Iranian Journal of Educational Research

TYPE: Empirical Study
PUBLISHED: 01 06 2022
DOI: 10.52547/ijer.1.2.56

The relationship between teacher skills in the qualitative evaluation of math lessons with math anxiety, academic procrastination and thinking style

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[DOR: 20.1001.1.2980874.2022.1.2.5.3]

[DOI: 10.52547/ijer.1.2.56]

OPEN ACCESS

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RECEIVED 17 January 2022
ACCEPTED 27 April 2022
PUBLISHED 01 06 2022

CITATION
Rahimi, T. & Sedaghatkhah, A. M. (2022). The relationship between teacher skills in the qualitative evaluation of math lessons with math anxiety, academic procrastination and thinking style, Iranian Journal of Educational Research, 1, 2, 56-72.

Abstract

The current research aimed to investigate the relationship between teacher skills in qualitative evaluation of math lessons with math anxiety, academic procrastination and students' thinking style. The research was a descriptive correlational study. The statistical population was teachers and high school students of Shiraz (Iran) in 2022, from which 126 teachers and 212 students were selected by accessible sampling method. Data analysis using descriptive statistics (mean and standard deviation) and inferential (correlation and regression to examine the relationships between variables) were done by SPSS-22. The results indicated that teacher skills in qualitative evaluation had a negative relationship with math anxiety and academic procrastination, and there was also a positive relationship between teacher skills in qualitative evaluation and students' thinking styles. The regression results also showed that teachers' skills in qualitative evaluation predicted students' math anxiety and academic procrastination, significantly. According to the findings of the research, it is suggested to use effective interventions to increase the qualitative evaluation skills of teachers in order to improve the academic efficiency and academic performance of students.

Keywords
teaching skills, qualitative assessment, mathematics, mathematics anxiety, academic procrastination, thinking style, students

[DOR: 20.1001.1.2980874.2022.1.2.5.3]

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Introduction

Performance in mathematics is one of the key factors that significantly affects individuals' future lives. In fact, there is a significant correlation between individuals' math performance and their academic performance, and it is clear that individuals' academic performance has a significant impact on their future (Vukovic, Kiffer, Bailey, & Harriott, 2013). Math performance directly and indirectly plays a significant role in many professions and academic fields. Therefore, it is important to pay special attention to the factors that affect it. Math anxiety alone can negatively affect the performance of a talented individual and severely impact it. Considering that reducing math anxiety leads to an increase in individuals' math progress, identifying effective and relevant factors in this structure is of great importance (Keshavarzi & Ahmadi, 2013).

In educational environments, anxiety can have detrimental effects on students, including emotions in special situations such as exams, general learning, lifelong learning, and careers. Along with anxiety disorders, individuals may suffer from specific forms of test anxiety and performance anxiety related to a specific area of knowledge. It is clear that the most prominent of these disorders in the field of education is math anxiety (Luttenberger, Weber, & Pekrun, 2018). Math anxiety is a negative emotional reaction to mathematics that can be disabling, causing tension and anxiety that interferes with individuals' ability to deal with numbers and solve math problems in normal life and educational situations. The severity of math anxiety can range from mild stress to severe fear of mathematics (Schaffer, Roszkowski, Malone, Berkowitz, Lewin, & Belok, 2021).

Math anxiety is defined as a feeling of dread and an increase in physiological response when individuals deal with mathematics, such as using numbers in a problem, solving math problems, or being in an evaluation situation related to mathematics. The dimensions of math anxiety can include anxiety experienced during exams and anxiety experienced in class, as well as fear of math teachers (Cassady, Hall, & Westbrook, 2015). Teachers, parents, and other adults act as important role models and influence children's attitudes towards mathematics based on their own attitudes, behavior, and performance in mathematics. In elementary education, teachers have a special influence, and their attitudes, behavior, and performance in mathematics are transferred to their students (Morsani, Bosdorgji, & Primmi, 2014).

Also, one of the variables that plays an important role in the performance and success of students and has a close relationship with the teaching and evaluation methods of teachers is academic procrastination. Academic procrastination is one of the behavioral obstacles that cause a decline

in students' academic performance and has mostly undesirable and irreparable consequences (Cochrane, You, Walters, & Wagner, 2014). In a study by Ozkan (2009), it was shown that 52% of students had a high level of academic procrastination, and female students reported more procrastination due to anxiety and lack of motivation. Academic procrastination can lead to a decrease in the quality of work, lower grades, and ultimately, a negative impact on students' academic progress and future prospects. Therefore, it is important to identify the factors that contribute to academic procrastination and develop strategies to prevent it.

Another factor that can affect and interact with quality assessment is thinking styles (Wilkinson, Bouhan, & Stoneson, 2014). According to Sternberg (1997), many students who are considered weak in class have the ability to succeed, and it is the teacher who fails them, not the students. In fact, these teachers are unable to understand the diversity of students' thinking and learning styles and teach in ways that are not appropriate for their styles. Since thinking is an active rather than passive process, and thinking is about doing rather than just talking, thinking styles can also determine the way one acts and behaves (Sternberg, 2003). Individuals do not see the world in the same way, and it is possible that each person has a different approach to interacting with the external world. For example, individuals with a legislative thinking style enjoy working on tasks that require creative strategies. Individuals with an executive thinking style are more interested in tasks that have clear and explicit structures. Finally, individuals with a judicial thinking style prefer situations that require evaluation, analysis, comparison, and judgment about existing ideas, strategies, and projects (Bluszcz, 2014).

Sternberg (2003) has divided 13 thinking styles into three main types based on criteria such as cognitive complexity. The first type includes five thinking styles: legislative, judicial, hierarchical, holistic, and free-thinking. These styles are generators of creativity and have high cognitive complexity. The second type of thinking styles guides the individual to conform to norms and includes lower levels of cognitive complexity. This type includes executive, partial, dominator, and conservative thinking styles. Finally, the third type of thinking styles includes anarchic, oligarchic, internal, and external thinking styles. These styles show the characteristics of the first and second types of thinking styles depending on the requirements of each specific task (Piao, 2014). Numerous studies have been conducted on thinking styles. According to these studies, some thinking styles have a significant relationship with academic progress, personality traits, self-esteem, and psychological well-being (Ji, Gao, & King, 2013).

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Wilkinson, Bouhan, and Stoneson (2014) showed in their research that different learning styles have a significant relationship with academic performance. In addition, the results indicated that this relationship is influenced by the type of quantitative and qualitative assessment, and qualitative assessment provides more freedom of action for students and leads to better academic performance. Based on the mentioned material, the present study aimed to investigate the relationship between teacher skills in the qualitative evaluation of math lessons with math anxiety, academic procrastination and thinking style.

Materials and Methods

The present study is a descriptive correlational study. The statistical population of the study consisted of high school teachers and students in Shiraz in 2022, of which 126 teachers and 212 students were selected through convenient sampling method. It should be noted that the sample size was determined according to the sufficient number of 15 subjects per variable in correlation studies (Cohen, Manion, and Morrison, 2001). It is worth mentioning that in the sampling process, criteria such as having more than one year of teaching experience, informed consent to participate in the study, and lack of physical illness were taken into account for inclusion and exclusion from the study. Data analysis was performed using descriptive statistics (mean, standard deviation, charts, etc.) and inferential statistics (correlation and regression to examine the relationships between variables) using the SPSS-23 statistical software. The independent variable of the study is teachers' skills in qualitative assessment of mathematics and the dependent variables of the study are mathematical anxiety, academic procrastination, and students' thinking styles.

Tools

A) Shokrani Mathematical Anxiety Questionnaire (2002): In this study, to collect the necessary data, the Shakrani Mathematical Anxiety Questionnaire (2002) was used, which has two components of test anxiety and mathematical nature anxiety. The test anxiety component refers to the anxious state related to the math test and the math test session, and the mathematical nature anxiety component refers to the anxious state related to math class and math problems. This questionnaire includes 18 items, with 9 items on one factor and 9 items on another factor. Each item has four options, and for each item, a score of "3 = completely agree", "2 = agree", "1 = disagree", and "0 = completely disagree" is obtained, and the sum of these scores is the person's

mathematical anxiety score. The range of mathematical anxiety scores is from 0 to 54, where a higher score indicates higher mathematical anxiety and a lower score indicates lower mathematical anxiety. The reliability of the questionnaire was calculated based on the Cronbach's alpha coefficient, which was 0.93. Internal consistency of the test was also obtained as 0.87 in the study by Lavasani, Hejazi, and Khandan (2011). This questionnaire has been used as a standard and accepted tool for measuring mathematical anxiety in various studies.

B) **The Procrastination Assessment Scale for Students (PASS; Solomon & Rothblum, 1984)**: This scale was developed by Solomon and Rothblum (1984) and consists of 27 items that cover three components. The first component is preparing for exams, the second is preparing for daily tasks, and the third is preparing for papers and term assignments. In this scale, items 2-3-5-9-11-13-15-16-21-23-25 are scored in reverse. The reliability coefficient of the Procrastination Assessment Scale was 0.64, as measured by Cronbach's alpha in a study conducted by Solomon (1998). Regarding the validity of the scale, an internal consistency correlation coefficient of 0.84 was obtained. In a study by Jokar and Delavarpoor (2007), the validity of the scale was evaluated using factor analysis and the correlation of items with the total score. The results showed that the principal component factor analysis indicated the presence of a single general factor in the questionnaire, and the correlation of the items was at a desirable and significant level. The Cronbach's alpha coefficient for the reliability of the scale was reported as 0.91.

C) The Teacher's Skills in Qualitative Assessment of Mathematics Lessons Questionnaire: In a study conducted by Hosseini, Tehraniyan, Behzadi, and Alamalhodaei (2020), the lived experiences of teachers and sixth-grade students, components, outcomes, and obstacles of qualitative assessment in mathematics lessons were evaluated using semi-structured interviews. The model of required teacher skills, essential factors and components, and obstacles and challenges of implementing qualitative assessment in mathematics lessons was presented from the perspective of teachers and students. To evaluate the validity and reliability of the questionnaire, a 32-item questionnaire was designed using a five-point Likert scale (very low, low, moderate, high, and very high). A sample of 400 participants was selected, and the KMO test and Bartlett's test of sphericity were used for sampling adequacy. The results of the KMO test showed that the sampling adequacy was 0.629, which was at an acceptable and satisfactory level, and the results of Bartlett's test were statistically significant. To evaluate the construct validity of the questionnaire, factor analysis was used, and the results indicated a six-factor structure that was an

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appropriate method for describing the scale items and accounted for 50% of the variance of the scale. The test-retest reliability coefficient of this questionnaire was 0.73, and the Cronbach's alpha coefficient was 0.71. The content validity of the questionnaire was also confirmed by experts in the field of education and assessment (Hosseini, Tehraniyan, Behzadi, & Alamalhodaei, 2020).

D) Thinking Styles Questionnaire (Sternberg & Wagner, 1992): This questionnaire consists of 104 items and 13 subscales, each measuring a thinking style. Each subscale contains eight items. The 13 thinking styles are: Legislative, Executive, Judicial, Monarchic, Hierarchic, Oligarchic, Anarchic, Global, Local, Internal, External, Conservative, and Liberal. The thinking styles questionnaire is rated on a seven-point Likert scale (ranging from 1 to 7). The internal consistency reliability coefficients (Cronbach's alpha) for the Legislative, Executive, and Judicial thinking styles were reported to be 0.78, 0.77, and 0.81, respectively, in Sternberg and Wagner's (1992) studies. Imamipour (2001) adapted the questionnaire for Iranian students and standardized a 65-item form. The internal consistency reliability coefficients for the Legislative, Executive, and Judicial thinking styles were reported to be 0.63, 0.72, and 0.76, respectively, in a study with Iranian university students. The structural validity of the instrument was also assessed using factor analysis, with a reliability coefficient of 0.77 reported by Sternberg (1994) cited in Imamipour and Saif (2003).

In Iran, Imamipour and Saif (2003) reported a reliability coefficient of 0.59 for the questionnaire's construct validity based on principal component analysis and orthogonal rotation (Varimax) using data from 810 participants, indicating acceptable validity of the questionnaire in the Iranian population. Therefore, the Thinking Styles Questionnaire by Sternberg and Wagner, with adaptation and standardization in the Iranian population and assessment of its validity and reliability, can be a reliable and valid tool for measuring thinking styles in the Iranian population. However, it is important to interpret and use the results carefully and with the assistance of a qualified psychologist. It should also be noted that this questionnaire is just one of the available tools for measuring thinking styles and it is better to use multiple tools and methods to identify thinking styles.

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Results

The average age of students was 12.45 years with a standard deviation of 1.45 years, and the average age of teachers was 34.70 years with a standard deviation of 0.58 years. Table 1 presents the descriptive statistics of the research variables.

Table 1. Descriptive statistics of research variables

Variable	N	Mean	SD
Procrastination	212	55.73	10.52
Teacher skills in qualitative assessment	120	331.79	27.73
Math anxiety	212	15.35	6.17
Legal thinking style	212	13.69	3.60
Executive thinking style	212	12.54	4.54
Judicial thinking style	212	12.48	3.54
General thinking style	212	11.26	3.41
Partial thinking style	212	11.73	3.38
Free thinking style	212	10.80	3.60
Conservative thinking style	212	13.53	4.43
Hierarchical thinking style	212	12.99	4.32
Royal style of thinking	212	10.62	3.43
Oligarchic thinking style	212	12.48	3.54
Anarchist thinking style	212	11.84	3.33
Internal thinking style	212	11.14	3.63
External thinking style	212	10.42	4.08

The following results describe the correlation between the qualitative assessment skills of teachers and math anxiety in students.

Table 2 . Pearson correlation results between the qualitative assessment skills of teachers and math anxiety in students

Variable	1	2	3	4	5	6	7	8	9	10
1- Familiarity with qualitative evaluation	-									
2- Differentiation between students	.64**	-								
3- Use of various evaluation tools	.57**	.64**	-							
4- Classroom time management	.74**	.64**	.55**	-						
5- Strengthening students' motivation	.53**	.51**	.40**	.50**	-					
6- appropriate emphasis on the student's strengths and weaknesses	.60**	.70**	.55**	.44**	.51**	-				
7- Total score	.84**	.88**	.73**	.78**	.72**	.81**				
8- Math test anxiety	-.19*	.014	-.058	-.10	-.025	-.03	-.07	-		
9- Anxiety of mathematical nature	-.29**	-.31**	-.20**	-.19*	-.19*	-.18*	-.29**	.20**	-	
10- Total score	-.32**	-.18*	-.17	-.19*	-.13	-.13	-.23**	.85**	.63**	-

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As the results show, there is a significant negative correlation between the components of the qualitative assessment skills of teachers and math anxiety in students. Furthermore, the correlation results between the total score of the qualitative assessment skills of teachers and the thinking styles of students are presented below.

Table 3. Correlation results between the qualitative assessment skills of teachers and thinking styles of students

Variable	r	p
Legal thinking style	-.09	.29
Executive thinking style	.06	.12
Judicial thinking style	.42	.12
General thinking style	.35	.001
Partial thinking style	.08	.35
Free thinking style	.28	.002
Conservative thinking style	.019	.83
Hierarchical thinking style	.14	.12
Royal style of thinking	-.09	.28
Oligarchic thinking style	.15	.09
Anarchist thinking style	.22	.015
Internal thinking style	.25	.006
External thinking style	-.11	.23

As the correlation results show, there is a significant and positive correlation between the thinking styles of students, including global, divergent, anarchic, and internal thinking styles, and the total score of the qualitative assessment skills of teachers. Multiple regression results in a simultaneous manner for predicting math anxiety based on the qualitative assessment skills of teachers are also presented.

Table 4. Multiple regression results of math anxiety

Model	B	Std. Error	Beta	t	p
Constant	30.14	2.47	-	12.26	.001
Familiarity with qualitative evaluation	-.57	.25	-.43	-2.29	.02
Distinguish between students	.03	.41	.09	.23	.23
Use of various evaluation tools	.002	.36	.001	.006	.99
Class time management	.29	.35	.15	.82	.41
Enhancing student motivation	.05	.20	.04	.26	.79
Appropriate emphasis on student's strengths and weaknesses	.19	.27	.16	.73	.46
Total score	-.04	.14	-.15	-.29	.76

F	Adjusted R^2	R^2	R
2.25	.07	.12	.34

As observed, the correlation coefficient between the qualitative assessment skills of teachers and math anxiety is 0.34, and in total,12% of the variance in math anxiety can be predicted by these

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skills. The F-value is also significant, indicating that the qualitative assessment skills of teachers have a significant predictive power. According to the results in Table 4, the t-value for familiarity with qualitative assessment is significant (sig=0.05), and since the calculated significance level is less than 0.05, the t-value for familiarity with qualitative assessment is significant at the 99% confidence level. Familiarity with qualitative assessment predicts math anxiety negatively, meaning that the more familiar a teacher is with qualitative assessment, the less math anxiety students experience. However, other components of the qualitative assessment skills of teachers did not have a significant predictive power for math anxiety. As the results showed, there was a significant negative correlation between the components of teacher skills in qualitative assessment and academic procrastination of students. Furthermore, the multiple regression results are presented below to predict student academic procrastination based on teacher skills in qualitative assessment simultaneously.

Table 5. Multiple regression results of academic procrastination

Model	B	Std. Error	Beta	t	p
Constant	61.50	3.10	-	19.78	.001
Familiarity with qualitative evaluation	-.63	.31	-.38	-2.07	.04
Distinguish between students	.24	.24	.10	.31	.41
Use of various evaluation tools	.017	.45	.006	.037	.76
Class time management	.33	.44	.13	.75	.35
Enhancing student motivation	.013	.26	.008	.049	.76
Appropriate emphasis on student's strengths and weaknesses	-.19	.33	-.12	-.57	.86
Total score	-.005	.18	-.014	-.027	.64

F	Adjusted R^2	R^2	R
2.28	.084	.13	.36

As observed, the correlation coefficient between teacher skills in qualitative assessment and student academic procrastination is 0.36, which predicts 13% of the variance in student procrastination. The F-value is also significant, indicating that teacher skills in qualitative assessment have significant predictive ability as a predictor variable. According to the results in Table 5, the t-value for Familiarity with qualitative assessment is significant at a level of 0.05 (sig=0.005), which means that the Familiarity with qualitative assessment variable is a significant predictor of student academic procrastination at a 99% confidence level. Familiarity with qualitative assessment negatively predicts student academic procrastination, meaning that the more a teacher is familiar with qualitative assessment, the less likely their students are to

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procrastinate. Other components of teacher skills in qualitative assessment did not have significant predictive ability for student academic procrastination.

Discussion

The findings of this study indicate that teacher skills in qualitative assessment have a negative correlation with math anxiety among students. Based on the results of this study and other research evidence, students who are subject to descriptive assessment experience less anxiety compared to their peers, which is consistent with the studies conducted by Shir-Mohammadi (2009), Mohammadi (2011), and Amiri (2007).

Shir-Mohammadi (2009) found in his research that the level of exam anxiety among third-grade students subject to descriptive assessment is significantly lower than those subject to quantitative assessment. From the teachers' perspective, descriptive assessment can reduce students' anxiety. Exam anxiety in the group covered by descriptive assessment is lower than those subject to quantitative assessment. Therefore, it can be concluded with more certainty that students subject to descriptive assessment experience less anxiety.

Some research evidence suggests positive effects of implementing descriptive assessment on students' cognitive, emotional, and psychomotor performance. Amiri (2007) examined the effect of experiencing two assessment systems (quantitative and qualitative) on anxiety, intrinsic motivation, self-efficacy, and academic performance of fifth-grade students in Tehran and concluded that the type of assessment has a significant effect on exam anxiety. Amiri (2007) also studied the effectiveness of descriptive assessment in the first, second, and third grades of elementary school in Chaharmahal and Bakhtiari Province and found that the quality of mental retention, motivation for academic tasks, and achievement of physical goals among students subject to descriptive assessment was better than those subject to quantitative assessment. In addition, interest in studying and teachers among students subject to descriptive assessment was higher than those subject to quantitative assessment, and the level of anxiety among students subject to descriptive assessment was lower than those subject to quantitative assessment. Using descriptive feedback instead of grades can increase learning motivation and improve self-efficacy. Based on the findings of this study, it seems that descriptive assessment can improve students' level of anxiety compared to quantitative assessment. In addition, descriptive assessment can improve students' performance in cognitive, emotional, and psychomotor areas. Using descriptive

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feedback instead of grades can increase learning motivation and improve self-efficacy. Therefore, it seems that the use of descriptive assessment can be a useful and effective method in education and learning. However, it should be noted that these results may be limited to specific conditions and environments and may not be generalizable to other conditions. Therefore, more research is needed in this area to obtain definitive and generalizable results.

The results showed that qualitative assessment has a negative correlation with procrastination. Bouy (2007) showed in his research that when assessment is aimed at obtaining a grade or score for comparison, anxiety and procrastination increase. When the purpose of assessment is behavioral and performance-based, lower levels of procrastination are observed. Ord and Klingsick (2018) reported in their study that the type of assessment used by the teacher has a direct impact on student procrastination, and the more assessment moves towards behavioral goals and away from quantitative grades, the less procrastination is observed.

Procrastination is defined as self-defeating delay, putting off, dragging, dawdling, holding back or delaying action on a task (Rosario, Costa, Nunes, Gonzalez-Pienda, Solano, & Valle, 2009). It is considered an undesirable and behavioral problem that many people experience in their daily activities, especially in tasks that are supposed to be done routinely. Procrastination is a behavioral tendency to delay what is essential to achieve one's goals, in other words, it is deferring a task that one has decided to execute (Khormaei, Abbasi, & Rajabi, 2015). The negative consequences of procrastination in educational environments include low academic performance (Rotenstein, Davis, & Tatum, 2009; Hussein & Sultan, 2010), lower grades, inactive participation in classes and discussions, low satisfaction with performance, academic failure, and even higher general anxiety (Michinov et al., 2011).

The data analysis results showed that teacher skills in qualitative assessment have a significant and positive correlation with thinking styles, including holistic, free-thinking, anarchic, and internal styles. Free-thinking individuals demonstrate their abilities based on their experiences and school-related knowledge to solve problems and issues in new and innovative ways, resulting in better and faster outcomes. They consider the rules and regulations but also focus on new approaches. Individuals with an internal thinking style pay more attention to the outcomes and the interaction with the environment, making the school a flexible and open system where external and internal factors are controlled and feedback is provided by the school and the surrounding environment (Imampour & Saif, 2003). It can be argued that individuals with an internal thinking style focus

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inwardly and on their environment. These individuals tend to be task-oriented, avoidant of others, and sometimes socially unaware. Holistic thinkers prefer to examine issues in a very broad and abstract way, paying little attention to details and are inclined towards practical aspects of a situation, although both holistic and analytic thinkers can work together effectively, and both are necessary for an organization to succeed (Mahmoudi, Ostkhi, & Damavandi, 2011).

Finally, no style is better than the other, and thinking styles change according to the situation and the individuals' position. An efficient student is one who uses the appropriate style for the best outcome in learning and education. Individuals do not have just one specific thinking style, but rather a pattern of different and multiple styles to achieve the best results (Sternberg, 2011).

Descriptive evaluation, with an emphasis on evaluation in the process of teaching and education, influences the activities of students in the classroom. In descriptive evaluation, in addition to changing the teaching method, feedback, and student assignments, teachers use other tools such as observing students in real conditions, recording necessary information, portfolio, checklist, performance tests, self-assessment, peer assessment, and presenting student progress reports. These tools provide a more accurate picture of the learning process and the results of students' efforts for the teacher (Hasani & Ahmadi, 2012).

Research results have shown that students prefer descriptive evaluation tools (such as portfolio, project work, self-assessment, peer assessment, and non-exam assessments). Therefore, learning of students increases when using descriptive evaluation tools. Implementing this plan is not only aimed at eliminating the limitations of traditional evaluation but also has psychological benefits for students, such as reducing student anxiety and increasing their self-confidence. However, research is needed to verify this, and this study has been conducted for this purpose. Due to the novelty of this plan in the country, few studies have been conducted in this area, especially in terms of emotional and psychological aspects of students' evaluation. The limitations of this research include factors such as limited evaluation of multi-grade teachers and teachers of other educational levels and limitations in the precise examination and control of variables such as student intelligence, educational and academic background, and emotional variables related to students and teachers, which are suggested to be studied in future research.

The present research has examined the effect of descriptive evaluation tools on students' classroom activities and their emotions and psychology. The results of this research show that students enjoy their academic activities more and their learning improves when using descriptive evaluation tools.

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Additionally, the use of these tools can lead to the reduction of anxiety and an increase in students' self-confidence.

However, this research still has limitations that require further research in this area. For instance, the effect of these tools on the behavior and performance of multi-grade and different educational level teachers has not been examined. Also, variables such as student intelligence, educational and academic background, and emotional variables related to students and teachers were not precisely controlled. Therefore, future research should focus on examining these variables.

Overall, the use of descriptive evaluation tools can lead to the improvement of the learning process and the reduction of anxiety and an increase in students' self-confidence. However, to evaluate the effect of these tools accurately, further research is needed with precise control of various variables. Additionally, these tools should be designed to be compatible with the specific needs of students in each educational level.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University, Shiraz, Iran.

Author contributions

TR and AS contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

Funding

The authors did (not) receive support from any organization for the submitted work.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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