



## Accuracy of Self-Assessment and Peer Assessment in Learning : A Systematic Literature Review

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**Abstract:** This study aims to explore the influence of self-assessment and peer assessment in learning, the factors affecting the accuracy of self-assessment and peer assessment, and efforts to enhance the accuracy of self-assessment and peer assessment. This research was a qualitative approach with a systematic literature review method. The data collected are from national and international scholarly journals related to self-assessment and peer assessment in learning, which were then analyzed using content analysis. According to the study's findings, using peer and self-evaluation to evaluate students' learning had a very beneficial effect. Thus, it should be put into practice. Additionally, a number of factors, such as self-confidence, emotional intelligence, self-perception of abilities, prior experience, feedback quality, assessment instrument clarity, assessor agreement, and trust in peer assessment, affect how accurately learners assess themselves and each other. Clear assessment criteria and procedures, which provide students direction for both their own and their peers' evaluations, can increase the accuracy of peer and self assessments. Good feedback is essential to improving both assessment techniques' accuracy. In addition, sufficient instruction for pupils is required to guarantee that evaluations are more precise, impartial, and beneficial.

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### Introduction

Effective education involves not only providing information but also actively involving students in the learning process. Assessment techniques, such as self-assessment and peer assessment, help create a responsive learning environment and enhance student engagement (Hanrahan & Isaacs, 2001). According to Nurhardini (2017), Self-assessment involves students evaluating their abilities and achievements, while peer assessment evaluates the abilities and achievements of their classmates. Self-assessment and peer assessment have a strong capacity to engage students in the learning process and enhance their academic achievement. This is because both self-assessment and peer assessment activities result in students feeling more responsible for their learning and more involved in contributing to their understanding and academic achievements (Willey & Gardner, 2010). Furthermore, a collaborative and responsive learning environment is formed through these self-assessment and peer-assessment activities (Matsuno, 2009; Panadero & Brown, 2016).

Several studies have also shown that self-assessment and peer assessment have an impact on the learning process of students, whether it's about evaluating their learning (Falchikov & Boud, 1989), enhancing and facilitating social interactions (Falchikov & Goldfinch, 2000), or more specific effects such as impacting the understanding and



professional development of medical students (Hoffman et al., 2017), helping students develop self-reflection in writing (Matsuno, 2009), aiding in the development of evaluation skills and conceptual understanding in students (Berg et al., 2007), having a positive influence on students' applied and critical thinking abilities in ecosystem learning (Nurhardini, 2017), and having a positive effect on the motivation of children with Conduct Disorder (Jundyah, 2019). Therefore, self-assessment and peer assessment have a significant impact on the learning process and student achievement.

Through self-assessment and peer assessment, it is expected that students can receive effective feedback on their learning. Feedback is considered effective when students can receive the information well and use it to adjust their behavior or performance. Furthermore, it is important to note that students not only desire feedback for academic purposes, such as achieving good grades, but also because they want to develop their skills through constructive feedback (Orsmond et al., 2010). Constructive and targeted feedback can help students identify strengths and weaknesses in their work and provide direction for improvement so that their skills can develop and become even better (Orsmond et al., 2010). Therefore, accurate self-assessment and peer assessment are needed to ensure that the results provide useful feedback.

The accuracy of self-assessment and peer assessment in learning has been widely discussed in research conducted by experts and has also posed challenges in the use of self-assessment and peer assessment. Research by Eva et al. (2004) suggests that individuals tend to have low accuracy in self-assessment of their knowledge and skills in a specific field, even when that domain is clearly defined. Similarly, research by Alfallay (2004) indicates that self-assessment and peer assessment are often inaccurate, with significant variation in assessors' abilities to provide judgments. Falchikov & Goldfinch (2000) also firmly state that the accuracy and consistency of peer assessment are still subjects of debate.

Some researchers have also revealed insights into the accuracy of self-assessment and peer assessment. For instance, research by Fitzgerald et al. (2003) shows that self-assessment accuracy improves over time, indicating self-awareness and self-improvement. This is due to broader learning experiences and a deeper understanding of the subject or skills being evaluated. Blatchford's (2006) findings show that the stability of self-assessment increases with age, indicating cognitive development and better self-understanding. However, self-assessment accuracy can vary, as some studies suggest it may align with external assessments (Gordon, 1991).

The objective of this research is to explore and understand the accuracy of self-assessment and peer assessment in learning. This is because individuals with inaccurate self-assessment and peer assessment tend to overlook critical feedback, make less effort to improve their skills, and find it challenging to work effectively in teams or collaborations (Berg et al., 2007; Eva et al., 2004). Furthermore, a better understanding of self-assessment and peer assessment can have significant implications for instructional design, the enhancement of teaching quality, and the development of evaluation skills in students (Falchikov & Boud, 1989; Falchikov & Goldfinch, 2000). Therefore, it is necessary to reexamine the accuracy of self-assessment and peer assessment that can be used in learning.

## **Research Method**

This research employed the systematic literature review (SLR) method with a qualitative approach. Juandi (2021) states that SLR aims to synthesize research findings comprehensively based on specific questions, using a systematic, clear, and replicable



procedure at each stage of the process. In this study, the SLR process followed the following steps: formulating research questions, applying inclusion criteria, searching for relevant studies on the research topic, selecting studies to be used as primary studies, analyzing the findings of these studies, and then producing a research report (Thovawira et al., 2021).

The research questions in this study include:

- 1) What is the influence of self-assessment and peer assessment on learning?
- 2) What are the factors that affect the accuracy of self-assessment and peer assessment?
- 3) How can the accuracy of self-assessment and peer assessment in learning be improved?

#### *Inclusion Criteria*

In this study, the inclusion criteria include articles discussing self-assessment and/or peer assessment in the context of learning, articles addressing the influence or effectiveness of self-assessment and/or peer assessment in learning. These inclusion criteria are used to assess the eligibility of studies for analysis.

#### *Research Study Search Strategy*

The strategy for collecting studies is carried out using search engines such as *Scopus*, *Publish or Perish*, and the *Education Resources Information Center* (ERIC). Keywords used to search for articles include "self-assessment", "peer assessment", "accuracy", "self-assessment, accuracy", "peer assessment, accuracy", and "self-assessment, peer assessment, learning".

#### *Study Selection and Evaluation*

The process of selecting and evaluating articles is carried out to obtain articles that align with the research theme. Only studies that are relevant to the research topic and meet the inclusion criteria are analyzed. Initially, 34 selected articles were found that matched the research theme. However, 10 of them were excluded because they did not pertain to the field of education or learning. In the end, only 24 articles met the inclusion criteria and were further analyzed.

#### *Data Analysis and Research Reporting*

Selected articles are then analyzed systematically. Researchers read and checked all selected articles, which were then analyzed using content analysis. Finally, the research findings on the articles are made into a report to obtain comprehensive and balanced knowledge.

## **Results and Discussion**

### **The Influence of Self-Assessment in Learning**

Self-assessment provides an opportunity for students to evaluate their performance, identify strengths and weaknesses, and develop improvement strategies. As stated by (Dochy et al., 1999) It enhances the metacognitive understanding, aids in evaluation skills development, and promotes independent learning. In higher education, self-assessment is particularly beneficial for medical students, as it allows them to monitor and evaluate their abilities professionally (Hoffman et al., 2017). Research by Falchikov & Boud (1989) shows that self-assessment significantly positively impacts academic achievement, with students who engage in self-assessment achieving better results.

Research conducted by Willey & Gardner (2010) shows that self-assessment has significant potential to involve students in the learning process, where students feel more responsible for their learning. Apart from that, self-assessment can influence students' understanding of learning material and enable students to gain a deeper understanding and



achieve good academic achievements. Self-assessment involves students sharing their abilities and achievements so that they can improve learning abilities, such as applied and critical thinking skills (Nurhardini, 2017). Jundyah (2019) also stated that self-assessment also provides opportunities for students to reflect on their abilities and achievements, identify strengths and weaknesses, and set learning goals that can provide a motivational boost.

From the description above, it is evident that student self-assessment can have a significant impact on learning. Student self-assessment is a powerful learning tool that can significantly impact students' self-assessment skills, provide detailed feedback, and encourage active participation in the assessment process (Greze et al., 2012; Hanrahan & Isaacs, 2001). It allows individuals to critically reflect on their progress and provide feedback to themselves (Ross, 2006). Self-assessment offers advantages such as ease of use, flexibility, and the ability to explore individual understanding and perceptions (Ward et al., 2002). Therefore, educators should consider using self-assessment in their learning strategies.

### **The Influence of Peer Assessment in Learning**

Peer assessment offers valuable insights into learners' understanding and development, providing objective feedback from classmates (Hoffman et al, 2017). In higher education, it promotes collaborative learning and offers diverse perspectives from various disciplines (Matsuno, 2009; Suñol et al., 2015). The findings of research by Papinczak et al (2007) suggest that peer assessment offers in-depth feedback on student performance, helping students see different viewpoints and enhance their understanding of the subject matter.

Peer assessment is a valuable tool for enhancing learning by providing diverse perspectives and valuable feedback. It aids in developing understanding, critical skills, and self-reflection (Berg et al., 2007; Jones & Alcock, 2014). It fosters a collaborative learning environment by involving students in providing feedback to their peers (Nurhardini, 2017; Panadero & Brown, 2016; Willey & Gardner, 2010). In essence, peer assessment empowers students to assess their peers' work.

### **Factors Affecting the Accuracy of Self-Assessment and Peer Assessment**

Challenges in self-assessment that may be encountered include assessment bias and a lack of understanding of objective assessment criteria (Dochy et al., 1999; Orsmond et al., 2010). Other shortcomings in self-assessment can lead to overestimation or underestimation, which can have negative consequences on motivation and personal development. (Chatterji & Mukerjee, 1983). Students may overestimate or underestimate their abilities, resulting in inaccurate perceptions of their progress (Aminu et al., 2021; Fitzgerald et al., 2003). It indicates that self-assessment often has inaccuracies in the evaluations conducted by students themselves.

Many factors influence the accuracy of individual self-assessment, including psychological and biographical factors. Alfalay (2004) mentioned psychological factors such as self-confidence, emotional intelligence, honesty, self-perception of abilities, and perceptions of past achievements, as well as biographical factors that encompass education, previous experiences, social environment, and personal issues, all of which can affect the accuracy of an individual's self-assessment (Chatterji & Mukerjee, 1983). González-Betancor et al. (2019) also stated in their study that factors like self-confidence, self-perception, previous experiences, and group norms could influence the accuracy of student self-assessment in a learning environment. Additionally, factors such as the level of subject expertise and skills, self-confidence, the quality of feedback provided, and the clarity of assessment criteria also affect the validity and accuracy of self-assessment (Gordon, 1991; Lew et al., 2010). Based on the findings from various researchers, it can be concluded that the



factors influencing the accuracy of self-assessment include self-confidence, emotional intelligence, self-perception of abilities, previous experiences, the quality of feedback, and the clarity of assessment criteria.

Similar to self-assessment, peer assessment also faces challenges in its application. Challenges that may arise include differences in understanding assessment criteria, imbalances in contributions among participants in providing assessments, and concerns about conflicts among participants (Dochy et al., 1999). In terms of accuracy, peer assessment remains a subject of debate. As stated by Falchikov & Goldfinch (2000), there is a debate about the accuracy and reliability of peer assessment, with some studies supporting the effectiveness of peer assessment while others suggest that peer assessment may not be accurate. Similar challenges have also been raised by Berg et al (2007), such as the consistency of peer assessments and imbalances in power among peers in providing assessments. Furthermore, a proper understanding of assessment criteria, fairness in assessment, bias tendencies, and the guidance required to provide constructive feedback are also challenges in peer assessment (Nurhardini, 2017; Willey & Gardner, 2010).

Some factors affect the accuracy of the peer assessment so it becomes a challenge in its implementation. These factors include the level of relationship between the rater and the assessed, the level of agreement between raters, and the level of trust in peer assessment (Alfallay, 2004). In addition, crucial factors such as the design of assessment instruments, the active participation of teachers, and quality feedback also need to be considered in the implementation of peer assessments (Wanner & Palmer, 2018). Based on some of these studies, it can be concluded that there are factors that affect the accuracy of peer assessments such as other assessment instruments, the level of agreement between raters, and trust in peer assessment. By understanding the factors influencing self-assessment and peer assessment, it is hoped that a better approach can be developed to facilitate more accurate self-assessment and peer assessment, supporting individual development.

### **Accuracy of Self-Assessments and Peer Assessments**

Although many researchers have conducted studies on the effectiveness of self-assessment and peer assessment, there is still ongoing debate about the accuracy or precision of these assessments. Some researchers emphasize the need to understand the accuracy of both self-assessment and peer assessment. It is relevant because accurate self-assessment and peer assessment can provide a better understanding of individuals' strengths, weaknesses, progress, and feedback for peers (Alfallay, 2004; Aminu et al., 2021; Berg et al., 2007; Blatchford, 2006; Chatterji & Mukerjee, 1983; Soleimani & Rahmanian, 2014). Therefore, it is important to determine the accuracy of self-assessment and peer assessment in the context of objectively evaluating oneself and one's peers.

A detailed summary of the analysis of the 24 articles can be found in Table 1 below.

**Table 1. Article Review Results**

Researcher	Research Title	Research Method	Research Result
Suñol et al (2015)	Peer and self-assessment applied to oral presentations from a multidisciplinary perspective	Quantitative n = 224	There is a need for clear and objective guidelines for assessment, as well as adequate training for participants to provide accurate and constructive assessments.
Dochy et al (1999)	The use of self-, peer and co-assessment in higher education: A	Qualitative n = 63	Carrying out self-assessments and peer-assessments and joint assessments simultaneously can increase understanding of objective assessment criteria between participants and between



	review		participants and instructors.
Eva et al (2004)	How Can I Know What I Don't Know? Poor Self Assessment in a Well-Defined Domain	Mixed Method n = 265	Factors that can influence poor self-assessment are a lack of understanding or awareness of objective assessment criteria in a particular domain. Individuals may not have a thorough understanding of the standards required to be considered competent in a particular field .
Falchikov & Goldfinch (2000)	Student Peer Assessment in Higher Education: A Meta-Analysis Comparing Peer and Teacher Marks	Qualitative n = 48	Peer assessments have a relatively high degree of concordance with teacher assessments. However, there are variations in the results of the meta-analyses depending on the context and characteristics of the assessment.
Fitzgerald et al (2003)	A longitudinal study of self-assessment accuracy	Mixed Method n = 500	Students tend to have inaccuracies in their self-assessments, especially at the beginning of the study period. However, over time, there has been an increase in the accuracy of student self-assessments. This study found that students tended to improve their self-assessment as they acquired a broader learning experience and a better understanding of the subject or skill being evaluated.
Hanrahan & Isaacs (2010)	Assessing Self- and Peer-assessment: The students' views	Qualitative n = 233	Understanding students' views helps in providing insight into how they experience self-assessment and peer-assessment, as well as their perceptions of the benefits and drawbacks of these two methods so that the accuracy of these methods can also be improved.
Stefani (1994)	Peer, Self, and Tutor Assessment: Relative Reliabilities	Quantitative n = 160	The reliability of peer assessment can vary depending on several factors, such as the characteristics of the student, the instruction given, and the assessment criteria used. Meanwhile, self-assessment tends to have lower reliability than peer assessment and tutor's assessment, but researchers have shown that self-assessment still has important value as an evaluation tool that involves student reflection and self-understanding. So it requires careful consideration in implementing these two assessments to ensure the validity and consistency of the assessment.
Chatterji & Mukerjee (1983)	Accuracy of Self-Assessment and Its Relation With Some Psychological and Biographical Factors	Quantitative n = 417	The influence of psychological factors such as the level of self-confidence and positive or negative self-perception can affect the accuracy of self-assessment. The influence of biographical factors such as previous experience, education, cultural background, and social environment can affect the accuracy of self-assessment. To increase the accuracy of self-assessment, it is necessary to have an approach that supports more critical reflection and introspection, as well as attention to the influence of psychological and biographical factors in the process of self-assessment.
Orsmond et al (2010)	The Use of Exemplars and Formative Feedback when Using Student-Derived Marking Criteria in Peer and Self-Assessment	Qualitative n = 22	The use of good examples can provide concrete examples of expected assessment standards and assist students in making more objective assessments. In addition, formative feedback is also very important in providing guidance to students about the strengths and weaknesses in their work. By getting specific and targeted feedback, students can improve their understanding of areas that need improvement and achieve greater progress in their learning.
Papinczak et al (2007)	An Analysis of Peer, Self, and Tutor Assessment in Problem-Based	Qualitative n = 125	To raise issues of fairness, objectivity and consistency in scoring, it is necessary to have clear guidelines and an adequate framework to provide valuable feedback.



	Learning Tutorials		
Aminu et al (2021)	Accuracy of self-evaluation in a peer-learning environment: an analysis of a group learning models	Mixed Method n = 61	Students' self-assessment abilities are accurate when teachers incorporate active learning and helpful feedback. Self-assessment also gives students the confidence to feel fairness in their assessment. Factors such as clear assessment guidelines, engaged teacher participation, and constructive feedback also play an important role in increasing the accuracy of self-assessments in a peer-based learning environment.
Ross (2006)	The Reliability, Validity, and Utility of Self-Assessment	Qualitative	The reliability of self-assessments can vary depending on a variety of factors, including the consistency of assessments over time and between different raters. Appropriate steps need to be taken to ensure the reliability of self-assessments, such as using clear assessment guidelines and providing training to assessors. Self-assessment can accurately reflect an individual's actual abilities, achievements, and competencies. However, there is also the potential for bias and non-objectivity in self-assessment. Thus, it is important to consider the validity of self-assessments carefully and to use an approach that supports their validity.
Gordon (1991)	A Review of The Validity And Accuracy of self Assessments In Health Professions training	Qualitative n = 18	Self-assessment accuracy can also vary. The research results show that individuals have a good ability to evaluate their abilities and performance accurately. Several factors affect the accuracy of the self-assessment including the level of individual confidence, the level of experience and skill of the subject, the quality of the feedback provided, and the clarity of the assessment criteria.
Berg et al (2007)	Peer Assessment in University Teaching: Evaluating Seven Course Designs	Qualitative n = 168	The need for good management and best practice in using peer assessment in teaching in tertiary institutions. This involves careful monitoring, structured feedback, and in-depth reflection on the peer assessment process.
Ward et al (2002)	Measuring Self-assessment: Current State of the Art	Qualitative n = 67	The importance of developing better measurement methods including self-assessment measurement tools such as selecting appropriate instruments, developing clear assessment rubrics, and using appropriate technology so that challenges in self-assessment can be overcome.
Blatchford (2006)	Students' Self Assessment of Academic Attainment: Accuracy And Stability From 7 to 16 Years And Influence of Domain and Social Comparison Group	Quantitative n = 416	This research shows that the accuracy of students' self-assessment of their academic achievement increases with age. This suggests that students tend to become more accurate in assessing their academic abilities and skills as their cognitive development and self-understanding mature.
Alfallay (2004)	The Role of Some Selected Psychological And Personality Traits of The Rater In The Accuracy of Self- And Peer-Assessment	Quantitative n = 78	Psychological factors, such as the level of self-confidence and attitudes towards oneself, influence the accuracy of self-assessments. Personality factors, such as domain knowledge, honesty, and level of agreement with rating norms, also have an impact on self-assessment accuracy while the level of relationship between rater and rater being assessed, level of agreement between raters, and degree of trust in peer judgment can affect assessment accuracy. colleague.
Miller (2010)	The Effect of Scoring Criteria Specificity on Peer and Self-Assessment	Quantitative n = 98	The importance of clarity of assessment criteria in peer assessment and self-assessment. By having specific assessment criteria, students can provide a more accurate assessment of their performance and the performance of their peers. This can improve the quality and reliability of the assessment process in



			educational settings.
González-Betancor et al (2019)	Self-Assessment of Accuracy in Higher Education: The Influence of Gender and Performance of University Students	Qualitative n = 155	Students tend to have inaccuracies in their self-assessments, with a tendency to underestimate or overestimate their abilities. However, no significant difference was found in self-assessment accuracy between male and female students. In addition, there is no significant relationship between academic performance and self-assessment accuracy. The researcher adds to the importance of considering the accuracy of self-assessment in the context of higher education and emphasizes the need to develop a more objective and reliable assessment strategy.
Soleimani & Rahmanian (2014)	Self-, Peer-, and Teacher-Assessments in Writing Improvement: A Study of Complexity, Accuracy, and Fluency	Quantitative n = 90	There were significant differences between self-assessments, peer-assessments and teachers' ratings in terms of complexity, accuracy and fluency of writing. Teacher ratings tend to give higher ratings in all aspects, while self and peer ratings are more conservative. Comprehensive and varied assessments can provide more effective feedback in developing students' writing skills.
Lew et al (2010)	Accuracy of students' self-assessment and their beliefs about its utility	Quantitative n 1 = 3588 n 2 = 936	There is a positive relationship between the accuracy of students' self-assessments and their beliefs about their usefulness. This suggests that students who are more accurate in evaluating their performance tend to have higher beliefs about the benefits of self-assessment.
Panadero & Alqassab (2019)	An Empirical Review Of Anonymity Effects In Peer Assessment, Peer Feedback, Peer Review, Peer Evaluation, And Peer Grading	Qualitative n = 14	Anonymity in peer ratings can improve appraisal quality by reducing social biases or personal preferences. In addition, there is also research showing that anonymity can affect the honesty of participants in providing honest assessments or feedback.
Jones & Alcock (2014)	Peer Assessment Without Assessment Criteria	Quantitative n = 193	pre-set assessment criteria can lead to assessments that are too limited and tend to guide students to meet the expectations that have been set. This can hinder creativity, critical thinking, and uniqueness in student assessments. However, it is important to remember that peer assessment without criteria can present challenges, such as confusion over providing specific, objective feedback.
Wanner & Palmer (2018)	Formative Self-And Peer Assessment For Improved Student Learning: The Crucial Factors Of Design, Teacher Participation And Feedback	Qualitative n = 154	Formative self-assessments and peer assessments can significantly enhance student learning. Several crucial factors need to be considered in the implementation of effective self-assessments and peer assessments, namely the design of the assessment instrument, the active participation of the teacher, and quality feedback.

To enhance the accuracy of self-assessment and peer assessment, various researchers have conducted studies with diverse outcomes. The accuracy of self-assessment and peer assessment can be improved through the presence of clear assessment criteria and guidelines, providing students with a framework for self-evaluation and peer evaluation (Aminu et al., 2021; Dochy et al., 1999; Eva et al., 2004; Fitzgerald et al., 2003; González-Betancor et al., 2019; Gordon, 1991; Jones & Alcock, 2014; Miller, 2010; Papinczak et al., 2007; Ross, 2006; Stefani, 1994; Suñol et al., 2015; Ward et al., 2002). With specific assessment criteria, students can provide more accurate assessments of their performance and that of their peers. Additionally, high-quality feedback plays a crucial role in enhancing the accuracy of both assessment methods (Aminu et al., 2021; Berg et al., 2007; Gordon, 1991; Orsmond et al.,



2010; Soleimani & Rahmanian, 2014; Wanner & Palmer, 2018). Quality, specific, and targeted feedback can assist students in improving their understanding of what needs to be achieved and developed in their learning. Furthermore, adequate training in conducting assessments can also enhance the accuracy of self-assessment and peer assessment (Ross, 2006; Suñol et al., 2015).

### **Conclusion**

The study's results conclude that self-assessment and peer assessment have a positive impact on learning, and their accuracy can be improved by understanding factors like self-confidence, emotional intelligence, self-perception of abilities, prior experience, feedback quality, and assessment instruments. Clear criteria and guidelines can provide a framework for self-evaluation and peer evaluation, while quality feedback is crucial. Adequate training for students in conducting assessments is also necessary to ensure accurate, objective, and constructive results. Therefore, these methods should be considered for implementation.

### **Recommendation**

Recommendations for teachers to enhance the accuracy of self-assessment and peer assessment in learning to improve decision-making, self-adjustment, feedback, and personal development. Accurate self-assessment and peer assessment can serve as a foundation for developing better learning assessment strategies and a stronger foundation for learning.

### **References**

- Wijoyo, H., & Nyanasuryanadi, P. (2020). Analisis Efektifitas Penerapan Kurikulum Pendidikan Sekolah Minggu Buddha Di Masa Pandemi Covid-19. *JP3M: Jurnal Pendidikan, Pembelajaran Dan Pemberdayaan Masyarakat*, 2(2), 166–174. <https://doi.org/10.37577/jp3m.v2i2.276>
- Alfallay, I. (2004). The role of some selected psychological and personality traits of the rater in the accuracy of self- and peer-assessment. *Elsevier*, 32, 407–425. <https://doi.org/10.1016/j.system.2004.04.006>
- Aminu, N., Hamdan, M., & Russell, C. (2021). Accuracy of self-evaluation in a peer-learning environment: an analysis of a group learning model. *SN Social Sciences*, 1(7), 1–17. <https://doi.org/10.1007/s43545-021-00152-3>
- Berg, I. Van Den, Admiraal, W., & Pilot, A. (2007). Peer assessment in university teaching : evaluating seven course designs Peer assessment in university teaching : *Assessment & Evaluation in Higher*, 31(November 2014), 37–41. <https://doi.org/10.1080/02602930500262346>
- Blatchford, P. (2006). Students ' Self Assessment of Academic Attainment : accuracy and stability from 7 to 16 years and influence of domain and social comparison group. *Educational Psychology : An International Journal of Experimental Educational Psychology*, November 2014, 37–41. <https://doi.org/10.1080/0144341970170308>
- Chatterji, S., & Mukerjee, M. (1983). Accuracy of self assessment and its relation with some psychological and biographical factors. In *New Zealand Journal of Psychology* (Vol. 12, Issue 1, pp. 28–35). <http://prx.library.gatech.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1984-08159-001&site=ehost-live>



- Dochy, F., Segers, M., & Sluijsmans, D. (1999). The Use of Self-, Peer and Co-assessment in Higher Education: a review. *Studies in Higher Education*, 24(July 2013), 37–41. <https://doi.org/10.1080/03075079912331379935>
- Eva, K. W., Cunnington, J. P. W., Reiter, H. I., David, R., & Norman, G. R. (2004). How Can I Know What I Don't Know? Poor Self Assessment in a Well-Defined Domain. *Advances in Health Science Education*, 9, 211–224.
- Falchikov, N., & Boud, D. (1989). Student Self-Assessment in Higher Education: A Meta-Analysis. *Review of Educational Research*, 59(4), 395–430. <https://doi.org/10.3102/00346543059004395>
- Falchikov, N., & Goldfinch, J. (2000). Student peer assessment in higher education: A meta-analysis comparing peer and teacher marks. *Review of Educational Research*, 70(3), 287–322. <https://doi.org/10.3102/00346543070003287>
- Fitzgerald, J. T., White, C. B., & Gruppen, L. D. (2003). A longitudinal study of self-assessment accuracy. 645–649.
- González-Betancor, S. M., Bolívar-Cruz, A., & Verano-Tacoronte, D. (2019). Self-assessment accuracy in higher education: The influence of gender and performance of university students. *Active Learning in Higher Education*, 20(2), 101–114. <https://doi.org/10.1177/1469787417735604>
- Gordon, M. J. (1991). A Review of the Validity and Accuracy of Self-Assessment in Health Professions Training. *Academic Medicine*, 66(12).
- Grež, L. De, Valcke, M., & Roozen, I. (2012). How effective are self-and peer assessment of oral presentation skills compared with teachers' assessment? *Active Learning in Higher Education*, 13(2), 129–142. <https://doi.org/10.1177/1469787412441284>
- Hanrahan, S. J., & Isaacs, G. (2001). Assessing Self- and Peer-assessment: The students' views. *Higher Education Research & Development*, 20(January 2014), 37–41. <https://doi.org/10.1080/07294360123776>
- Hoffman, L. A., Shew, R. L., Vu, T. R., Brokaw, J. J., & Frankel, R. M. (2017). The Association Between Peer and Professionalism Lapses Among Medical Students. *Evaluation & the Health Professions*, 40(2), 219–243. <https://doi.org/10.1177/0163278717702191>
- Jones, I., & Alcock, L. (2014). Peer assessment without assessment criteria. *Studies in Higher Education*, 39(April 2015), 37–41. <https://doi.org/10.1080/03075079.2013.821974>
- Juandi, D. (2021). Heterogeneity of problem-based learning outcomes for improving mathematical competence: A systematic literature review. *Journal of Physics: Conference Series*, 1722(1). <https://doi.org/10.1088/1742-6596/1722/1/012108>
- Jundyah, S. R. N. (2019). The Effectiveness Of Self Assessment For Classroom Learning Motivation In Children With Conduct Disorder. *Jurnal Widia Ortodidaktika*, 8(9), 947–958.
- Lew, M. D. N., Alwis, W. A. M., & Schmidt, H. G. (2010). Accuracy of students' self-assessment and their beliefs about its utility. *Assessment and Evaluation in Higher Education*, 35(2), 135–156. <https://doi.org/10.1080/02602930802687737>
- Matsuno, S. (2009). Self-, peer-, and teacher-assessments in Japanese university EFL writing classrooms. *Language Testing*, 26(1), 75–100. <https://doi.org/10.1177/0265532208097337>
- Miller, P. J. (2010). The Effect of Scoring Criteria Specificity on Peer and Self-assessment The Effect of Scoring Criteria Specificity on Peer and Self-assessment. *Assessment*



- & *Evaluation in Higher Education*, 28(October 2014), 37–41. <https://doi.org/10.1080/0260293032000066218>
- Nurhardini, R. (2017). Pengaruh Self dan Peer Assessment pada Materi Ekosistem Terhadap Berpikir Aplikatif dan Kritis Siswa SMA. *Jurnal Pendidikan Matematika Dan Sains*, 5(1), 69–76.
- Orsmond, P., Merry, S., & Reiling, K. (2010). The Use of Exemplars and Formative Feedback when Using Student Derived Marking Criteria in Peer and Self-assessment. *Assessment & Evaluation in Higher Education*, 27(December 2014), 309–323. <https://doi.org/10.1080/0260293022000001337>
- 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*, 0(0), 1–26. <https://doi.org/10.1080/02602938.2019.1600186>
- Panadero, E., & Brown, G. T. L. (2016). Teachers ' reasons for using peer assessment : positive experience predicts use. *Eur J Psychol Educ.* <https://doi.org/10.1007/s10212-015-0282-5>
- Papinczak, T., Young, L., Groves, M., & Haynes, M. (2007). An analysis of peer , self , and tutor assessment in problem-based learning tutorials. *Medical Teacher*, 29, 122–132. <https://doi.org/10.1080/01421590701294323>
- Ross, J. A. (2006). The Reliability , Validity , and Utility of Self-Assessment. *Practical Assessment, Research, and Evaluation*, 11.
- Soleimani, H., & Rahmanian, M. (2014). Self-, Peer-, and Teacher-Assessments in Writing Improvement : A Study of Complexity , Accuracy , and Fluency. *RALs*, 5(2), 128–148.
- Stefani, L. A. J. (1994). Peer, Self and Tutor Assessment: Relative reliabilities. *Studies in Higher Education*, 19(1), 69–75.
- Suñol, J. J., Arbat, G., Pujol, J., Feliu, L., Fraguell, R. M., & Planas-Illadó, A. (2015). Peer and self-assessment applied to oral presentations from a multidisciplinary perspective. *Assessment & Evaluation in Higher Education*, June, 37–41. <https://doi.org/10.1080/02602938.2015.1037720>
- Thovawira, F. A., Safitri, I., Supartik, S., Sitompul, N. N. S., & Anggriyani, I. (2021). Systematic Literature Review: Implementasi Pendekatan Stem (Manfaat Dan Tantangan) Di Indonesia. *HISTOGRAM: Jurnal Pendidikan Matematika*, 4(2), 355–371. <https://doi.org/10.31100/histogram.v4i2.682>
- 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*, 2938, 1–16. <https://doi.org/10.1080/02602938.2018.1427698>
- Ward, M., Gruppen, L., & Regehr, G. (2002). Measuring Self-assessment: Current State of the Art. *Advances in Health Science Education*, 7, 63–80.
- Willey, 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.