

## Pre-Service Preschool Teachers' Opinions about the Formative Assessment

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### ABSTRACT

Formative assessment is based on the principle of determining students' learning needs and teaching them with their needs in mind. The main goal of formative feedback is to strengthen students' knowledge, specific skills, understanding in certain contents, and general skills such as problem solving. The aim of this study is to determine pre-service preschool teachers' opinions about the use of formative assessment. This is a case study, a qualitative research method. This study was conducted with 63 pre-service teachers who were juniors in the education faculty of a public university in the west of Turkey's Black Sea Region in the 2016-2017 academic year. The study data were collected using an opinion form which included open-ended questions as well as interview questions. Pre-service teachers' written explanations to the open-ended questions were analyzed using content analysis, a qualitative analysis method. In addition, the study used descriptive analysis to assess the data that were collected during interviews with the purpose of obtaining further information. The research results show that a majority of pre service teachers' had positive opinions about formative assessment. They stated that formative assessment has many advantages such as enhancing efficiency, providing experience and self-evaluation.

**KEYWORDS:** Formative assessment, teacher training, preservice teachers.

### INTRODUCTION

Education aims to train individuals in a form ideally suited to meet the needs of the time. All of the works corresponding to this aim serve to constitute a qualified education. One of the most important elements governing the capacity to improve the quality of education is the "evaluation" stage, which acts as a control mechanism (Taras, 2002, 2003), as it serves to identify the extent to which the aims are achieved and the success of the elements (student, teacher, teaching method, teaching materials etc.) constituting the learning process. There are two types of assessment, product assessment, which is an assessment conducted at the end of units to determine what the students have learned, and formative assessment, which is an assessment conducted to determine the learning needs of the students (OECD, 2005; Liu & Carless, 2006). Recent results have shown that the product assessment methods, which are commonly used in schools and require the students to achieve predetermined standards in order to earn a diploma, are insufficient (OECD/CERI, 2008). Formative assessment methods, whose function is focused on preventing students from failing to continue their education in the future, serve as an alternative to the product assessment methods. Formative assessment is based on the principle that the needs of the students are determined in the process and that teaching is modified according to those needs. According to Shute (2007), the main objective of formative assessment is to increase the students' knowledge and skills, like drawing inferences or problem-solving in certain content areas. In this sense, the quality of learning can be increased through formative assessment (Higgins, Hartley, & Skelton, 2002). Gagne (cited in: Gibbs & Simpson, 2004) lists the effects of formative assessment in a learning environment as follows: activating and reinforcing background information and learning, ensuring that mainly active learning strategies are used, and enabling opportunities for the students to reinforce and implement their skills before introducing new information and materials to them. In addition to these, the following could be included: providing students with information and corrective feedback on the learning outcome, ensuring that the students are aware of their learning, and helping them develop self-evaluation skills, all of which will serve to give students the opportunity to experience the feeling of success.

Rubrics are one of the most important tools used in formative assessment. They are applied in the assessment process to identify the learners' knowledge and skills, study habits, efforts, and values according to predetermined criteria (Kan, 2007). In many studies conducted on the use of rubrics in the learning environments, it has been stated that the use of rubrics improves the quality of learning (Andrade, 2005; Andrade & Du, 2005; Panadero, Alonso-Tapia, & Huertas, 2012; Panadero, Alonso-Tapia & Reche, 2013; Reddy &

Andrade, 2010). In a study by Panadero and Jonsson (2013), rubrics were found to be capable of positively affecting the learning of the learners. Additionally, Wollenschlager, Hattie, Machts, Moller and Harms (2016) found in their study that rubrics had a positive effect on performance. Teachers too have found rubrics to be quite useful (Kutlu, Bilican, & Yıldırım 2010).

A high-quality, up-to-date education requires practices that improve both skills and knowledge. Studies that seek to understand how individuals internalize and use information in line with their aims and how they provide effective solutions to problems have therefore gained importance in the respective literature. Moreover, as it relates to pedagogy, taking applied classes during undergraduate education is of major importance. The acquisition of knowledge and skills that pre-service teachers can achieve by taking responsibility for their learning and doing self-evaluations plays a key role in improving their future teaching abilities. In the applied classes taken during undergraduate education, the quality and accuracy of the application are particularly important. In applications involving formative assessment, theory and practice are able to be bridged and self-evaluations are made possible through accurate performances. By offering applied classes during undergraduate education, there would be an improvement in the quality of the practices applied by pre-service teachers and they would be able to accurately employ the formative assessments, as they will have gained experience in how it is used and been given the opportunity to test its effectiveness. It is believed that the results of this study shall contribute to improving the quality standards in teacher training.

### **Purpose of the Study**

The purpose of this study is to investigate the views held by pre-service preschool teachers on the formative assessment process. This study was performed within the "Creativity and Its Improvement" class offered to second-year students under the Preschool Teacher Education Department. The participants' opinions on the use of formative assessment (rubrics, and verbal-written feedbacks), which they had learned about during the process of applying creative thinking techniques in actual classroom environments, were canvassed.

The following research questions were developed for the study:

1. What are the views of pre-service teachers regarding the advantages of formative assessment?
2. What are the views of pre-service teachers regarding the disadvantages of formative assessment?
3. What are the views of pre-service teachers regarding the use of rubrics in formative assessment?
  - a) What are the views of pre-service teachers regarding planning rubric?
  - b) What are the views of pre-service teachers regarding application rubric?
  - c) What are the views of pre-service teachers regarding finalization rubric?
4. What are the views of pre-service teachers regarding whether formative assessment contributes to professional development or not?

What are the views of pre-service teachers regarding the use of formative assessment in other courses?

## **METHODOLOGY**

### **Study Design**

This study adopted a qualitative case study design. The most important characteristic of a qualitative case study is its ability to perform an in-depth investigation of one or several cases (Yıldırım & Şimşek, 2008). Additionally, according to Büyüköztürk, Çakmak, Akgün, Karadeniz, and Demirel (2012), case studies are a type of study in which a phenomenon is described in a single space and time. In case studies, the researcher(s) is/are responsible for qualifying the case to be examined, and the cases are not restricted to only certain persons and objects that have a specific identity (such as a group, a person, a class, or an institution) but can also be an incident, an activity, or a process (Johnson & Christensen, 2014). The case investigated in this study is the evaluation process of pre-service teachers' practices in actual classroom environments using formative assessment.

### **Participants**

A total of 63 second-year pre-service preschool teachers, who were studying at the Ereğli Faculty of Education of Zonguldak Bülent Ecevit University in the 2016-2017 academic year, participated in the study. The participants were between the ages of 19 and 21, and 60 were female and 3 were male. All of the participants were taking the "Creativity and Its Improvement" class for the first time.

### **Procedure**

Within the scope of the "Creativity and Its Improvement" class, the participants were presented the general concepts of brainstorming, creative drama, analogy, and case study techniques, and model practices were demonstrated. After being provided the theoretical knowledge on these concepts, the participants were asked to conduct group work on one of these techniques and to plan an "application". Next, three rubrics (planning, application, and finalization rubrics) were given. The rubrics and the criterion governing them were explained,

and it was made clear that the evaluation of the works would be conducted according to these rubrics. The pre-service teachers performed the implementation in the following three stages:

*1st Stage:* In the planning of the application process, the pre-service teachers plotted the procedure by considering the criterion in the “planning rubric”. Each of the pre-service teachers presented their planned applications during their practice and in their classes (at the university). After the presentations, they were given verbal feedback by the instructor regarding the application plan of the techniques and the suitability of the techniques in terms of grade level and creativity. A sample criterion for the planning rubric used by the pre-service teachers is given in Table 1.

**Table 1:** Sample Criterion for Planning Rubric

CRITERION	ACHIEVEMENT LEVELS		
	<u>5 points</u>	<u>10 points</u>	<u>20 points</u>
The nature of the technique	The technique is not planned properly	The technique planned partially conforms to the rules	The technique is planned properly

*2nd Stage:* The pre-service teachers started the implementation phase of their works which had been planned after receiving feedback. At this stage, the participants used an “application rubric”, and they implemented the subjects that they had selected by considering the criterion of the rubric in the classroom environment. The criterion in the application rubric covers the points that need to be paid attention to and taken into consideration during the implementation of the creative thinking techniques in the classroom environment. The techniques that the pre-service teachers were provided training on and given feedback for were implemented in 2-hour sessions in a preschool classroom (authentic classroom environment) with 5-6-year-old children. Each technique was implemented in a different school with different contents. A sample criterion for the application rubric is given in Table 2.

**Table 2:** Sample Criterion for Application Rubric

CRITERION	ACHIEVEMENT LEVELS		
	<u>2 points</u>	<u>5 points</u>	<u>10 points</u>
Imagination	None of the students used their imagination during the application.	Only a few students used their imagination during the implementation.	Many students used their imagination during the implementation.

*3rd Stage:* At this stage, the groups finished their application, prepared a PowerPoint presentation, which they presented to their instructors and classmates in the classroom environment (at the university), and prepared a report for their study. At this stage, the pre-service teachers used the finalization rubric. A sample criterion for the finalization rubric is given in Table 3.

**Table 3:** Sample Criterion for Finalization Rubric

CRITERION	ACHIEVEMENT LEVELS		
	<u>5 points</u>	<u>10 points</u>	<u>20 points</u>
Relating the collected data	The relations between the collected data are not shown and only seldom are inferences drawn from the application.	The collected data are only related to the rubric, making the inferences only partly sufficient.	Since the collected data are related based on the data received from multiple sources, the inferences drawn are quite sufficient.

### Data Collection Tools

In this study, the data were collected from pre-service teachers through an open-ended questionnaire. This open-ended questionnaire was prepared in line with the research questions by the researcher. To confirm the content validity of the form and the interview questions, they were reviewed by two field experts and one assessment expert. When the actual classroom applications were completed, the form was administered to all of the participants, who filled it out individually. It took approximately 35 minutes for the participants to complete the form.

A sample question from the open-ended questionnaire:

What do you think are the advantages of formative assessment?

Interviews were used as another data collection tool for this study. The interview questions were prepared in line with the research questions. The interviews were conducted face-to-face with eight of the pre-service teachers from among the participants in order to investigate the research questions in-depth.

A sample question from the interviews:

Would you prefer the use of formative assessment in your other classes as well? Please explain your answer with reasons.

**Data Analysis**

The participants’ answers to the open-ended questionnaire were analyzed using qualitative analysis techniques. The data obtained from the interviews were analyzed through descriptive analysis and investigated in line with the categories of the study, which were as follows: the advantages of formative assessment, the disadvantages of formative assessment, the use of rubric in formative assessment and the views on rubrics (planning rubric, application rubric, finalization rubric), contributions of formative assessment to professional development, and the use of formative assessment in other classes. The data were analyzed through content analysis, with two different raters analyzing the data, whose Miles-Huberman (Miles and Huberman, 1994) reliability value was found to be 93.67.

**FINDINGS**

In this section, the findings from the study are presented in categories arranged in tables. Direct quotations from the views of the pre-service teachers were included as well.

The codes related to the “Advantages of Formative Assessment” category are given in Table 4.

**Table 4:** The Codes and Frequencies of the Advantages of Formative Assessment

Code	Frequency	Code	Frequency
Experience	35	Effective learning	5
Opportunity to perform application in the classroom environment	21	Motivation	5
Permanent learning	14	Guiding	4
Transferring theoretical knowledge into practice	12	Effective communication	3
Learning by doing	12	Awareness of the deficiencies of the class	3
Communication with students	9	Gaining experience by observation	3
Receiving feedback	7	Originality	3
Improving creativity	7	Knowing students	3
Mastery learning	7	An important activity	2
Individual evaluation	7	Critical thinking skill	2
First experience opportunity	6	Process evaluation	2
Awareness of different assessment techniques	6	Cooperation	2
Self-evaluation	6	Enjoyable	2
Gaining a different perspective	6	Socialization	1
Exchange of ideas	5		

According to Table 4, the pre-service teachers stated that among the advantages of formative assessment were that it provided experience and facilitated permanent learning by giving them the opportunity to practice in the classroom environment. Additionally, the participants thought that the application allowed them to transform theoretical knowledge into practical knowledge, contributed to learning by doing, and provided them the opportunity to communicate with the students. Pre-service teacher (PT -1) offered the following views on the advantages of formative assessment: *Formative assessment gives the pre-service teachers experience. It enables us to form our own ideas about our profession. Most importantly, it enables the person who thinks and feels that he/she should work as a teacher to definitively make that decision before the process is over.* Pre-service teacher (PT-6) added the following: *It enables active participation. Since each student has a role, the aim of the class is understood better. Any deficiencies in the studies are able to be identified during the presentation, and the views*

of other pre-service teachers are listened to and discussed. Group participation enables learning to take place together. PT-2 offered the following views on communicating with students: *This is the first time that I have ever been to a kindergarten. I have practiced and spent time with children. This was a valuable opportunity for me to understand whether this profession is appropriate for me or not. I am quite happy; it was very important for me to participate in practicum and see the actual classroom environment.* It can be stated that the pre-service teachers gained professional development and experience in the use of assessment instruments.

The codes related to the “Disadvantages of Formative Assessment” category are given in Table 5.

**Table 5:** The Codes and Frequencies of the Disadvantages of Formative Assessment

Code	Frequency
No disadvantage	27
First-time application	7
Time-consuming	6
A difficult process	6
A stressful process	3
Unequal distribution of the responsibilities	3
Group work	3
Evaluation of the process	2
Insufficient experience regarding practice	2
Difficulty in controlling the process	2
Classroom management	1
The high number of evaluation criteria	1
Group evaluation during the process	1
Communication with students	1
The feeling of inadequacy in the process	1

According to Table 5, the majority of the pre-service teachers stated that formative assessment did not have any disadvantages. Some of the pre-service teachers cited their first time experience with the practice and the time-consuming and difficult nature of the process as disadvantages. Regarding this latter view, PT-5 stated the following: *This was my first practice and I hadn't worked at a preschool institution before, and I did not have any experience, therefore, I may not be able to demonstrate my full performance.* Similarly, PT-7 stated: *The application process was sometimes long and time-consuming.* During the process, group work was mentioned as a disadvantage, as expressed by PT-4, who stated: *'Group work was definitely challenging. I could not fully implement what I thought because of the differences in opinions. There was no other disadvantage.* Although the formative assessment process is a time-consuming application, the majority of the pre-service teachers did not perceive this as a disadvantage.

The codes related to the “Use of Rubric in Formative Assessment” category are given in Table 6.

**Table 6:** The Codes and Frequencies of the Rubric Use in Formative Assessment

Code	Frequency
Guiding	26
Planning and organizing the process	13
Facilitates application and planning	6
Limits the process	5
Evaluates the process	5
Enables identification of the details	4
Enables identification of the deficiencies	4
Effective in the details of the process	3
Too detailed	3
Guide	3
Self-evaluation	3
Facilitating	2
Multidimensional thinking	2

Gaining points	2
Instruction	1
Making the process efficient	1
Guide	1
Objectivity	1

According to Table 6, the pre-service teachers thought that the rubrics used in formative assessment were guiding, that they helped in planning and organizing the process, and that they were necessary for limiting and evaluating the process. PT-1 had the following thoughts on the use of rubrics: *Rubrics made the process easier. We evaluated both ourselves and our process, so we became conscious and could think more critically.* Regarding the guiding feature of rubrics, PT-3 stated: *Having a rubric guided us in implementing the technique. Although we had learned the assessment in the class, the rubric helped us to understand why we did the assessment.* PT-5 added: *The use of the rubric is very important because it directs and enables awareness on the deficiencies. Additionally, we become aware of the points that we need to be careful about.* The positive views that the pre-service teachers had about rubrics and their characterization of them as guiding can be considered as the main reasons they adopted the formative assessment instrument and were willing to use it.

The codes related to the “Planning Rubric” category are given in Table 7.

**Table 7:** The Codes and Frequencies Regarding the Planning Rubric

Code	Frequency
Designing the process	14
Guiding	13
Organizing the process	11
Helps application	9
Showing the parts that need attention	9
Appropriate	6
Sufficient	5
Successful	4
Directive	3
Noticing the asking questions category	3
Beneficial	3
Necessary	3
Demonstrating the process step-by-step	3
Educational	3
Preparation for the application	2
Facilitating	2
Improving creativity	2
Detailed information	2
Self-confidence	1
A written framework of the process	1
Effective	1

According to Table 7, the pre-service teachers felt that since the planning rubric showed the points that needed attention, it helped them to perform the application and organize the process. Moreover, the pre-service teachers consider the rubric to be appropriate for the application, sufficient, and successful. PT-8 had the following thoughts on the planning rubric: *It acted as a blueprint to the questions of "How should I act?", "What should my application be like?", "What are my objectives?", and "How should I express them?", and it guided well.* PT-2 added: *It was important for us regarding the order of the plan and the points that need attention during the plan.* Finally, PT-3 stated: *When all was said and done, we had organization. In the absence of organization, discipline cannot be mentioned, and in the absence of discipline, success cannot be mentioned. We thought about what to do and what the questions should be.* From these opinions, it is clear that the planning rubric used in the formative assessment was guiding.

The codes related to the “Application Rubric” category are given in Table 8.

**Table 8:** The Codes and Frequencies Regarding Application Rubric

Code	Frequency
The inclusion of the practical aspect of the profession	13
Helpful in the classroom environment	12
The inclusion of the implementation stages	9
Planning the implementation process	8
Guides the application	7
Observing the students	7
Communication with students	7
Including the points that need attention in application	5
Changing according to the process	5
Successful	5
Fully sufficient	5
The most important part of the process	3
Appropriate	3
Note taking	2
The inclusion of the evaluation type	2
Beneficial	2
Has application aim	2
Effective	2
Improves creativity	2
School experience	2
Facilitating	1
Self-confidence	1
Internship	1

According to Table 8, the pre-service teachers stated that since the application rubric used in the formative assessment process includes application stages, it acted as a guide in the planning of the application process, and it provided an opportunity to observe and communicate with the students in the classroom environment. PT-5 expressed the following views regarding the application rubric: *It provided answers to my questions about how to do the application so that it enables use of the creative thinking technique. It helped us to make the right plan and act in the right way.* PT-6 added: *The application rubric provided an advantage by enabling the use of creative thinking skills and included the possible problems that may be faced during the application.* Finally, PT-1 stated: *Providing an application rubric is good; it provided information about how to do the application, which was nice, considering that I did not have previous experience.* The application rubric can be seen as a supplementary resource in the classroom environment, since it includes practical information on teaching.

The codes related to the “Finalization Rubric” category are given in Table 9.

**Table 9:** The Codes and Frequencies Regarding Finalization Rubric

Code	Frequency
Self-evaluation	10
Evaluation of the application process	10
Interpreting the results	7
Evaluating the activity	6
Appropriate	5
Seeing the objectives	5
Sharing the results	5
Evaluating the group	4
Awareness of the errors and deficiencies	4
Map of the products	3
Guide of the results	2
Effective reporting of the results	2

Raising awareness on the possible problems	2
Planning the evaluation	2
Beneficial	2
Planning the presentation	2
Sufficient	2
Revision	2
Critical thinking	2
Creativity	1
Successful	1

According to Table 9, the participants felt that the finalization rubric was effective in the evaluation of the application process and interpretation of the results. Additionally, they thought that the rubric was appropriate for the process and effective since it included the objectives. PT-2 offered the following views on the finalization rubric: *At the end of the application part, everything was finalized. As a result, the better I do this part, the better I can reflect my homework.* Regarding self-evaluation, PT-4 stated: *It is quite an important step in terms of evaluating the activity. It helped us by enabling us to ask the following questions to ourselves: "What did we do?", "What did we expect?", and "How did it happen?".* Additionally, PT-7 stated: *The finalization rubric enabled me to see what I have done in the application and the objectives.* From these statements, it is clear that the finalization rubric used in the formative assessment process provided an opportunity for self-evaluation. The codes related to the “Contribution of the Formative Assessment to Professional Development” category are given in Table 10.

**Table 10:** The Codes and Frequencies Regarding Whether Formative Assessment Contributes to Professional Development

Code	Frequency	Code	Frequency
It contributed to professional development	23	Motivation	3
School experience	14	Developing original ideas	3
Preparation for the profession	13	Effective learning	3
Learning by doing	9	Enables permanence	2
Practicing in a real classroom environment	9	Seeing the results of methods and techniques	2
Transferring theoretical knowledge into practice	8	Making observation	2
Self-evaluation	8	Evaluation in the classroom environment	2
Evaluation	6	Beneficial	2
Communication with students	6	Classroom management	2
Awareness	6	Considering individual differences	1
First experience	5	Self-efficacy	1
First time communication with students	5	Reaching the objectives	1
Learning how to design a lesson procedure	5	Encouraging	1
Critical thinking	5		

According to Table 10, the participants felt that formative assessment contributed to professional development in terms of providing school experience, enabling the opportunity for practice in an actual classroom environment, transferring theoretical knowledge into practice, and enabling the opportunity of self-evaluation. On this issue, PT-8 stated: *It would be very pleasing to move from simple memorization to this system.* PT-3 added: *It certainly contributed to my professional development. Practicing with children in the real classroom environment moved the techniques outside the limits of formal information; it will enable us to conceptualize and conduct similar activities in the future.* Finally, PT-1 had the following to say on the subject: *This is the first time I have ever come across this type of assessment. I wish we had this assessment for each course. I wish that we could apply everything we learned so that the information would be more permanent.*

The codes related to the “Use of Formative Assessment in Other Course” category are given in Table 11.



**Table 11:** The Codes and Frequencies Regarding the Use of Formative Assessment in Other Courses

Category	Code	Frequency
<b>Yes (41)</b>	Turning theoretical knowledge into application	9
	Increasing permanence	8
	A beneficial application	7
	Learning by doing	6
	Applied system instead of memorization	5
	In applied classes	5
	In pedagogy classes	3
	Professional development	3
	Learning the subject comprehensively	3
	Communication with students	2
	Self-evaluation	2
	Cooperation	2
	Performance-based learning	2
	A different evaluation	2
	Facilitates learning	2
	Practice in the actual classroom environment	2
	Training experienced teachers	2
	Improving creativity	2
	Responsibility	1
	Developing ideas	1
Embodying	1	
Practical courses	1	
Experience	1	
<b>No (4)</b>	Not appropriate for each course	2
	Stressful process	1
	Time-consuming	1
<b>In certain courses (13)</b>	Permanence	3
	In field courses	2
	In applied classes	2
	Experience	1
	Educative	1
	Preparation for the profession	1
Depends on the content of the course	1	

According to Table 11, the majority of the participants felt that formative assessment should be used in other courses as well, particularly because it transforms theoretical knowledge into practice, increases permanence, is an educative application, and provides an opportunity to learn by doing rather than memorizing. Regarding its use in other courses, PT-2 said: *‘Yes, I would definitely want it because it is an extraordinary evaluation method. PT-6 stated: ‘Yes, I would. I think its use, especially in the applied classes, will be beneficial for us. Additionally, regarding its use in other written courses, PT-4 stated: ‘Yes, I would want it. We won’t teach by memorization, we will teach by doing. So, I think we need to learn by doing.’*

### CONCLUSIONS, DISCUSSION, AND IMPLICATIONS

This study revealed that the views of the majority of the pre-service teachers regarding formative assessment were positive. Among these views, gaining experience, enabling permanence learning, and turning theoretical knowledge into practice stood out. Additionally, they felt that this application facilitated their professional development and provided them with a chance to communicate with the students in the classroom environment. The findings of other studies in the literature support the results of this study. Formative assessment is an application that includes various approaches capable of being used to support a student’s learning (Van der Kleij, Vermeulen, Schildkamp, & Eggen, 2015; Briggs, Ruiz-Primo, Furtak, Shepard, & Yin, 2012). Decristan et al. (2015) conducted an experimental study on curriculum-embedded formative assessment and its effect on classroom quality and found that the curriculum-embedded formative assessment’s impact on class quality for a science course taught on floating and sinking helped to facilitate the students learning. Bulunuz and Bulunuz (2013) noted in their study that the use of the formative assessment approach in science courses has high potential in terms of supporting conceptual learning. In a report by Jones (2005), it was stated that in order to progress in a specific activity it is necessary to provide feedback, which is an element of formative assessments, to the students. When the students are provided with feedback to improve the task that they are working on, the

value they derive from it is perceived as a motivator. Studies conducted in various fields of education have revealed that the formative assessment process needs to be actively employed in education.

Rubrics, which function as an element of formative assessment, was also addressed in this study. The pre-service teachers viewed the rubrics that they used in the process of formative assessment as guiding and directive. Additionally, they felt that the rubrics were beneficial and important insofar as they helped in planning and organizing the process. In terms of each specific rubric, the participants expressed that the planning rubric they used guided them by helping them to design and organize the process, that the application rubric helped to improve the practical aspect of the teaching profession and included the application steps for the classroom environment, and that the planning rubric facilitated their self-evaluation by interpreting the results and evaluating the process. Other studies in the literature that were conducted on the effectiveness of rubrics in the learning environments support the findings of this study. In education, rubrics are an effective tool for teacher training, scientific contents, and assessment processes (Alsina, Ayllón, Colomer, Fernández-Peña, Fullana, Pallisera, Perez-Burriel, & Serra, 2017; Harrison & Lee, 2011; Timmermann, Strickland, Johnson, & Payne, 2011; Ward & McCotter, 2004; Panadero & Jonsson, 2013).

The following implications were drawn from the findings of this study:

1. In faculties of education, formative assessment should be included as part of applied undergraduate courses. Additionally, even in theoretical courses, formative assessment can be used by including application as part of the course.
2. In-service teachers can be trained on formative assessment by means of in-service training.
3. Rubrics, which are one of the elements of formative assessment tools, can be implemented at every level of learning, from primary school to higher education. In this respect, different application types may be used for many courses.
4. In teacher training, formative assessment types can be tested on different sample groups with different applications and instruments.

Similar studies may be conducted in different teaching branches and with a higher number of participants.

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