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Exploring Pre-service Teachers' Attitudes towards Online Peer Assessment

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Abstract. The use of peer assessment has gained considerable interest as an alternative assessment method in higher education. This study explores pre-service teachers' attitudes towards and opinions about the online peer assessment process. To this end, a basic qualitative research method was applied. A sample of 125 pre-service teachers from a city in Turkey participated in the study. The study employed the Attitudes towards Peer Assessment Scale and open-ended questions to investigate participants' attitudes and opinions. The study found out that the vast majority of the participants felt that peer assessment is beneficial and enjoyable. However, some of the participants indicated that fairness and efficacy might be questionable. The study highlights the influence of anonymity, rater training, and teacher monitoring. Recommendations are provided to improve the design and implementation of peer assessment in Teacher Training Programmes.

Keywords. Online peer assessment, pre-service teachers, attitudes towards peer assessment.

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With the adoption of the constructivist education approach, the direction of measurement-assessment activities that support learning has started to become important (Boud, 1990). This transformation also involves a transition from traditional methods (such as multiple-choice, and true-false) to alternative methods. Peer evaluation, which is one of the alternative measurement assessment methods, is one of the techniques used frequently in education in recent years (Double et al., 2020). Peer assessment is a very appropriate method to switch from assessment in learning to assessment for learning. In addition, it is emphasized that it can be applied at each level of education (from primary to higher education).

There is a substantial literature on peer assessment in higher education (Cheng & Warren, 1997; McGarr & Clifford, 2013; Planas Lladó et al., 2014; Topping, 1998; Tucker et al., 2009; Willey & Gardner, 2010). Even though peer assessment is a well-known concept in education, it is also called “peer review”, “peer feedback”, or “peer evaluation”. Topping (2017, p. 2) a pioneer in peer assessment, defines the concept more formally as “an arrangement for learners to consider and specify the level, value, or quality of a product or performance of other equal-status learners, then learn further by giving elaborated feedback to and discussing their appraisals with those who were assessed to achieve a negotiated agreed outcome”. Based on this definition, peer assessment can be expressed as an assessment of the performance tasks that students have evaluated and assessed by peers (Bozkurt & Demir, 2013; Falchikov, 1995).

Peer assessment is a process in which two or more students are involved in performing activities that require fairly equal degrees of participation for the process to be successful (Ashenafi, 2015). In other words, students at the same level of learning are asked to give feedback or score according to specific criteria designed for their peers' tasks. The criteria used in peer assessment can be developed by the instructor or they can be established by students' contributions. However, it is recommended that students develop ideas and decide on their final state when creating the criteria for evaluation (Topping, 2003). The other important issue about peer assessment is peer pairing. While pairing students, the instructor should take into account that they should pair students who have the same skills (Webb & Farivar, 1994). After appropriate matching, students should be assured that their ability to conduct assessments is adequate. To achieve this, students should be provided with examples and training (Topping, 2003). Before the assessment, students should also be informed of the assessment process. In other words, students need to know what kind of performance is expected, how much time they need for peer review, and what the deadline is. Another crucial aspect is to check the quality of peer assessments with the instructor's guidance. The instructor should check the tasks

during the process and guide students when they need it (Wanner & Palmer, 2018). Possibly, some students may not fully understand how to assess the performance tasks from the training or descriptions. The teacher's immediate support increases the effectiveness of the assessment.

Peer assessment is a method of assessment. However, it would be inadequate to consider this method as an assessment method only. Peer assessment, developed as an "assessment for learning" perspective, has a significant contribution to academic skills (McGourty et al., 1998). For example, with a peer review activity, students are able to redo and put into practice what they have learned in the course. This allows him/her to have a deeper learning experience (Chen, 2005). Liu and Carless (2006) claimed that peer assessment should be put at the center of the learning process. Besides, an extensive review of the literature of the past century regarding peer assessment by Ashenafi (2015) revealed that peer assessment as a form of formative assessment helps students monitor their own learning process.

In addition, peer assessment can be perceived as an activity that allows for the development of cognitive-sensory skills (Somerville, 1993). It is known that there are advantages to peer assessment, such as developing reflective thinking skills, acquiring exponential skills, and self-regulation (Sluijsmans & Prins, 2006; Topping, 1998; 2003). During the peer review process, students can evaluate their friends' performance tasks, evaluate their products, and develop self-assessment skills (Vickerman, 2009). Students can compare their performance with others' performance, which allows them to be exposed to their strengths and weaknesses (Rollinson, 2005). In the peer assessment process, students do not only assess the tasks of others with peer review activity but also develop critical analysis skills. With this method, students play an active role in the evaluation process and take responsibility for their learning (Butler & Winne, 1995; Eryılmaz & Altınoy, 2016; Smith et al., 2002). Peer assessment is also very effective in improving social interaction and communication in the classroom. Wen and Tsai (2006) found that peer evaluation increased student-student and student-teacher interaction. Communication, critical thinking, collaboration, and self-management skills are often ones that future workplaces demand of pre-service teachers. This is one of the reasons tertiary institutions made transferable skills a priority. In order for the peer assessment method to be effective, it is important to help learners become active and autonomous learners for their professional development (Oldfield & MacAlpine, 1995; Stefani, 1994; Woolhouse, 1999).

A significant amount of research in the area of peer assessment has been conducted in higher education (Zheng et al., 2019). Peer assessment also has a significant impact on teacher training and

education. Some studies showed that peer assessment activities increased the learning quality of teacher candidates (Al-Karasneh, 2005; Hinett & Weeden, 2000; Wen & Tsai, 2006). With peer assessment, pre-service teachers can find the opportunity to improve their teaching skills (Patri, 2002). They can also improve their assessment skills with peer assessment (Hinett & Weeden, 2000; Wanner & Palmer, 2018). In addition, pre-service teachers might contribute to lifelong learning by improving their reflective thinking skills (Nicol et al., 2014; Thomas et al., 2011; Wanner & Palmer, 2018).

With the Covid-19 pandemic, online assessment methods have been used frequently. Despite all the limitations, online assessments have many advantages over face-to-face assessment, especially for peer assessment (Tsai 2009; Tsai & Liang 2009; Yang & Tsai 2010). Studies have shown that online peer assessment is more effective than paper-pencil peer assessment (Hsu & Hsu, 2016; Li & Gao, 2016; Wen & Tsai, 2006). Li et al. (2020) conducted a meta-analysis and demonstrated that computer-mediated peer assessments have a larger effect than paper-based peer assessments. Anonymity, flexibility, and easy access are some of the advantages of online peer assessment (Chen, 2016; Wen & Tsai, 2006). Assigning students randomly is another benefit of this method (Li et al., 2020). Online peer assessment, which allows hiding the identities of assessors and assessees, also increases students' interest in this activity (Tsai et al., 2002). Online peer assessment activities are also considered to be cost-effective and time-saving (McGourty, 2000). The instructor doesn't need to create an extra time in the classroom, and she can guide or monitor the students outside of the classroom time. Also, s/he doesn't need to print out the performance tasks, and she can use their own Learning Management System or websites that are designed for peer assessment (ex. PeerScholar, PeerReview).

It should not be overlooked that peer assessment (whether paper-pencil or online) has many advantages as well as some disadvantages (Magin & Helmore, 2001; Van den Berg et. al., 2006; Zariski 1996). In this process, one of the biggest problems might be that students do not have sufficient skills in evaluation (Al-Barakat & Al-Hassan 2009). Students who do not know or know little about how to evaluate the learning outcome of their peer will not be able to give effective feedback and may feel psychological pressure on them. Wanner and Palmer (2018) suggested that peer assessment activities should be designed carefully. Students' capacities for giving feedback and teacher involvement should be considered at the beginning of the peer assessment process. On the other hand, some students may not take peer assessment seriously. In this case, the reliability of their evaluation will decrease, and it will not benefit them or their peers. More seriously, some of the

students think that traditional assessment methods are more beneficial and may display a negative attitude towards peer assessment. Some may even think that peer assessment has no purpose and does not contribute to their learning. Considering all these negative situations, it is important to reveal the perceptions of the students for the evaluations to be effective.

While some of the studies in the literature showed that students had positive attitudes toward peer assessment (Collimore et al., 2015; Gatfield, 1999; Liu & Yuan, 2003; Orsmond & Merry, 1996; Roskams, 1999; Schunn, Godley & DeMartino 2016), some others claimed that students had negative attitudes (Collimore et al., 2015; Kaufman & Schunn 2011; Lin et al., 2002; McGarr & Clifford 2013; Praver et al., 2011; Roskams, 1999; Wen & Tsai 2006). Students stated that they had negative attitudes because of the low level of reliability, the lack of knowledge of the assessors in the field, the effect of problematic communication between students, and the usability of the scores given by the students (Cheng & Warren, 2005; Kaufman & Schunn, 2011; Liu & Carless, 2006; Wen & Tsai, 2006). Of course, the attitudes of the students also affect their participation rates in the assessment process. Cheng, Hou and Wu (2014) demonstrated that students with positive attitudes and opinions want to take a more active role in peer assessment. However, students who think that the feedback they receive or give is insufficient may be anxious during the evaluation process and may be reluctant to evaluate (Gielen et al., 2010; Topping, 1998; Weaver & Cotrell, 1986). All of the problems led to the investigation of the participants' attitudes toward peer assessment.

This research attempted to address these gaps by foregrounding the opinions and attitudes of pre-service teachers about peer assessment and bringing attention to what pre-service teachers find problematic as well as beneficial concerning peer assessment. In this regard, the following research questions were explored:

What are the attitudes of pre-service teachers towards peer assessment?

What are the advantages and disadvantages of peer assessment as perceived by pre-service teachers?

Method

Research Model

In this study, a basic qualitative model was used to reveal the attitudes and opinions of prospective teachers towards peer assessment. The basic qualitative research design was decided to be appropriate as it was desired to explore the participants' life experiences in depth (Merriam, 2009).

Study Group

The convenience sampling method was preferred for this study. The participants were 125 university students studying at the Faculty of Education at a Turkish state university in the 2021-2022 academic year. A peer assessment of a performance task was created by the researcher as part of the Measurement and Evaluation in Education course, which is a required course in the faculty of education. The participants' majors were as follows: preschool teaching, special education teaching, science teaching, elementary school teaching, and psychological counseling and guidance.

Data Collection Tools

Two different data collection tools were used to reveal students' views on peer assessment. Firstly, the "Attitude towards Peer Assessment Scale," which was developed by Wen, Tsai, and Chang (2017), was distributed to the participants. The attitude scale was translated into Turkish by the researcher (See Appendix A). This 13-item scale was designed in a 5-point Likert type (1: strongly disagree, 5: strongly agree). The scale consists of two sub-dimensions: general peer assessment (the first 7 items) and online peer assessment (the last 6 items).

During the translation of the scale into Turkish, opinions were obtained from two language experts, an educational psychology expert, an educational technology expert, and an assessment-evaluation expert. The original scale was sent to each expert in English, and they were asked to translate it. The translations were carefully examined, and the translations of the items were completed. The completed measurement tool was sent to two other experts who were specialized in Turkish language and assessment, and its suitability was evaluated. The scale was finalized in line with the feedback from those experts including some modifications in the wording of two items.

Secondly, open-ended questions were asked to the students. The students' ideas about the peer assessment task and the advantages and disadvantages of the peer assessment method were explored. The questions were, "What are the advantages of the peer assessment method?" and "What are the disadvantages or pitfalls of the peer assessment method?"

A pilot study was conducted before the distribution of the data collection tools. The prepared open-ended questions and the scale items were sent to five random participants. Necessary corrections were made in line with the feedback from the participants. Some participants recommended to clarify the sentences. Some of them claimed that there should be more explanations to understand the questions. Based on these feedbacks, the researcher revised and rewrote the open-ended questions.

Data Collection Process

The present study has been developed in a third-year course (Educational measurement and evaluation) that is mandatory in the framework of the Faculty of Education. The course was conducted during the fall term of the academic year 2021–2022. The students attended the lessons for 2 hours a week via Canvas LMS.

The students were required to design a performance task as a measurement tool for their field. This activity represented 30% of the final grade for the course. A rubric was developed by the teacher so that they could evaluate the performance task. There are 7 criteria in the analytical rubric. These criteria are 0 (totally false or not available), 1, 2, and 3 (totally correct). The prepared rubric was shared with different assessment and evaluation experts. Adjustments were made, taking into account the feedback. Some criterias were removed and some of them were simplified. After students submit their assignments via Canvas LMS, three students are assigned to evaluate each assignment. Peer assignments were made automatically and randomly by the system. Since participation in the peer assessment activity was voluntary, some students did not take part as evaluators. In the peer-review process, the identities of the evaluators were hidden.

In order to ensure that the participants fulfill peer assessment task properly, they were trained by the course instructor. They were explained how to use the analytical rubric which ~~is~~ was prepared through sample performance tasks. The participants gave scores to their peers' performances on the Canvas LMS system by using the rubrics and wrote their feedback on the parts they deemed necessary. The entire peer review process was carried out on Canvas LMS.

After the peer assessment process was over, the students were allowed to organize their performance tasks. They arranged the measurement tools they prepared in line with the comments and grade points they received and uploaded them back to the system. The final version of the performance tasks was evaluated by the instructor and given scores ranging from 0 to 100.

After all the procedures were completed, the Attitude towards Peer Assessment Scale and open-ended questions were shared with the participants through an online platform: Google Forms. In the beginning, the participant consent form was provided, and the students who agreed to participate in the study were allowed to see the data collection tool. Identity information was not requested in their answers. The answers were recorded on Google Forms, and after all the responses were received, the data was downloaded on a secure computer.

Data Analysis

Frequencies and percentages were calculated for the attitude scale items. The Jamovi 1.8.4 program was used to make these calculations.

The descriptive analysis method, one method of qualitative analysis, was used in the analysis of open-ended questions. For this analysis, the inductive approach was adopted. First of all, the answers to the open-ended questions were recorded in the Microsoft Excel file. Then, the answers given to each question were examined by the researcher. The first codes were created from the answers given after the first examinations. The researcher looked at the raw data again 10 days after the initial analysis and revised the initial codes. After the revision, it was sent to a field expert, and the codes were asked to be examined from a non-research point of view. Considering the feedback of the field expert, the necessary adjustments were made.

Results

Findings from the Attitude towards Peer Assessment Scale

The findings of the thirteen-item Attitude towards Peer Assessment Scale are presented below (See Figure 1).

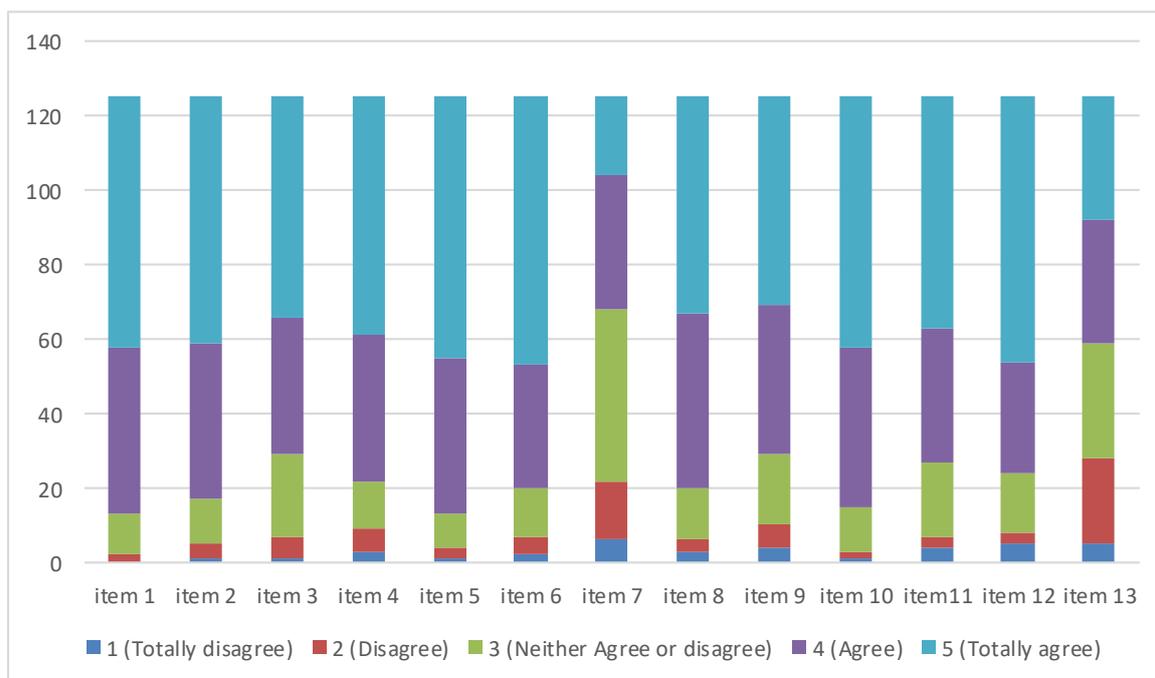


Figure 1. Frequencies of the Attitude towards Peer Assessment Scale Items.

As displayed in Figure 1, all of the items except for two (Item 7 and Item 13) have values between the category 'I strongly agree (5)' and the category 'I agree (4)'. This demonstrated that

participants agreed upon most of the items on the scale regarding the efficacy of peer assessment. It has been observed that items 7 and 13 have lower values compared to other items. The middle category (nor agree or disagree) was mostly preferred for item 7. Item 7, "I think students are eligible to assess their classmates' performance," is related to the competence level of the students. It can be concluded that the participants were undecided about the competency of the evaluators in the peer assessment process. On the other hand, item 13, "Online PA activities are fair when assessing students' performance," indicated mixed results. There were similar frequencies for the categories of disagree, nor agree or disagree, agree, and totally agree. These mixed results revealed that the participants had doubts about the full provision of justice in the online peer assessment tasks.

When the items other than Item 7 and Item 13 were carefully examined, peer assessment is an activity type that supports learning, motivates students, increases in-class communication, and ensures the active participation of students, as perceived by the participants in this study. Moreover, they claimed that online peer assessment has many positive aspects, such as being time saving, economical, and anonymous.

Findings of Open-ended Questions

The students participating in the research were asked about the advantages of the peer assessment process. The obtained qualitative data were subjected to descriptive analysis and codes and themes were obtained (see Table 1).

Table 1.

Codes and Themes for Advantages of Peer Assessment

Themes	Codes	f
Benefit as assessee	Being able to see missing information and errors while being evaluated	30
	Improving peer interaction	13
	Developing a different perspective	10
	Lack of authority pressure	5
	Being objective through anonymous evaluation	2
Benefit as assessor	Being able to see deficiencies and mistakes while evaluating	28
	Contributing to the learning of target achievements	9

	Active student role	4
	Contributing to professional development	2
	Building self-confidence	2
Benefit as Instructor	Saving time	6
	Increasing teacher-student communication	4

According to the findings, it can be stated that the advantages of peer assessment may be grouped under 3 themes: the benefit obtained as an assessor, the benefit obtained as an assessee, and the benefit obtained as an instructor. When the codes and frequencies under the theme were examined, the participants stated that they gained most of the benefit from being an assessor-which is in line with the nature of peer assessment.

When the benefits obtained as assessees are examined, it is seen that the students can see their deficiencies with the evaluations and feedback, interact more with their peers, develop different perspectives on the performance task, not feel the teacher's authority, and the evaluation be objective when evaluated anonymously. The participants found the opportunity to see the deficiencies in their performances through the scores and feedback given by their peers the most useful. For example, one participant said, "To me, feedback from more than one person helped me see the mistakes I made." Using his statement, he talked about the benefit he obtained as an assessee in the peer assessment process. In addition, another participant summarized the fact that peers' feedback helped him develop different perspectives with the sentence, "We had the chance to see different perspectives by evaluating each other."

In terms of the benefits the participants get from the assessor position—the following were listed: the opportunities to see the deficiencies while evaluating, the contribution of the process to learning and teaching profession, playing an active role in the evaluation of the student, and gaining self-confidence. While the participants were evaluating the performance tasks of their peers, they also had the opportunity to see or notice the deficiencies and mistakes in their tasks. For example, one participant stated, "I can evaluate and criticize my work while evaluating the level of competence in the work of my friends." As can be understood from this sentence, the students also evaluated their own performances while making peer assessments. Another finding was about professional development. The participants were pre-service teachers, and they needed to improve their evaluation

skills for their professional life. With the peer assessment activity, the participants learned the intricacies of the assessment process and got experience in assessing performance tasks. A participant stated, "It helps us how we should evaluate the grades of the students when we become teachers in the future." Peer assessment not only benefits the participants in the process but also helps them gain important skills for their future professional needs.

Finally, the benefits of peer assessment for the instructor were mentioned. The codes under this theme were the development of teacher-student interaction and time efficiency. In the peer assessment process, students can become aware of the difficulties of assessment by playing the role of teachers. At the same time, the students thought that peer assessment provided an opportunity to save time for evaluation in large groups.

When the results obtained from the attitude towards peer assessment scale were compared with the results from the open-ended questions, it was seen that the results supported each other. According to the data obtained from both data collection tools, the participants concluded that peer assessment supports learning, improves in-class communication, gives students an active role, and saves time and financial resources.

Even though the students emphasized the benefits of being a part of peer assessment, they also mentioned some challenges regarding the process as presented in Table 2.

Table 2.

Codes and Themes for Disadvantages of Peer Assessment

Themes	Codes	<i>f</i>
No disadvantages	None	14
Disadvantages for assessee	Evaluation bias	41
	Lack of competence in assessment	34
	Not understanding the criteria for evaluation	3
Disadvantages for assessor	Feeling psychological pressure	7
	Knowing the identities	3
	Waste of time	3

Considering the codes and themes in Table 2, it can be stated that there are some disadvantages of the peer assessment process for the assessees and assessors. While the participants were being evaluated, they were worried about the biased behavior of their friends who made the evaluation. For example, one participant stated that "Having a friendship may result in scoring or being scored very high or very low." It has been emphasized that the scoring reliability may be low in peer assessments. Another disadvantage is that peers making evaluations do not have sufficient knowledge of a specific subject. One participant said, "It may be that fully competent people do not evaluate. Our peers may know the subjects as well as we do." He stated that his peers did not have more knowledge and competency than he did, so he doubted the accuracy of his assessments. Not fully understanding the criteria in the rubric prepared for evaluation may also be one of the problems in the peer assessment process. From the assessor's point of view, the participants said that they could feel pressure when evaluating their peers, which could affect the reliability and validity of the assessment. They also stated that in some cases, knowing the identities of the evaluated people can trigger prejudices. Finally, some participants claimed that peer review was a waste of time.

When the results of items 7 and 13 on the attitude towards peer assessment scale were compared with the answers to the open-ended questions, it was determined that similar results were obtained. Accordingly, it can be concluded that there were concerns about peers' being competent and fair in their performance of the evaluation process.

Discussion and Conclusion

The main purpose of this research was to explore the opinions and attitudes of pre-service teachers who had experienced the peer assessment process. In line with the research purposes, the "Attitude towards Peer Assessment Scale" was used, and open-ended questions were asked to university students.

According to the results obtained from the attitude scale, the pre-service teachers generally have a positive attitude towards peer assessment. The results obtained from the open-ended questions also support these findings. The pre-service teachers stated that peer assessment is beneficial either as an assessee or as an assessor. Studies in the literature have similar results indicating that have positive attitudes towards peer assessment (Davies, 2000; Tsai et al., 2001b; Wen et al., 2006). Wen et al., (2006) conducted a study with pre-service and in-service teachers to look into their attitudes towards peer assessment. They found out that both pre-service and in-service teachers held positive attitudes. Another attitudinal study by McGarr and Clifford (2013) revealed that peer assessment was a valuable

and enjoyable experience for the students from a teacher education programme (McGarr & Clifford, 2013).

It has been advocated that peer assessment can improve learners' cognitive and non-cognitive skills (Kim & Ryu, 2013; Sluijsmans et al. 2002; Topping & Ehly, 2001). According to the findings of the current study, the peer assessment method has various benefits for the learning environment. The primary advantage of the peer review process is that it contributes to learners' domain-specific skills. While conducting the assessment, the students had the opportunity to examine and compare different performances with the help of the feedback from the assessors. Thus they were able to eliminate the deficiencies in their learning. They even found the opportunity to regulate existing misconceptions. While the assessor is fulfilling his duty, he can develop his critical thinking skills by focusing more on the evaluation criteria (Liu & Carless, 2006). Mok (2011) found out that the peer assessment method students experienced for the first time contributed to their reflective thinking skills in evaluating their performance tasks. Other studies emphasize that peer assessment allows university students to learn essential skills required in the twenty-first century and for life-long learning (Nicol, et al., 2014; Thomas et al., 2011). The current study also revealed that peer assessment has benefits for students, such as the development of assessment skills. Some studies aligned with this finding claimed that peer assessment training would be helpful for teacher development programs (Panadero & Alqassab, 2019). Therefore, peer assessment not only improves knowledge of a particular subject but also develops some attributes essential for a university student.

Although many students who participated in this research had positive attitudes toward peer assessment and believed it had several benefits, some students claimed that peer assessment had some drawbacks. Reliability and accuracy of students' judgment skills, perceived expertise, power relations, and time constraints were some of them. The participants claimed that peer assessment would not be effective if the assessors did not have sufficient knowledge and skills. Studies demonstrate that the importance of receiving and providing quality feedback is crucial to the effectiveness of peer assessment (Boud & Molloy, 2013; Eryılmaz & Altınsoy, 2021; Moore & Teather, 2013; Nicol et al., 2014; Yang et al., 2006). Even though the meaning of quality feedback is subjective, the students expected some constructive and useful feedback from their peers. Perception of the feedback quality can be linked to the fairness of the evaluation. Wanner and Palmer (2018) suggest that students should be trained by practicing effective feedback and that they need to learn what quality feedback is before the assessment process. A meta-analytic study revealed that the most

critical factor that affects the peer assessment process is rater training (Li et al., 2020). Students should be informed and trained properly to give and receive effective feedback.

The bias of the assessors was another concern. It was stated that peers tend to give more or fewer points since students know each other. Al-Barakat and Al-Hassan (2009) revealed that students could not score objectively due to their relationship with their friends. It was especially observed that the students were reluctant to give low scores to their low-performing friends (Brindley & Scoffield, 1998). To overcome this issue, a well-prepared rubric could be used to assess performance tasks.

Limitations

This study was designed as a basic qualitative research model. In addition, all the findings were limited to a teacher education program course. Future work should build on this study by expanding our sample beyond one-course settings and designing more in-depth research such as case studies. Another subsequent study might also emphasize the reasons behind university students' attitudes. The factors that affect students' attitudes and how their attitudes affect their performance on peer assessment can be examined.

Moreover, in this study, only one performance activity was used, and only a 2-hour training session was provided. Because of the limited experience of the participants, it is crucial to conduct a study that can use peer assessment several times.

Conclusion

The current study explored the attitudes and opinions of pre-service teachers towards peer assessment. Based on the findings of this study, pre-service teachers appreciated the peer assessment method as a learning tool. Although they faced some obstacles and issues in the peer assessment process, overall preservice teachers had a positive attitude toward it. Development of transferable skills, preparing students to be life-long learners, promoting active learning, a better understanding of standards and assessment criteria, and saving time for instructors were some of the advantages of peer assessment. It is crucial to align teacher professional development with peer assessment so that pre-service teachers can be equipped with knowledge and experience to carry it out effectively. Researchers or educators who want to use peer assessment activities may design their activities based on the results of this study. In particular, they can avoid possible disadvantages by allocating sufficient time to assessment training.

The findings of this study demonstrated that pre-service teachers had positive attitudes toward peer assessment. However, some of them had concerns because the lack of competence and subjective evaluation could affect the quality of the assessment process. The findings point to the need for thorough training and making sure all the students are in the same line.

About Authors

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Conflict of Interest

It has been reported by the authors that there is no conflict of interest.

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Ethical Standards

The research have been carried out within the framework of the Helsinki Declaration; the participants were volunteers, informed consent was obtained.

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References

- Al-Barakat, A., & Al-Hassan, O. (2009). Peer assessment as a learning tool for enhancing student teachers' preparation. *Asia-Pacific Journal of Teacher Education*, 37(4), 399-413.
- Al-Karasneh, S. (2005). Self-and peer-assessment as a learning tool to teach social studies: Students' views. *Dirasat: Educational Sciences*, 32(1), 178-191.
- Ashenafi, M. M. (2017). Peer-assessment in higher education—twenty-first century practices, challenges and the way forward. *Assessment & Evaluation in Higher Education*, 42(2), 226-251.
- Boud, D. (1990). Assessment and the promotion of academic values. *Studies in Higher Education*, 15(1), 101-111.
- Boud, D., & Molloy, E. (2013). Rethinking models of feedback for learning: The challenge of design. *Assessment & Evaluation in Higher Education*, 38(6), 698-712.
- Bozkurt, E., & Demir, R. (2013). Students' views on peer assessment: A case study. *Ilkogretim Online*, 12(1), 241-253.
- Brindley, C., & Scoffield, S. (1998). Peer assessment in undergraduate programmes. *Teaching in Higher Education*, 3(1), 79-90.
- Butler, D. L., & Winne, P. H. (1995). Feedback and self-regulated learning: A theoretical synthesis. *Review of Educational Research*, 65(3), 245-281.
- Chen, T. (2016). Technology-supported peer feedback in ESL/EFL writing classes: A research synthesis. *Computer Assisted Language Learning*, 29(2), 365-397.
- Chen, Y. M. (2005). Peer and self-assessment in EFL classrooms. Selected Papers of the Fourteenth International Symposium on English Teaching (pp. 320- 329). Taipei: Crane Publishing Co., Ltd.
- Cheng, K. H., Hou, H. T., & Wu, S. Y. (2014). Exploring students' emotional responses and participation in an online peer assessment activity: A case study. *Interactive Learning Environments*, 22(3), 271-287.
- Cheng, W., & Warren, M. (1997). Having second thoughts: Student perceptions before and after a peer assessment exercise. *Studies in Higher Education*, 22(2), 233-239.
- Cheng, W., & Warren, M. (2005). Peer assessment of language proficiency. *Language Testing*, 22(1), 93-121.
- Collimore, L. M., Paré, D. E., & Joordens, S. (2015). SWDYT: So what do you think? Canadian students' attitudes about peerScholar, an online peer-assessment tool. *Learning Environments Research*, 18(1), 33-45.
- Davies, P. (2000). Computerized peer assessment. *Innovations in Education and Training International*, 37(4), 346-355.
- Double, K. S., McGrane, J. A., & Hopfenbeck, T. N. (2020). The impact of peer assessment on academic performance: A meta-analysis of control group studies. *Educational Psychology Review*, 32(2), 481-509.
- Eryilmaz, A., & Altınsoy, F. (2016). Relationships between motivation to study lesson and classroom engagement. *International Journal of Educational Researchers*, 7(2), 56-68.
- Eryilmaz, A., & Altınsoy, F. (2021). An important antecedent of classroom engagement: School belonging. *Turkish International Journal of Special Education and Guidance & Counselling (TIJSEG)*, 10(1), 66-74.

- Falchikov, N. (1995). Peer feedback marking: Developing peer assessment. *Innovations in Education and Training International*, 32(2), 175-187.
- Gatfield, T. (1999). Examining student satisfaction with group projects and peer assessment. *Assessment & Evaluation in Higher Education*, 24(4), 365-377.
- Gielen, S., Peeters, E., Dochy, F., Onghena, P., & Struyven, K. (2010). Improving the effectiveness of peer feedback for learning. *Learning and Instruction*, 20(4), 304-315.
- Hinett, K., & Weeden, P. (2000). How am I doing?: Developing critical self-evaluation in trainee teachers. *Quality in Higher Education*, 6(3), 245-257.
- Hsu, T. C., & Hsu, A. C. K. (2016). Effects of a peer assessment system based on a grid-based knowledge classification approach on computer skills training. *Journal of Educational Technology & Society*, 19(4), 100-111.
- Kaufman, J. H., & Schunn, C. D. (2011). Students' perceptions about peer assessment for writing: Their origin and impact on revision work. *Instructional Science*, 39(3), 387-406.
- Kim, M., & Ryu, J. (2013). The development and implementation of a web-based formative peer assessment system for enhancing students' metacognitive awareness and performance in ill-structured tasks. *Educational Technology Research and Development*, 61(4), 549-561.
- Li, H., Xiong, Y., Hunter, C. V., Guo, X., & Tywoniw, R. (2020). Does peer assessment promote student learning? A meta-analysis. *Assessment & Evaluation in Higher Education*, 45(2), 193-211. doi: [10.1080/02602938.2019.1620679](https://doi.org/10.1080/02602938.2019.1620679)
- Li, L., & Gao, F. (2016). The effect of peer assessment on project performance of students at different learning levels. *Assessment & Evaluation in Higher Education*, 41(6), 885-900.
- Lin, S. S., Liu, E. Z., & Yuan, S. M. (2002). Student attitudes toward networked peer assessment: Case studies of undergraduate students and senior high school students. *International Journal of Instructional Media*, 29(2), 241.
- Liu, E. Z. F., & Yuan, S. M. (2003). A study of students' attitudes toward and desired system requirements of networked peer assessment system. *International Journal of Instructional Media*, 30(4), 349-355.
- Liu, N. F., & Carless, D. (2006). Peer feedback: the learning element of peer assessment. *Teaching in Higher Education*, 11(3), 279-290.
- Magin, D., & Helmore, P. (2001). Peer and teacher assessments of oral presentation skills: How reliable are they?. *Studies in Higher Education*, 26(3), 287-298.
- McGarr, O., & Clifford, A. M. (2013). 'Just enough to make you take it seriously': exploring students' attitudes towards peer assessment. *Higher Education*, 65(6), 677-693.
- McGourty, J. (2000). Using multisource feedback in the classroom: A computer-based approach. *IEEE Transactions on Education*, 43(2), 120-124.
- McGourty, J., Dominick, P., & Reilly, R. R. (1998, November). Incorporating student peer review and feedback into the assessment process. In *FIE'98. 28th Annual Frontiers in Education Conference. Moving from 'Teacher-Centered' to 'Learner-Centered' Education. Conference Proceedings (Cat. No. 98CH36214)* (Vol. 1, pp. 14-18). IEEE.
- Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. Jossey-Bass.

- Mok, J. (2011). A case study of students' perceptions of peer assessment in Hong Kong. *ELT Journal*, 65(3), 230-239.
- Moore, C., & Teather, S. (2013). Engaging students in peer review: Feedback as learning. *Issues in Educational Research*, 23(2), 196-211.
- Nicol, D., Thomson, A., & Breslin, C. (2014). Rethinking feedback practices in higher education: A peer review perspective. *Assessment & Evaluation in Higher Education*, 39(1), 102-122.
- Oldfield, K. A., & Macalpine, J. M. K. (1995). Peer and self-assessment at tertiary level—an experiential report. *Assessment in Higher Education*, 20(1), 125-132.
- Orsmond, P., Merry, S., & Reiling, K. (1996). The importance of marking criteria in the use of peer assessment. *Assessment & Evaluation in Higher Education*, 21(3), 239-250.
- Panadero, E., & Alqassab, M. (2019). An empirical review of anonymity effects in peer assessment, peer feedback, peer review, peer evaluation and peer grading. *Assessment & Evaluation in Higher Education*, 44(8), 1253-1278.
- Patri, M. (2002). The influence of peer feedback on self-and peer-assessment of oral skills. *Language Testing*, 19(2), 109-131.
- Planas Lladó, A., Soley, L. F., Fraguell Sansbelló, R. M., Pujolras, G. A., Planella, J. P., Roura-Pascual, N., ... & Moreno, L. M. (2014). Student perceptions of peer assessment: an interdisciplinary study. *Assessment & Evaluation in Higher Education*, 39(5), 592-610.
- Praver, M., Rouault, G., & Eidswick, J. (2011). Attitudes and affect toward peer evaluation in EFL reading circles. *Reading*, 11(2), 89-101.
- Rollinson, P. (2005). Using peer feedback in the ESL writing class. *ELT Journal*, 59(1), 23-30.
- Roskams, T. (1999). Chinese EFL students' attitudes to peer feedback and peer assessment in an extended pairwork setting. *RELC Journal*, 30(1), 79-123.
- Schunn, C., Godley, A., & DeMartino, S. (2016). The reliability and validity of peer review of writing in high school AP English classes. *Journal of Adolescent & Adult Literacy*, 60(1), 13-23.
- Sluijsmans, D. M., Brand-Gruwel, S., & van Merriënboer, J. J. (2002). Peer assessment training in teacher education: Effects on performance and perceptions. *Assessment & Evaluation in Higher Education*, 27(5), 443-454.
- Sluijsmans, D., & Prins, F. (2006). A conceptual framework for integrating peer assessment in teacher education. *Studies in Educational Evaluation*, 32(1), 6-22.
- Smith, H., Cooper, A., & Lancaster, L. (2002). Improving the quality of undergraduate peer assessment: A case for student and staff development. *Innovations in education and teaching international*, 39(1), 71-81.
- Somervell, H. (1993). Issues in assessment, enterprise and higher education: The case for self-peer and collaborative assessment. *Assessment and Evaluation in Higher Education*, 18(3), 221-233.
- Stefani, L. A. (1994). Peer, self and tutor assessment: Relative reliabilities. *Studies in Higher Education*, 19(1), 69-75.
- Thomas, G., Martin, D., & Pleasants, K. (2011). Using self-and peer-assessment to enhance students' future-learning in higher education. *Journal of University Teaching & Learning Practice*, 8(1), 52-69.
- Topping, K. (1998). Peer assessment between students in colleges and universities. *Review of Educational Research*, 68(3), 249-276.

- Topping, K. (2003). Self and peer assessment in school and university: Reliability, validity and utility. In *Optimising new modes of assessment: In search of qualities and standards* (pp. 55-87). Springer, Dordrecht.
- Topping, K. (2017). Peer assessment: Learning by judging and discussing the work of other learners. *Interdisciplinary Education and Psychology*, 1(1), 1-17.
- Topping, K. J., & Ehly, S. W. (2001). Peer assisted learning: A framework for consultation. *Journal of Educational and Psychological Consultation*, 12(2), 113-132.
- Tsai, C. C. (2009). Internet-based peer assessment in high school settings. In *Handbook of research on new media literacy at the K-12 level: Issues and challenges* (pp. 743-754). IGI Global.
- Tsai, C. C., & Liang, J. C. (2009). The development of science activities via on-line peer assessment: The role of scientific epistemological views. *Instructional Science*, 37(3), 293-310.
- Tsai, C. C., Lin, S. S., & Yuan, S. M. (2002). Developing science activities through a networked peer assessment system. *Computers & Education*, 38(1-3), 241-252.
- Tsai, C. C., Liu, E. Z. F., Lin, S. S., & Yuan, S. M. (2001b). A networked peer assessment system based on a Vee heuristic. *Innovations in Education and Teaching International*, 38(3), 220-230.
- Tucker, R., Fermelis, J., & Palmer, S. (2009). Designing, implementing and evaluating a self-and-peer assessment tool for e-learning environments. In *E-learning technologies and evidence-based assessment approaches* (pp. 170-194). IGI Global.
- Van den Berg, I., Admiraal, W., & Pilot, A. (2006). Design principles and outcomes of peer assessment in higher education. *Studies in Higher Education*, 31(03), 341-356.
- Vickerman, P. (2009). Student perspectives on formative peer assessment: An attempt to deepen learning?. *Assessment & Evaluation in Higher Education*, 34(2), 221-230.
- Wanner, T., & Palmer, E. (2018). Formative self-and peer assessment for improved student learning: the crucial factors of design, teacher participation and feedback. *Assessment & Evaluation in Higher Education*, 43(7), 1032-1047. doi: [10.1080/02602938.2018.1427698](https://doi.org/10.1080/02602938.2018.1427698)
- Weaver, R. L., & Cotrell, H. W. (1986). Peer evaluation: A case study. *Innovative Higher Education*, 11(1), 25-39.
- Wen, M. L., & Tsai, C. C. (2006). University students' perceptions of and attitudes toward (online) peer assessment. *Higher Education*, 51(1), 27-44.
- Wen, M. L., Tsai, C. C., & Chang, C. Y. (2006). Attitudes towards peer assessment: a comparison of the perspectives of pre-service and in-service teachers. *Innovations in Education and Teaching International*, 43(1), 83-92.
- Wiley, K., & Gardner, A. (2010). Investigating the capacity of self and peer assessment activities to engage students and promote learning. *European Journal of Engineering Education*, 35(4), 429-443.
- Woolhouse, M. (1999). Peer assessment: the participants' perception of two activities on a further education teacher education course. *Journal of Further and Higher Education*, 23(2), 211-219.
- Yang, M., Badger, R., & Yu, Z. (2006). A comparative study of peer and teacher feedback in a Chinese EFL writing class. *Journal of Second Language Writing*, 15(3), 179-200.

- Yang, Y. F., & Tsai, C. C. (2010). Conceptions of and approaches to learning through online peer assessment. *Learning and Instruction, 20*(1), 72-83.
- Zariski, A. (1996, February). Student peer assessment in tertiary education: Promise, perils and practice. In *Teaching and Learning Within and Across Disciplines, p189-200. Proceedings of the 5th Annual Teaching and Learning Forum, Murdoch University.*
- Zheng, L., Chen, N. S., Cui, P., & Zhang, X. (2019). A systematic review of technology-supported peer assessment research: An activity theory approach. *International Review of Research in Open and Distributed Learning, 20*(5), 168-191.

Appendix A

Attitudes towards Peer Assessment Scale

Item number	Items
	Section I: General PA
Item 1	PA is helpful to students' learning
Item 2	PA makes students understand more about teacher's requirement
Item 3	PA activities motivate students to learn
Item 4	PA activities increase the interaction between the teacher and the students
Item 5	PA helps students develop a sense of participation
Item 6	PA activities increase the interaction among students
Item 7	I think students are eligible to assess their classmates' performance
	Section II: Online PA
Item 8	Online PA activities can be time-saving
Item 9	Online PA activities can increase the interaction among students
Item 10	Online PA activities can be economical
Item 11	Online PA activities can increase the interaction between the teacher and the students
Item 12	Online PA has the advantage of maintaining anonymity
Item 13	Online PA activities are fair when assessing students' performance

Not. PA: Peer Assessment