' characteristics?

It was found that students assess their teachers highly regarding didactic and pedagogic levels with averages of ($M=4.11$, $SD=0.81$) and ($M=4.19$, $SD=0.73$). They also assess the lesson positively ($M=4.18$, $SD=0.79$) and report a certain degree of Evaluation of the subject (difficulty) ($M=3.81$, $SD=1.04$). The general assessment score is above average

($M=3.96$, $SD=0.60$). The differences among learners based on age group and gender was examined by a two-directional variance analysis.

The results indicate significant differences among learners at various levels in evaluating the lesson (order, organization and clarity) ($F(2,2525)=96.12$, $p<0.001$). In addition, significant differences were found between boys and girls for each age group in assessing the lesson ($F(2,2525)=4.83$, $p<0.01$). The findings indicate that elementary school learners give the lesson a higher ranking, especially girls, followed by junior high learners (again especially girls) and high school students, while here too girls gave higher rankings than boys.

It was found that there were significant differences among learners at different levels regarding the difficulty of the subjects taught ($F(2,2525)=50.70$, $p<0.001$), but such differences were not found for boys and girls. No significant interaction was found between age level and gender regarding assessment of lesson difficulty ($F(2,2525)=0.80$, $p>0.05$). High school students reported higher levels of lesson difficulty, followed by junior high students and elementary school students. Boys and girls at all levels reported similar difficulty levels.

Significant differences were found among students at the various levels for the teacher's didactic level ($F(2,2525)=72.48$, $p<0.001$); significant differences were found among boys and girls at all levels ($F(2,2525)=37.19$, $p<0.001$), and interaction was found between age level and gender regarding evaluating the teacher's didactic level ($F(2,2525)=10.10$, $p<0.01$). The results indicate that elementary school students rate teachers higher from a didactic perspective, especially girls, followed by high school students (also girls) and finally junior high students. It was found that girls evaluate their teachers higher from a didactic point of view than boys.

When rating teachers from a pedagogic perspective, significant differences were found among learners at the various levels ($F(2,2525)=47.30$, $p<0.001$), as well as significant differences between boys and girls at all levels and in general ($F(2,2525)=25.72$, $p<0.001$). Interaction was found between level and gender in assessing teachers from a pedagogic standpoint ($F(2,2525)=3.55$, $p<0.05$). The results indicate that elementary school students evaluate their teachers higher from a pedagogic point of view, especially girls, followed by high school students (also girls), and finally junior high learners. It was found that girls evaluate teachers higher pedagogically than boys.

Generally, significant differences were found among learners at the different levels in assessing the teacher and the lesson from all aspects ($F(2,2525)=67.55$, $p<0.001$) and significant differences were found among boys and girls at every level and in general ($F(1,2525)=45.50$, $p<0.001$), while interaction was found between level and gender in general assessment ($F(2,2525)=7.94$, $p<0.01$). Elementary school learners assess their teachers the highest, followed by high school students and finally by junior high students. Girls were generally found to evaluate their teachers higher than boys.

In addition to these findings, differences were examined in evaluating the lesson and the teacher according to the subject being taught. It was found that mathematics and computer teachers were awarded the highest ratings. In second place with minor differences were language teachers, after them science teachers and finally teachers of humanistic subjects.

Regarding professional teachers' characteristics and student feedback, a factor-dependent multi-variable variance analysis was performed, which examined the correlation between the teachers' age and gender and school level and students' evaluation level. In addition to the findings presented above regarding assessing the lesson and the teacher according to school level, significant differences were found based on teacher gender in assessing the lesson ($F(1,1869)=7.58$, $p<0.01$) and assessing subject difficulty

($F(1,1869)=8.61, p<0.01$). In addition a difference was found in assessing the teacher from a didactic ($F(1,1869)=29.61, p<0.001$) and pedagogic perspective ($F(1,1869)=26.42, p<0.001$), as well as general assessment of the teacher and the lesson ($F(1,1869)=25.57, p<0.01$). In addition, significant differences were found based on the teacher's age in the following dimensions: assessing the lesson ($F(4,1869)=3.35, p<0.05$), and assessing the difficulty level of the subject taught ($F(4,1869)=12.66, p<0.001$). Furthermore, differences in teacher evaluation in the didactic ($F(4,1869)=7.61, p<0.001$), and pedagogic ($F(4,1869)=8.859, p<0.001$) sphere, as well as in the general assessment of teacher and lesson ($F(4,1869)=5.81, p<0.01$). The findings indicate that students gave higher rankings to female rather than male teachers and prefer older female teachers over younger ones, but prefer younger male teachers over older ones.

The second question

What is the learners' motivation level? Are there differences among learners' motivation level based on their age group and gender? Are there differences among them based on their teachers' characteristics?

It was found that the general motivation level for all the learners in the Arab community was average or slightly above average ($M=3.60, SD=0.60$). When examining differences among learners regarding their motivation level based on age and gender and according to their teachers' characteristics, a multi-variable variance analysis was conducted.

The findings indicate a significant difference in motivation based on learners' gender ($F(1,2101)=8.50, p<0.01$). It was found that girls report a higher motivation level than boys. Differences were also found in motivation level based on class subject ($F(2,2101)=8.33, p<0.001$). Learners reported high motivation levels in mathematics and languages. In addition, a significant difference was found based on grade level ($F(1,2101)=29.68, p<0.001$), while the lowest level was found in elementary school students, then junior high and finally high school, where the motivation level was found to be average.

Regarding the correlation between students' motivation and their teachers' professional characteristics, a multi-variable variance analysis was conducted that revealed that there is a difference in motivation level according to their teachers' age ($F(1,1484)=4.34,$

$p<0.01$), where students learning with young teachers are more motivated than those learning with older teachers. No differences were found in learners' motivation according to teachers' gender or educational level.

The third question

How do learners perceive the climate prevalent in their classrooms? Are there differences among learners in perceiving classroom climate based on the subject being taught, their gender or age group? Are there differences in perception of classroom climate based on teacher characteristics (gender, age and educational level)?

Learners reported a positive, above average attitude to the dimensions of satisfaction, enjoyment and gratification ($M=4.00, SD=0.74$) and teacher-student relationships ($M=3.79, SD=0.68$), but gave slightly lower scores for competitiveness ($M=3.70, SD=0.83$). They reported an average perception of the dimension of student-student relationship ($M=3.13, SD=0.78$), a low rating for the dimension of tension and gender inequality ($M=2.37, SD=0.92$) and a below-average rating for the dimension of difficulty of the subject ($M=2.65, SD=1.14$).

Generally, learners reported an average or slightly above average perception of general classroom climate ($M=3.46$, $SD=0.49$). In an analysis of learners' perceptions of classroom climate according to class subject and age level, a multi-variable three-factor variance analysis was performed. Results indicate significant differences in perceptions of general classroom climate and satisfaction, enjoyment and gratification, teacher-student relations and competitiveness according to learners' age, but no significant differences were found regarding subject difficulty, student-student relations, tension and gender inequality. It was found that elementary school learners gave a higher rating to good classroom climate providing satisfaction, enjoyment and gratification, good teacher-student relations and competitiveness than junior high students, while those gave a higher rating to these dimensions than high school students.

In addition, differences were found regarding general classroom climate and its dimensions - except competitiveness - for boys and girls. While girls gave higher ratings to satisfaction, enjoyment and gratification, teacher-student relations and relationships among learners and competitiveness than boys; conversely, boys reported higher tension, gender inequality, and difficulty with class subjects than girls.

As for learners' perceptions of classroom climate and its dimensions according to class subject, significant differences were found in ratings: they reported the highest ratings for satisfaction, enjoyment and gratification, teacher-student relations, student-student relations, competitiveness and general classroom climate in mathematics lessons, slightly lower ratings for language lessons, next science lessons and finally humanistic subjects. However, regarding tension and gender inequality, they rated science lessons higher than mathematics or languages.

Differences were also examined regarding classroom climate and its dimensions in learners' eyes according to teacher characteristics. Significant differences were found based on teachers' gender, as those learning with female teachers reported a more positive attitude towards satisfaction, enjoyment and gratification, teacher-student relations, competitiveness and general classroom climate compared with classes taught by male teachers. On the other hand, students reported tension, gender inequality and higher difficulty level when the teacher was male. In other words, positive dimensions were rated higher when the teacher was a woman and negative dimensions were rated higher when the teacher was a man.

Furthermore, significant differences were found in student perceptions of classroom climate and its dimensions according to the teacher's age. Students learning with younger teachers reported more positive perceptions of satisfaction, enjoyment and gratification, teacher-student relations, competitiveness and general classroom climate than those learning with older teachers. The older the teacher, the lower the ratings for general classroom climate. However, learners reported higher levels of tension, gender inequality and difficulty in classes taught by older teachers. That is, negative dimensions were rated higher the older the teacher was.

A surprising finding related to the correlation between perceptions of classroom climate and teachers' educational level. The findings indicate that learners perceive more satisfaction, enjoyment and gratification, teacher-student relations, competitiveness and general classroom climate when the teacher's qualifications are lower: the higher they are, the lower the ratings for these dimensions. This means that there was a trend towards lower ratings for positive dimensions of classroom climate in classes taught by more highly qualified teachers. Conversely, ratings were higher for tension, gender inequality and difficulty according to the teacher's qualification level.

The fourth question

Are there correlations between learners' teacher assessment, perception of classroom climate, motivation level and learning achievements? Does assessment of teachers and classroom climate in its various aspects succeed in predicting learners' achievements as mediated by motivation level?

In the first phase, the correlation was examined between teacher feedback, classroom climate, learners' motivation level and their academic achievements. The findings indicate a strong significant correlation between the manner in which the class is conducted (order and organization) and students' motivation for learning ($r=0.51$, $p<0.001$). Strong significant correlations were found between how the class is conducted and classroom climate and its dimensions: satisfaction, enjoyment and gratification ($r=0.60$, $p<0.001$), teacher-student relations ($r=0.55$, $p<0.001$), student-student relations ($r=0.13$, $p<0.01$) competitiveness ($r=0.22$, $p<0.01$) and general classroom climate ($r=0.48$, $p<0.001$). However, a significant negative correlation was found between how the class is conducted and difficulty level ($r=-0.25$, $p<0.01$). Furthermore, a significant correlation was found with academic achievements ($r=0.29$, $p<0.001$). Significant positive correlations were found between estimating the difficulty level of a class subject and general motivation ($r=0.21$, $p<0.01$), and classroom climate and its dimensions: satisfaction, enjoyment and gratification ($r=0.32$, $p<0.001$), teacher-student relations ($r=0.31$, $p<0.001$), competitiveness ($r=0.15$, $p<0.01$) and general classroom climate ($r=0.19$, $p<0.01$).

Strong positive significant correlations were found between teacher evaluation on the didactic level and learning motivation ($r=0.52$, $p<0.001$) and between teacher evaluation on the didactic level and classroom climate and its dimensions: satisfaction, enjoyment and gratification ($r=0.62$, $p<0.001$), teacher-student relations ($r=0.57$, $p<0.001$), student-student relations ($r=0.15$, $p<0.01$), competitiveness ($r=0.23$, $p<0.01$) and general classroom climate ($r=0.50$, $p<0.001$). On the other hand, significant negative correlations were found for teacher evaluation on the didactic level and dimensions of tension and gender inequality ($r=-0.254$, $p<0.01$) as well as difficulty level ($r=-0.241$, $p<0.01$). In addition, a significant correlation was found with academic achievements ($r=0.20$, $p<0.001$).

Strong positive significant correlations were also found between teacher evaluation on the pedagogic level and learning motivation ($r=0.50$, $p<0.001$) and satisfaction, enjoyment and gratification, teacher-student relations, competitiveness and general classroom climate and its dimensions: satisfaction, enjoyment and gratification ($r=0.62$, $p<0.001$), teacher-student relations ($r=0.57$, $p<0.001$), student-student relations ($r=0.17$, $p<0.01$), competitiveness ($r=0.20$, $p<0.01$) and general classroom climate ($r=0.50$, $p<0.001$). Conversely, negative significant correlations were found between teacher evaluation on the didactic level and tension and gender inequality ($r=-0.22$, $p<0.01$) as well as difficulty level ($r=-0.20$, $p<0.01$). In addition, a significant correlation was found with academic achievements ($r=0.21$, $p<0.001$).

In general, strong positive significant correlations were found between evaluating the teacher and the lesson and learning motivation ($r=0.57$, $p<0.001$) and between evaluating the teacher and the lesson and classroom climate and its dimensions: satisfaction, enjoyment and gratification ($r=0.66$, $p<0.001$), teacher-student relations ($r=0.60$, $p<0.001$), student-student relations ($r=0.195$, $p<0.01$), competitiveness ($r=0.22$, $p<0.01$) and general classroom climate ($r=0.57$, $p<0.001$). Conversely, negative significant correlations were found between evaluating the teacher and the class and the dimensions of tension and gender inequality ($r=-0.31$, $p<0.01$) as well as difficulty level. In addition, a significant correlation was found with academic achievements ($r=0.21$, $p<0.001$) and general classroom climate ($r=0.50$, $p<0.001$). Conversely, negative significant correlations were found between teacher evaluation on the didactic level and tension and gender

inequality ($r=-0.22$, $p<0.01$) as well as difficulty level ($r=-0.30$, $p<0.01$). In addition, a significant correlation was found with academic achievements ($r=0.25$, $p<0.001$).

Furthermore, positive significant correlations were found between academic achievements in the classroom subject and the dimensions of classroom climate: satisfaction, enjoyment and gratification ($r=0.17$, $p<0.01$), teacher-student relations ($r=0.14$, $p<0.01$), competitiveness ($r=0.12$, $p<0.01$) and general classroom climate ($r=0.17$, $p<0.01$) Conversely, negative significant correlations were found between academic achievements in classroom subjects and tension and gender inequality ($r=-0.170$, $p<0.01$), as well as difficulty level ($r=-0.211$, $p<0.01$).

Table 3. Regression coefficients for predicting academic achievements according to teacher assessment, classroom climate and its dimensions and motivation level

<i>predictor</i>	<i>B</i>	<i>S.E.</i>	<i>Beta</i>	<i>t</i>
Evaluation of the lesson (order and organization)	-4.16	1.28	-.19	-3.26**
Evaluation of the subject (difficulty)	3.02	.67	.18	4.50***
Teacher evaluation in the didactic level	-19.88	2.31	-.85	-8.62***
Teacher evaluation at the pedagogical level	-16.71	2.15	-.78	-7.76***
General evaluation	53.73	6.02	1.87	8.92***
General Motivation	3.18	.80	.11	3.96***
Satisfaction, enjoyment and pleasure	-5.77	12.22	-.25	-.47
Teacher-student relationship	-7.46	19.15	-.29	-.39
Gender tension and inequality	3.77	10.47	.20	.36
Student-student relationship	-6.13	12.16	-.27	-.50
Competitiveness	4.07	8.73	.19	.47
Difficulty of the subject	-.48	3.51	-.03	-.14
Classroom climate	22.82	66.15	.63	.35
$R^2=0.18$, $F(13,2077)=34.82$, $p<0.001$				

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

The findings indicate that the regression model for predicting academic achievements based on teacher assessment, classroom climate and its dimensions and motivation level is significant ($F(13,2077)=34.82$, $p<0.001$) and that it explains only 18% of variance in academic achievements, not a high percentage.

It was found that assessing the teacher and the lesson and learning motivation are variables that significantly predict the level of academic achievement for a particular subject, while the classroom climate and its dimensions do not significantly predict achievement. In other words, learners' motivation and their evaluation of their teachers explain academic achievements better than the classroom learning environment.

Discussion

The objective of the present study was to measure and describe the attitudes of Arab learners in Israel towards their teachers and the lessons they teach by means of written assessment and feedback. Learners' motivation for learning was also measured, as well as

their perceptions of classroom climate. In addition, an analysis was performed regarding the correlation between these variables and their ability to predict students' academic achievements. Furthermore, differences were examined between teacher and class assessment, motivation level and perceptions of classroom climate based on students' characteristics and teachers' personal and professional traits.

Assessment and feedback

The main results of the study relate to teacher assessment by their students and the feedback that students provide to their teachers. These results indicate that students evaluate their teachers highly on the didactic and pedagogic level, and also give high ratings to the lesson (regarding order and organization). However, they do report a certain amount of difficulty in lessons. General assessment is above average; it was found that girls assess the teacher and the lesson higher than boys at every age level. High school students rate a high level of difficulty, then junior high students and after them elementary school students. Elementary school students evaluate their teachers the highest from a didactic and pedagogic aspect, after them high school students and finally junior high learners. It was found that girls evaluate their teachers didactically higher than boys at all levels. It was found that teachers of mathematics and computers were awarded the highest ratings, both on the didactic and pedagogic levels, despite reports that mathematics was the most difficult subject. Language teachers were rated slightly lower than math teachers, followed by science teachers, and lastly, teachers of humanistic subjects. In addition, it was found that students rate female teachers higher than male ones and prefer older female teachers to male ones, but younger male teachers to older male ones.

Studies have not been published regarding student assessment of teachers, but some have appeared that dealt with perceptions of teacher characteristics by others. A study conducted with students examined their perceptions of the good teacher. They were requested to answer the following research question: "What are the most important qualities of a good teacher, or what are the dominant characteristics of good teachers according to their students' perceptions?" The following characteristics were reported: "has good contact with children," "has broad knowledge of every subject she teaches," "creates a positive learning environment," "provides positive reinforcement to the learner" and "contributes to learners' development and cognitive abilities" (Karawani, 2015). Similarly, Hativa (2003) indicated that the teacher's relationship with the learners is a very important element in defining what makes a good teacher and how he/she will be evaluated. They added that this quality is important for creating a positive atmosphere in the classroom, which is likely to positively influence on the students' learning processes.

According to Reichel and Arnon (2005), learners assessed their teachers positively when they were perceived to provide good teaching through two channels: the affective-emotional channel and the cognitive-conscious channel. The affective-emotional channel includes teachers' values and personality, as well as their creating good relations with and advising learners. The cognitive-conscious channel includes teachers' mastery of the learning material and their level of scholarship, teaching skills and professional delivery of the material, as well as their ability to create a supportive learning environment by providing intellectual challenges and tools for coping with the learning materials and aiding their students in developing skills and processes of independent thought.

The results of the present study provide additional evidence that good teachers combine between the affective and cognitive aspect, in other words, between their personality characteristics and their abilities. Especially striking is the perception of the combination of qualities related to caring about learners and high teaching abilities. Katzer, Ezer and Shalom (2007) reported similar findings.

Learners gave high ratings to lessons regarding order and organization, as well as teachers' didactic and pedagogic levels. These results correspond with Moore's (2006) study, which suggested one out of three models of the good teacher: one that has a charismatic personality that elicits admiration on the part of his or her students and maintains good, open communication with them. Moore also presents an additional model of a good teacher who has command of technical knowledge, is expert in developing lesson plans and is proficient at evaluating student work, i.e., a teacher who is successful on both didactic and pedagogic levels.

The findings of the present study correspond with Kinach (2002), who claimed that one of the qualities of the good teacher is mastery of the learning material. The good teacher possesses broad knowledge of the facts and structure of his field and pedagogic knowledge, i.e., expertise in the knowledge domain and in teaching skills (Shoval, Talmor & Garmise, 2006). A teacher having knowledge, experience and a variety of teaching strategies will be more successful. He or she will devote much time to explaining processes clearly, will pay attention to homework and its quality and will check if learners have successfully mastered this skill (Beishuizen et al., 2001).

Regarding learners' reports of learning difficulties, both as feedback and perception of classroom climate, the results support the results of nation-wide tests such as the "MITZAV" (School Indices of Efficiency and School Growth) Examination and those of international tests, such as the Pisa and Times Examinations. These tests indicated that learners from the Arab sector have difficulties with school subjects (especially languages, math and sciences), and due to this their achievements are lower, resulting in a large gap between Jews and Arabs. Thus, the grade levels of students from the Arab sector are currently at an all-time low, even more so than in the previous exam that took place in 2015. As a result, the Israeli Ministry of Education announced that it would appoint a committee to investigate the circumstances that have brought about such a sharp decline in Arab students' achievements (OECD, 2019).

Motivation

The results of the present study indicate that the general motivation level for all learners in the Arab sector is slightly above average. Learners reported a high motivation level for math and a slightly lower one for language study. The lowest motivation level was reported by elementary school students, then junior high and finally high school students who were characterized by an average motivation level. The educational motivation levels of those learning with young teachers are higher than those learning with older teachers. No differences were found in learners' motivation level based teachers' gender or educational qualifications.

Today the motivation level for learning amongst Arab learners is on the increase. This may be seen in the rise in the number of Arab students at all grade levels, especially the higher ones and particularly in academic institutions, where the percentage of Arab students, especially in prestigious professions such as medicine and high-tech, has risen considerably (Haddad-Haj-Yichia & Rodensky, 2018). Clearly learners understand that entry into these fields requires academic success, particularly in the fields of math and science, and this is likely to explain their high motivation to learn mathematics.

Classroom climate

According to the present study, learners reported a positive, above average perception of the dimensions of satisfaction, enjoyment and gratification and teacher-student relations, but slightly less for competitiveness. They reported average perceptions of student-student relations, gave a low rating to gender inequality and a below-average

rating to difficulty level. In general, learners reported an average or slightly above average perception of general classroom climate.

Significant differences were found in perceptions of general classroom climate and its dimensions: satisfaction, enjoyment and gratification, teacher-student relations and competitiveness according to learners' age level, but no significant differences were found regarding difficulty level, student-student relations and gender inequality. It was found that regarding general classroom climate, elementary school students gave higher ratings to satisfaction, enjoyment and gratification, teacher-student relations and competitiveness than junior high students, but these gave higher ratings to the above than high school students.

Girls reported higher ratings for satisfaction, enjoyment and gratification, teacher-student relations and student-student relations than boys. Conversely, boys reported higher ratings for gender inequality and learning difficulties than girls.

Learners gave high ratings to satisfaction, enjoyment and gratification, teacher-student relations, competitiveness and general classroom climate to math lessons, with slightly lower ratings to language lessons, followed by science lessons and finally humanistic subjects. However, a higher level of difficulty level and gender inequality was reported by learners in science lessons than in math and language classes. Those learning with female teachers reported more positive perceptions of classroom climate than those learning with men in dimensions of satisfaction, enjoyment and gratification, teacher-student relations, competitiveness and general classroom climate. On the other hand, learners reported more tension, gender inequality and difficulty level when the teacher was male. In other words, positive dimensions were more highly rated for women than men. Furthermore, it was found that those learning with younger teachers perceived a more positive attitude towards satisfaction, enjoyment and gratification, teacher-student relations, student-student relations, competitiveness and general classroom climate than those learning with older teachers. The older the teacher was, a corresponding decline was found in ratings of general classroom climate. At the same time, learners reported a higher level of tension and gender inequality and difficulty level in classes taught by older teachers. This means that the older the teachers were, the more negative the perception of the dimensions.

A surprising finding related to the correlation between perception of class climate and its dimensions with the teacher's qualifications. The findings indicated that learners perceived the dimensions of satisfaction, enjoyment and gratification, teacher-student relations, student-student relations, competitiveness and general classroom climate to be lower in proportion to the teacher's qualifications being higher, i.e., the lower the teacher's qualifications, the higher the ratings for classroom climate. On the other hand, learners reported higher levels of tension, gender inequality and difficulty with lessons where the teacher was more qualified, i.e., negative dimensions were rated more highly for more highly trained teachers.

The results relating to learners' perceptions of class climate and its dimensions by learners and their correlation with learners' characteristics and the subject being taught correspond with the results of Zedan's extensive study (2010), which indicated the following: 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.

The results of Zedan's other studies (2008; 2011) yielded similar results, which emphasized that the classroom climate in math lessons was positive, especially for elementary school students. However, regarding averages for teacher characteristics and classroom climate, no research studies were found that examined this topic, but it is possible to explain the negative correlation between perceiving positive dimensions and the teacher's age by the fact that learners are more motivated and enjoy lessons more when their teacher is young, as he or she is capable of encouraging and motivating them and is closer to them in age. This especially holds true for elementary school students, as a younger teacher can better contain them and understand their world. A correlation was also found between learners' perceptions of classroom climate and teachers' qualifications, while the higher the teachers' qualifications, the lower the rating for class atmosphere. Perhaps this can be explained by the possibility that teachers with higher qualifications feel that they should be employed elsewhere and this affects their classroom behavior and their relations with their students. In addition, they are likely to introduce teaching strategies and evaluations that are too advanced for their students.

The correlation between the study's variables and learning achievements

The results indicate average to strong significant correlations between student feedback about teachers and between their motivation level, classroom climate and its dimensions and learning achievements. Thus, a strong significant correlation was found between evaluating the teacher from a pedagogic standpoint and motivation. In other words, it was found that students' motivation level rises when they take part in assessing the teacher and the lesson and that this is likely to give them a sense of responsibility, participation and maturity, and that they are a source of authority and opinion.

According to a regression model for predicting learning achievements based on teacher assessment, classroom climate and its dimensions and motivation level, it was found that these variables explain only 18% of variance in learning achievements. This is not a high percentage. It was found that assessing the teacher and the lesson and motivation level are variables that significantly predict learners' achievements in a specific subject, but classroom climate and its dimensions do not significantly predict this. In other words, learners' motivation level and assessment of their teachers explain their academic achievements better than classroom climate.

These findings support those of other studies that found that teachers on a high pedagogic level are those who enable high-quality teaching that advances learners' social and emotional needs by organizing a learning environment that increases the correlations among the learners and encourages the acquisition of linguistic and scientific skills, in addition to high-level thinking (Burchinal, Vandergrift, Pianta & Mashburn, 2010; Rockoff, 2004). Quality teachers are those who apply rules of clarity, variety, enthusiasm, task orientation, critical thinking, indirectness, providing learning opportunities, designing comments, variety in question level and cognitive activities. They will apportion time to explaining processes clearly, paying attention to homework, examining its quality and checking that learners have mastered this skill (Korthagen, 2004) in order to raise the level of teaching and learning to spheres of excellence (Williams, Mayer & Minges, 2011). In addition, research has indicated that a good teacher is one that enables and creates a comfortable, supportive, warm atmosphere during his or her lessons, being aware that the learning environment influences student learning (Nye, Konstantopoulos & Hedges, 2004). The classroom learning atmosphere, then, depends on the teacher's verbal and non-verbal behavior. Researchers relate to the learning environment as having

prime importance when analyzing aspects of learning contributing to informed teaching (Hativa, 2003). It raises the motivation level, which in turn results in raising learners' academic achievements. In this way feedback fulfills one of its goals as a means directed at improving classroom learning, in which learners regularly contribute feedback to their teachers (Myung & Martinez, 2013). Thus, we learn that teaching quality is a direct result of teacher quality, i.e., the better the teacher, the more likely that their teaching will be excellent to the same degree (Reichel & Arnon, 2005), and this will result in an increase in motivation and achievement.

Future research should to conduct interviews with students and teachers, in order to reinforce the quantitative findings, and explore the feelings and attitudes of the students in greater depth.

Conclusions

Based on the findings of the study it can be concluded that:

- The feedback that students give their teachers is very important to them.
- Students evaluate their teachers positively regarding pedagogy and didactics.
- The learning motivation of the students was found to be high.
- There was a high perception of satisfaction, enjoyment and teacher-student relations. There was a low rating of competitiveness between the students, low level of gender inequality and a low level of difficulty.
- Girls perceive classroom climate more positively than boys at all age levels, and elementary school students perceive classroom climate more positively than junior high and high school students.
- Female teachers were preferred to male ones, and younger teachers were preferred to older ones. Teachers with lower credentials were preferred to those with higher ones.
- Positive teacher ratings resulted in higher motivation and an increase in academic achievements, as well as perceptions of positive classroom climate, however, teacher feedback and motivation were found to be the most important factors in predicting student achievement.

Recommendations

The following recommendations follow from these findings:

- It is important for the educational system to organize and perform teacher assessments with the active participation of their students in order to increase learners' motivation and increase their involvement and commitment, as well as their learning achievements.
- It is more important for teachers to acquire tools and expertise in caring, coping and containment than to acquire additional academic degrees.
- It is always important to inject new blood into the system by integrating young teachers, since students can identify more easily with younger teachers, who are more energetic and closer to the children's world.
- It is important to continue to seek explanations for and causes of the low achievement level of students in Arab schools.
- It is recommended that research should be conducted from the perspective of the teachers themselves, using qualitative research, to examine how they perceive the students' feedback towards them.

Declarations

The author declares that there are no conflicts of interest in this research and that there was no external funding.

Ethical approval

Approval for participants was obtained from school administrators, teachers and classroom editors by telephone and in person. Students who declined to participate were excused without argument and all questionnaires were completed anonymously.

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