



6th CELTI

Conference in English Language Teaching

AN INTERNATIONAL VIRTUAL CONFERENCE

Decolonize English at the Age of
Artificial Intelligence: Rethinking
Language, Literature, and Pedagogy

The Role of Diagnostic Assessment and AI in Determining Students' Learning Needs at MAN 2 Pamekasan

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DOI:

<https://doi.org/10.24090/5b0ft533>

Pages:

247-256

Abstract: This study explores the role of diagnostic assessment and Artificial Intelligence tools in determining students' learning needs at MAN 2 Pamekasan. Therefore, the study employs qualitative descriptive design through semi-structured interview with a teacher of English at the school. Result of the interview demonstrates that the assesment has an important role in deciding the teaching and learning design. It is because it could give the teacher a reference about the students' initial competence of a material will be taught, whether the students master or need more additional guidance related to the material. Then, the teaching and learning design will be tailored with the students' competence and learning style in order to meet the students' need. Moreover, with the development of globalisation, the teacher is facilitated in designing the diagnostic test because of Artificial Intelligence tools. The teacher feel greatly helped with the tools because it could be more efficient and practice. Therefore, it is crucial to blend the diagnostic assessment design and the intelligent tools in determining the students' need effectively.

Keywords: diagnostic assessment, artificial intelligence, students' need.

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Introduction

Determining students' learning needs has emerged as an important priority in curriculum and syllabus development particularly in classrooms where students exhibit a variety of preparedness, learning styles, inspiration, and academic proficiency. In the context of current educational environment, this scenario demands teachers to formulate learning and teaching design based on empirical evidence of the students' need rather than their presumptions. Therefore, a diagnostic assessment is an effective means of solving this problem because it allows the teachers to find out the students' strengths, deficiencies, and preparedness before the beginning of the learning process. This strategy is also pertinent to the application of the Merdeka curriculum in Indonesia which prioritizes differentiated learning and student-centered learning. This diagnostic assessment is to gather data on the student's strengths and weaknesses as a foundation of the learning preparation based on the student's circumstance. The assessment could be conducted using interviews, written tests, and prior learning outcomes (Natasari et al., 2023, pp. 15–16).

Previous studies have demonstrated the essential function of the diagnostic assessment in enhancing the standard of education. Rahmadewi argued that it is because it enables the teacher to determine the students' preparedness, learning needs, strengths, shortcomings, and socioemotional conditions (Rahmadewi et al., 2025, p. 281). Furthermore, a study done by Sujinah et al., (2024, pp. 95–98) showed that knowing the students' early abilities is the foundation for establishing appropriate materials and strategies in differentiated classrooms. Their study found that the diagnostic assessment enables teachers to detect learning challenges at an earlier stage and take proactive measures to react to those learning difficulties. Thus, the results show that diagnostic assessment is not only a testing procedure but also a basis for curriculum planning, syllabus development, and instructional adjustments.

At this same moment, artificial intelligence tools have become more frequently examined as an aid to the educational assessment and learning development. These tools can examine data on learning, recognize patterns, make feedback, and help with customized learning. According to Saputra et al., (2024, pp. 9056–9057), AI-based assessment systems are capable of providing flexible and customized feedback, encouraging the student participation, and aiding individualized learning pathways. They also point out that machine learning and natural language processing can assist in the evaluation of higher order competence. Owan et al., (2023, pp. 1–3) also state that AI-based educational assessment tools can enhance the correctness and efficiency of assessment, provide personalized feedback, aid teachers modify their strategies for instruction, and determine students requiring additional support. Findings from these studies indicate that AI tools can enhance diagnostic assessment by supporting the teachers' interpretation of the student data more effectively as well as the use of this information to improve the preparation of lessons.

However, there are still certain matters to be addressed. Many previous studies have discussed the diagnostic assessment as a foundation for differentiated learning, while others have focused on AI tools as devices for personalized learning, automated feedback or learning analytics. However, less research examines the procedure of linking diagnostic assessment and AI tools in identifying students' needs in the setting of Islamic senior high school. Therefore, the researchers propose to fill the gap by conducting a study at MAN 2 Pamekasan because teachers work under the expectations of the curriculum, school-based assessment practices, and students' different English learning needs. In accordance with a sense of the Merdeka curriculum, the school offers several skill-based classes including language, sports, religion, broadcasting, science and innovation, fashion, culinary, and graphic design classes. This situation highlights the need for English learning to be different in each class. Students studying language may need enhanced communicative and language proficiency while students in broadcasting, culinary, fashion or graphic design may require English for specific purposes such as communication, presentations, product descriptions or the workplace. Consequently, each class has distinct needs of students, different learning goals, and different ways of support. In this sense, diagnostic assessment could enable teachers figure out the real ability of students, while AI tools can facilitate the processes of designing more responsive learning strategies. The integration can offer a more concise foundation for the development of learning strategies, selection of materials and the design of components of the syllabus that correspond to students' needs.

Literature Review

Diagnostic Assessment and Students' Learning Needs

Diagnostic assessment has been broadly reviewed in the research as a crucial stage when determining students' learning needs before teachers' teaching planning. As Natasari et al. stated that this assessment in the Merdeka Curriculum is an ongoing and organized procedure of data collection and analysis of the students' learning processes, outputs, needs, growth, and achievements. In this curriculum, the diagnostic testing is placed before the learning process so that teachers can know the students' abilities, strengths, and shortcomings before providing instruction (Natasari et al., 2023, pp. 16–17). This concept indicates that the diagnostic assessment is not only associated with assessing students' prior knowledge, but also related to supporting the teachers formulate their instructional decisions based on the students' real-life circumstances. They further mentioned that the purpose of diagnostic assessment is to find out the learners' qualifications, strengths, weaknesses, readiness to

learn, motivation, interests, and other personal aspects which be used as a determining factor in preparing for learning.

In terms of carrying out curriculum, the diagnostic assessment is directly related to individualized learning. Rahmadewi et al., (2025, p. 281) defined the assessment as the basis for adaptable and differentiated learning in the adjustment to the Merdeka Curriculum. Their research indicates that the assessment also helps the teachers understand students' preparation, learning needs, strengths, limitations and socio-emotional situations. It additionally aids the teachers in developing instructional techniques, remedial programs, improvement programs, and cooperative learning activities. This finding is significant to current study as the students' needs cannot be adequately interpreted just through the final scores. The teachers also require information about the students' learning profiles, passions, psychological circumstances, and readiness to learn. These are significant in learning English since the students have diverse English proficiency. This argument is also supported by the qualitative case study of diagnostic assessment and student-centered learning strategies by Karumpa and Agus. They discovered that routine application of diagnostic evaluation helps the teachers to develop individualized and appropriate educational strategies. Therefore, when feedback was tailored to their individual requirements, the teachers were more confidence in the process of preparing of lessons and the students had stronger inspiration and participation (K & A, 2025, p. 5696).

AI Tools in Educational Assessment

Previous researches additionally demonstrate that the growth of diagnostic assessment has led artificial intelligence to start reshaping educational assessment. A study done by Saputra et al., showed that the shortcomings of traditional assessment include limited personalization, ineffective feedback, and a significant focus on lower-order cognitive skills. Their systematic literature evaluation indicated that AI-based assessment systems can deliver adaptive and personalized feedback, improve student participation, and facilitate tailored learning paths. Machine learning, natural language processing and deep learning are AI technologies that can assist teachers plan, provide, and examine assessment more efficiently. AI can also contribute towards automated essay grading, intelligent tutoring systems, real-time feedback, and non-cognitive ability assessment such as creativity, teamwork and emotional intelligence (Saputra et al., 2024, pp. 9056–9063).

Owan et al. examine AI technologies more explicitly in educational measuring and classroom assessment. They claim that AI-based solutions can boost both the precision and effectiveness of assessments, provide tailored feedback, and support the teachers in adapting techniques to meet the particular needs of each student. Their study also discusses various AI applications in assessment, such as personalized learning, intelligent tutoring systems, automated grading, predictive analytics, natural language processing, automatic essay scoring, learning analytics, digital assessment tools, and data visualization (Owan et al., 2023, pp. 1–5). These applications illustrate that AI is not only for grading. It can assist teachers analyze students' learning development, find learning gaps, identify pupils who needs guidance and prepare tailored comments. Alruwais and Zakariah also advocate the importance of computational intelligence in assessing the knowledge of students. The study proposed a system based on computational learning to measure the understanding and performance of students, determine the significant variables affecting performance, and to categorize the students using various algorithms such as support vector machine, logistic regression, random forest, decision tree, gradient boosting machine, Gaussian Naïve Bayes, and multilayer perceptron. Their findings proved that the gradient boosting machine had the best precision for prediction of 98 percent in measuring student understanding (Alruwais & Zakariah, 2023, p. 1). The finding implies that AI can aid teachers to process learning data more accurately. But accuracy of predictions by itself is not sufficient. Teachers continue to need to understand the outcomes pedagogically and use them in ways that increase learning.

Some studies also address the larger significance of the use of AI tools in teaching and learning. Taneja and Makkar define how the tools facilitate individualized content, quick feedback, progress tracking, data-based academic choices, and inclusive education. They classified AI technologies into learning that is adaptive systems, intelligent tutoring systems, automated assessment tools, conversational AI, and learning analytics systems. They also explain a personalized learning cycle powered by AI, where students' interactions create data, AI evaluates patterns and needs, and the system provides personalized information and feedback to enhance learning results (Taneja & Makkar, 2026, pp. 776–778). Likewise, Khakpaki, (2025, p. 4) says that AI-based assessment tools can also be used to

automate grading, provide real-time feedback, monitor performance, provide targeted coaching, and forecasting, and create quizzes or self-assessment tools.

While AI based assessment has a prospect, there are also a number of disadvantages. Taneja & Makkar, (2026, p. 779) alert that the incorporation of AI can generate issues concerning data privacy, bias, inequalities in and digital divide. Khairullah et al., (2025, pp. 6–7) further note that the tools may facilitate tailored instruction, automated grading, early warning systems, attendance tracking, and data-driven decision-making. However, institutions must contend with challenges such as computational bias, privacy, security of data, overdependence on technology, and equity. These findings suggest that AI in evaluation should serve as assistance tool, rather than as an autonomous decision-maker. Teachers will still need to review AI output to make sure it aligns with learning objectives.

Integrating Diagnostic Assessment and AI Tools in Education

Recent studies demonstrate that diagnostic assessment and AI systems have the potential to support each other in identifying students' learning needs. The assessment is the pedagogical framework for evaluating preparedness for learning, advantages, disadvantages, passions, and learning profiles. The assessment data can be handled by AI technologies, allowing them to find patterns, generate feedback and suggest learning solutions. Natasari et al., (2023, p. 21) stated that the diagnostic assessment results should be studied to determine the students' learning needs and develop the suitable methods according to the students' circumstances, hobbies, learning profiles, and average skills. This approach may be less wasteful with the use of digital tools or an AI-based analysis, particularly when the teachers are dealing with distinct classes with various learning goals.

Research in customized and adaptive learning also supports the incorporation of diagnostic assessment and AI tools. The artificial intelligence systems could assess the student behavior, performance patterns, and preferences to customize the training. This allows more advanced students to be appropriately challenged and struggling the students to get personalized assistance (Taneja & Makkar, 2026, p. 778). Lee et al. further show that the AI-supported knowledge diagrams detect the students' poor knowledge fields and assist the teachers modify teaching materials appropriately (Lee et al., 2023, pp. 873–874). Such results demonstrate that AI can assist in improving the follow-up phase of diagnostic evaluation, which is typically highlighted as a weakness in previous studies on diagnostic assessment.

However, the cooperation should not undermine the teachers' critical thinking. The diagnostic assessment in English learning was successful in planning and implementation but still ineffective in subsequent activities such as systematic grouping and remedial planning (Daud et al., 2026, pp. 49–52). AI techniques could also help overcome this constraint by organising the student' nformation and recognizing patterns of weakness and supporting differentiated classification. However, as Owan et al. reminded that the AI-powered assessment still requires human involvement and monitoring to maintain fairness and precision. (Owan et al., 2023, p. 12). The incorporation should therefore position the teachers as decision-makers who view AI outputs as evidence, not as final decisions.

Research Method

This study explores the role of diagnostic assessment and Artificial Intelligence tools in determining the students' learning needs at MAN 2 Pamekasan. Consequently, the study employs qualitative descriptive design because it enables the researchers get a broad coverage of participants' experiences, perceptions, and reflections on the role of the both components in determing the students' need in teaching and learning process. The participant of this study is a teacher of English at the school because he had experince in the designing the diagnostic assessment in order to find out the students' need. The data were then gathered using an open-ended interview aimed to get more in-depth responses regarding the teacher' experiences of the need analysis design amidst the AI era. Using open-ended questions allowed participants to elaborate freely and share rich experiences. Next, the data collected were analyzed according to the interactive model of qualitative data analysis developed by Miles and Huberman, which consists of data reduction, data display, conclusion drawing, and verification. Responses were assessed, coded, and categorized to detect repeated patterns and themes associated with the washback effects of scheduled presentation-based assessment

Findings

Diagnostic Assessment as the Foundation for Identification of the Students' Needs.

The first result indicated that the assessment was the teacher's initial stage in figuring out the students' learning needs ahead of the teaching process. The teacher said that before he determines the topic, technique, and learning process, he should recognize the primary level of the students' proficiency. He said,

"All teachers always use diagnostic test in order to know students' competence in the first meeting"

This claim indicated that the diagnostic assessment is the preliminary guide for the teacher to determine the actual skills of the students. The teacher does not go straight into teaching a topic until he recognizes if the students have sufficiently grasped the basic knowledge or require further assistance. The teacher uses diagnostic evaluation to gather information about students' preparedness, especially in relation to the material to be taught. In this scenario, the assessment is a realistic way to prevent assumption-based teaching. The assessment is not only employed to examine the overall English ability but also to figure out the students' competency in respect to the class topic whether the students grasp the subject or not. Thus it is easier for the teacher to know what to teach next. The diagnostic result also allows the teacher to categorize students according to their level of preparation. The teacher said,

"After I conduct the assessment, the result always be different. For example, there are 70% students who reach 90 score, while 20% student reach 20 score. From the scores, it shows that both students have different learning needs."

This remark indicates that this diagnostic evaluation assists the teacher in recognizing various groupings of students. Some students are prepared to start on while some require more help. The figures provided by the teacher are used to illustrate how the assessment clarifies the situation in the classroom. The teacher differentiate between the students who are capable of following the lesson on their own and the students who need support, so their needs will be identified more precisely. Thus, the diagnostic assessment is a crucial tool to identify the students' learning requirements. It provides the teacher with a good platform to comprehend the students' early competence. It also helps more reliable teaching decisions as the teacher is able to determine the difference between predicted competence and students' true ability. In this study, the diagnostic test is not merely considered to be an assessment, but as a basis for planning instruction that is appropriate to the students' requirements.

Diagnostic Assessment as Differential Therapy

The second finding implies that the diagnostic assessment will be a source of individualized therapy in the classroom. The teacher said that the students with varied talents should not be treated exactly the same. After the teacher determines students' capability using diagnostic assessment, he adapts the learning treatment depending on students' needs. He said,

"If the assessment result is different, I should also give different treatment and assessment level between the 70% and 20% students."

His statement implies that the outcomes of diagnostic assessments are used to guide varied educational outcomes. Standard or higher-level learning activities are possible for the students who have already mastered the material. Meanwhile, the students who continue to demand backing need more therapy. This means that the diagnostic assessment is not finished when the students' ability is determined. It touches how to make instructional choices. This differentiated treatment is linked to curriculum demands. The teacher said that English learning consists of four skills but the teacher still must select which skill will be prioritized depending on the needs of the students and academic expectations.

"Although the curriculum demands us to teach all English skills for our students, but we must be more focus on reading and writing skills because they are always be tested in the final test."

The statement explains how assessment supports the teacher to reconcile the demands of the curriculum with the real needs of the students. The curriculum may encompass listening, speaking, reading and writing, but the teacher can not devote equal attention to these skills without taking into account the learning situation. The teacher should decide which ability will be more important and pressing for the students. In this situation, goals for learning are set according to the diagnostic

assessment. He added that reading comprehending grows into a significant priority at the senior high school level it is always tested in the final test. This indicates that the students' needs are determined not just by their own learning circumstances but additionally by academic assessment requirements. Since the final test is centered on comprehension of text, the teacher believes that reading is an important ability that needs additional emphasis. That is not to claim other skills are overlooked. The teacher focuses on the ability that is most important for students to succeed in their academics. In addition, the diagnostic assessment helps the teacher identify how much treatment each skill needs. Differentiated therapy has a connection with students' learning styles. The teacher explained that every student has a different learning style. He said

"Not all students have same learning style. They can be kinesthetic, auditory, visual style so teachers should adjust to their learning style, not the students adjust to our teaching style."

This statement implies that the students' needs are not restricted to their academic performance. The students also are different in how they study. Some children are visual learners, while others are kinetic learners and need to move, practice, or do things. This variety requires the teacher to adjust the technique to students' learning styles. Therefore, it illustrates that the teacher should employ varied instruction to respond the varying learning needs. The learning design is designed based on the ability of the students and the learning habits so that the teaching process is more flexible and adaptable. This view encourages the idea that the assessment helps the teachers to plan learning that suits the students' needs, not just checking criteria on the curriculum.

AI Tools as a Practical Assistance for Designing Diagnostic Assessments

The final finding indicated that artificial intelligence could aid in the planning process of diagnostic assessment. The teacher said,

"Nowadays, artificial intelligence could help me in designing the assessment efficiently"

This declaration demonstrates that the technologies are considered an auxiliary tool in the designing process of the assessment. They are not a replacement for the teacher's function but can allow the teacher to set up the diagnostic assessment in a more convenient way. In this regard, these technologies can be an aid to the technical aspect of assessment design, for instance framing questions, creating ideas, or helping teachers develop instruments aligned with learning objectives. While the tools assist make the procedure more efficient, the teacher still makes the decision about how the diagnostic evaluation is carried out, how outcomes are understood, and what treatment should be delivered to children. This remark indicates that the teacher's responsibility is to control the class, comprehend the classroom phenomenon, and select the most appropriate way. AI tools may support the teacher in constructing diagnostic assessment, but the ultimate instructional decision is determined by the teacher to recognize the students' needs. The tools can therefore be a possible assistance, but the diagnostic testing and teacher's judgement continue to be the major basis for assessing the students' requirements.

The results, in general, show that diagnostic assessment enables the teacher to figure out the students' basic proficiency, allowing them to decide on different learning therapies, and to change the teaching approach according to the students' ability and learning style. The AI tools facilitate this by enhancing the efficiency and feasibility of designing diagnostic assessments. Therefore, the blend of diagnostic assessment and AI support allows the teacher establish more adaptable learning to the students' requirements at MAN 2 Pamekasan.

Discussion

Diagnostic Assessment as the Foundation for Identification of the Students' Needs

The primary result is that the teacher applied diagnostic assessment to be the first source to figure out the students' basic abilities before teaching a material. The teacher of English at the school realized that it could give information whether the students already comprehended the content or needed further assistance. That is, the teacher did not initiate teaching solely by following the syllabus material. He initially observed the real preparedness of students. The practice demonstrates that students' requirements are not presumed but identified via the diagnostic assessment evidence. This outcome is consistent with Natasari et al., (2023, pp. 15–16) who states that the diagnostic

assessment within the Merdeka curriculum is carried out before the learning process to determine the student's basic abilities, weaknesses, strengths, preparedness, enthusiasm, desires, and other personal variables influencing learning planning. It additionally supports Rahmadewi et al., (2025, p. 281) who argue that diagnostic assessment assists teachers in determining students' readiness, educational needs, abilities, limitations, and socio-emotional circumstances. This finding also demonstrates the hypothesis suggested by Karumpa and Agus. They believe that the diagnostic assessment allows teachers to identify the students' strengths and weaknesses prior to instruction so that the teachers may create learning plans that meet individual requirements (K & A, 2025, p. 5697). Their study also revealed that the teachers developed more diverse and pertinent teaching strategies when using diagnostic assessment regularly, and students were more enthusiastic when feedback was tailored to their needs. This result also supports Sujinah et al., (2024, pp. 94–95) who stress that knowing the students' starting abilities is the foundation in the arrangement of appropriate resources and tactics in differentiated classrooms. They also warned that many teachers construct learning objectives without taking into account students' starting competencies, which might lead the students to struggle since they lack the necessary background. This is the challenge that the teacher's practice responds to. He relied on diagnostic assessment to overcome the fixed premise of all students being equally prepared to learn. This finding is also roughly in line with Daud et al., (2026, p. 43) in English language learning that English teachers employed diagnostic exams at the start of the semester to outline the students' early abilities mainly in grammar, vocabulary and reading. Thus, this ongoing study confirms the finding through demonstrating how a teacher at MAN 2 Pamekasan implemented a diagnostic evaluation not only as a formal test, but also as a foundation to decide if the students were ready for a content. This influences the literature with a madrasah-based example of diagnostic assessment in learning English. This means that diagnostic assessment can contribute to the construction of curriculum and syllabus as it offers teachers with actual information about the learning conditions of the students before the start of instruction.

Diagnostic Assessment as Differential Therapy

Second, the second finding indicates that the teacher found the diagnostic assessment helpful for offering customized treatment. The teacher said the students with varied degrees of competency should not be treated equally. He presented an example where 70% of students were expected to be able in accordance with the material, while 20% required extra treatment or coaching. This data indicates that diagnostic assessment continued with the students' needs being identified. This spilled over into instructional decisions, particularly in classification, therapy, and teaching and learning method choice. This finding is supported by Rahmadewi et al. that diagnostic evaluation provides a basis for adaptable and personalized learning in the Merdeka Curriculum. It assists the teachers to develop their teaching techniques, rehabilitative programs, enhancement programs, and cooperative learning practices (Rahmadewi et al., 2025, pp. 281–287). The diagnostic results in the case of the teacher constituted the basis for delivering various treatment to kids. The students with higher competency may be assigned normal or challenging work, and the students in the need of support could be given more specialized supervision. Karumpa and Agus have observed that diagnostic data can be embedded in training modules using distinct tasks and contextualized materials. Their study points out that diagnostic evaluation help effective and inclusive teaching when the teachers are well trained and institutionally supported. This is confirmation of the existing finding (K & A, 2025). The teacher used the diagnosis information to alter therapy and react to variances in the classroom. However, this study also contributes a more particular English learning context, where varied treatment is associated not only with general proficiency, but also the emphasis of English proficiency. The finding also demonstrates the effect of curriculum demands to the students' needs. In the senior high school environment, the final test stresses reading comprehension. This implies that the needs of the students are formed by their real ability and the academic demands they should meet. This is in accordance with Natasari et al., (2023, pp. 15–16) who emphasize that diagnostic assessment is a component of lesson planning according to students' situations in relation to the curriculum. This also agrees with Daud et al., (2026, p. 43) who observed that diagnostic assessments in English learning tend to focus on vocabulary, grammar, and reading since these areas become crucial indications of students' language preparation. In addition, the finding also suggests that individualized therapy involves learning styles. The teacher stressed that the students learn in different ways. A number are visual, some are kinesthetic, and some may require other types of learning aids. This result is in line with Sujinah et al. who clarify that student variety consists of cognitive functions, academic excellence, learning preferences, and other individual characteristics

(Sujinah et al., 2024, pp. 94–95). It further reinforces the claim of Rahmadewi et al. that diagnostic assessment must address both cognitive and non-cognitive dimensions because both factors contribute to differential learning (Rahmadewi et al., 2025, p. 281). The teacher also mentioned that the teacher should follow the students' learning styles, not the students following the teacher's style. It is a sign of student-centeredness. Also, this is in line with Karumpa and Agus who stated diagnostic assessment as an instrument to build student-centered learning techniques. The students have various cognitive, social and emotional demands. Therefore teachers are required to adapt learning methodologies to offer the best learning experiences (K & A, 2025). This study provides by illustrating how this principle is realized in an actual teacher's explanation at MAN 2 Pamekasan. Differentiated treatment turns into a connection between diagnostic data and classroom practice.

AI Tools as a Practical Assistance for Designing Diagnostic Assessments

The final discovery suggests that AI technologies can be utilized to produce diagnostic assessments, making the procedure easier and feasible. The result of the interview suggests that the teacher was supported by AI tools in organizing a diagnostic assessment. This finding should be taken with be careful. It does not imply that AI substituted the position of the teacher. Instead, AI technologies have emerged as assistance for the preparation of evaluation instruments and to make the teacher's task more manageable. This finding is in line with the explanation of Saputra et al. who said that AI-based evaluation systems could offer adaptive and customized feedback to increase student involvement, and facilitate individual learning processes (Saputra et al., 2024, pp. 9056–9057). It is also related to Owan et al., (2023, pp. 1–3) who states that AI-powered educational assessment systems can increase the precision and effectiveness of assessments, provide individualized feedback, allow teachers to adjust teaching tactics, and determine students who need extra assistance. The AI technologies have significance in the present study as the teacher has to develop diagnostic assessment before the identification of students' requirements. AI can aid with exam preparation, item writing and structuring thoughts for assessment. Alruwais & Zakariah, (2023, p. 1) also demonstrate that machine learning could be used to evaluate the students' understanding and categorize the performance of learners. In their investigation, they reported a high level of precision for forecasting student understanding levels using a gradient- strengthening machine. Lee et al., 2023, (pp. 873–874) constructed a diagnostic evaluation system according to AI with knowledge maps, which detected students' grasp of material in the course, suggested learning films, and aided teachers to change teaching materials. The research confirm the present finding by illustrating how AI could improve the diagnosis procedure. AI tools can assist teachers shift from broad findings of assessment to more specialized learning patterns. Several research also suggest that AI-tools can promote personalised and flexible learning. Taneja & Makkar, 2026, (pp. 776–778) define AI tools such as smart tutors, adapted learning platforms, automatic assessment tools, educational chatbots and learning analytics tools. They are used for individualized content distribution, quick feedback, track of performance and data-based academic decision-making. As S. Rajkumar et al., (2025, pp. 1774–1775) suggested that AI tools could examine student data, recognize gaps in knowledge, offer targeted support, and help the teachers make data-based decisions. Sethi, (2025, pp. 1585–1586) added that AI systems can also alter the complexity of information, offer resources, provide real-time feedback, and help identify struggling students. Therefore, AI technologies can assist with diagnostic assessment not solely at the time of preparation but also while assessing the results and arranging follow-up activities. This finding correlates with Luo et al., (2025, pp. 1–2) who studied AI-based learning tools and discovered three frequent functions of AI in education, such as assessment and evaluation, individualized feedback and recommendations, and cognitive coaching. (Yan et al., (2025, pp. 1–2) also demonstrated that AI-led training and student participation can assist assessment of competence and assist in determining distinct categories of students who require different solutions. These studies are pertinent to the present investigation in that the teacher's diagnostic assessment categorized pupils by preparedness and need for therapy. The classification could be made more systematic using the AI tools. In addition, Bruckner & Chiriac, (2024, p. 1) claim that in language education, AI tools can help foreign language teaching, can enhance learning and teaching experiences, but human monitoring is still important. Similarly, Akbari et al., (2026, p. 84) discovered that AI-assisted feedback mixed with teacher-mediated dynamic assessment increased students' writing competence but also observed that students appreciated instructor mediation for contextual accuracy and emotional care. These results are relevant for the interpretation of the present investigation. AI tools can assist a teacher construct diagnostic assessment, but they are unable to fully

comprehend the setting of the classroom, the emotions of the students, or the local priorities of learning without guidance from the teacher. To support this claim, Tsioukas & Kostas, (2026, pp. 1–2) state that the teacher AI literacy is crucial for the safe, responsible and effective application of AI in schools. Therefore the use of AI outputs for teachers using AI technologies in assessment design or analysis depends on the standard of the input data and teacher verification. Weak evaluation tools can be the result of outdated prompts, imprecise learning objectives or biased data.

Overall, the discussion demonstrates that AI technologies and diagnostic assessment have complimentary functions in identifying the students' needs at MAN 2 Pamekasan. Diagnostic evaluation enables the teacher to detect students' previous competency, learning preparedness, shortcomings, and learning styles before creating teaching. The findings of the assessment subsequently direct the teacher to provide tailored therapy to meet the real needs of the pupils and curriculum objectives. AI tools make this process easier by enabling the teacher to build diagnostic assessment more effectively and easily. But the teacher is the head deciding factor who makes sense of assessment findings, knows the reality of the classroom, and decides on the best instructional response. Therefore, a blend of diagnostic assessment and AI tools should be considered as a teacher-facilitated process that facilitates more adaptable, student-centered, and evidence-based English learning

Conclusion

Based on the result of this study, the diagnostic assessment is very important in the students' learning needs at MAN 2 Pamekasan. Teachers do the assessment before instruction to determine initial competence of pupils, particularly when they already learned the content or require more training. This finding replies to the research purpose by suggesting that students' needs can be explicitly identified when teachers introduce instruction with data gathered from diagnostic assessment rather than presumptions. The study also reveals that the diagnostic assessment provides the fundamentals for differential treatment. The teacher does not manage all students uniformly, because kids have varying levels of preparation, different ways of learning. The teacher uses the evaluation results to change learning techniques, to give priority to the appropriate English abilities, and to construct training that suits students' actual conditions. This indicates that diagnostic assessment is not merely a testing activity but a pedagogical instrument for creating responsive and student-centered learning. Furthermore, regarding AI technologies, this study reveals that AI helps the instructor to create diagnostic assessment more successfully and easily. AI solutions can help minimize the technical pressure of assessment preparation but cannot substitute for the teacher's responsibility. The teacher is still liable for understanding assessment data, comprehending classroom settings and selecting the most appropriate instructional response. Thus, the employment of AI in this context should be viewed as an assisting tool in teacher-led assessment process.

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