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Classroom Assessment Practices and Student Goal Orientations in Mathematics Classes

Bir Matematik Sınıfında Sınıf İçi Değerlendirme Uygulamaları ve Öğrenci Hedef Yönelimleri

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Abstract. The present study aimed to explore classroom assessment practices (7th grade) in mathematics course and how these practices are perceived by students who had different goal orientations. In addition, the study also investigated how other classroom practices (i.e. comparisons, competition, and learning experiences), which allowed for a deeper description of classroom assessment practices, were perceived by students who had different goal orientations. In line with this aim, a mathematics teacher and one of his seventh grade mathematics classes were observed for a period of eight weeks. The study followed a mixed method methodology. The first part of the study was quantitative and aimed to collect and analyse quantitative data from students to identify their goal orientations. The qualitative part included two steps which focused on; a) teachers and b) students. The teacher dimension focused on the observation of teachers' classroom assessment practices which were related to other classroom practices that could be associated with students' goal orientations. The student dimension focused on the observation of three students' behaviours during teaching/learning processes. Those students were interviewed following observations. According to the results, classroom assessment practices and other classroom practices which could be associated with students' goal orientations are perceived differently based on students' goal orientations.

Keywords: Classroom assessment practices, student goal orientations, math education

Öz. Bu çalışmada, matematik dersinde sınıf içi değerlendirme uygulamalarının nasıl olduğunun ve bu uygulamaların farklı hedef yönelimlerine sahip öğrenciler tarafından nasıl algılandığının ortaya çıkarılması amaçlanmıştır. Ayrıca bu araştırmada, matematik dersinde sınıf içi değerlendirme uygulamalarını daha derinden betimlenmesini sağlayan ve öğrenci hedef yönelimleri ile ilişkili sınıf içi diğer uygulamaların (kıyaslama, rekabet, öğrenme yaşantıları, vb.) da nasıl olduğunun ortaya koyulması ve bu uygulamaların farklı hedef yönelimlerine sahip öğrenciler tarafından nasıl algılandığının ortaya çıkarılması amaçlanmıştır. Bu amaç çerçevesinde, bir matematik öğretmeni ve bu öğretmenin 7. sınıf düzeyinde bir sınıfı matematik derslerinde 8 hafta boyunca gözlemlenmiştir. Araştırma karma araştırma modelinde yürütülmüştür. Araştırma nicel boyutunda, amaçlı bir şekilde öğrencilerin hedef yönelimlerini belirlemek için ölçek verilerinden yararlanılmıştır. Nitel boyut, öğretmen ve öğrenci boyutu olmak üzere iki aşamada gerçekleşmiştir. Öğretmen boyutunda, öğretmen sınıf içi değerlendirme uygulamalarına ve öğrencilerin hedef yönelimleri ile ilişkili olabilecek sınıf içi hedef yapıları ile ilişkili uygulamalara yönelik gözlemlenmiştir. Öğrenci boyutunda ise, seçilen üç öğrencinin sınıf içerisinde öğrenme süreçlerine ilişkin davranışları gözlemlenmiştir. Bu öğrencilerle gözlem sonrası görüşmeler yapılmıştır. Araştırmadan elde edile veriler analiz edilerek bulgular, öğrenci hedef yönelimleri bağlamında tartışılmıştır.

Anahtar Kelimeler: Sınıf içi değerlendirme pratikleri, hedef yönelimi, matematik eğitimi

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Introduction

Classroom assessment is an important dimension that affects the learning process. Classroom assessment is a fundamental control mechanism that can reveal whether students have learned or not and what teachers have achieved. This kind of assessment has attained a new status as a result of the changes in learning paradigms that have taken place in recent years. The curriculums that have been developed in the light of those paradigms highlight the need to consider assessment as a process that is undertaken to support teaching by making necessary arrangements prior to, whilst, and after teaching and one that uncovers students' strengths and weaknesses (Abell & Siegel, 2011; Acar-Erdol & Yıldızlı, 2018; Shepard, 2000). Close examination of learning processes via assessment allows teachers to obtain detailed information with regards to how their students learn and what and how much they have learned. Moreover, such information can also help teachers to refocus on teaching activities that would support students in learning more effectively (Angelo & Cross, 1993). The fact that traditional assessments methods, administered at the end of teaching, did not allow teachers to intervene in teaching/learning processes resulted in the development of alternative assessment methods and an increase in tendencies to use such alternative methods in teaching/learning processes.

Classroom assessment is an important tool in reflecting classroom teaching processes. Considering that classroom teaching processes consist of goal setting, teaching activities, and assessment, it can be assumed that those processes are interrelated. Therefore, classroom assessment can be placed in the heart of teaching/learning activities aiming to prepare students for assessment (Brookhart, 1997a).

Different classifications of classroom assessment exist in the literature. The logic that set the foundations of the framework followed in the present study, as stated above, is the treatment of classroom assessment as an important dimension which reflects the realization of classroom teaching practices and students' roles during teaching/learning activities. With this in mind, the classifications, which treated assessment and learning in tandem, were focused on in the present study. For example while Stiggins et al. (2004) classified classroom assessment as *assessment of learning* and *assessment for learning*, McMillan (2015) classified it as *assessment of learning, assessment for learning*, and *assessment as learning*. Assessment of learning is a process that is carried out after learning and aims to measure whether learning outcomes have been realized or not (Stiggins et al., 2004). Assessment for learning, on the other hand, is a kind of assessment that is carried out during teaching. This kind of assessment aims to identify students' needs, make plans for the next steps of teaching, provide students with feedback on the quality of their work, and allow them to realize and feel their control in their journeys towards success. Scoring and rating are left on the side. The real purpose is to ensure learning (Sadler, 1989). Assessment for learning is defined as a formative assessment method. This kind of assessment, carried out during teaching, aims to provide students with feedback and also identify their needs for future learning. Assessment as learning, on the other hand, allows students to observe themselves, aims to develop students' self-regulation skills, and directs students in their learning (McMillan, 2015). In this kind of assessment, students are involved in self-observation, reflection, and evaluation processes. It focuses not only on the extent of the increase in a student's learning but also on the extent of his/her skill development (Stiggins, 2006). In this sense, the use of different techniques (i.e. self-assessment, peer-assessment, portfolios, observations, interviews) can allow the development of different perspectives during the teaching/learning process for both teachers and students and also provide support for trust and motivation.

Classroom practices should also allow students to develop positive motivational perceptions for their classes (in this case for mathematics). The fact that assessment has gained different meanings (i.e. proving success or developing learning) affects classroom teaching practices. In this sense, the feelings and thoughts that students have towards what they learn can differ. The positive or negative effect that classroom assessment has on students' motivation towards mathematics can differ depending on the practices undertaken. For example, classrooms in which motivation to learn increases have the following characteristics: (1) goals are clearly identified; (2) students are informed about how they will be assessed; (3) students are provided with supportive rather than judgemental feedback; (4) their development is shown to students (for example comparison among students is avoided in the class); (5) multiple tools of assessment are used rather than just a few tools; (6) students are informed about the assessment criteria prior to assigning tasks; and (7) reflections are made towards success (Brookharts, 1997a; McMillan & Workman, 1998).

While a number of classroom practices direct students to focus on the outcomes, others allow them to enhance and develop their skills. In this sense, student participation in learning activities and goal-oriented activities which can be used to identify students' level of focusing on reasons and motivations to either accept or reject learning activities- both of which are highlighted by motivational theories- become important (Pintrich & Schunk 2002). While goal-oriented activities are defined as achievement goal frameworks within motivational theories, it is also known that those frameworks have also been evaluated within social-cognitive theories for around three decades. Such frameworks have become important tools for in-depth analysis of classroom practices. Furthermore, such frameworks have also contributed to the analysis of student motivation and the potential effects of the environment on student learning as well as identification of students' perceptions of their environments (Anderman & Wolters 2005, Deemer, 2004; Pintrich, 2000; Meece, Anderman & Anderman, 2006).There are various frameworks in the literature that aim to explain goal orientations. The number of goal orientations in those frameworks, orientations and avoidance roles can be different. Nevertheless, most of those models highlight the importance of both individual and contextual factors in goal orientations (Pintrich, 2000a). A number of those frameworks seem to have two opposite target orientations. For example, learning and performance goal orientations (Dweck, 1986, Dweck & Legget, 1988; Elliot & Dweck, 1988), task-involvement and ego-involvement (Maehr & Nicholls, 1980), mastery and performance goals (Ames & Archer, 1988; Ames, 1992). Those goal orientations can be different in line with the behavioural patterns that an individual can demonstrate. For example, mastery goal orientation (learning goal orientation) includes activities such as developing students' skills, equipping them with new skills, trying to endure when faced with difficulties, and trying to understand learning materials. Academic achievement is evaluated in terms of self-improvement. Performance goal orientation, on the other hand, is an orientation in which activities such as showing a tendency to have a high performance, being better than others, being compared to others in terms of individual skills, and performance related assessment are prioritized. The sensation of success is achieved by showing a better performance than others and surpassing normative performance standards (i.e. being compared to others; Meece, Anderman & Anderman, 2006). The analysis of other frameworks in relation to goal orientations indicates that performance goal orientation can be divided into performance approach and performance avoidance. The performance avoidance approaches are explained as following: individuals who have performance approach generally compare themselves to others in their surroundings and pay attention to what others think about them. Taken this into consideration, the individual can behave in a way that aims to show their success to others

(performance approach) or not let others know that they did not understand, that they did not become successful, or they are insufficient (performance avoidance; Elliot, 1997; Pintrich, 2000a).

Similarly, the analysis of frameworks in related literature suggests that Elliot and McGregor's (2001) 2x2 goal orientation approach is a popular one. In this framework, the fact that mastery goal orientation includes two dimensions (approach and avoidance) deems it necessary to explain the difference between mastery-approach and mastery-avoidance. According to Elliot and McGroger (2001) the motivation of individuals who have mastery-avoidance for their actions is their "inability". Individuals with such goal orientations exhibit the following behavioural patterns: trying to avoid being misunderstood, avoiding not being able to learn the curriculum subjects, trying to avoid mistakes when doing a task (i.e. trying not to miss a shot in a basketball game or trying to avoid stopping prior to the completion of a puzzle), making an effort not to miss what they have learned, and making an effort not to lose their physical and intellectual capacity. Since individuals who have mastery-avoidance goal orientation try to prioritize perfectionism, they tend to avoid doing anything that can be considered wrong. While mastery-avoidance goal orientation is more negative when compared to mastery-approach, it can be considered to be more positive when compared to performance-avoidance. To provide a more concrete example: an individual with mastery-approach goal orientation can start an activity knowing their inabilities. Those inabilities might cause him/her to do a mistake. However, this is not a problem for the individual. This is because what matters is learning. On the other hand, an individual with mastery-avoidance goal orientation will be prevented from starting an activity since their awareness of their inabilities will cause them to be afraid of failure. Similarly, if the individual with performance-avoidance goal orientation is incompetent, he/she would not want others to know this incompetency. Therefore, the individual with this orientation will also not start the learning activity.

Significance of the Study

Classroom assessment practices, as stated above, reflect how teaching and learning processes take place. Considering that classroom teaching processes consist of goal setting, teaching activities, and assessment, it can be assumed that those processes are interrelated. Teaching activities are tools that aim to realize learning outcomes for students, the goals identified in learning outcomes define the success that is to be assessed and create standards. Therefore, classroom assessment can be placed in the heart of teaching/learning activities aiming to prepare students for assessment (Brookhart, 1997a). The practices undertaken in order to assess students' abilities are the keys of achievement goal frameworks. This point is worth consideration because the classroom or other environments and practices can be different depending on the assessment practices used to assess students' academic achievement and development (Ames 1992a, b; Ames & Archer, 1988).

Previous research has investigated the relationship between different classroom assessment practices, teaching practices related to assessment practices, and students' goal orientations (Bardach, Yanagida, Schober, & Lüftenegger, 2018; Kaur, Noman & Awang-Hashim, 2018; Lerang, Ertesvåg & Havik, 2018; Tas, 2016; Skaalvik & Federici, 2016; Yerdelen & Sungur, 2019). One of the most important assumptions of motivational theories is that students are able to express their beliefs and communicate those beliefs to others (Murphy & Alexander, 2000). Thus, scales or questionnaires which include standardized items will not be adequate to allow

students to express their beliefs (Wigfield, 1994). This suggests that there is a need for studies which would provide an in-depth investigation of students' motivational beliefs. It has come to the attention of the author that there is a lack, in the literature, of in-depth descriptions of how students' with different goal orientations perceive classroom assessment practices in mathematics classes.

The renewed mathematics curriculums underline the need for classroom assessment and related practices to support learning and increase students' motivation. Nevertheless, studies conducted in this area showed that students' (math) motivation decrease as they transition from primary to secondary school (Ayan, 2014; Bozkurt, 2012; Kinay, 2011; Wigfield & Eccless, 1992; 2002). It has been considered that the learning environments in the classroom have been one of the most influential factors of such motivational decrease (Azevedo, Cromley, Winters, Moos, & Greene, 2005; Perels, Gurtler, & Schmitz, 2005). In line with this, classroom assessment practices can be considered to be one of the key stages that can reveal the meaning of classroom learning environment. Thus, the present study aimed to investigate classroom assessment practices taking place in mathematics classes and how students with different goal orientations perceive classroom assessment practices in Turkey. In line with this, a mathematics teacher who taught at 7th grade was observed. . Moreover, in order to allow an in-depth investigation, the study also explored what other classroom practices, which might have had an effect on classroom assessment practices, were and how students perceived such practices. Those aims were reworded into the following research questions:

1. What classroom assessment practices are undertaken in 7th grade mathematics classrooms?
2. What other classroom practices (i.e. learning experiences, expressions frequently used in the classroom, relationship with students) are undertaken in 7th grade mathematics classrooms that could be related to students' goal orientations?
3. How do 7th grade math students with different goal orientations perceive classroom assessment practices and other practices that could be related to their goal-orientations?

Method

The present study aimed to unearth the nature of the relationship between students' goal orientations, classroom assessment practices, and other classroom practices that could be related to students' goal orientations. The study followed an explanatory sequential method which is a mixed method methodology. The explanatory sequential mixed methods approach is a design in mixed methods that appeals to individuals with a strong quantitative background or from fields relatively new to qualitative approaches. It involves a two-phase project in which the researcher collects quantitative data in the first phase, analyzes the results, and then uses the results to plan (or build on to) the second, qualitative phase. The quantitative results typically inform the types of participants to be purposefully selected for the qualitative phase and the types of questions that will be asked of the participants. The overall intent of this design is to have the qualitative data help explain in more detail the initial quantitative results (Cresswell, 2014; 274).The first part of the study was quantitative and aimed to collect and analyse quantitative data from students to identify their goal orientations. Following the quantitative part, the qualitative part was initiated. The qualitative part included two steps which focused on; a) the teacher and b) the

students. The teacher dimension focused on observations of the teacher's classroom assessment practices and other classroom practices that could be related to students' goal orientations. The student dimension utilized quantitative results to select the students to be observed. Three students, who were purposefully selected, were observed for their classroom behaviours. When observers could not understand or interpret certain behaviours, they chatted to the students after the class and interviewed them. The data collected from those chats were recorded into observation diaries.

Participants

The study sample consisted of 7th (33 female students) grade students and their mathematics teacher. The school where the study was conducted was a school attended only by female students. The researcher selected observers to conduct observations based on a voluntary basis. Thus, the researcher allowed the study to be conducted in the school where the observers completed their teaching practicum. In the research, the students participating in the research and the observed class were determined by purposeful sampling. This sampling can be used in research to obtain numerous details and in-depth information (Tedlie & Tashakkori, 2009).The criteria that were followed in selecting the class, teacher, and students to be observed are explained within data collection procedures. The students and the teacher were selected from a secondary school from Fatih district of Istanbul, Turkey. The observed teacher was male, taught mathematics, and had 23 years of teaching experience.

The observed classroom: the classroom observed in this study was located in a school in the centre of Istanbul and the socio-economic level of families who registered their pupils to this school represented the level of middle class. The observed classroom had a classic seating arrangement and the classroom did not include any materials or sitting areas where children could undertake different activities.

Data Collection Procedures

Initially, a meeting with pre-service teachers completing their teaching practicum were held. Teacher candidates were informed about the aim of the study, the processes involved, and their potential role in the study. Afterwards, observers were selected on a voluntary basis and the school where they undertook teaching practicum was asked. There were three schools where students did their teaching practicum. However, the school which was closer and more convenient to both the researcher and observers was preferred to undertake the study in and the study was initiated.

The data collection took place in two parts; a) quantitative and b) qualitative.

1. The quantitative part was as following: the goal orientations scale was administered in the observed school and then classrooms that were similar (with no significant differences between their scores) and that were taught mathematics by the same teacher were identified. One of those classrooms was randomly selected for observation. Three students from the observed classroom who had different orientations when compared to other members of the class were purposefully selected. Table 1 includes statistical data collected from the observed class and Table 2 presents statistical data collected from the selected students.

Table 1.

Mean Scores for the Goal Orientations of the Observed Class

	N	Mean	sd
Learning-approach	33	13.81	1.66
Performance-approach	33	13.03	2.41
Learning-avoidance	33	10.48	3.18
Performance-avoidance	33	21.48	6.43

It can be seen in Table 1 that performance-avoidance and learnig-approach scores of students were higher than their learning-avoidance and performance-approach scores. It is known that goal orientations can manifest themselves among students in an intertwined fashion. That is to say students can have both learning-approach and performance-approach's variations simultaneously. The reason for categorising students is to classify them according to clearer goal orientations. For example, Table 2 shows students' mean statistics with regards to goal orientations. Students who clearly diverged from the trend in terms of these goal orientations were selected for the qualitative part of the study. In an effort to protect their identity, the names of the selected students were anonymized and coded.

Table 2.

Descriptive Statistics Belonging to the Three Students Selected for the Qualitative Part of the Study and their T Test Result Comparisons to Classroom Mean Scores

Student code	Learning - approach Mean	Performance -approach Mean	Learning - avoidance Mean	Performance -avoidance Mean	df	t	p
					32	-4.073	.000 (LAP-MC)
					32	11.955	.000 (PAP-MC)
					32	2.682	.012 (LAV-MC)
A	15	8	9	8	32	12.042	.000 (PAV-MC)
					32	-4.073	.000 (LAP-MC)
					32	-4.681	.000 (PAP-MC)
					32	8.178	.012 (LAV-MC)
B	15	15	15	25	32	-3.139	.004 (PAV-MC)
					32	16.605	.000 (LAP-MC)
					32	-4.681	.000 (PAP-MC)
					32	6.289	.000 (LAV-MC)
C	9	15	7	30	32	-7.604	.000 (PAV-MC)
Class total	13.81	13.03	10.48	21.48			

Learning approach: LAP
Learning avoidance: LAV
Performance approach: PAP
Performance avoidance: PAV
Mean of Class: MC

It can be seen in Table 2 that Student A's mean scores for learning-approach and learning-avoidance is higher than performance-approach and performance-avoidance and this difference is significant when compared to the classroom average. Similarly, Student B's learning-approach goal orientation mean score is higher than the classroom average and, in addition, her performance approach-avoidance goal orientation men score is significantly higher than the

classroom average. On the other hand, whilst Student C's learning-approach and learning-avoidance mean scores is lower than the classroom average, her performance-approach and performance-avoidance mean scores are significantly higher than the classroom average. Those students were selected based on their goal orientations following the criteria set by Meece (1991). The criteria included: (1) high learning and low performance (Student A, see Table 2), (2) high performance and low learning (Student C), and (3) both high learning and performance (Student B). When selecting those students, *t* tests were carried out to identify whether their scores were significantly different in comparison to the classroom average.

2. The qualitative part of the study utilized observation forms in order to reveal teachers' classroom assessment practices and identify other classroom practices that could be related to students' goal orientations. Three students who were selected based on their scores in the goal orientations scale were observed closely using observation diaries. The observations took place between 05/10/2018 and 13/12/2018 (two hours per week). Individuals who did the observations took on the role of a participant observer. Two observers were pre-service teachers who attended fourth grade and completing their teaching practicum whilst observing classes. In the selection criteria of these pre-service teachers, the academic achievement and especially their success in teaching vocational courses (measurement and assessment, teaching methods and techniques etc.) were effective. The reason for following a participant researcher approach was to allow the observers better understand the events taking place in the classrooms through enough exposure to the classroom atmosphere (Patton, 2014). This was because observers in the present study could simultaneously collect data. Thus, it was important that teacher candidates spent a long time in the class with students since such observations were able to reflect the natural environment of the classroom. Furthermore, the fact that interviews were to be held with students during and after observations provided support to undertaking participant observations. The last step involved in this part was conducting semi-structured interviews with students. Collected data were analysed altogether.

Data Collection Tools

This section includes detailed information regarding the data collection tools utilized in present research.

Classroom assessment practices observation form

The study utilized the *Classroom Assessment Practices Observation Form* that has been developed by (Acar-Erdol & Yıldızlı, 2018). The first part of the observation form included details such as observation date, the length of observation, and information about the pre-service teacher observing the classroom. The second part of the observation form, on the other hand, included a total of five questions. The first of those questions listed down different classroom assessment methods and the observers were asked to mark which of those methods the teachers utilised and how she utilised them in the classroom. The remaining four questions were open-ended and focused on teacher feedback, utilising technology for assessment, asking students questions for assessment purposes, administering individualised assessment, and the use of materials.

Observation form for classroom practices that could be related to students' goal orientations

This form was utilised both to provide a thick description of classroom assessment practices and reveal how practices that are considered to affect students' goal orientations take place in classrooms. The items from Anderman and Midgley's (2002) and Midgley et al.'s (1998) Patterns of Adaptive Learning Survey (PALS) research were utilised in developing the observation form. The observation form consisted of a total of 15 items that were either close-ended or open-ended questions. The items focused on the following dimensions: *in-class learning experiences*, *expressions frequently used in the class*, and *relationship with students*. Two subject matter experts (one in curriculum and instruction and the other in mathematics education) who had previously conducted research on goal orientations were consulted in order to establish the reliability and validity of the observation form. A number of items were revised based on the feedback received by the experts. Moreover, overlapping items were converged as an open-ended question. Rewording and revisions were made on a number of items in line with experts' suggestions. Moreover, overlapping items were converged and amended to in a way that will render them as open-ended questions.

Student goal orientations scale

The *Goal Orientations Scale* developed by Elliot and McGregor (2001) and adapted to Turkish by Şenler and Sungur (2007) was used to identify students' goal orientations. The earlier version of the scale included a three-factor structure (Elliot & Church, 1997) and was then extended to four-factor structure (2x2) version by Elliot and McGregor (2001) which included; learning approach (3 items) and performance avoidance (6 items), and performance approach (3 items) and learning avoidance (3 items). The whole scaled consisted of 15 items administered on a five-point Likert scale.

Observation diary

Observation diaries were tools in which pre-service teachers spontaneously noted the incidents that took place during the observation time in the classroom. These tools were mainly used to observe in-class processes relating to the students who were selected following the administration of the goal orientations scale. Moreover, the observers also recorded any other point that they deemed important into their diaries. The author informed pre-service teachers with regards to how the diaries should be written at the beginning of the study, any issues arising was discussed in detail afterwards. During the observation period, pre-service teachers shared their observation diaries with the author. Pre-service teachers were informed further following those discussions. Thanks to the feedback provided by the author, detailed information was collected during the observation period. The observation forms focused on the following behavioural patterns; students' active participation in classroom activities, their reactions to the teacher's feedback, activities they were engaged in whilst competing in the class, activities they were engaged in after receiving assessment feedback, and so on.

Student interview form

Classroom assessment practices provide clues about other teaching related issues. As part of the study, students who were observed were interviewed using a semi-structured interview schedule.

The interview schedule included questions about students' perceptions of classroom assessment practices and other practices that could affect other classroom practices that could be related to students' goal orientations. Prompts and probes were utilised when and where necessary during the interviews.

Data analysis

Quantitative and qualitative analyses of the collected data took place as following; the data collected from the student goal orientations scale were analysed using SPSS 21. The data collected from classroom assessment practices observation form was descriptively analysed and frequencies and percentages were used to present findings through tables. Data regarding the relationship between classroom assessment practices and other classroom practices that could be related to students' goal orientations as well as the data collected from semi-structured interviews with students were analysed under themes (see Table 3). The data collected from observation diaries, on the other hand, were used to support findings reached with the data collected from other tools.

Table 3.

MainaAnd Sub-categories of the Analysed Data

1.	Classroom assessment practices
	1.1. Method
	1.2. Goal
	1.3. Timing
	1.4. Number of questions
	1.5. Feedback
	1.5.1. Kind of feedback
	1.5.2. Style of feedback
2.	Classroom practices that could be related to students' goal orientations
	2.1. Learning experiences
	2.2. Expressions frequently used in the classroom
	2.3. Relationship with students
3.	Interviews with students and observation diaries
	3.1. Classroom assessment practices
	3.2. Comparison of students in the classroom
	3.3. Classroom learning activities
	3.4. Teacher-student relationships
	3.5. Expressions frequently used in the classroom
	3.5.1. Expressions frequently used by the teacher
	3.5.2. Comparisons
	3.5.3. Being the most successful
	3.5.4. Having a high score- being shown as a role model
	3.5.5. Competition
	3.5.6. Reason for learning the subject matter

Validity and Reliability

1. The reason for including observers as participants was to allow a better reflection of the incidents observed. The two observers were pre-service teachers who visited the same class every week.

2. Experts were consulted to establish the validity and reliability of the forms and the interview schedule.
3. The research process was enriched by utilising multiple data collection tools. And also addition a number of data collection techniques were used together to increase the plausibility of the findings.
4. The research process was detailed.
5. Member-checks were completed following interviews with students.
6. Observers and researcher met every week after observations and observers compared the observation notes they made. It was noted down when two observers could not have an agreement. Further data collection took place with regards to those issues in the following weeks.

Results

The findings of the study, which will be presented in this section, include; observations about teachers, observations about students, and interview findings.

Results about Classroom Assessment Observations

Methods, goals, timing, question numbers, and materials used in classroom assessment

Observations focusing on teachers revealed details regarding their classroom assessment practices, their aims for those practices, timing, the number of questions they asked in a lesson, and the materials they used in the class (see table 4).

Table 4.

Findings about the Assessment Methods, Aims, Timing, and Number of Questions Asked

(a) Methods used by the teacher for classroom assessment	**f**	**%**
Observation	16	31.3
Multiple-choice questions	7	13.7
Open-ended questions	16	31.3
True-False questions	1	1.9
Short-answer questions	10	19.6
Matching activities	1	0
Project homework	0	0
Mind maps	0	0
Demonstrations	0	0
Self-assessment forms	0	0
Poster	0	0
Attitude scales	0	0
Group-assessment forms	0	0
Peer-assessment forms	0	0
(b) Teacher's aims for assessment		
Attracting students' attention	5	8.0
Increasing students' readiness (activating prior knowledge)	13	20.9
Supporting learning	12	19.3
Measuring the extent to which learning outcomes have been realized	16	25.8

Providing students with feedback	10	16.1
Increasing students' motivation	6	9.6
(c) Timings of classroom assessment		
Pre-teaching	13	32.5
While teaching	12	30
Post-teaching	15	37.5
(d) Materials used for classroom assessment		
Tablet computers	0	0
Phones	0	0
Interactive White Board	16	34.7
Pen and pencil	16	34.7
Book	15	32.6

The analysis of Table 4 indicates that teachers mainly used observations and open-ended questions for classroom assessment. Short-answer questions were also utilised by the teacher for assessment. The least utilised methods by the teacher were true/false questions and matching activities. No other methods of assessment were observed to have been used by the teacher. In relation to the above results, the teacher was also observed for whether he assigned students any responsibility during classroom assessment procedures. The reason for observing this aspect was to understand whether the classroom assessment methods supported the responsibilities assigned to students during assessment. The observers noted the following: *"In general the teacher has the role of a narrator and the students are the audience".*

The analysis of teacher's aims for conducting assessment showed that the teacher mainly used assessment to measure whether learning outcomes were realized at the end of a curriculum unit, support student learning, provide students with feedback, and activate prior knowledge. The teacher did not seem to make as much use of assessment to attract students' attention or increase their motivation when compared to other aims. The timings of assessments supported the aims of assessment.

The teacher conducted assessment mostly post-teaching. This was followed with assessments conducted pre-teaching and while teaching. Data from observation diaries supported this finding: *"After explaining the topic, the teacher asked open-ended, short-answer, and multiple-choice questions to reinforce learning".*

The analysis of the materials that the teacher used for assessment showed that the teacher mainly used the Interactive White Board (IWB), pen and pencil, and books as assessment materials. It was also found that technological tools such as tablet PCs and mobile phones were not used as assessment tools. The analysis of observation notes indicated that the teacher generally used the IWB to solve problems and books to give homework. The observation notes included: "*The teacher uses the IWB throughout the course".*

Findings on feedback activities relating to classroom assessment

The findings with regards to the feedback provided by the teacher are presented below in Table 5. The findings are grouped into the following categories; *types of feedback and manner of feedback.*

Table 5.

Details Regarding the Teacher's Feedback

Types of feedback		**f**	**%**
General feedback	Focusing on the right answer	16	18.3
	Focusing on retrying	13	14.9
	Focusing on revealing mistakes	15	17.2
Specific-descriptive feedback	Feedback depending on students' answers	13	14.9
	Giving a clue	9	10.3
	Error analysis	11	12.6
	Guided feedback	10	11.4
Manner of feedback			
	Verbal	15	53.5
	Non-verbal (gestures and facial expressions)	8	28.5
	Written	2	7.1
	No reaction	3	10.7

The analysis of Table 5 shows that the teacher mainly gave general feedback. In each of the observations, the teacher was found to focus on the right answer. In other words, the teacher made statements indicating whether the answer was right or wrong without any follow-up. In addition, when a student's answer was wrong, the teacher provided him or her with an opportunity to retry. The data collected from observation diaries provided further insights into this topic. The following has been recorded in observation diaries: *"The teacher selected another student to try and solve the problem when the readily selected one could not solve it"*. This kind of feedback might increase the competition among students in the classroom. The analysis of specific-descriptive feedback provided by the teacher suggested that the teacher tried to explain why an answer is right or wrong based on students' answers and performance. This indicates that the teacher evaluates students' answers and provides effective feedback. The observers noted that the teacher made the following statements: *"You are thinking it wrong"; "Look! You did a mistake here, what should we do now?"*.

When analysed, it was found that the teacher used the activity of giving clues in order to guide them to the right answer. The observers recorded the teacher's following statements: *"What do we do in the 1+ 5/8 operation?"; "Think about it, is it like you say?, "What should we do now?"*. As can be seen in the above quotes, a student's mistake can be corrected by other students. Moreover, following error analysis, the teacher tended to continuously remind students the rule that is used in mathematical operations. The observers noted the following in relation to that: *"The teacher asks questions that remind students of the answer. The teacher gets student to solve the questions following the rule".* Moreover, the teacher was also found to try to utilise clues during error analysis; however; the teacher gave the right answer in the end when he failed to guide students.

Whilst studying the process of providing guided feedback, the teacher was observed with regards to the strategies that he would use to get students to perform the expected behaviour

without telling the correct answer. In order to guide students in finding the correct answer, the teacher was found to have mainly followed the strategy of asking questions that would remind students the rules. Such reminders to answer questions can also be seen in the above quotes. The strategies that the teacher suggested students during the process in which the teacher provided guided feedback included; revisions, studying harder, and doing more exercises. The observation notes included the following in relation to this: *"If the student cannot answer the question then the teacher answers it or requests students to revise it at home"; "Statements such as 'revision must be done' is frequently used".* During the process of using guided feedback, the teacher advised students on strategies that can be utilised to make sense of how new information can be linked to prior information. However, the teacher did not provide actual guided feedback that could help students understand how they should follow such strategies.

The analysis of observation notes with regards to the manner of feedback indicated that the teacher mostly used verbal feedback and non-verbal feedback (i.e. gestures and facial expressions). The teacher made the least use of written feedback and from time to time did not show any reaction at all. The most frequently used feedback terms were; *"congratulations", "super",* and *"come on you can do it"*. The non-verbal feedback mainly included the acts of; raising eyebrows, nodding head, and smiling. The observers recorded that the teacher did not provide any negative feedback in a non-verbal manner. The teacher provided written feedback mainly via exam papers. In addition, the homework given to students was checked by the teacher in the classroom, but the teacher did not provide any written feedback for homework. The teacher was also observed to not show any reactions to students' answers from time to time, but such incidents took place infrequently.

Observation results about classroom practices that could be related to students' goal orientations

Practices with regards to classroom practices that could be related to students' goal orientations included the following dimensions; *learning experiences, expressions frequently used in the classroom, and teacher-student relationship.*

Table 6.

Classroom Practices that Could Be Related to Students' Goal Orientations

		f	%
Learning experiences	The teacher provides rich learning opportunities for students (i.e. using a variety of strategies, methods, and techniques).	0	0
	The teacher does not provide students with rich learning opportunities (i.e. mainly focusing on lecturing and question-answer).	16	100.0
Expressions frequently used in the classroom	Expressions about studying and success	15	45.4
	Expressions about comparisons and competition	2	6.0
Teacher-student relationship	A warm and honest attitude	16	48.4
	Cold and authoritative attitude	0	0

It can be seen from Table 6 that the teacher did not prepare any written documents for planning teaching. In order to confirm their observations, the observers asked the teacher whether she/he prepared any lesson plans. The teacher responded that he did not have any lesson plans and added that he used to prepare lesson plans in the past. The teacher, however, also noted that he

made plans in his head about the classes that he would teach and took notes on a small piece of paper. He underlined that a teacher should not enter the classroom without a plan.

The observation notes for learning experiences dimension suggested that the teacher generally lectured students and made use of the question-answer technique. A noteworthy question with regards to this issue is: "How did the questions asked support teaching?". The observers noted that students learned mathematics the way that the teacher taught and they did not digress from this strategy. Likewise, the teacher was not found to be in pursuit of creative solutions from students. In fact, in a number of instances, the teacher warned students that he did not want them to use any other method than the one he taught them to answer the problem. It was also noted that when a student solved a problem using a different strategy than the one suggested by the teacher, the teacher did not pay enough attention to them. In relation to this topic, the observation notes included: *"The students only do it the way they have been told"; "The teacher allows time, but does not pay enough attention when a student solves the problem using an alternative method".* As part of this dimension, the students' were also observed whether they actively participated in the classroom or not. It was noted that there were students who did not participate at all. Considering that the classroom consisted of 33 students, the number of students participating in classroom activities was recorded to be between 15 and 20, and the remaining students were found to be disinterested or not engaged at all. It has been noted that the teacher did not include any out-of-class activities such as projects, observations, interviews, exhibitions, or field trips which would support group work or individual study, or increase students' higher level thinking skills.

Expressions frequently used in the class was another dimension that was observed. In order to find out what frequently takes place in the classroom, this dimension was limited to *expressions about studying and success, expressions about comparisons and competition.* The observation results suggested that students paid more attention to what they should do in order to increase their success rates. The teacher advised students to do revisions and offered strategies to solve problems and those suggestions were communicated to the whole class in the same fashion. The observation notes included: *"The teacher explained that the types of problems asked in the new student selection exam changed, therefore, they had to do more exercises to practice",* and *"The teacher warned students not to forget to do revisions and advised them to do the exercises"*. The teacher was also observed with regards to whether he did any comparisons among students in the class. The results relating to this aspect suggested that the teacher did not announce those students who scored the highest in the exams, did not focus his attention on successful students, did not expose those students who did not complete the tasks assigned to them, or did not differentiate between successful and unsuccessful students, and when there was a task to be assigned it was assigned to any one student available in the classroom without discrimination. However, the observers also noted that the teacher shared his/her characterization of a good student with the students. Although the observers did not find any signs suggesting the teacher made comparisons among students, there seemed to be a serious competition in the classroom. It was found that the students had the tendency to be the first one to solve a problem when the teacher asked one and the students also were found to compete in order to go to the board or be the first to answer. The observers noted: *"There was a great competition in the whole class when a question was asked", "Students compete to be the first to answer".*

Analysis of teacher-student relationship revealed that the teacher generally referred to students with their names, chatted to students outside the classroom time, answered students' questions in

a calm and gentle way, generally smiled in the classroom, made jokes, and was kind. Moreover, the teacher was found to generally ensure a warm classroom atmosphere and value the students. However, the observers also underlined that since the classrooms were crowded, the teacher could not have enough contact with each individual student.

Results from observation diaries and student interviews

One of the issues focused in this research was to observe students who had different goal orientations. The use of observation diaries helped investigate this focus. As explained before the classroom had a classic seating arrangement which resulted in a classroom atmosphere where the students were not really active in class due to the use of lecturing and question-answer teaching strategies. Classroom activities during the teaching/learning process included; teacher's explanation of the topic in front of the class, students noting down the information written on the board, questions being asked to students following tuition, and students trying to answer the questions.

As explained in the methodology section, the students who were observed were selected and categorized in accordance with their goal orientations. Students' views will be presented according to those codes: A: high learning and low performance, C: high performance and low learning, and B: both high learning and performance. Following observations, the students were interviewed one by one.

Observation and interview findings which are presented below are grouped under the following topics: *classroom assessment practices, comparison of students in the classroom, classroom learning activities, expressions frequently used in the classroom,* and *teacher-student relationship*.

The analysis of students' responses to the interview questions indicated that students with different goal orientations responded to the questions differently. For example the student who had learning approach goal orientation (high learning-low performance; A) reported that she found classroom activities to be sufficient and enjoyable and added that she did not think there was a need for extra activities. On the other hand the students, one of whom had high learning-high performance and the other low learning-high performance, highlighted that there was a need to do enjoyable activities in the classroom, reinforce learning activities with games and puzzles, get the teacher to make the topic more enjoyable, and ask students' opinion for selecting the activities to be undertaken. They explained that their participation would increase as a result of such activities. Student C reported: *"It would be better if the teacher asks for students' opinion when deciding what activity to do. I think we should reinforce what we learn with games or puzzles. This is because I believe people learn better with games"*. Student A noted: *"The activities we do in the classroom are not varied, only question-answer. I do not think I need a different kind of activity".* Student B, on the other hand, underlined: *"It would be better to have fun whilst learning. It will be more long-lasting if our teacher uses analogies to explain when we do not understand the topic. I think, this way, it will be easier to remember what we learned when necessary"*. As can be seen, students' perceptions of classroom activities were different depending on students' goal orientations.

The students also noted that their teacher did not take individual differences into account in the classroom. All students who were interviewed agreed that the teacher conducted the classes as a

lecture and then directed questions to be answered by the students. What should be highlighted here is that students who had high performance- low learning and high learning- high performance goal orientations underlined that the teacher should provide them with more support. Student C reported: *"For example, when I miss a topic then it becomes difficult for me to understand the next one. Therefore, I need the same topic to be taught to me in more detail".* The analysis of the data generated from observation diaries indicated that Student A mostly listened to the teacher during the class, correctly answered all the questions that she was asked, raised her hand to answer questions, and comfortably asked for explanations when she did not understand the topic. Student B, on the other hand, was found to be only taking notes most of the time, infrequently raised her hand to answer questions, and received help from the her colleague sitting next to her. As for Student C, she was found to be constantly complaining about not being able to note down all the information on the board since her hand and fingers were aching, not asking many questions to the teacher, trying to answer the relatively easier questions at the beginning of a class, but to be sitting and doing nothing when the questions became more difficult.

The analysis of students' views on "classroom assessment practices" indicated that the teacher only asked questions and students responded, exams took place during the mid-term, the teacher gave homework, and no other assessment activity took place. Observation diaries included data that supported these statements. It was stated in the observation diaries that the teacher asked students questions all the time, invited volunteer students to the board to answer the questions, and, from time to time, asked a student who had difficulties solving a problem to retry. In fact, Student C expressed that she did not want to go to the board when the teacher asked her to. Another issue that needs to be underlined is that the classroom atmosphere becomes competitive as a result of the teacher's constant questions. One of the observers noted that Student A pre-watched videos about the topic of the lesson in order to be able to respond to the teacher's questions faster and more accurately.

Students' views on expressions frequently used in the classroom has been analysed under the following headings: "statements frequently made by the teacher", "comparisons", "being the most successful", "having the highest score- being shown as an example", "competition, "reason to learn the lesson". Students expressed that the teacher frequently told them to study hard, do their homework, and that the topics she covered were important and might appear as questions in the exams. Moreover, Student C expressed her dissatisfaction with the teacher's statements that pushed them to study hard. Other students did not make any statements indicating their dissatisfaction on this matter. As can be seen, making the same statements over and over can have a negative effect on the students. Such statements might lose their power to influence students positively when they are used repeatedly.

Students' views on "comparisons" indicated that the teacher made comparisons among students in the classroom and this situation was perceived differently by students with different goal orientations. For example, the student with high learning and low performance (A) goal orientation expressed that the students who did not listen to the teacher during the lessons were given priority. The student added that, from time to time, she did not like the idea of teacher's positive thoughts about her. The following quote supports this interpretation: *"The fact that the teacher approaches me in a way that I might have already answered the question does, in fact, disturb me"*. Similarly other students with different goal orientations felt uncomfortable because of the comparisons among students in the classroom and added that such comparisons could

affect other dynamics in the classroom. Student B explained: *"Comparisons among students are made in the classroom, but they should not be made. The teacher likes those who listen to him more and pays more attention to them"*. Student C stated: *"There are comparisons among students in the classrooms. In fact, this situation results in those who are better in the classroom being more appreciated"*. As can be seen comparisons among students were perceived differently by students with different goal orientations.

The analysis of students' views on "being the most successful in the classroom" suggested that the student with high learning and low performance goal orientation had positive perceptions of being the most successful, but she did not pay attention to this since she determined the criteria for success by herself. The student with high performance and low learning goal orientation, on the other hand, mentioned that being the best in the class was a good feeling; however, added that teachers and even classmates start to treat one differently when she/he becomes the best. The other student also mentioned that being the most successful in the class is a good experience and that when someone is successful then the way both their teacher and classmates treat him or her changes. For example Student A stated: *"Being the most successful member of the class is something good, but I do not pay attention to this. It is enough for me to be good for myself. I do not need to be the best or the most successful student of the classroom"*. Student C: *"Of course being the most successful feels good. Being the most successful increases a student's self-confidence. Moreover, teachers start to pay more attention to you and like you more.*

Students' views on "getting high scores- being shown as an example" indicated that students with high learning and low performance, and both high learning and high performance goal orientations considered getting high scores to be important, but they felt that announcing it in the classroom was not appropriate. For example the student with high performance and low learning goal orientation expressed that it was important to get high scores and being shown as an example in order to prove herself to her classmates. Student A stated: *"I would like to get high scores, but I don't want it to be announced in front of everyone. This is because there could be other students who have low scores"*. Student C: *"I think getting high scores and the announcement of those scores in the classroom are important. If my classmates think that I am behind them then they will stop thinking this way. I will be able to show that I am like them"*. This situation was summarized in observation diaries as following: *"Today Student C became very happy after she correctly answered the teacher's question and she was eager to participate in activities throughout the course"*.

Students' views on "competition" showed that each student had different views on this topic. The student with high learning and low performance goal orientation indicated that competition can contribute to her development, but it might sometimes be futile to compete since not every student were at the same level, thus, for him/her it was a loss of time. The remaining students who had different goal orientations expressed that competition and winning were important, but also added that losing in competitions might have negative outcomes. Student A: *"Being in competition with my classmates can be effective to prepare for exams. However, I sometimes find myself asking whether winning or correctly answering questions cause me to deceive myself. This is because students in the classroom are in different levels"*. Student B: *"On one hand it could be good, we can see our mistakes. On the other hand it could be bad, our motivation might decrease"*. Student C: *"I think it could be bad. For example, I might miss a small detail and not be able to solve a problem. In such a situation, I would feel bad and I might even start to bear a grudge towards those who have been able to solve the problem"*. This situation parallels the

records in observation diaries. The observers noted that there was a constant competition in the classroom, but only Students high learning-low performance and high learning-high performance continued this competition and the others were not really active in the competition. Moreover, it was noted that Student C's complaints increased during competition times.

The analysis of students' "reasons to learn" indicated that the student who had high learning and low performance goal orientation preferred using the information she learned in the classroom in real life situations and added that she may even select their occupation accordingly. The student who had high performance and high learning goal orientation, on the other hand, expressed that, from time to time, she could not associate what she/he learned in the classroom with real life and experienced problems from time to time. She added that, sometimes, she only studied to be able to pass the exams since she could not make sense of the exams. Student A: *"I want to learn to be able to use the information in my daily life"*. Student C: *"The school wants us to learn this lesson. They are equipping us with unnecessary information for no reason. They should teach us things that would be useful and that we would be able to use in our daily lives"*. Student B: *"I think some topics are unnecessary. For example the ratio-proportion topic… What can I do with 2/5? And this makes it more difficult for us to understand. Unnecessary information makes it more difficult for us"*. Similar notes were written in observation diaries. For example, the student with high performance and low learning goal orientations was found to experience problems in transferring old information onto the new. It is also worth noting that the observers reached the conclusion that this student did not actually learn but rather recited. This conclusion was based upon the answers those students gave to the teacher's questions.

Discussion and Conclusion

This study aimed to reveal what classroom assessment practices have been undertaken in mathematics classrooms and their relationship with other classroom practices that could be related to students' goal orientations. The study also aimed to reveal how those classroom practices were perceived by students who had different goal orientations.

Initially, the data collected from observations on the math teacher's classroom assessment practices was analysed. The data were analysed under the following categories: *method, aim, timing, number of questions,* and *feedback activities.* The methods that the teacher used to do assessment included asking multiple-choice, true/false, and short-answer questions, and doing matching activities observations. It was observed that the teacher did not utilise any assessment methods such as project assignments, demonstrations, self-assessment forms, or peer/group assessment forms which could allow students to analyse the products of the learning process by themselves. These results are in line with the results of other studies in the literature (Acar-Erdol & Yıldızlı, 2018; Davis & Neitzel, 2011; Duncan & Noonan, 2007; Gelbal & Kelecioğlu, 2007; Rieg, 2007; Xu, 2017; Yapıcı & Demirdelen, 2007). It is important to utilise a wide range of assessment methods in order to support assessment for/as learning in mathematics lessons. The analysis of observation data suggested that the teacher did assessment mainly to assess learning and determine the extent to which the learning outcomes within curriculum units were realized. It was observed that the teacher did not make frequent uses of assessment to increase students' motivation to learn or attention to the classes. The analysis of the timing of assessments showed that assessment was mainly carried out following teaching activities, and from time to time during and before teaching activities. This suggested that summative assessment took place more

frequently compared to other means of assessment, a finding that reflects those in the related literature (Birgin, 2010; Birgin & Baki, 2012; Cansız, 2008). The math teacher mainly used the Interactive White Board (IWB), pen and pencil, course book, and so on to do assessment. The fact that the number of assessment methods used in the classroom was limited, that there was not a variety of materials used for assessment, or that there was not a variety of different assessment procedures taking place in the classroom are indicators suggesting that all those findings support each other.

The procedures related to providing feedback for classroom assessment practices were analysed under the following categories; type and manner of feedback. The results indicated that the teacher provided both general and specific-descriptive feedback, generally focused on getting the right answer, retrying to solve problems, and allowed mistakes to happen. In terms of giving clues and doing error analysis, it can be said that the teacher had the role of reminding students of the rules and followed a strategy which made students recite the rules. If assessment requires students to recite rules, this indicates that the teacher teaches too many concepts. If assessment requires reasoning skills then this indicates that the teacher plans exercises and experiences that will get students to think (McMillan, 2015). It can be said that a teacher's tendency to remind students of mathematical concepts and operations shape the way he or she provides feedback. The analysis of the data relating to the process of providing feedback suggested that the teacher's feedback focused on providing students with general feedback which relates to doing revisions, studying more, and doing lots of exercises. The teacher was found not to be able to provide sustained feedback that would help students create connections between the new and old information they learn. And this situation was not considered to help students who lacked prior knowledge to understand a new subject. Students, who lack prior knowledge in a course like mathematics which follows a spiral curriculum, are likely to experience problems in learning the concepts that follow. And this will likely result in a decrease in students' motivation, attention, sufficiency, and the value they attach to learning. Relevant research literature support these findings (Hattie & Timperley, 2007; Krause, Stark, & Mandl, 2009; Narciss & Huth, 2006).

When classroom assessment is focused on learning, students' motivation and interest will increase. This issue is very important for goal orientations. In the class, the process of constantly focusing on the right answer increases students' –those who have performance goal orientations- tendency to stop wanting to learn or not wanting to participate in relatively difficult learning activities when they become unsuccessful (McMillan, 2015). As such the findings of this study support this claim. For example, the students with high performance and low learning, and high learning and high performance goal orientations were found to question the dynamics of the classroom because of the constant focus on the correct answers. The analysis of the data regarding the timing of the feedback suggested that the teacher provided both individual and also general feedback. While individual feedback guided the student to the right answer from time to time, the fact that there were times when not only the student answering the question but also another student who would give the right answer was involved in the feedback process legitimizes the question of: "Does the feedback support students?". The analysis of the manner that the teacher provided feedback suggested that the teacher frequently used verbal feedback. Moreover, the teacher did not provide any written feedback with regards to students' exams, or homework. There are a number of functions that the feedback has in the classroom such as making a statement with regards to a student's performance or providing a direction about how the student can develop further (Sadler, 2010). Considering these functions, the teacher in this study was generally focused on making a statement regarding students' performance. Feedback

is an important element of assessment for/as learning. This is because effective feedback requires a student to answer questions such as: "What do I do now?"; "How good do I do?" (Hattie & Timperley, 2007; Orsmond & Merry, 2011). A student doing this kind of assessment by himself/herself can direct his/her own learning. However, the statements made by the teacher as part of feedback might not assist students or even might cause an increase in avoidance behaviour. Therefore, whilst providing feedback, a teacher should adopt the role of a teacher who provides feedback that is understandable and highlights the strengths of a student's performance without being judgemental (Mandhane, 2015). Otherwise, it is possible that students with avoidance and approach goal orientations might interpret the feedback process differently. A number of research studies have shown that effective feedback can allow teachers to make realistic assessments of students' academic performance which also increased students' intrinsic motivation (Brookhart, 1997b; Labuhn, Zimmerman & Hasselhorn, 2010; Rakoczy, Klieme, Bürgermeister & Harks, 2008). Research studies have also found that supportive, rich, and effective feedback can affect students' goal orientations for mathematics (Cocks & Watt, 2004; Self-Brown & Mathews II, 2003).

Classroom assessment practices reflect teaching/learning processes in the classroom and the s+tudents' position in these processes. Moreover, the classroom assessment context reveals the extent to which the teacher and students participate in assessment processes. For example, if classroom activities are organized in accordance with the goals and aims of the curriculum units then the teaching and assessment processes will be designed according to this. The assessment process will take place utilising activities such as unit tests, pen and pencil exercises, and presentations. In this framework, classroom assessment represents the extent to which the learning outcomes have been realized. Presentation of a classroom activity to students includes specified assessment and learning tasks, standards, criteria, and feedback (Brookhart, 1997a). Therefore the questions asked during teaching and feedback processes, prioritizing the realization of the learning outcomes, not using a variety of assessment methods, and not having a rich variety of learning experiences, altogether, reflect a teacher's approach and aims of assessment. Similarly, students' views of classroom assessment practices correspond to the observed practices of the teacher.

One of the main aims of this study was to understand how classroom assessment practices were perceived by students with different goal orientations. The math teacher's practices which included solving problems with the whole class, asking those who solve a problem correctly to go to the board, and providing general feedback were perceived differently by students with high performance and low learning, and high performance and high learning goal orientations. The student with high performance and low learning goal orientation was found to enrich her learning with extracurricular activities in order to avoid any negative experiences during assessment or to stand out in the class. On the other hand, the student with low learning and high performance goal orientation was found to make excuses ("I'm exhausted", "I cannot write", etc.) to avoid participation in assessment practices. The above approach adopted by the teacher might cause students to perceive that only those students who answer the questions in the class will advance and those who do not will stay behind. This student with such perceptions is likely to continue his/her avoidance behaviour. Research studies have shown that students with learning goal orientations have higher levels of motivation than those with performance goal orientations. They are unlikely to quit when they experience difficulties and can participate in more difficult learning activities. Students with performance goal orientations, on the other hand, are likely to accept failure and quit and, thus, they prefer activities in which they are sure to be

successful (Brookharts, 1997a; Dweck, 1986, Dweck & Legget, 1988; Elliot & Dweck, 1988; McMillan & Workman, 1998; McMillan, 2015). Classroom observations and interview data showed that there were not any individual-based teaching/learning activities that could support students in positively changing such behaviours. That is to say; constant failures that students experience in the classroom may push students towards such orientations. Therefore, teachers should communicate with students who have such orientations (learning) and support their participation in classroom activities. Otherwise, classroom practices will continue to reinforce such students' performance-based orientations.

The study also investigated the relationship between classroom assessment and other classroom practices that could be related to students' goal orientations which are related to goal orientations. The findings in relation to this aspect indicated that the teacher did planning informally. This situation might have resulted in learning experiences that are teacher centred and focused on utilising question-answer method and lecturing rather than experiences that are student centred in mathematics classrooms. As such observation notes supported this interpretation. Since a teacher who plans teaching informally is likely to focus more on the teaching aspect, she/he will be unlikely to plan the lesson according to students' needs, requests, or skills. The data that students provided in the study supported this claim. Students wanted their teacher to associate classroom practices to real life, include games in teaching activities, actively involve students in decision making processes for classroom activities, and make them love the lesson. In addition, studies conducted in this field have underlined the need to include rich learning activities in mathematics classrooms (Meece, Anderman & Anderman, 2006; Temizöz & Özgün-Koca, 2008).

The results, however, showed that only the student with high learning and low performance goal orientation considered classroom practices to be sufficient in mathematics classrooms. The reason for this might be the fact that students with such goal orientations are not really affected by the practices in their surroundings. Students with such goal orientations can transfer their learning activities outside the classroom and can get involved in activities that support their learning. They can effectively use learning strategies to enable deep learning (Elliot & McGregor 2001; Grant & Dweck 2003; Meece & Miller 2001; Meece, Anderman & Anderman, 2006). The fact that the effect of their surrounding was considered to be important for students with different goal orientations suggests that classroom learning experiences should promote learning (Ames & Archer, 1988; Roeser et al.,1996). Classroom learning experiences are important since they constitute an aspect that is not only shaped by assessment but also one that shapes assessment. If classroom assessment practices do not relate to students' experiences and if classroom experiences appeal to the general population, the feedback is likely to be used to control students. In addition if students' performances are announced publicly then such classroom practices may end up decreasing students' motivation (McMillan, 2015). Observation data showed that classroom practices mainly consisted of students noting down information to their notebooks and answering teacher's questions. The student with high performance and low learning goal orientation, in particular, was found to continuously complain about this aspect. This can be interpreted in the following way; performance oriented classrooms increase increases avoidance behaviours. Research literature supports this interpretation (Midgley & Urdan, 1995; Urdan, Midgley, & Anderman, 1998; Turner et al., 2002). Students with performance goal orientations, on the other hand, had the tendency to relate their success to external conditions that are not under their control. Therefore, it can be said that a teacher who

ignores students' requests and does not vary his/her teaching practices will end up reinforcing such tendencies.

Classroom learning experiences shape the value that a student attaches to learning. For example, findings of this study showed that while the student with high learning and low performance goal orientation considered learning to be important for herself and paid attention to being able to use what she learns in real life situations. Students with other goal orientations (high performance and low mastery, and high mastery and high performance), on the other hand, were found to be disinterested in mathematics learning. This was because they perceived that they had to learn mathematics not because they wanted to but rather because the school wanted them to learn. Since they could not associate what they learned in school to real life situations, students with performance goal orientations perceived mathematics to be a subject that only needs to be learned in school and that is not related to daily life. In such situations, the value of learning for a student -following the answer he/she gives to the question: "Why do I learn?"- will not be at a desired level. Goal-orientations, together with the values students give to learning tasks assigned to them, constitute an important combination. Students' judgements about the usefulness and significance of the content they learn (Pintrich, 1993) affect their goal orientations (Ames, 1992; Pintrich, 1999; Pintrich, 2000b; Schunk, 2005). Research findings with regards to students' behaviours considering their goal orientations are in line with the findings in the present study (Boekaerts & Corno, 2005; Cho & Shen, 2013; Church, Elliot, & Gable, 2001; Midgely, Kaplan, & Middleton, 2001; Roeser et al., 1996).

These findings are also in line with the expressions frequently used in the classroom which is another dimension of the present study. The categories analysed as part of this topic included; expressions about studying all the time-success, comparison, and competition and exams. Results indicate that the teacher frequently highlighted the importance of being successful. The teacher explained to the students that success could be achieved by following general strategies such as revisions and doing exercises. Classroom assessment practices and the importance attached to success were found to be interrelated. The teacher's suggestions that each student can become successful by following the same approach were found to have a negative effect on students' motivation levels. For example, the student with high performance and low mastery goal orientation became indifferent to hearing the same advice from the teacher and got bored, a finding that should be carefully evaluated. As can be seen, classroom atmospheres which are focused on success rather than students' individual development represent learning environments that feed performance based goal orientations (Turner et al., 2002). Comparisons among students and competition are important aspects of classrooms that are too focused on academic success. The teacher whose classroom was observed in this study, from time to time, made statements about the characteristics of a "good student". The observations revealed that students in the classroom compared themselves to other students during activities. No matter what goal orientations the students had, they expressed that they were not happy about the comparisons, which is a finding that needs to be underlined. In fact, such learning environments would increase competition among students and importance attached to success. Because, assigning success meanings -which indicates that it is learning a lesson or answering the questions asked by the teacher, or being successful in the exams- will feed perceptions of competition in the classroom. Such competition would not motivate students. This is because the students who had high mastery and low performance goal orientation expressed that having discrepancies between students' levels might prevent successful students from evaluating the situation realistically. This can be explained as following: If a goal is too easy to achieve and the

student's performance is above the standards specified for that particular goal then the feedback provided following success will decrease the student's motivation and quality of his/her future performance (William, 2011). This suggests that administering the same method of evaluation during teaching activities and getting students to compete among themselves may be meaningless for some students. Similarly the student with high mastery and low performance goal orientation explained that the success or failure that she might experience would have an impact on her motivation. The student with high performance and low mastery, on the other hand, indicated that failures that she may experience as a result of competition would negatively affect her motivation to learn. In this case, students who continuously look for the reasons of failure in their surrounding will inevitably develop negative emotional reactions towards lessons, learning, the teacher, and the school. This is because classroom environments in which competition is promoted will increase students' (those who have performance goal orientations) tendencies to try and demonstrate their success to or hide their failures from their peers (Turner et al., 2002). As such, there are studies which have found that students' (those who have performance goal orientations) motivation are more affected by classroom practices when compared to other students with different goal orientations (Zhou et al., 2019).

As can be seen, assessment in mathematic classrooms and other related practices have a significant impact on students' motivational beliefs. Students' prior learning experiences were found to shape their goal orientations. In line with these findings it can be concluded that classroom activities should support learning experiences. Teachers should create atmospheres suitable for mathematics learning and in which students -who can appreciate learning, know why they are learning, associate what they learn with daily life, and self-evaluate their learning- are raised. Both academic and non-academic information, skills, and behaviours learned in class and school environments affect an individual's life outside the school. Considering this importance, attention should be paid to carrying out individualised assessment, utilising multiple methods of assessment, determining learning outcomes with students, highlighting mistakes in a fashion not feeding rivalry but rather nurturing development, and providing qualitative feedback. As a teacher, it is especially important to avoid undertaking classroom practices that can feed students' (those who have performance goal orientations) performance related orientations. This is because such students' can be affected by external control mechanisms to a higher extent. Such students might want to pay attention to teacher's suggestions; however, if those students do not receive guided learning experiences then they would not be able to attain meta-cognitive knowledge about how to learn. Thus, a student who constantly studies but who also does not know how to study will be likely to think that studying is not really helpful. It is important to develop a social identity and this period becomes a critical one for students to establish the criteria for their social identity development. It should be noted that such school-classroom experiences may increase a student's negative feelings towards himself/herself or his/her environment. An important limitation of this study is the classification of the students into three goal orientations. The classroom did not include any students who had low learning-low performance goal orientation and, thus, it was not possible to include any data regarding such students' perceptions of classroom assessment practices. Therefore, future studies can be conducted in which students with low learning-low performance goal orientations are also observed. Furthermore, classroom environments which are dominated by different goal orientations can also be investigated in future research. Last but not least studies, which compare and contrast the goal orientations of students who are members of classrooms in which different classroom assessment practices are adopted, can be conducted. In spite of its limitations, the

present study provided an in-depth description of how students with different goal orientations perceived teachers' classroom assessment and other practices.

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