Assessment Value: A Systematic Literature Review on Assessment As, For and of Learning in School

Aqil Othman, Kamisah Osman, Norasmah Othman
Faculty of Education, Universiti Kebangsaan Malaysia (UKM), Bangi, Malaysia
Email: p121234@siswa.ukm.edu.my

Abstract
Assessment is a process to assess students' knowledge, skills, and tendencies through the process of collecting and analyzing information. The value or importance of assessment is important because teachers play a role in assessing student achievement and planning teaching strategies. This study aims to identify articles that discuss assessment as, for and of learning; connecting the assessment approach with teachers' beliefs about the importance of assessment and evaluating the importance of assessment approach to teacher assessment practices and student learning. A total of 27 articles were selected based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) model. The findings show that assessment as learning is discussed in four articles, assessment for learning is discussed in 25 articles and assessment of learning is discussed in four articles. Based on the number of articles that discuss assessment approaches, the value of assessment for learning is seen as more important than assessment as and of learning. This study has the potential to provide information for teachers and policy makers to focus on a more effective assessment approach in improving student development. Further studies can be carried out through qualitative research methods and the construction of specific instruments on assessment values.
Keywords: Systematic Literature Review, Value, Assessment As Learning, Assessment for Learning, Assessment of Learning

Introduction
Assessment in education is an important aspect of the teaching and learning process. It involves the process of systematically collecting and analyzing information to assess students' knowledge, skills and tendencies (Black & Wiliam, 2010). Assessment aims to measure student achievement, provide feedback for the improvement and inform the teacher's teaching strategy. Assessment paradigms can be categorized into three, namely assessment as learning (AaL), assessment for learning (AfL) and assessment of learning (AoL). Each assessment category has a specific purpose in the teaching and learning process (Black et al., 2004; Cilliers et al., 2010; Schuwirth & Van Der Vleuten, 2011). These assessments are crucial

in evaluating student's learning progress, while providing valuable insights for educators to improve their teaching practices and student outcomes.

AaL occurs when students actively perform self-reflection to monitor their learning progress (Black et al., 2004). This assessment method emphasizes the development of metacognitive skills and self-control when students realize their strengths and things they need to improve. AfL or formative assessment, focuses on the use of assessment in planning strategies or next steps in teaching (Schuwirth & Van Der Vleuten, 2011). It involves gathering information about students' knowledge and skills to provide feedback in planning teaching strategies and support student learning. AoL or summative assessment, is used to evaluate student learning outcomes at the end of the semester or year (Cilliers et al., 2010). Through assessment methods such as tests and exams, AoL provides a summary of student achievement and is important to ensure there is accountability on the part of teachers and students.

The value of assessment in education includes various aspects that contribute to the development of professionalism and teaching effectiveness in the classroom. Teachers are aware of the importance of assessment on student learning development and provide information for teachers to plan more meaningful teaching strategies (Darling-Hammond, 2000; Yan & Cheng, 2015). At the same time, assessment is also closely related to accountability and teacher performance evaluation. Evidence of student development and achievement can be obtained through assessment reports which often contributes to evaluation, promotion and the reputation of teacher's professionalism (Lacina & Griffith, 2019). By demonstrating the ability to assist student development and learning through assessment, teachers can increase their professional recognition and contribute to the quality of education.

Assessment values can be influenced by teachers' beliefs in shaping their assessment practices and behaviors (Xu, 2012). Teachers' beliefs about assessment can affect various aspects of teaching such as how to implement teaching, how to treat students, behavior in the classroom as well as the choice of assessment methods. (Muhammad Agung Buwono & Purbani, 2020). This belief has an impact on the effectiveness of assessment practices and student learning outcomes (Brown et al., 2015). Teachers who believe in the value and importance of formative assessment in education will provide constructive feedback to students, thereby improving student learning outcomes. (Othman, 2019). However, further research on the challenges and obstacles faced by teachers to implement assessment in the classroom should be done (Roehrig & Kruse, 2005). External factors such as changes in education policy and teacher professionalism development programs can affect teachers' beliefs (Ghafri et al., 2021). Professionalism development programs that increase knowledge and training in assessment can contribute to changing teachers' assessment beliefs and practices (Azparren Legarre, 2022). This shows that the importance and value of assessment in education requires a positive teacher's belief.

The understanding and belief of teachers is important to the value of assessment because they have a role in implementing assessment approaches such as AaL, AfL and AoL. Teachers that appreciate the value of assessment as part of the learning process are more likely to use assessment in planning teaching strategies and guided by the students' learning requirement. (Shepard, 2000). Therefore, the role of assessment in the learning culture needs to be

emphasized to support student development. At the same time, assessment must be used as a tool for learning and student development that is meaningful and useful to foster education in the future (Epstein, 2002). There is a need to study the relationship between assessment and teaching effectiveness as well as the impact of feedback on student learning (Wiliam, 2011). This is because teachers who believe in the value of AfL will use assessment methods that provide constructive feedback to teaching methods. Apart from that, the assessment approach has also shifted from summative assessment to formative assessment which emphasizes the importance of assessment methods that encourage student involvement and self-reflection to support student development and learning. (Schuwirth & Van Der Vleuten, 2011).

The purpose of this systematic literature review is to describe the value of assessment in the context of AaL, AfL and AoL in school. The following are the objectives of this study:

i. Identify articles on the implementation of AaL, AfL and AoL.
ii. Relating different assessment methods to teachers' beliefs about the importance of assessment.
iii. Assessing the importance of AaL, AfL and AoL on teacher assessment practices and student learning.

Methodology
Literature Search Procedure
This systematic literature review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Liberati et al., 2009). Articles that were searched are related to AaL, AfL and AoL in the context of school education as well as the objectives of the study. A protocol was established to document the analysis method and article selection criteria. The keywords used are only in English because the desired articles in this study are not only focused on studies from Malaysia. The main databases used for article searches are Scopus and Web of Science (WoS) because the articles from these databases are of high quality with stable search results and more comprehensive advanced search capabilities.

Article Search Keywords
Scopus and WoS databases were used to obtain quality articles that fit the research objectives. The advanced search capabilities of these two databases are used by using specific terms to ensure that the articles being studied are relevant. The terms used are "assessment as learning", "assessment for learning", assessment of learning" and "education". Table 1 shows the search strings used in both databases. The search results obtained from the Scopus and Wos databases yielded 547 articles which later became 445 articles after 102 duplicate articles were identified.

Table 1
Search strings

Scopus	TITLE-ABS-KEY (("assessment as learning") OR ("assessment for learning") OR ("assessment of learning") AND ("education")) AND PUBYEAR > 2018 AND PUBYEAR < 2024 AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SUBJAREA , "SOCI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English"))
WoS	ALL=(("assessment as learning") OR ("assessment for learning") OR ("assessment of learning") AND ("education"))

Article Criteria
The criteria in Table 2 have been set as acceptance conditions for articles found in the database. The study year considered is the last five years, from 2019 to 2023. The designated document type is journal articles and other documents such as proceedings, theses and book chapters are not accepted. The research topics of the selected articles are related to AaL, AfL and AoL in the context of school education. Articles related to medical education, instrument validation, outside the scope of education as well as literature review were excluded because they were not in line with the objectives of the study.

Table 2
Article acceptance criteria

General criteria	Acceptance criteria	Exclusion criteria
Publication year	2019 – 2023	Other than 2019 – 2023
Type of documents	Journal article	Proceeding, thesis, book, literature review
Language	English	Other languages
Research topics	School education, concerning assessment paradigm	Higher education, instrument validation, medical education, not discussing assessment paradigm, outside educational scope, literature review

Article Selection Process
Figure 1 shows the flow chart of the PRISMA model used to find articles related to AaL, AfL and AoL. 445 articles were generated at the beginning of the search and 27 articles were found to be included in this study based on the established criteria.
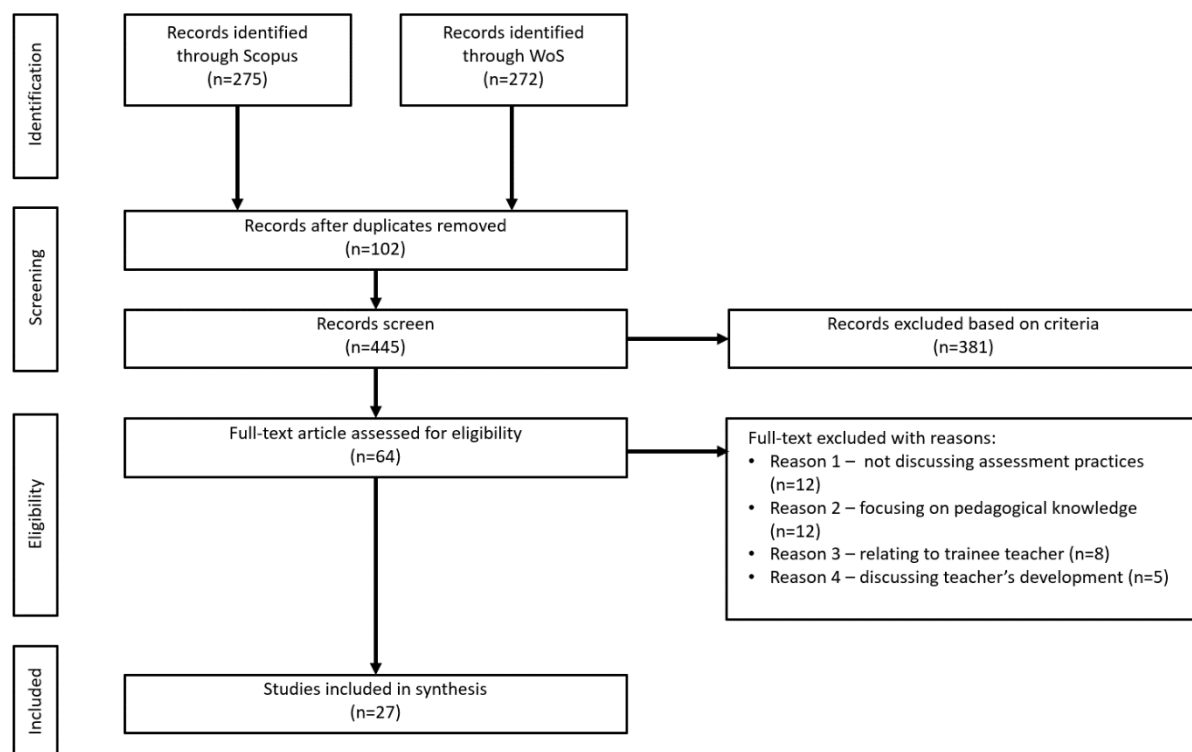
Figure 1
PRISMA model flow chart

Data Extraction and Synthesis

Articles were read carefully so that the process of data extraction and synthesis could be carried out. A table was constructed to summarize the data obtained from the selected articles. The relevant data included in the constructed table is the title of the article together with the writing and year of publication, the assessment paradigms, and the main findings of the study. A table was also constructed regarding the number of articles that discuss AaL, AfL and AoL.

Results and Discussion
Articles Discussing Assessment Paradigms

As a result of data extraction and synthesis, there are 27 articles related to assessment paradigms that have been identified. All these articles have been summarized in Table 3.

Table 3

Articles discussing assessment paradigms

No.	Article title	Assessment paradigm	Main findings
1	Accessibility in assessment for learning: sharing criteria for success (Willis et al., 2023)	▪ AfL	• Teachers realize the role of language, visual materials, and interaction opportunities in designing formative assessments to benefit students in assessment practice. • Assessment for learning can be made easier to support student learning including students with language and attention problems.
2	Iranian EFL Teachers' Classroom Assessment Practices: Discrepancy between Theory and Practice (Aliakbari et al., 2023)	▪ AfL ▪ AoL	• English teachers stated that they use formative assessment, but the findings of the study show that the assessment used is based on exams. • There is a gap between teachers' classroom assessment practices and curriculum reform.
3	Mathematics Teachers' Self-Reported Practices of Formative Assessments in Teaching Mathematics Online (Adhikari et al., 2023)	▪ AfL ▪ AoL ▪ AaL	• The level of formative assessment practices in mathematics teaching is high during online classes. • Assessment strategies are found as predictors in assessment for and as learning while assessment components are predictors for assessment of learning.
4	Primary school teachers' assessment for learning practice for students' learning improvement (Gebremariam & Gedamu, 2023)	▪ AfL	• Primary school teachers have a high level of assessment confidence from quantitative data, but interviews show they have a low level of assessment confidence due to challenges such as experience, training, school problems and transparency

Continued

No.	Article title	Assessment paradigm	Main findings
5	Science teachers' views and uses of assessment criteria: Australian	▪ AfL ▪ AoL	• Teachers are seen using assessment criteria as a scoring tool for summative assessment as

No.	Article title	Assessment paradigm	Main findings
	perspectives (Jahan & Davison, 2023)		opposed to using it as a learning instrument. Assessment criteria are also used to determine grades.
6	The effect of a formative assessment practice on student achievement in mathematics (Boström & Palm, 2023)	▪ AfL	• There was no significant difference of the post-test scores between the intervention and control groups. • There is no correlation between the amount of formative assessment activities implemented and post-test scores.
7	The use of mobile instant messaging for peer feedback in online assessments for learning (Coetzee et al., 2023)	▪ AaL	• Analysis of the content of student messages found that the most peer feedback given was cognitive feedback since mobile instant messaging (MIM) helps students manage tasks during the pandemic.
8	Assessment for learning strategies: Amharic Language Teachers' Practice and Challenges in Ethiopia (Gebremariam & Gedamu, 2022)	▪ AfL	• The results from the closed questionnaire show that teachers use formative assessment, but the open questionnaire shows that teachers rely on summative assessment. • Teachers' knowledge of formative assessment strategies is limited. • Challenges such as lack of transparency, low experience and knowledge, school administration problems and lack of training faced by teachers when implementing formative assessment.
9	English First Additional Language: Teachers' written feedback practices in multi-grade classrooms in rural South African primary schools (Taole, 2022)	▪ AfL	• Teachers have a different understanding of written feedback where feedback is seen as a product rather than a process for student learning development. • Teacher's written feedback practice is to give the correct answer to the student.

Continued

No.	Article title	Assessment paradigm	Main findings

No.	Article title	Assessment paradigm	Main findings
10	Exploring the use of assessment for learning in the mathematics classroom (Mahlambi et al., 2023)	▪ AfL	• Teachers understand formative assessment as an activity given in class at the end of learning to measure student understanding. • Teachers also rely on textbooks in carrying out formative assessment activities without considering the student's context.
11	Inside the black box: do teachers practice assessment as learning? (Yildirim & Bilican-Demir, 2022)	▪ AaL	• Teacher's teaching practice in the classroom cannot support assessment as learning and encourage self-control of students' behavior and most activities in the classroom are teacher-centered. • Teachers do not apply self or peer assessment and feedback given to students is based on test scores.
12	Parental contributions and assessment for learning as a component of mathematics homework (Williams & Williams, 2022)	▪ AfL	• Homework involving parents provides opportunities for discussion at home and results in quality engagement. Pupils face less pressure when completing homework because parents are seen as experts.
13	The impact on student achievement of an assessment for learning teacher professional development program (De Vries et al., 2022)	▪ AfL	• There is a positive effect from the development of teacher professionalism for formative assessment based on a dynamic approach to student achievement.

Continued

No.	Article title	Assessment paradigm	Main findings
14	A case study of a formative assessment practice and the effects on students' self-regulated learning (Granberg et al., 2021)	▪ AfL	• There is a significant effect based on quantitative data for the implementation of formative assessment of mathematics teachers on students' beliefs related to self-control learning. • Qualitative data shows an increase in student self-control learning behavior in the classroom.

No.	Article title	Assessment paradigm	Main findings
15	A Framework for Mobile-Assisted Formative Assessment to Promote Students' Self-Determination (Nikou & Economides, 2021)	▪ AfL	• Tasks based on the assessment framework have a positive impact on students' autonomy, competence, and motivation.
16	Assessment for Learning in Physical Education: Practical Tools and Strategies to Enhance Learning of Games (Chng & Lund, 2021)	▪ AfL	• The suggested materials can help students to produce a visual representation of the achievement of their activities. • Teachers get the opportunity to observe the achievements of each student and provide feedback. • Evidence already existed when teachers need to report on student learning and achievement.
17	Communicating Lesson Objectives and Effective Questioning in the Mathematics Classroom: The Ghanaian Junior High School Experience (Graham et al., 2021)	▪ AfL	• The formative pre-assessment intervention phase shows that teachers lack knowledge and skills to obtain evidence through questioning methods during the learning process. • Findings from the post-formative assessment intervention phase show a change where teachers are more able to implement questioning effectively.

Continued

No.	Article title	Assessment paradigm	Main findings
18	Does Diagnostic Feedback Promote Learning? Evidence From a Longitudinal Cognitive Diagnostic Assessment (Tang & Zhan, 2021)	▪ AfL	• Cognitive diagnosis feedback is better in promoting students' mathematical achievement.
19	Students' Perceptions of Involvement in the Assessment of Oral Competence in English as a Second Language (Sandvik & Sommervold, 2021)	▪ AfL ▪ AaL	• The findings of the study show that students want to be more involved in assessment practices because they see it to improve English oral competency.

No.	Article title	Assessment paradigm	Main findings
20	Insights into Grade 2 teachers' enactment of formative assessment in mathematics in selected priority schools in Gauteng (Govender, 2020)	▪ AfL	• The study shows that teachers' implementation of formative assessment is limited because their understanding of formative assessment is low and there is tension between curriculum compliance and the implementation of formative assessment.
21	Portfolios as a tool for AfL and student motivation: are they related? (Baas et al., 2020)	▪ AfL	• The results of the study did not confirm a direct relationship between portfolio implementation and student motivation. Students' perception of formative assessment mediates the relationship between portfolio implementation and student motivation.
22	Towards effective feedback: an investigation of teachers' and students' perceptions of oral feedback in classroom practice (Van Der Kleij & Adie, 2020)	▪ AfL	• The findings of the study show that most of the teacher's verbal feedback is not known to the students and if it is known to the students, the feedback is not seen as intended by teachers. • Math teacher's verbal feedback is known students better than English.

Continued

No.	Article title	Assessment paradigm	Main findings
23	Formative assessment as 'formative pedagogy' in Grade 3 mathematics (Govender, 2019)	▪ AfL	• Teachers were found to be aware of matters related to formative assessment, but they did not consider it as an important component in student learning. • Teacher formative assessment practices are constrained by factors such as compliance and curriculum implementation tempo.
24	Iranian EFL teachers' assessment for learning practices and barriers: Do textbooks taught and teaching context matter? (Nasr et al., 2019)	▪ AfL	• Semi-structured interviews show that teachers choose scaffolding assessment practices such as questioning and student involvement in class.

			• English teachers' perception of monitoring and scaffolding assessment practices differs according to textbooks. • English teachers in schools experience more obstacles to implement formative assessment than in language institutes.
25	Teacher Adaptive Practices: A Key Factor in Teachers' Implementation of Assessment for Learning (Loughland & Alonzo, 2019)	▪ AfL	• Teachers' knowledge and understanding of formative assessment is not translated into practice due to the lack of external factors in the form of professional learning to encourage formative assessment practice.
26	The impact of assessment for learning on learner performance in life science (Oyinloye & Imenda, 2019)	▪ AfL	• The findings of the study show that students who follow a teaching approach based on formative assessment have higher achievement
27	Understanding how teachers practise inclusive classroom assessment (Lin & Lin, 2019)	▪ AfL ▪ AoL	• The study found that there is a high percentage of special education teachers using accommodation and modification assessments for students with special needs. • There is a high percentage of teachers who use summative assessment compared to formative assessment.

Number Of Articles Discussing Assessment Paradigm
Table 4 summarizes the number of articles discussing AaL, AfL and AoL.

Table 4
Number of articles discussing assessment paradigm

Assessment paradigm	Number of articles
Assessment as learning	4
Assessment for learning	25

Relationship between Assessment Paradigm and Importance of Assessment
As reported in Table 4, the number of articles discussing AfL is higher than AaL and AoL. This shows a higher focus given by researchers to formative assessment practices. The focus on formative assessment gives the impression that researchers also understand the importance of AfL for teachers because it allows teachers to plan effective teaching strategies (Mulyana et al., 2021).

AfL is studied from the point of view of knowledge, understanding, practice and challenges faced by teachers in implementing formative assessment for students. Teachers have knowledge and understanding about formative assessment but there is a gap when compared to the practice of formative assessment (Govender, 2019; Mahlambi et al., 2023; Taole, 2022). Teachers were found to practice formative assessment less or consider it as an unimportant component in learning. This follows the challenges that teachers have to face such as lack of transparency, school administration problems and constraints due to complying with the tempo of curriculum implementation (Gebremariam & Gedamu, 2022; Govender, 2019). This gives the impression that AfL is important to teachers because they have good knowledge and understanding, but its implementation is not in line with the perception held by teachers.

Studies on the AoL are fewer and given less focus based on the number of articles found in Table 4. This is in line with the development of the assessment process which has shifted to formative assessment due to summative assessment's flaw in measuring students' abilities as a whole (Kulasegaram & Rangachari, 2018). In fact, AoL are carried out in tandem with formative assessment. This shows that summative assessment needs to be supplemented with formative assessment to ensure that assessment objectives can be achieved.

Although there is a shift to formative assessment, the research findings from the articles in Table 3 show that teachers still prioritize summative assessment (Lin & Lin, 2019). Formative assessment is not used to complement to summative assessment, instead it is used to diversify the methods of implementing summative assessment such as to set test grades (Jahan & Davison, 2023). This gives the impression that teachers still attach importance to summative assessment in assessing student abilities even though they agree that formative assessment can help improve student learning.

As for AaL, there are still fewer studies conducted for this assessment paradigm based on the number of articles in Table 4. AaL such as self and peer assessment methods allow students to evaluate their learning progress and make improvements to their education (Capan-Melser et al., 2020). Low focus on the research of AaL reflects the lack of active student involvement in their assessment process.

Self or peer assessment is found to be not widely practiced compared to formative assessment. In fact, the assessment practices carried out by teachers also do not support the implementation of AaL in the classroom (Yildirim & Bilican-Demir, 2022). However, students actually want to be directly involved in the assessment process to improve their skills (Sandvik & Sommervold, 2021). This shows the teacher's perception of AaL as less important in

assessment practice even though there is a desire to apply it during the learning process among students.

The Value of Assessment Paradigms For Teacher Assessment Practices and Student Learning
AfL or formative assessment plays an important role in shaping teacher assessment practices. This is shown when formative assessment has the potential to help teachers plan effective teaching strategies after obtaining information about the development and understanding of student learning. (Willis et al., 2023). In fact, emphasis on the importance of formative assessment in the fields of language, science and mathematics as well as physical education can improve the quality of teaching (Chng & Lund, 2021; Jahan & Davison, 2023; Taole, 2022; Williams & Williams, 2022). Nevertheless, teachers were found neglecting formative assessment because they still prioritized summative assessment as a method to assess students' academic abilities (Govender, 2019). Although teachers understand the role of formative assessment in education, there is still a gap between the knowledge and understanding of formative assessment and its practice by teachers (Gebremariam & Gedamu, 2022). This shows that formative assessment has an important value to teachers' assessment approach, but it is not aligned with the assessment practices implemented by them in the classroom.

Various benefits can be obtained from the assessment approach for student learning such as being able to improve the academic achievement of students (Oyinloye & Imenda, 2019). Formative assessment also has a positive impact on the experience and learning outcomes of students whilst influencing their perception and motivation (Baas et al., 2020). Furthermore, students can improve their autonomy and competence in learning when formative assessment is implemented in teaching sessions (Nikou & Economides, 2021). When parents are involved in formative assessment, students are found to have lower stress thus stimulating their interest in learning (Williams & Williams, 2022). At the same time, formative assessment can help teachers support the learning of students with learning disability (Willis et al., 2023). This shows that the implementation of formative assessment has a positive effect on the overall development of student learning.

AoL or summative assessment functions as a form of accountability to teachers and schools where student test results can be used by all stakeholders to evaluate teaching performance (Harrison et al., 2017; Svensäter & Rohlin, 2023). At the same time, summative assessment is only able to assess students' abilities from certain aspects such as knowledge and understanding (Kulasegaram & Rangachari, 2018). Therefore, this assessment approach should not be given priority by teachers in assessing student learning progress. However, there is a high percentage of teachers who use summative assessment compared to formative assessment in the teaching process (Lin & Lin, 2019). This is supported by Aliakbari et al. (2023) who found that teachers told they used formative assessment in the classroom on the questionnaire but informed that summative assessment was preferred during the research interview process. In fact, formative assessment is only used as a tool by teachers to give marks and grades for summative assessment (Jahan & Davison, 2023). This shows that teachers value AoL higher than AfL based on their assessment practices.

AaL through self and peer assessment methods can actively involve students in the assessment process and allow students to self-assess their learning progress (Capan Melser

et al., 2020). The cognitive level and student involvement in learning can be increased through this assessment approach (Rasmy et al., 2022). However, teachers were found to apply fewer self and peer assessment methods in the teaching and learning process (Yildirim & Bilican-Demir, 2022). AaL approach is less emphasized by teachers even though students wish to be directly involved in assessment to improve their skills and competence (Sandvik & Sommervold, 2021). Therefore, AaL is seen as having a low value among teachers even though it has the potential to help students determine their learning weaknesses and strengths and implement effective improvements.

Conclusion
The findings of the study show that teachers and researchers place AfL as more valuable than AaL and AoL. The value of AoL is seen to be decreasing due to the changing trend of teaching and learning that is more student-centered using formative assessment. Nevertheless, the value of AaL is found to be low even though this approach can increase student involvement in their assessment. Each approach discussed in this study has its own strengths and weaknesses and should be given an important value when implementing the teaching process in the classroom.

The implication of the study seen from this study is through a high emphasis on the assessment approach for learning. Teachers should practice formative assessment as part of the teaching process instead of just using it to assess students' abilities. As for policy implications, the findings of this study allow policy makers to focus on more effective assessment approaches in helping to improve student learning such as assessment as learning. Self and peer assessment methods suggested by policy makers to teachers can increase student involvement in their learning process. This can help empower students as self-regulated learners, contributing to their academic development and enhancing their learning outcomes. The result of this study can also contribute to helping teachers make an informed decision on which assessment paradigms they should prioritize while conducting classroom-based assessments.

However, this study has some limitations. First, this systematic literature review only used databases from Scopus and WoS. It is possible that articles that meet the selection criteria are found in other databases. Second, the criteria for the selection and rejection of articles have limited the number of articles synthesized in this study. This caused many articles related to the study to be rejected during the article screening process. Third, the findings of this study only provide an overview of the value of the assessment approach through the number of articles that discuss the assessment approach. This method is not able to accurately determine the perception of researchers and teachers regarding the value of assessment.

This study suggests that the value of assessment should be determined based on its role in the teaching process and its ability to help improve student learning. A comprehensive form of instrument needs to be built to get the level of assessment value by teachers more accurately. Qualitative research methods are also needed to get teachers' views on the importance of different assessment approaches. The impact of future studies on the value of assessment through different research methods and instruments can provide a clearer picture of teachers' perceptions of the importance of assessment approaches.

References
Adhikari, K. P., Joshi, D. R., Belbase, S., Sharma, L., & Khanal, B. (2023). Mathematics Teachers' Self-Reported Practices of Formative Assessments in Teaching Mathematics Online: *International Journal of Online Pedagogy and Course Design*, *13*(1), 1–19.

Ahmed, Y., Taha, M. H., Al-Neel, S., & Gaffar, A. M. (2018). Students' perception of the learning environment and its relation to their study year and performance in Sudan. *International Journal of Medical Education*, *9*, 145–150.

Aliakbari, M., Yasini, A., & Sadeghi, S. (2023). Iranian EFL Teachers Classroom Assessment Practices: Discrepancy between Theoretical and Practical Aspects of Classroom Assessment Practices. *International Journal of Language Testing*, *13*(2).

Azparren Legarre, M. P. (2022). The Impact of CLIL Teacher Education on the Beliefs of In-service CLIL Teachers. *Porta Linguarum Revista Interuniversitaria de Didáctica de Las Lenguas Extranjeras*, 47–61.

Baas, D., Vermeulen, M., Castelijns, J., Martens, R., & Segers, M. (2020). Portfolios as a tool for AfL and student motivation: Are they related? *Assessment in Education: Principles, Policy & Practice*, *27*(4), 444–462.

Beerepoot, M. T. P. (2023). Formative and Summative Automated Assessment with Multiple-Choice Question Banks. *Journal of Chemical Education*, *100*(8), 2947–2955.

Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2004). Working inside the Black Box: Assessment for Learning in the Classroom. *Phi Delta Kappan*, *86*(1), 8–21.

Black, P., & Wiliam, D. (2010). Inside the Black Box: Raising Standards through Classroom Assessment. *Phi Delta Kappan*, *92*(1), 81–90.

Boström, E., & Palm, T. (2023). The effect of a formative assessment practice on student achievement in mathematics. *Frontiers in Education*, *8*, 1101192.

Broadbent, J., Panadero, E., & Boud, D. (2018). Implementing summative assessment with a formative flavour: A case study in a large class. *Assessment & Evaluation in Higher Education*, *43*(2), 307–322.

Brown, G. T. L., Chaudhry, H., & Dhamija, R. (2015). The impact of an assessment policy upon teachers' self-reported assessment beliefs and practices: A quasi-experimental study of Indian teachers in private schools. *International Journal of Educational Research*, *71*, 50–64.

Capan Melser, M., Lettner, S., Bäwert, A., Puttinger, C., & Holzinger, A. (2020). Pursue today and assess tomorrow—How students' subjective perceptions influence their preference for self- and peer assessments. *BMC Medical Education*, *20*(1), 479.

Chan, W. L. (2016). The discrepancy between teachers' beliefs and practices: A study of kindergarten teachers in Hong Kong. *Teacher Development*, *20*(3), 417–433.

Chng, L., & Lund, J. (2021). Assessment for Learning in Physical Education: Practical Tools and Strategies to Enhance Learning of Games. *Journal of Physical Education, Recreation & Dance*, *92*(7), 31–38.

Cilliers, F. J., Schuwirth, L. W., Adendorff, H. J., Herman, N., & Van Der Vleuten, C. P. (2010). The mechanism of impact of summative assessment on medical students' learning. *Advances in Health Sciences Education*, *15*(5), 695–715.

Coetzee, S. A., Schmulian, A., & Janse Van Rensburg, C. (2023). The use of mobile instant messaging for peer feedback in online assessments for learning. *Accounting Education*, *32*(5), 563–577.

Coombs, A., DeLuca, C., LaPointe-McEwan, D., & Chalas, A. (2018). Changing approaches to classroom assessment: An empirical study across teacher career stages. *Teaching and Teacher Education*, *71*, 134–144.

Darling-Hammond, L. (2000). How Teacher Education Matters. *Journal of Teacher Education*, *51*(3), 166–173.

De Vries, J. A., Dimosthenous, A., Schildkamp, K., & Visscher, A. J. (2022). The impact on student achievement of an assessment for learning teacher professional development program. *Studies in Educational Evaluation*, *74*, 101184.

DeLuca, C., Valiquette, A., Coombs, A., LaPointe-McEwan, D., & Luhanga, U. (2018). Teachers' approaches to classroom assessment: A large-scale survey. *Assessment in Education: Principles, Policy & Practice*, *25*(4), 355–375.

Epstein, R. M. (2002). Defining and Assessing Professional Competence. *JAMA*, *287*(2), 226.

Ferguson, L. E., & Bråten, I. (2022). Unpacking pre-service teachers' beliefs and reasoning about student ability, sources of teaching knowledge, and teacher-efficacy: A scenario-based approach. *Frontiers in Education*, *7*, 975105.

Gebremariam, H. T., & Gedamu, A. D. (2022). Assessment for learning strategies: Amharic Language Teachers' Practice and Challenges in Ethiopia. *International Journal of Language Education*, *6*(2), 128.

Gebremariam, H. T., & Gedamu, A. D. (2023). Primary school teachers' assessment for learning practice for students' learning improvement. *Frontiers in Education*, *8*, 1145195.

Ghafri, N. A., Gabarre, C., & Mirza, C. (2021). Exploration of Omani Cycle 1 English Teachers' Continuous Assessment Practices and Perceptions. *Asian Journal of Education and Social Studies*, 38–54.

Gonzalez, T., De La Rubia, M. A., Hincz, K. P., Comas-Lopez, M., Subirats, L., Fort, S., & Sacha, G. M. (2020). Influence of COVID-19 confinement on students' performance in higher education. *PLOS ONE*, *15*(10), e0239490.

Govender, P. (2019). Formative assessment as 'formative pedagogy' in Grade 3 mathematics. *South African Journal of Childhood Education*, *9*(1).

Govender, P. (2020). Insights into Grade 2 teachers' enactment of formative assessment in mathematics in selected priority schools in Gauteng. *South African Journal of Education*, *40*(Supplement 2), S1–S10.

Graham, M. A., Staden, S. V., & Dzamesi, P. D. (2021). Communicating Lesson Objectives and Effective Questioning in the Mathematics Classroom: The Ghanaian Junior High School Experience. *International Journal of Instruction*, *14*(4), 965–984.

Granberg, C., Palm, T., & Palmberg, B. (2021). A case study of a formative assessment practice and the effects on students' self-regulated learning. *Studies in Educational Evaluation*, *68*, 100955.

Harrison, C. J., Könings, K. D., Schuwirth, L. W. T., Wass, V., & Van Der Vleuten, C. P. M. (2017). Changing the culture of assessment: The dominance of the summative assessment paradigm. *BMC Medical Education*, *17*(1), 73.

Heil, J., & Ifenthaler, D. (2023). Online Assessment in Higher Education: A Systematic Review. *Online Learning*, *27*(1).

Iannone, P., Czichowsky, C., & Ruf, J. (2020). The impact of high stakes oral performance assessment on students' approaches to learning: A case study. *Educational Studies in Mathematics*, *103*(3), 313–337.

Jahan, I., & Davison, C. (2023). Science teachers' views and uses of assessment criteria: Australian perspectives. *The Australian Educational Researcher*, *50*(5), 1363–1378.

Kulasegaram, K., & Rangachari, P. K. (2018). Beyond "formative": Assessments to enrich student learning. *Advances in Physiology Education*, *42*(1), 5–14.

Lacina, J., & Griffith, R. (2019). Valuing Teachers—And Teacher Education. *The Reading Teacher*, *72*(4), 421–422.

Latif, M. W., & Wasim, A. (2022). Teacher beliefs, personal theories and conceptions of assessment literacy—A tertiary EFL perspective. *Language Testing in Asia*, *12*(1), 11.

Laubenthal, J. (2018). Assessment in the Private Studio Setting: Supporting Student Learning, Providing Effective Instruction, and Building Faculty-Student Interaction. *Music Educators Journal*, *104*(3), 54–59.

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gotzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: Explanation and elaboration. *BMJ*, *339*(jul21 1), b2700–b2700.

Lin, P.-Y., & Lin, Y.-C. (2019). Understanding how teachers practise inclusive classroom assessment. *Studies in Educational Evaluation*, *63*, 113–121.

Loughland, T., & Alonzo, D. (2019). Teacher Adaptive Practices: A Key Factor in Teachers' Implementation of Assessment for Learning. *Australian Journal of Teacher Education*, *44*(7), 18–30.

Mahlambi, S. B., Van Den Berg, G., & Mawela, A. S. (2023). Exploring the use of assessment for learning in the mathematics classroom. *Journal of Education*, *89*, 1–24.

McCallum, S., & Milner, M. M. (2021). The effectiveness of formative assessment: Student views and staff reflections. *Assessment & Evaluation in Higher Education*, *46*(1), 1–16.

Muchlis, M., Ibnu, S., Subandi, S., & Marfuah, S. (2020). Students' Result of Learning at Chemistry Department through Assessment of, for, and as Learning Implementation. *International Journal of Instruction*, *13*(2), 165–178.

Muhammad Agung Buwono, & Purbani, W. (2020). Teachers' and Students' Beliefs on English Language Education at Madrasah Mu'allimin Muhammadiyah. *Journal of English Language Teaching and Applied Linguistics*, *2*(5), 27–34.

Nasr, M., Bagheri, M. S., Sadighi, F., & Rassaei, E. (2019). Iranian EFL teachers' assessment for learning practices and barriers: Do textbooks taught and teaching context matter? *Cogent Arts & Humanities*, *6*(1), 1646691.

Nikou, S. A., & Economides, A. A. (2021). A Framework for Mobile-Assisted Formative Assessment to Promote Students' Self-Determination. *Future Internet*, *13*(5), 116.

Osman, Z., & Yusoff, N. (2020). Pola dan Potensi Penerbitan Berbahasa Melayu dalam Indeks Scopus: Malay Article Publication Patterns and Potential in Scopus Indexed Journals. *PENDETA*, *11*(2), 85–96.

Othman, J. (2019). Reform In Assessment: Teachers' Beliefs And Practices. *Journal of Teaching English for Specific and Academic Purposes*, 501.

Oyinloye, O. M., & Imenda, S. N. (2019). The Impact of Assessment for Learning on Learner Performance in Life Science. *EURASIA Journal of Mathematics, Science and Technology Education*, *15*(11).

Park, H., Byun, S., Sim, J., Han, H.-S., & Baek, Y. S. (2016). Teachers' Perceptions and Practices of STEAM Education in South Korea. *EURASIA Journal of Mathematics, Science and Technology Education*, *12*(7).

Rasmy, A., St-Amand, J., Nabil, A., & Courdi, C. (2022). *Improving the Effectiveness of Teacher Assessment in Higher Education: A Case Study of Professors' Perceptions in Morocco* [Preprint]. In Review.

Roehrig, G. H., & Kruse, R. A. (2005). The Role of Teachers' Beliefs and Knowledge in the Adoption of a Reform-Based Curriculum. *School Science and Mathematics*, *105*(8), 412–422.

Safrizal, S., Yulia, R., & Suryana, D. (2021). Difficulties of Implementing Online Learning in Kindergarten During the Covid-19 Pandemic Outbreak: Teacher's Perspective Review. *Jurnal Pendidikan Dan Pengajaran*, *54*(3), 406.

Sandvik, L. V., & Sommervold, O. A. (2021). Students' Perceptions of Involvement in the Assessment of Oral Competence in English as a Second Language. *Languages*, *6*(4), 203.

Schuwirth, L. W. T., & Van Der Vleuten, C. P. M. (2011). Programmatic assessment: From assessment of learning to assessment for learning. *Medical Teacher*, *33*(6), 478–485.

Shepard, L. A. (2000). The Role of Assessment in a Learning Culture. *Educational Researcher*, *29*(7), 4–14.

Svensäter, G., & Rohlin, M. (2023). Assessment model blending formative and summative assessments using the SOLO taxonomy. *European Journal of Dental Education*, *27*(1), 149–157.

Tang, F., & Zhan, P. (2021). Does Diagnostic Feedback Promote Learning? Evidence From a Longitudinal Cognitive Diagnostic Assessment. *AERA Open*, *7*, 233285842110608.

Taole, M. J. (2022). English First Additional Language: Teachers' written feedback practices in multi-grade classrooms in rural South African primary schools. *South African Journal of Education*, *42*(4), 1–9.

Van Der Kleij, F., & Adie, L. (2020). Towards effective feedback: An investigation of teachers' and students' perceptions of oral feedback in classroom practice. *Assessment in Education: Principles, Policy & Practice*, *27*(3), 252–270.

Wiliam, D. (2011). What is assessment for learning? *Studies in Educational Evaluation*, *37*(1), 3–14.

Williams, H., & Williams, K. (2022). Parental contributions and assessment for learning as a component of mathematics homework. *Education 3-13*, *50*(2), 211–224.

Willis, J., Arnold, J., & DeLuca, C. (2023). Accessibility in assessment for learning: Sharing criteria for success. *Frontiers in Education*, *8*, 1170454.

Wu, X. (Molly), Zhang, L. J., & Liu, Q. (2021). Using Assessment for Learning: Multi-Case Studies of Three Chinese University English as a Foreign Language (EFL) Teachers Engaging Students in Learning and Assessment. *Frontiers in Psychology*, *12*, 725132.

Wulandari, I., Purwati, O., Setiawan, S., & Anam, S. (2021). Indonesian Novice EFL Teachers' Perceptions of the Use of Peer Assessment in Speaking Class. *JET (Journal of English Teaching)*, *7*(1), 67–79.

Xu, L. (2012). The Role of Teachers' Beliefs in the Language Teaching-learning Process. *Theory and Practice in Language Studies*, *2*(7), 1397–1402.

Yan, Z., & Cheng, E. C. K. (2015). Primary teachers' attitudes, intentions and practices regarding formative assessment. *Teaching and Teacher Education*, *45*, 128–136.

Yan, Z., Xiao, Y., Sin, K.-F., Yang, L., & Guo, W.-Y. (2021). Formative Assessment Practices in Special School Classrooms With the Support of E-Books: A Case Study. *Frontiers in Education*, *6*, 674869.

Yildirim, O., & Bilican-Demir, S. (2022). Inside the black box: Do teachers practice assessment as learning? *International Journal of Assessment Tools in Education*, *9*(Special Issue), 46–71.