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Option: LINGUISTICS

Maintaining Personalized and Adaptive Learning Through AI-powered Assessment

The Case of First Year Master Students of English at the University of 8 Mai1945, Guelma

A Dissertation Submitted to the Department of Letters and English Language in Partial Fulfillment of the Requirements for the Degree of Master in Language and Culture

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Dedication

This work is dedicated to:

My parents,

My friend Soundous,

Myself

Zahra Laifa

Acknowledgments

"Make it a habit to tell people thank you to express your appreciation sincerely and without the expectation of anything in return"

Ralf Marston

This work would not have been completed without the assistance of many individuals. First and foremost ,all thanks and praise to Allah ,the glorious and the merciful, for his beautiful plans and his support that gives me power to complete this hard work. Moreover, I am grateful and thankful to my beloved supervisor ,**Mrs. Naziha Benkamouche**, for her kindness,support, and patience during my humble experience towards the completion of this modest work.I would like also to express my deepest gratitude to the jury members, ABDAOUI Mounya and BOUDRA Amina, whom gladly accepted to review and examine this modest work**.** .I would like also to convey my special appreciation and gratitude to First Year Master Students for their contribution and collaboration.

Thank You All !

"You have made a difference…."

Abstract

The present study aims at investigating the role of AI-powered assessment in maintaining personalized and adaptive learning. It attempts to explore learners' views and perceptions towards the use of AI-powered assessment in EFL classrooms to foster personalized and adaptive learning. This research intends to figure out the causes for which first year master students utilize AI-powered assessment and the significance of its use. In addition, it attempts to have a closer look at whether teachers use AI-powered assessment in their EFL Classrooms or not, and the challenges they may face while using it. It is thereby hypothesized learners' use of AI-powered assessment, they would maintain and foster personalized and adaptive learning. To check the aforementioned hypothesis and answer the questions of the research, the descriptive quantative method was adopted through the use of a questionnaire to gather qualitative numerical data. A total of 92 first-year Master students from the University of Guelma-08 Mai 1945- constitutes the research sample. The results revealed the positive relationship between the two main variables, which confirm the research hypothesis set. In addition, the derived findings unveiled that learners recognize the value and significance of AI-powered assessment in teaching/learning in general and on personalized and adaptive learning specifically. Therefore, recognizing the role of technology & Artificial Intelligence-powered assessment and its high status in EFL classrooms should become priorities that teachers and the Ministry of Higher Education ought to take into consideration in the future.

Key words: Artificial Intelligence; AI-powered assessment; Assessment; Personalized and adaptive learning, Technology.

List of Tables

CONTENTS

General Introduction

It is rather an axiom to regard that the field of education is increasingly gaining more attention and importance in current times. For throughout the span of the previous years, many educational approaches and methods have been introduced to create more effective and engaging educational environments. In particular, the increasing focus on the individual learning needs and styles of learners resulted in a pressing demand to integrate innovative techniques of assessment which cater the various patterns and paces of learning. The most prominent example of that is Artificial Intelligence (AI), which has made significant inroads in education, especially in language learning. As English as a Foreign Language(EFL) classrooms become increasingly digitized, the implementation of AI-powered assessment tools has transformed traditional evaluation methods. Hence, numerous reforms have to be taken to properly support an individualized learning experience. Among those reforms; is the integration of AI-powered assessment that was introduced to enhance personalized and adaptive learning and facilitate new tailored learning journeys. This must mean that the traditional, one-size fits all methods of teaching, are outdated and are no longer efficient in accommodating students unique learning pace, abilities and level of motivation. This reality urges the academic pool to make a shift toward more innovative approaches such as the integration of AI-powered assessment to satisfy different learning profiles and styles.

However, the integration of technology-driven systems is becoming ubiquitously pervasive in every aspect of our learning and teaching processes it does not come without challenges and limitations. This research is going to examine AI-powered assessment and how it affects and contributes to maintaining and enhancing personalized and adaptive learning among EFL students

1. Statement of The problem

Despite the growing popularity of AI in education, little is known on how AI-powered assessments can help in the personalization and adaptiveness of learning in EFL environments. Traditional assessment systems often fail to meet individual learner needs, by following a one-size-fits-all approach that may demotivate learners and hinder their progress. Moreover, in Algerian higher education contexts like the University of Guelma “First-Year Master Students at the department of English” , the use of AI in language assessment is still in its debut, raising questions about its practicality, efficiency, and pedagogical implications. Other significant concerns can be tied to the reduced human interaction and the technical issues that come with the reliance on AI educational systems, such as system errors, connectivity problems and the lack of necessary technological means in Algerian universities, which can impose an issue. All of the aforementioned problems necessitate a thorough investigation into the role of AI- powered assessment and how it can support personalized and adaptive learning in EFL contexts. Accordingly, the current research tries to answer these questions:

1. Does AI-Powered Assessment ensure personalized learning among first-year Master EFL students?
2. To what extent does AI-powered assessment support personalized learning among first-year Master EFL students?
3. How does AI-Powered assessment contribute to adaptive learning processes?
4. What are students' perceptions of AI-based assessments compared to traditional ones?

2. Aims of the Study

This study aims to investigate the role of AI-powered assessments in fostering personalized and adaptive learning in an EFL context, using First Year Master students of English at the University of Guelma as a case study and a population sample. In addition to that, it seeks to see whether teachers use AI powered assessment in their EFL classrooms to enable learners to conduct their own personalized learning paths. It also aims to raise learners' awareness about the role of AI powered assessment to achieve great success and engagement in their learning journey.

3. Research Hypothesis

With the rapid evolution of digital tools in education, artificial intelligence has emerged as a key player is redefining how learning is assessed and delivered. This study delves into the potential of AI-powered assessment as more than a digital convenience; it explores it as a transformative force capable of personalizing instruction and adapting to the unique needs of every EFL learner. Rooted in this vision, the research at hand puts forth the following hypothesis:

H_1 : If teachers use AI-powered assessment in EFL classrooms, personalized and adaptive learning would be enhanced for EFL students.

H0: If teachers use AI-powered assessment, personalized and adaptive learning would not be ensured for EFL students.

4. Research Methodology and Design

4.1. Research Method

To display the impact of AI-powered assessments on maintaining students' personalized and adaptive learning, the quantitative descriptive method would be used. This enquiry aims at assuring the hypothesis through administering students' questionnaire. The latter is the tool that would best share different views about the issue. Consequently, the intended aim of the research would be achieved.

4.2. Population of the Study

The sample is selected randomly; it is composed of first year Master students of English at the department of English in the University of 8 Mai 1945, Guelma. First-year Master's students in the English Department were selected as the population of this study due to their advanced academic standing, familiarity with educational technologies, and active engagement in both theoretical and practical aspects of language learning. At this stage, they are expected to demonstrate a deeper understanding of personalized learning needs and are more likely to critically reflect on the integration of AI-powered assessment tools in their academic journey throughout the years. Their exposure to diverse instructional methods and assessment practices makes them well-positioned to provide meaningful insights into the impact of adaptive learning technologies in EFL context. They can provide authentic and reliable information from their own experiences about the research in question. Ninety-two (92) questionnaires is administered to (92) students out of a total headcount that equals to one hundred and twenty (120) students.

4.3. Data Gathering Tools

To collect relevant and reliable data, a structured questionnaire serves as the primary research tool in this study. This instrument has been carefully designed to capture both the cognitive and experiential dimensions of students' engagement with AI-powered assessment tools. It aims to evaluate their understanding of personalized and adaptive learning, as well as to gather insights into how AI technologies have influenced their academic experiences and perceptions. The questionnaire is organized in a logical sequence, beginning with general questions to ease students into the topic and progressively moving toward more specific items related to the core aspects of the study. It features a combination of question types, including closed-ended items such as Likert scale statements and yes or no questions. Importantly, the yes/no questions are accompanied by clarification sections, which provide students with the opportunity to elaborate on their answers and express their personal opinions and experiences in more detail. By targeting first-year Master's students, the tool ensures that responses are gathered from individuals with sufficient academic maturity and exposure to contemporary educational practices. The use of a questionnaire enables efficient data collection from a relatively large sample, ensuring depth in the findings while maintaining alignment with the study's objectives. In this regard the questionnaire will be first analyzing students' understanding of personalized and adaptive learning, thenn assessing their experiences with and perceptions of AI-powered Assessment.

5. Structure of the Dissertation

The present study is divided into three main chapters. The first two chapters provide the theoretical framework of the research, i.e. personalized and adaptive learning and AI-powered assessment, while the third chapter is the practical part of the study that deals with the research design and methodology as well as the data analysis and interpretation.

To further elaborate, the first chapter tackles personalized and adaptive learning by explaining the main difference between them, in addition to giving some insights on the many components that must be taken into consideration when dealing with the teaching/learning process, such as: learner profiles, preferences, assessment methods and the challenges that emerge from attempting to maintain personalized and adaptive learning.

The second chapter attempts to define assessment, its types, its criteria and its construction, in addition to shedding light on AI-powered Assessment, its main characteristics and implementation strategies. Finally, it describes the role of AI-powered Assessment and its benefits.

The third and last chapter is the practical part of the study, and it is divided into three sections. The first is devoted to the description of the research method and design, the population and sample of the study, the description of the data collection tools and the procedures followed for the collection and analysis of data. The second section deals with the results and discussion of the questionnaire. Finally, the third section of this chapter concludes the study and reports its limitations followed by some suggestions for future research.

6. Significance of the Study

This research is expected to contribute to the upcoming literature on AI in language education by providing evidence of its benefits and challenges in Algerian university settings. It will offer practical recommendations for learners, teachers, curriculum designers, and policymakers who are interested in integrating technology to support more personalized and responsive teaching and learning strategies (Luckin et al., 2016). Moreover, the study aligns with global education goals that advocate for innovation and inclusion through technology (UNESCO, 2021).

Chapter One: Personalized and Adaptive Learning

Introduction

Because of rapid technological advancements, the educational field has witnessed the emergence of innovative approaches. Among the most promising emerging tools and pedagogical approaches is: personalized and adaptive learning, which has gained increasing attention due to its focus on improving teaching and learning outcomes. This approach was introduced as a response to the limitations of traditional, one-size-fits-all teaching methods that fail to account for individual learners' unique needs, styles, and learning paces. Personalized and adaptive learning enable the learner to lead his own academic journey to control and assess his own progress.

This chapter gets deeply in discussing personalized and adaptive learning. It opens with clear definitions for both concepts; personalised and adaptive learning .Then, it tackles the theoretical foundations that support this transformative approach to education with reference to scientists advocating each theory and the main principles of each of them. The chapter also introduces the significant components that characterize this educational experience. Furthermore, it focuses on the role of personalized and adaptive learning in the academic success and in the creation of individualized learning. Finally, the chapter discusses the different emerging learning platforms and techniques used to enhance learner's success and satisfaction, and concludes with clarifying and highlighting some considerable limitations that may hinder the effectiveness of applying personalized and adaptive learning on the learning ground.

1.1 Personalized and Adaptive Learning

Personalised and adaptive learning are both instructional and educational theories aim at making learners independent of their own learning pathways ,yet they differ in mechanisms and areas of emphasis. The clarification of both concepts is provided below.

1.1.1 Definition of Personalized Learning

Personalized learning is an instructional strategy that tailors content, instructional methods, and learning environments to suit the individual needs, preferences, and goals of each student. According to Pane et al. (2017), personalized learning involves the customization of learning experiences to reflect students' strengths, needs, and interests. In this definition, Pane et al gave an elaborated clarification of the term "Personalised Learning" as being the educational method which aims to cater the various learning needs, styles, abilities, and interests of each student to foster the engagement of learners and achieve success and satisfaction.

In the same vein, William (2011) regarded personalised learning to be an educational approach that tailors instruction to meet the individual needs, skills, and interests of each student. The author's view provides us with the main principles and approaches to adapting the educational experience by focusing on the unique needs, abilities, and the various interests of the learners. On their behalf, Bernacki and Walkington (2018, p.132) proposed a broader and a more inclusive definition to the term'Personalised Learning' as "data-based adjustment of instructional practices to relevant learner characteristics, emphasizing the importance of dynamic student modelling". They highlited that personalized learning is a learner-centered approach which aims at adapting and adjusting instruction based on learners differences and features that include all the different variables that may distinguish one learner from the other

such as their different learning styles and strategies, cognitive abilities, and background knowledge (2020, p. 141).

From the aforementioned definitions we can conclude that, in essence, personalized learning is about offering learners more control over their educational experience and empowering them to engage with content in ways that align with their cognitive abilities, prior knowledge, learning styles, and personal goals. Furthermore, we can deduce that data-based adjustments to instructional practices, stressing that student modeling and ongoing assessment are central to effective personalization.

1.1.2 Definition of Adaptive Learning

Adaptive learning is another crucial educational theory that supports the learner-centered approach. It emphasizes on adjusting data to meet all the different learners' characteristics. The term has been given many interpretations and definitions which reflect its multifaceted nature and its evolution over time. Adaptive learning, while closely related to personalized learning, focuses on the use of technology to adjust instructional content in real-time based on students' interactions and performance. Nazmi et al. (2020) defined adaptive learning as "a technologybased educational method that tailors content dynamically based on individual performance and learning preferences." (p.272). They emphasized on the fact that adaptive learning is a customized learning method that uses technology in learning experience to align it with the unique individual needs and preferences. By the same token, adaptive learning is considered as a personalized educational approach that utilizes technology to tailor learning experiences to individual student needs, preferences, and performance. (Peng et al., 2019).

Besides being an educational approach that tailors instruction according to the learner's learning pace and needs, adaptive learning is considered as a tool used to enhance

personalized learning, increase engagement and improve educational outcomes through flexibility, timely feedback, and data- driven adjustments (Rachmad, 2020) .

In a nutshell, adaptive learning is a system based on technology which is used to analyze learners' responses and modify content to ensure mastery and accommodate different learning paths to help individuals learn in the most effective way.

1.1.3 The Differences Between Personalized and Adaptive Learning

Although the terms are often used interchangeably, personalized and adaptive learning differ significantly and the distinction between them has been tackled as a modern issue in the field of educational technology by many scholars. Baker (2021) investigated this issue deeply; he put emphasis on the difference between these two methods of learning in terms of their mechanisms and implications. It is therefore crucial to shed light on the key distinctions between the two concepts. According to him, the scope of the personalized learning approach is wider than that of the adaptive learning approach. That is to say, personalized learning is a broad concept and approach that is used for adjusting the educational experience based on the learner's needs, preferences, and styles, while portraying the adaptive learning method as part of it and a technology-based system used to adapt the learning path based on real-time data. Baker (2021, p.7-9). For Wiley (2019), a further explanation entails that personalized learning empowers students to direct their learning journey, with adaptive tools acting as supportive technologies. Which means that personalized learning is an inclusive educational approach that tailors the teaching and learning process, allowing learners to monitor and take control over their education, whereas adaptive learning refers to the tools and technology, such as data and artificial intelligence, that make the personalized learning possible.

Horn (2019) captured the distinction succinctly by stating: “Personalized learning is about the learner; adaptive learning is about the system.” (p.25). He highlighted a key and a fundamental difference between the two methods of learning. According to him, personalized learning is a learner-centered approach that puts the learner at the center of the educational process, taking into consideration his unique interests, needs and preferences. It is also a humancentered approach; that is to say, the teacher takes the role of both guiding and supporting the educational process and building a suitable learning environment that aims at addressing the unique needs of each individual. The learner, on the other hand, has a say in what, why and how he learns to enable him/ her of taking responsibility over his/her own learning path. However, adaptive learning is centered around the system that utilizes technology and databased in real time to tailor and adjust the content being delivered to learners to enable them in becoming proficient in a specific skill or area. (Horn, 2019).

Peterson (2020) considered adaptive learning as a subset of personalized learning, reliant on algorithm-driven content adjustment, which means that the adaptive method is a narrow and technology-driven approach that relies extensively on algorithms and technology to optimize the delivered content. Whereas, personalized learning is a holistic approach that does not rely on technology to tailor education by addressing the various and unique needs and styles of learning of each individual.

1.2 Theoretical Foundations Underlying Personalized and Adaptive Learning

Personalized and adaptive learning are based on various theoretical principles, assumptions, and theories which provide a strong foundation and basis for designing and implementing these approaches on the ground to meet the individual learners’ needs. Among these several educational theories are: constructivism, cognitive load theory, and self-determination theory. Below are the main conceptual foundations of said theories with their main principles.

1.2.1 Constructivism

Constructivism, developed by Jean Piaget and Lev Vygotsky, is a theory that is motivated by the idea that the learner is independent and can learn and construct knowledge through individual experiences and social interactions with his/her environment. This theory aligns with the personalized and adaptive learning approach by putting the learners in the center of the learning process, allowing them to take the responsibility of engaging with the content to create a meaningful context of learning rather that just absorbing and receiving information passively. The constructivist theory presents learning as a dynamic process in which learners build new knowledge based on their existing cognitive structures (Piaget, 1972; Vygotsky, 1978). Personalized and adaptive learning align with constructivist principles by centering instruction on the learner and allowing them to construct meaning through interaction, reflection, and feedback (Jonassen, 1999).

Both the constructivist theory and personalized/adaptive learning approaches support a learner-centered paradigm, wherein learners are viewed as active agents in the learning process, and the teacher's role shifts from that of a transmitter of knowledge to a facilitator and guide (Jonassen, 1999; McCombs & Whisler, 1997). In this approach, students are encouraged to take ownership of their learning process by engaging in meaningful tasks, reflecting on their progress, and constructing understanding through interaction with content, peers, and context. This pedagogical stance is grounded in the constructivist perspective, particularly as articulated by Jean Piaget and Lev Vygotsky. Piaget (1972) emphasized on the importance of cognitive development and the notion that learners actively construct knowledge through assimilation and accommodation, based on their prior experiences. Similarly, Vygotsky (1978) highlighted the social and cultural dimensions of learning, introducing concepts such as the Zone of Proximal Development, which emphasizes the potential learners have when given appropriate support. These foundational ideas align closely with the goals of personalized and adaptive learning,

which are designed to address learners' individual differences in background knowledge, learning preferences, and cognitive readiness. Adaptive learning technologies, in particular, rely on data-driven algorithms to continuously assess student performance and adjust instructional content in real time, ensuring that each learner progresses at a pace that suits their unique needs (Pane et al., 2017).

This tailoring of instruction echoes the constructivist emphasis on building upon existing knowledge, as adaptive learning environments often begin with diagnostic assessments to determine what the learner already knows. Walkington (2013) also argued that adaptive learning is most effective when it integrates student interests and contextual relevance, thereby enhancing engagement and deepening understanding (an outcome that both theories strive for). Thus, the convergence of constructivist theory and adaptive learning practices reinforces the importance of centering the educational experience around the learner's cognitive and emotional development.

1.2.2 Cognitive Load Theory

The Cognitive Load Theory (CLT), introduced by John Sweller (1988), posits that human working memory has a limited capacity, and instructional design should therefore minimize unnecessary cognitive demands to enhance learning. Sweller, Merriënboer, and Paas (1998) distinguished between intrinsic load (the inherent complexity of the material), extraneous load (cognitive burden imposed by poor instructional design), and germane load (mental effort devoted to schema construction and automation). To optimize learning outcomes, instructional materials should be adapted to learners' cognitive capacities by reducing extraneous load and balancing the intrinsic load through appropriate scaffolding (Durlach and Lesgold, 2012) . That is to say, effective instructional design under CLT focuses not only on content delivery but also

on the sequencing and representation of information, ensuring that cognitive resources are directed toward meaningful quality learning rather than mental overload.

This theory supports the principles of personalized and adaptive learning by emphasizing the need to tailor instruction according to individual learner differences (Kalyuga, 2007). For instance, providing advance organizers or reviewing prior knowledge can help minimize intrinsic load, especially when introducing complex concepts to novice learners (Ayres & Paas, 2007). Teachers can also break down complex tasks into smaller, more manageable steps to align with the learner's zone of proximal development, which aligns with the Vygotskian perspectives on support. Moreover, simplifying tasks or offering multimedia explanations for beginners, while providing more complex challenges for advanced learners, exemplifies the adaptive use of CLT principles (Plass, Moreno, & Brünken, 2010). Differentiated instruction, in this context, becomes not just a pedagogical choice but a cognitive necessity. Teachers can also reduce extraneous load by eliminating irrelevant content and organizing materials that are in line with students' preferred learning styles or strategies (Mayer, 2009).

For example, Mayer's principles of multimedia learning, such as the coherence and signaling principles, are built upon the foundation of CLT and aim to guide learners' attention effectively. By integrating personalized learning technologies that adapt in real-time to a learner's performance, educators can ensure that students are neither overwhelmed nor under-challenged. Such adaptive systems can adjust content complexity, feedback timing, and the mode of presentation to continuously balance cognitive load in relation to learner needs. Thus, it is safe to conclude that; in language learning contexts, where cognitive demands are often high due to dual processing of content and language, CLT-informed strategies can be particularly beneficial in facilitating both comprehension and retention.

1.2.3 Self-Determination Theory

Self-Determination Theory (SDT), introduced by Edward L. Deci and Richard M. Ryan (1985) emphasized that learners thrive when they are autonomous, self-directed, and intrinsically motivated. According to this theory, intrinsic motivation (engaging in learning for the inherent satisfaction which it provides), is a critical component of optimal and sustained educational outcomes. SDT posits that three basic psychological needs must be satisfied for intrinsic motivation to flourish: autonomy, competence, and relatedness (Deci & Ryan, 2000).

Autonomy refers to the learner's sense of volition and ownership over their educational path. Competence is the need to feel effective and capable in mastering learning tasks, while relatedness describes the need to feel connected to peers, teachers, and the learning community. When these needs are met, .yoç) learners are more likely to be engaged, persistent, and successful (Ryan & Deci, 2017).

This theory aligns closely with the principles of personalized and adaptive learning, which aim to tailor educational content, pace, and pathways according to each learner's abilities, preferences, and goals. Personalized learning environments support autonomy by enabling students to make choices and take responsibility of their own learning journey (Schunk, Pintrich, & Meece, 2014). They also foster competence by adjusting the level of challenge to match the learner's skill level, offering timely feedback, and providing appropriate scaffolding (where a teacher is to gradually remove guidance and intruction, so that students can become more competent). Relatedness can be enhanced through collaborative learning platforms, teacher-learner interaction, and emotionally supportive learning environments. (Niemiec & Ryan, 2009).

SDT has been widely applied in educational psychology and has shown strong noticeable support for its relevance in promoting motivation and achievement across various learning contexts, including language education (Noels, Pelletier, Clément, Vallerand, 2000). By centering the learner's psychological needs, SDT provides a powerful theoretical framework for understanding why personalized and adaptive learning is effective: it not only accommodates individual differences but also fosters deeper, self-sustained engagement (Deci & Ryan, 2000). Thus, SDT serves as both a foundation and a justification for educational models that prioritize students' agency and responsive instructional design.

1.3 Components of Personalized and Adaptive Learning

Personalized and adaptive learning rely on several critical components that enable instructors to tailor educational experiences effectively.

1.3.1 Learner Profiles

Learner profiles are essential in personalized learning because they offer a detailed understanding of students' individual traits, such as strengths, weaknesses, interests, and learning preferences, allowing educators to tailor instruction accordingly (Wang, Vogel and Ran, 2011). Pane et al. (2015) highlighted that these profiles help align teaching strategies with each learner's characteristics, enhancing engagement and academic performance. They are dynamic tools that evolve with students, supporting ongoing relevance in instruction. Additionally, learner profiles promote inclusivity and differentiation. Wolf (2010) noted that understanding learners' cognitive, emotional, and social dimensions enables educators to build stronger connections and apply suitable teaching methods. These profiles also empower students by involving them in their learning, boosting motivation and ownership.

Essentially, learner's profiles reflect how individuals prefer to receive, process, and engage with information in educational settings (Tomlinson, 2014). For instance, visual learners benefit more from diagrams and written texts, while auditory learners thrive through lectures and discussions (Fleming & Mills, 1992). Moreover, personality traits such as introversion and extraversion also influence learner engagement; introverts often favor reflective, independent work, whereas extraverts perform better in collaborative environments (Cain, 2012). Learning profiles are further shaped by factors like cultural background, language proficiency, and emotional intelligence, which play a critical role in learners' academic performance and classroom behavior (Gardner, 2006; Zins et al., 2004). Recognizing these diverse profiles enables educators to adopt differentiated instructional strategies that cater to individual needs, thereby fostering more inclusive and effective learning environments (Hall, Strangman, & Meyer, 2003).

Recent research underscores the pivotal role of learner profiles in the effective implementation of adaptive and personalized learning approaches. Learner profiles (comprising cognitive styles, preferences, prior knowledge, and affective factors) serve as foundational elements for tailoring instruction to individual needs (Wang, Vogel, & Ran, 2011). Adaptive learning systems use these profiles to dynamically adjust content, pacing, and support, thereby enhancing learner engagement and performance (Pane et al., 2017). For example, a student with high visual-spatial intelligence might benefit more from graphically rich content, while a learner with strong linguistic intelligence may prefer reading and writing-based tasks (Gardner, 2006). Furthermore, personalized learning platforms often rely on real-time data analytics to refine learner profiles and deliver more targeted instruction, promoting self-regulation and autonomy (Walkington, 2013). By integrating learner profiles into instructional design, adaptive systems not only accommodate diverse learning styles but also create more equitable and effective educational experiences (VanLehn,2011).

1.3.1.1 Demographics and Background

Understanding a learner's background and demographics is crucial for contextualizing their learning journey. Demographic information such as age, language proficiency, cultural background, and prior educational experience offer essential insights into how best to approach instruction. Tomlinson (2014) argued that a deep understanding of students' personal and academic backgrounds enables educators to address learning gaps and build upon prior knowledge more effectively, ultimately resulting in improved learner outcomes. In adaptive learning systems, demographic data is often used to inform algorithms that tailor learning materials to individual needs (VanLehn, 2011). For example, learners from non-dominant language groups might benefit from scaffolded instruction that considers their linguistic challenges. Such personalization ensures that learning is not one-size-fits-all, but instead considers learners' unique entry points and capacities.

1.3.1.2 Learning Preferences

Recognizing and addressing learner preferences supports better engagement and content retention (Xie et al., 2019). While traditional models categorize learners as visual, auditory, or kinesthetic, recent research suggests that the most effective instruction incorporates a variety of modalities. Pashler et al. (2008) caution against rigidly labeling learners but still acknowledge that understanding preferences can guide more engaging and effective instruction when balanced appropriately. In a personalized learning context, identifying learning preferences helps tailor content delivery and interaction styles to student needs. For instance, Dunn and Dunn (1993) emphasized that students are more likely to succeed when instructional strategies align with their preferred learning styles. Although modern research encourages flexible approaches, recognizing and valuing individual learning differences remains central to personalized education.

1.3.2 Feedback Mechanisms

Feedback is a core component of the learning process, particularly in adaptive systems where it informs both learners and educators about progress and areas of improvement. Hattie and Timperley (2007) described feedback as one of the most powerful influences on student achievement, noting that it needs to be timely, specific, and constructive to be effective. Feedback mechanisms such as quizzes, formative assessments, and interactive tasks provide continuous checkpoints for evaluating learner progress. These mechanisms also support the adaptability of instruction. According to Shute (2008), effective feedback not only identifies gaps in understanding but also offers strategies for improvement, thereby enhancing student autonomy. In adaptive learning environments, technology can automate feedback and personalize it in real time, creating more responsive and individualized educational experiences.

1.3.2.1 Real-Time Feedback

Real-time feedback provides learners with immediate responses to their actions, helping them recognize errors and improve their understanding. It fosters a responsive learning environment and promotes learner autonomy and mastery (Horn, 2019). This is particularly useful in digital learning environments where adaptive systems adjust content based on learner interactions. According to Kulik and Fletcher (2016), real-time feedback enhances learning efficiency by preventing the entrenchment of misconceptions and providing timely support. In addition to its corrective role, real-time feedback fosters motivation and engagement. It allows learners to monitor their own progress and encourages a sense of agency. Boud and Molloy (2013) argued that immediate feedback contributes to the development of self-regulated learning skills, making students more reflective and proactive in managing their learning goals. Thus, real-time feedback is not only a tool for assessment but also a catalyst for deeper, personalized learning.

1.3.3 Adaptive Content

Adaptive content is digital learning material that automatically adjusts the content based on students' needs. According to EdTech Magazine (2020), this content evolves in real-time, improving effectiveness and maintaining learner engagement.

As Xie et. al. (2019) stated:

> Adaptive learning refers to digital learning materials that dynamically adjust based on a learner's interactions, performance, preferences, or needs. Adaptive learning are the adjustments provided by the teacher after certain results and performance to track their pace of learning and their points of strengths and weaknesses to design materials and enhance mastery (p.2)

Hence, adaptive learning is a system used to adjust the content based on learner's understanding, performance and needs to tailor their pace of learning and track their points of weaknesses and strengths.

1.4 The Role of Personalised and Adaptive Learning in EFL Classrooms

Recent research highlights the positive impact of personalized and adaptive learning on academic achievement and student engagement in EFL settings. Xie et al. (2019) found that adaptive learning technologies significantly enhance students' mastery of content by tailoring instruction to individual learning needs, thus reducing knowledge gaps. Similarly, Wang et al. (2020) emphasized that personalized learning environments can foster learner autonomy and motivation by aligning content with learners' preferences, styles, and paces. According to Limongelli et al. (2018), adaptive systems support continuous assessment and real-time feedback, enabling learners to take control of their progress and become more independent. Moreover, Durlach and Lesgold (2012) argued that adaptive learning contributes to long-term

retention and the development of lifelong learning habits, especially when combined with teacher-guided personalization strategies. Therefore, personalized and adaptive learning represent an effective pedagogical approach for addressing the diverse needs of EFL learners while promoting sustainable academic growth.

1.5. Challenges in Implementing Personalized and Adaptive Learning

While personalized and adaptive learning approaches offer considerable benefits, their implementation in educational settings (particularly in EFL classrooms) presents a number of complex challenges. Bulger (2016) emphasized that these systems raise serious ethical concerns, particularly regarding data privacy and surveillance, as they rely heavily on the collection and analysis of students' personal information and learning behaviors. Without clear guidelines on data protection, students' profiles may be exposed to misuse or third-party exploitation. Furthermore, the adoption of adaptive learning platforms often entails substantial financial costs, including investment in digital infrastructure, software licensing, and the ongoing design and development of dynamic content tailored to individual learners (Pane et al., 2017). Such financial demands can be particularly limiting for underfunded institutions or public education systems in developing contexts.

Another pressing issue is the need for well-trained educators who are capable of utilizing these tools effectively. Kurt (2021) pointed out that many teachers lack sufficient training in adaptive technologies and often feel overwhelmed by the technical demands of the platforms. This leads to resistance and improper usage, which can reduce the overall effectiveness of the system.

Moreover, the overreliance on algorithms and digital platforms may result in diminished human interaction within the classroom, which is crucial for fostering emotional intelligence, empathy, and collaborative skills among learners (Selwyn, 2016). Teachers play a critical role

not just in delivering content but also in offering emotional support and creating a nurturing learning environment—functions that technology cannot fully replicate.

In addition to pedagogical and logistical barriers, the risk of algorithmic bias remains a significant concern. According to Baker and Hawn (2021), adaptive systems often rely on historical data that may not accurately reflect the diversity of all learners, especially those from marginalized or underrepresented backgrounds. As a result, such systems may perpetuate existing inequalities by offering fewer resources, less support, or lower expectations student groups. This can have long-term implications for educational equity and learner motivation. These challenges underscore the need for cautious and well-informed implementation of personalized and adaptive learning strategies, along with ongoing professional development, ethical oversight, and inclusive data practices to ensure that the benefits of these innovations are realized equitably across all learner populations.

Conclusion

This chapter examined the foundational concepts of personalized and adaptive learning in the context of modern education. Definitions, theoretical underpinnings, and structural components were discussed to highlight how these approaches foster individualized, engaging, and effective learning experiences. Moreover, it also showed the importance of teachers in the process of adaption and giving feedback. Nonetheless, while significant benefits are evident, attention must be paid to different challenges to ensure successful implementation. The following chapter will delve into AI-powered assessment and its intersection with these personalized approaches in the EFL classroom.

Chapter Two

AI-powered Assessment

Introduction

Language assessment has long sparked the interest of scholars and educators due to its pivotal role in the teaching and learning of foreign languages. As pedagogical practices evolve, assessment methods have also witnessed a significant transformation. Among the most notable innovations is AI-powered assessment, which integrates artificial intelligence technologies to evaluate learners more effectively and efficiently. This approach goes beyond traditional assessment by enabling adaptive, personalized feedback that aligns with individual learner profiles. AI-based assessment tools can analyze learners' performance in real time and adjust the difficulty, type, and delivery of tasks based on their responses. It supports personalized learning pathways by offering tailored content and tasks that match the learners' specific needs, preferences, and progress. As such, AI-powered assessment is not just a technological advancement but a paradigm shift that enhances the fairness, inclusivity, and effectiveness of language education.

This chapter, entitled "AI-powered Assessment," explores the concept of assessment through AI technologies. In addition to definitions, basic classifications, and criteria for its selection, the chapter examines the steps for effective assessment construction. Moreover, the importance of language assessment is highlighted. The following part of the chapter tackles the main characteristics of AI-powered assessment, and the benefits its use brings. Besides, the chapter provides an insight into how AI adjusts assessments based on learner performance. Finally, the chapter ends up with challenges faced while using AI-powered assessment.

2.1. Definition of Assessment

Assessment plays an integral part in the teaching/ learning process. According to Clapham (2000), assessment refers to: “the set of instruments and ways used to measure student’s knowledge.”(p. 150). Black and William (1998) added that assessment refers to all those activities undertaken by teachers, and by their students in assessing themselves, to provide information that is used as feedback to modify teaching and learning activities. Miller et al. (2009, p. 26) added that assessment is not only a variety of procedures; but also a tool to specify and check learning goals attainment, and evaluate learners' progression.”

In the above definitions, assessment is described as set of procedures handled by both teachers and learners to gather information, interpret it, then use it for various purposes, including improving teaching and learning activities. Angelo (1995, as cited in Macayn, 2017) introduced a more comprehensive and inclusive view about assessment. He argued that assessment is:

> An ongoing process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and high standards for learning quality; systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. (p. 1).

He emphasized on the fact that assessment is a tool used to continuously monitor and evaluate learners’ outcomes and performances by collecting information about them. Thereby, assessment is the process which teachers and administrators conduct to check whether they have attained the objectives of teaching or not and to interpret the students’ performance and scores with the goal of making necessary changes and improvements.

2.2. Types of Assessment

Assessment is a tool used to measure the learning progress. It is categorized into different types based on their purpose and method. Here are the main types of assessments:

2.2.1. Diagnostic Assessment

Diagnostic assessment is conducted before instruction to identify and spot light on learners' strengths and weaknesses. It is a form of pre-assessment that allows instructors to determine students' prior knowledge, misconceptions, and skill levels before teaching (McMillan, 2016, p. 78). It is mainly used at the beginning of a course, unit, or lesson to give teachers a comprehensive picture of where their students currently stand in relation to the learning goals.

Through this type of assessment, teachers are better equipped to recognize what students already know and what areas require more attention and support. For example, learners might have developed certain skills outside of formal instruction, while at the same time holding incorrect assumptions or gaps in understanding that need to be corrected before new instruction could be effective (Black & William, 1998) . Brown and Abeywickrama (2019) explained that such assessments allow educators to make thoughtful instructional decisions by uncovering learners' specific areas of need. In this way, diagnostic assessment can be seen as a tool that enhances both teaching and learning by ensuring that lesson planning is informed by evidence, not guesswork.

Furthermore, Black and Wiliam (2009) pointed out that when teachers begin their instruction based on solid diagnostic information, they are more likely to provide equitable learning opportunities that are tailored to the real abilities of their students. Thus, diagnostic assessment is not only helpful but essential for establishing a learner-centered approach and building a strong foundation for academic success.

2.2.2. Formative Assessment

Formative assessment occurs during instruction and it is used to monitor and guide student's learning through continuous feedback for better improvement. According to Frey and Fisher: "Formative assessment refers to a wide variety of methods that teachers use to conduct inprocess evaluations of student comprehension, learning needs, and academic progress during a lesson, unit, or course." (2011, p. 21)

Black and Wiliam (1998) stressed the role of formative assessment in raising standards of achievement in the classroom. They argued that effective formative assessment practices involve feedback that moves learning forward and requires active involvement from students in the learning process. Their extensive research highlights that when teachers incorporate formative assessment into their daily classroom routines, student outcomes significantly improve, particularly among low-achieving learners.

Sadler (1989) provided a theoretical framework that links formative assessment with instructional design and learning theory. He posited that for formative assessment to be effective, learners must understand the criteria for quality performance, be able to compare their current performance against these standards, and take action to close the gap. This conceptualization reinforces the importance of formative assessment as a cyclical and interactive process that supports metacognition and self-regulation in learners.

Heritage (2010) further expanded the understanding of formative assessment by stressing its role in building a learning culture within the classroom. She suggested that formative assessment should be embedded in instructional practices, involving both teachers and students in interpreting evidence of learning and making instructional decisions accordingly. Heritage also underscored the importance of timely and descriptive feedback, as well as student

engagement in peer and self-assessment, to foster deeper learning and autonomy (Heritage, 2010).

2.2.3. Summative Assessment

Summative assessment is used to evaluate and assess students' learning at the end of the instruction. "Summative assessments are used to evaluate student learning at the conclusion of a specific instructional period that is typically at the end of a unit, course, semester, or academic year." (Black and William, 2018, p. 45)

According to Harlen (2007), summative assessment plays a central role in certifying students' academic achievement and in holding schools accountable for learning outcomes. She noted that while summative assessments provide essential data for reporting and decisionmaking, they must be designed carefully to ensure fairness, validity, and reliability. Harlen also cautioned against overemphasizing summative scores, suggesting that they should complement, not replace, other forms of evidence about student learning .

Brookhart (2013) offered a practical perspective on how summative assessment can be more than just a grading tool. She argued that well-designed summative assessments can also inform curriculum development and teaching strategies when results are analyzed meaningfully. In this view, summative assessments can serve both accountability and instructional improvement purposes, especially when aligned with learning goals and standards.

Taras (2005) highlighted the interplay between formative and summative assessment. She contended that the dichotomy between the two is artificial, and that summative assessments can contribute to learning if feedback from them is used constructively. Taras emphasized that summative assessments should not be viewed solely as terminal evaluations but can also offer learners an opportunity to reflect on their progress and areas of improvement.

In the context of AI-powered assessment, Luckin et al. (2016) explored how artificial intelligence can support more efficient and personalized summative evaluations. They argued that AI can process large volumes of data quickly, analyze student responses in real-time, and generate adaptive tests that reflect learners' individual abilities and learning paths. Additionally, they mentioned that summative assessment can enhance precision, reduce grading bias, and offer valuable insights into student progress, making assessment more responsive and scalable in digital learning environments.

2.3. Criteria for Selection of Assessment

In order for a language assessment to be effective, it needs to adhere to the following principles and criteria.

2.3.1. Purpose of the Assessment

The purpose of an assessment is an essential element and criterion in selecting the most suitable assessment in each situation as it selects and determines the purpose and the objective intended to reach behind using such assessment. Assessment can be diagnostic, formative, or summative; hence, the selection of such an assessment must align with the intended goals. As McMillan (2018) stated, "The most important consideration in selecting an assessment method is the pupose for which the information will be used. Different purposes require different types of assessments." (p. 47)

The design of the assessment must take into consideration its pupose to match the required results. "If an assessment does not match its intended purpose, the inferences drawn from its results may be misleading." (p. 32)

2.3.2. Practicality

The assessment should be efficient and manageable in terms of time, cost, and resources and administration. Practicality refers to the feasibility of an assessment in terms of time, cost, ease of administration, scoring, and interpretation (Miller et al., 2013). In other words, a practical assessment is an assessment, which can be easily implemented though there are many obstacles and constraints. That is to say, a practical assessment is the one, which is not expensive, stays with the appropriate and dedicated time constraints, easy to administer and run, and has a procedure to follow for the evaluation.

2.3.3. Authenticity

"When assessments are authentic, they provide a more valid measure of student learning because they reflect how knowledge is used in real-world contexts" (Frey, Schmitt, and Allen, 2012, p. 18). Saying that a given language assessment is authentic means that it reflects realworld context and use to enable the learner to communicate in meaningful and relevant situations. In a similar way, Gulikers et al. (2004,p. 69) referred to an authentic assessment as the assessment that "present students with tasks that mirror the complexities and ambiguities of real-life situations". Meyer added (1992,p. 42) teachers and educators should "engage students in applying knowledge to realistic problems".

Hammond and Snyder (2000, p.524) provided some characteristics of an authentic assessment. Authentic assessments "require students to analyze, synthesize, and evaluate information rather than just memorize it". Unlike traditional methods or ways of assessing learners, authentic assessments raise learner's motivation and engagement in the learning process"Students are more motivated when assessments feel relevant and connected to their lives." (Herrington and Herrington, 1998, p. 58)

2.3.4. Validity

According to Haynes et al. (1995), “content validity is the degree to which elements of anassessment instrument are relevant to and representative of the targeted construct” (p.238). Kubiszyn and Borich went saying that “without validity, assessment results may be misleading, leading to incorrect decisions about individuals or programs “(2016,p. 78). Validity means that an assessment actually measures and evaluates what it claims or intended to measure, and the results are appropriate and relevant to the purpose.

2.4. Steps for Effective Assessment Construction

Constructing an effective language assessment that would accurately assess learner’s knowledge and performance is not an easy task. According to Framework for an effective assessment (2017, p.505), “effective assessment doesn’t just happen. It emerges over time as an outcome of thoughtful planning…” Carol Ann Tomlinson (2001, p. 73) added, “Assessment is today’s means of modifying tomorrow’s instruction”. He implicitly highlighted the difficulty of designing and constructing an assessment. It is not an easy process, rather it is so demanding. The points coming are the main stages for assessment construction.

2.4.1. Setting Assessment’s Purpose

Before designing an assessment, teachers should clearly define and set the objective they want to reach at the end. “Assessment is not an end in itself but a vehicule for educational improvement.” (as cited in Huba& Freed, 2000,p. 8). Popham emphasized on the fact thatsetting assessment’s pupose is a fundamental step that one should undertake. He described this stage as the process that guides the design “the first step in designing any assessment is to clarify its purpose. Without a clear understanding of why the assessment is being conducted, the design may lack focus and validity.” (2017, p. 23). Teacher selects a clear and smart objective for the

assessment. McMillan maintained that “assessment design begins with articulating the intended purpose, whether it is formative (to improve learning) or summative (to evaluate achievement).This purpose shapes the methods, tools, and criteria used” (2018, p. 45). For teachers to be more selective and well guided, they had better articulate the purpose of the assessment to know which methods and tools are going to utilize latter.

2.4.2. Planning and Designing Assessment Tasks

Assessment design and development is a thoughtful process that needs careful planning and preparation. As stated by McMillan (2018), “The planning stage is where educators determine what to assess, how to assess it, and how results will be used to improve learning”(p. 47). McMillan maintained that this stage is a crucial step to fulfill the intended purpose by designing suitable tasks. In addition to that, Wiggins and McTighe (2005) claimed “assessment design should begin with the end in mind, focusing on what students should know and be able to do” (p. 13). That means that the selected tasks should align with the instructional goal for the assessment to be valid and reliable.

After designing assessment tasks, teachers must revise the content and assessment’s instructions to ensure that the assessment effectively measure what is supposed to measure in order to make the required modifications and changes (addition, omittion…) to suit the learning circumantances (time allocated, cognitive abilities, level…)

2.4.3. Assessment’s Scoring and Feedback

Assessment’s scoring process is a critical phase is the design process “The development of a scoring system is integral to the assessment design process, as it determines how student responses will be evaluated and interpreted” (Popham, 2017, p. 89).

Teachers may opt for different approaches to assess learner's performance; they could follow either an analytic or holistic scoring criteria. The analytic scoring approach gives detailed information about the different points of the assessment then collects them together to identify the areas of weaknesses. Whereas, the holistic approach provides a general judgement in the form of a single scoring. Both analytic and holistic types of scoring are kinds of feedback "A well-designed scoring system minimizes bias and enhances the reliability of assessment results, providing meaningful feedback to learners" (McMillan, 2018, p. 112).

Teachers provide learners with constructive feedback to enhance learning and improve the instructional outcomes "Scoring and feedback are critical components of assessment design, as they determine how student performance is measured and how learners receive information to improve" (Brookhart &Nitko, 2019, p. 112).

2.5. AI-Powered Assessment

The rapid advancement of artificial intelligence (AI) technologies has profoundly influenced the landscape of education, particularly in the domain of assessment. We are witnessing that traditional methods of evaluating learners are increasingly being supplemented or even replaced by AI-powered systems that offer more dynamic, personalized, and adaptive learning experiences. In English as Foreign Language (EFL) contexts, where learner needs vary significantly, AI-powered assessment emerges as a promising tool to enhance instructional responsiveness and promote learner autonomy. This chapter explores deeply the concept of AI-powered assessment and its mains cores and concepts for further and deeper understanding.

2.5.1. Definition of AI-Powered Assessment

According to Baker and Inventado: “AI-powered assessment is the application of artificial intelligence to automate, enhance, or transform the evaluation of knowledge, skills, and abilities, enabling more scalable, objective, and personalized feedback” (Baker &Inventado, 2014, p. 45). AI-powered assessment refers to the use of artificial intelligence (AI) to evaluate learner’s performance and provide feedback. It uses artificial intelligence to automate scoring and data analytics.

For Zawacki-Richter et al. (2019), “AI-powered assessment tools can process large datasets efficiently, offering real-time feedback and adaptive testing environments that enhance learning and decision-making” (p. 2). AI-driven system can automatically offer feedback, provide adaptive content and assessment by adjusting question difficulty due to different factors.

2.5.2. The Characteristics of AI-Powered Assessment

AI-powered assessment has changed the way teachers evaluate students. It revolutionized how students conduct their learning journey. It can process and evaluate huge and massive amount of data with an exceptional accuracy and speed. Aon (n.d.) noted AI’s efficiency in data processing. These systems use algorithms to provide objective feedback and predictive analytics. Luckin et al. (2016) emphasized AI's ability to adjust content in real time. Tuomi (2018) added that real-time feedback helps correct misconceptions. Aon (2020) also noted AI’s potential to reduce human biases.

AI-powered assessment leverages advanced algorithms to deliver objective, data-driven evaluations aligned with predefined criteria. These systems do not merely automate scoring but also analyze learner input to generate insights that can inform personalized feedback and predict future performance trends (Holmes et al., 2019). Through machine learning, AI tools can adapt over time, refining their evaluations based on accumulated data, thereby enhancing the reliability and consistency of assessments (Luckin et al., 2016). In broader applications, such as

recruitment or educational diagnostics, AI-driven predictions are increasingly being used to support decision-making processes by identifying patterns that may not be immediately evident to human evaluators (Zawacki-Richter et al., 2019). This predictive capacity reflects the transformative potential of AI in educational settings, moving beyond traditional assessment models toward more adaptive and insightful practices.

AI-powered Assessment adapts to individual's needs and gaps to provide individualized instruction and content to each learner. According to Luckin at al. (2016, p.22), "AI can personalize assessments by adjusting the difficulty and content in real time based on student performance". It can also conduct interviews, tests according to learner's level and abilities and provides scores based on certain criteria without human intervention and biases. Furthermore, AI provide learners with instant feedback "Real-time feedback provided by AI can help students correct misconceptions immediately" (Tuomi, 2018, p. 43).

2.5.3. Strategies to Implement AI-Powered Assessment

Implementing AI-powered assessments successfully and effectively requires careful Planning and preparation, ethical considerations, and their alignment with the educational purposes to ensure better results and improvements. First and foremost, align AI-powered assessment with SMART objectives (Holmes,Bialik, & Fadel, 2019). To ensure effective implementation, AI-powered assessments should be aligned with SMART goals— Specific, Measurable, Achievable, Relevant, and Time-bound.

This alignment helps clarify the purpose of the assessment and allows educators to track and evaluate student progress in a structured and meaningful way. In addition, AI-powered assessment should focus on higher-order thinking skills rather than rote memorization (Yatani, Sramek &Yang, 2024).It should aim to evaluate students' critical thinking, problem-solving, and analytical abilities, not just their ability to recall facts. This approach fosters deeper learning

and better prepares learners for real-world communication and challenges (Zawacki-Richter et al., 2019).

Furtheremore, AI tools should be thoughtfully based on pedagogical needs (The Ideas Guy, 2025) .Educators should choose AI platforms and tools—such as Gradescope or ChatGPTbased evaluators—based on their ability to deliver automated grading, personalized feedback, and plagiarism detection. These features enhance assessment efficiency and provide learners with timely support (Deeva et al., 2021). In addition, AI systems should be audited to address potential biases (Raji& Buolamwini, 2019).

It is essential to regularly review AI algorithms for biases related to gender, race, or language. Unchecked, these biases can lead to unfair or inaccurate assessments and may disadvantage certain groups of learners (O'Neil, 2016). Ethical use of AI in education depends on transparency and fairness. In addition, it is worth mentioning that teachers should train students in the effective use of AI-powered assessment tools (Luckin et.al, 2016) Students need explicit guidance and training on how to interact with AI-based assessments, interpret automated feedback, and apply it constructively.

This training promotes responsible use and ensures that learners engage with the tools in meaningful and informed ways. Moreover, assessment tasks designed should be authentic and relevant (Gulikers, Bastiaens, & Kirschner (2004).

Assessment should reflect real-life situations and communicative needs, especially in EFL contexts. Authentic tasks—such as writing an email, analyzing a news article, or debating a social issue—help learners connect classroom knowledge with practical applications and promote deeper engagement. Finally yet importantly, teachers should continuously monitor and evaluate the effectiveness of AI-powered assessments (Vasconcelos et.al, 2023). They should regularly review how AI tools are performing in practice. This includes collecting feedback

from students, analyzing outcomes, and making data-informed adjustments to improve the assessment process and its alignment with learning goals.

2.5.4. Potential Obstacles in implementing AI-powered Assessment in EFL Classrooms

Teachers face obstacles in implementing AI-Powered assessment in EFL classrooms. Below are key challenges that may hinder the successful implementation. Many institutions may lack the technological infrastructure (eg., internet, hardware, and software) to implement AIpowered assessments (Zawacki-Richter et., 2019). Not only institutions, students also may not could get access to digital tools (Selwyn, 2019).In addition, EFL teachers may lack the adequate experience and training in AI-driven tools, leading sometimes to resistance and ineffective implementation (Hwang et al., 2020). One of the additional yet primary concerns is data privacy. AI-powered assessment systems require extensive student data to function effectively, which raises ethical issues regarding data collection, storage, and usage (Zawacki-Richter et al., 2019). Without transparent policies and strong data protection measures, students' personal and academic information may be at risk.Another significant obstacle is the potential resistance from learners who value human interaction. Many students may feel disconnected or misunderstood when receiving automated, impersonal feedback, leading to reduced motivation and engagement (Bai & Wang, 2022). Human teachers provide emotional support and nuanced feedback that AI systems, despite advancements, still struggle to replicate effectively. Integrating AI-powered assessment systems also entails substantial financial, technical, and administrative demands. Institutions must invest in infrastructure, software, and continuous maintenance, which may not be feasible for underfunded or rural schools (Luckin et al., 2016).Instructor training is essential as well. Educators need proper training to understand and operate these tools effectively, which requires time, effort, and commitment from both instructors and administrators (Holmes et al., 2019).

2.5.5 The role of AI-powered Assessments in maintaining personalized and Adaptive learning

AI-powered assessment plays a pivotal role in supporting personalized and adaptive learning environments, especially in EFL contexts. By leveraging artificial intelligence and machine learning algorithms, these systems can dynamically adjust instructional content, tasks, and assessments to align with each learner's individual needs, preferences, and proficiency levels (Zawacki-Richter et al., 2019). Unlike traditional assessments, which are often static and one-size-fits-all, AI-powered tools use data analytics to monitor learner performance in real-time and adapt difficulty levels accordingly (Chen et al., 2020).

Through continuous analysis of students' responses and learning patterns, AI can identify areas of strengths and weaknesses, thereby offering tailored support and guidance. This helps ensure that learners engage with content that is appropriately challenging and pedagogically relevant to their developmental level (Holmes et al., 2019). Furthermore, the use of AI in assessment significantly enhances learner motivation and engagement by delivering immediate feedback, which is known to be critical for effective learning (Luckin et al., 2016). It also enables more inclusive and equitable learning experiences by minimizing human bias in assessment and decision-making (Williamson & Eynon, 2020).

In addition, AI-powered assessments provide valuable insights for teachers, allowing them to track student progress, intervene when necessary, and design more effective instruction. These tools also promote learner autonomy and confidence by encouraging self-regulated learning through personalized feedback and learning paths (Graham et al., 2021). Over time, such systems contribute to improved knowledge retention, sustained motivation, and deeper learner engagement.

Conclusion

The chapter uncovered the key points and aspects underlying the domain of AI-powered assessment and personalized and adaptive learning. It is a crucial step toward highlighting the importance of this new system, which may prevail the domain of education in the next upcoming years. The chapter committed itself to discussing the type of assessment that revolutionized the way of teaching and learning, the AI-powered assessment. It has thoroughly examined this type and its distinctive characteristics, which differentiate it from other traditional language assessments. It was of crucial step to spot the light on its significance in maintaining personalized and adaptive learning. The research revealed that the AI-powered assessment plays a vital role in achieving great results and success in teaching and learning process.

Besides, the chapter sought to investigate the possible obstacles that may hinder the implementation of AI-powered assessment to maintain personalized and adaptive learning.

Chapter Three

Field Investigation

Introduction

The first two chapters have dealt with the theoretical examination and analysis of the two variables; this chapter deals with the practical side of the research. It explores the relationship between AI-powered assessment and its effectiveness in maintaining personalized and adaptive learning. In addition to that, the third chapter deals with the methodology and tools of research. It starts with defining the methodological framework and the case study. After that, it analyses the questionnaire administered to first year master students of English at the Universiy of 08 Mai 1945 - Guelma- . It provides an analysis and examination of the results and sums up the findings of the current study. Finally, the chapter ends up with some pedagogical implications, limitations of the study, and some suggestions for further research.

3.1. Description of the Research Method

This research endeavors to figure out the role of AI-powered assessment in maintaining personalized and adaptive learning by means of a students' questionnaire; the research follows the quantitative descriptive method. This method has been opted for because it "has traditionally been seen as an effective way of exploring new, uncharted areas" (Dornyei, 2007, p. 39). It is little known about the process of using AI-powered assessment in maintaining personalized and adaptive learning. Thus, the descriptive quantitative method permits to collect numerical data that could be easily interpreted and analyzed to reach a full understanding of the phenomenon (Mujis, 2004, p. 1).

3.2. The First Year Master Students' Questionnaire

3.2.1. Aims of the students' Questionnaire

The questionnaire conducted aims at investigating the students' views about the role and the positive relationship between the two variables. In addition, it aims at exploring whether teachers use AI-Powered assessment in EFL classroom to maintain personalized and adaptive learning.

3.2.2. Population of the Study

First year master students at 8 Mai 1945 university of Guelma consisted the sample for this current study. The research targeted 92 students and only 80 answered the questionnaire. Their ages range from 20 to 23 years old. Such population is selected because first year master students are aware enough about the use of AI-powered assessment in learning and have the sufficient knowledge and experience to give relevant and objective answers for the research.

3.2.3. Description of the Student's Questionnaire

The questionnaire aimed to help either validate or reject the research hypothesis. It consists of 15 questions which are classified logically to reach the desired outcomes. The questionnaire is composed of three sections; the questions are mostly of close-ended nature like multiplechoice and yes/no format to facilitate both the answering and analysis. Section one in the questionnaire deals with general information about the participants (First year master students) includes : age and the proficiency level in the English language.

Section two (Q3 to Q8) targets the students' awareness and experience with personalized and adaptive learning. It deals mainly with questions related to platforms used to foster

personalized and adaptive learning, its effectiveness, and the challenges faced during their experience.

Section three (Q9 to Q15),which is the last part in the questionnaire, deals with teachers' use of AI-powered assessment in EFL classrooms and its effectiveness in maintaining personalized and adaptive learning. It also addresses the main challenges students face while using AIpowered assessment tools and the features that would enhance AI-powered assessments for personalized learning for better improvements.

3.2.4. The Administration of the Questionnaire

The questionnaire was administrated to the participants on May 1st , 2025 at the department of English, University of 8 Mai 1945. Unfortunately, the number of the respondents did not reach the required number for the validity of the research because of the absence of the learners. They were told that their answers would greatly help and influence the analysis of the current study.

Section One: General Information

Question One: How old are you ?

Table 3.1

Participants' Age

Age	Number of Students	Percentage
Under 25	75	93.75%
25 – 30	5	6.25%
Above 30	0	0%
Total	**80**	**100%**

According to the findings presented in table 3.1, the majority of the students' age (93.75%) are under 25. A few of them are between 25-30. This implies that the population of this study are of advanced academic standing, familiar with educational technologies, and have a deeper understanding of the topic of our dissertation.

Question Two: How would you rate your current proficiency level in the English language?

Table 3.2

Students' Proficiency Level in the English Language

Proficiency Level	Frequency (N)	Percentage (%)
Poor	00	00%
Average	52	65%
Good	28	35%

Table 3.2 shows that most of informants (65%) have average level of proficiency in the English language and 35% of them have a good level. This entails that the sample has sufficient knowledge in using AI-powered assessment in EFL classroom, and they are aware

of their own needs and preferences to conduct their learning journey that would help perfectly examine the variables and accurately evaluate the relationship between them.

Section Two: Personalized and Adaptive Learning

Question Three: How would you define personalized and adaptive learning?

Table 3.3

Students' Definition of Personalized and Adaptive Learning

Definitions	Number of Students	Percentage (%)
a. Learning tailored to individual needs	10	12.5%
b. Technology adjusting content based on performance	45	56.25%
c. Self-paced learning with customized Resouces	25	31.25%
Total	80	100%

As it is shown in Table 3.3, According to 12.5% students, personalized and adaptive learning is learning tailored to individual needs, while 31.25 % of the sample declared that it is the selfpaced learning with customized resources. More than half of the students (56.25%) claimed that personalized and adaptive learning is technology-adjusting content based on performance. The majority believe that this kind of learning requires technology to adapt the content based on the results and achievements of students.

Question Four: Have you ever used personalized and adaptive learning tools (e.g, AI-based learning platforms, customized learning paths, adaptive quizzes) ?

Table 3.4

Students Experience with Personalized and Adaptive Learning Tools

Options	Number of Students	Percentage
a.Yes	73	91.25%
b. No	7	8.75%

As it is shown in Table 3.4, almost all the sample (91.25 %) declared that they use personalized and adaptive tools and platforms. This would greatly help in the analysis of our current study. Students are no longer passive; rather they contribute largely in conducting their own learning journey based on their distinctive differences. However, a few of them (8.75%) answered by no.

If yes, which platforms/ tools have you used? (e.g., Khan Academy, Duolingo, Coursera, Smart Sparrow, etc.)

Table 3.5

a. Personalized and Adaptive Tools

Options	Number of Students	Percentage
a. Duolingo	20	25%
b. ChatGPT	45	56.25%
c. Perplexity	5	6.25%
d. Other	3	3.75%

As it is shown in table 3.5, the well-used personalized and adaptive learning tool is Chatgpt. Learners use that tool to get the required information and explanation based on their inquiry and requests. Duolingo ranked second with 25% of students' vote. Whereas 6.25% of the Respondents use perplexity, which is a well-known AI tool, used for its wide range of information and the ability to adapt the content based on learner's performance and level. Other students (3.75%) suggested other personalized and adaptive tools like Smart Sparrow, LinkedIn Learning, and Coursera. The analysis of this part indicates that students use a variety of personalized and adaptive tools to help them adapt the content based on their level and performance.

Question Five: What benefits of personalized and adaptive learning have you observed?

Table 3.6

Benefits of Personalized and Adaptive Learning

Options	Number of Students	Percentage
a. Faster learning progress	9	11.25%
b. Better retention of knowledge	15	18.75%
c. Increased engagement	24	30%
d. Flexibility in the learning pace	32	40%
Total	80	100%

According to the data displayed above, 40% of the students agreed that the main aim of using personalized and adaptive learning is the flexibility in the learning pace. With 30% the second major benefit of personalized and adaptive learning is the increase of engagement of learners; they become more interested and motivated in learning. In third position comes better retention of knowledge with 18.75%. Faster learning progress with 11.25% stands in the fourth and last place. Hence, the results imply that learners use personalized and adaptive learning tools for a bunch of important benefits.

Question Six: How effective do you find personalized and adaptive learning compared to traditional learning methods?

Table 3.7

The Effectiveness of Personalized and Adaptive Learning

Options	Number	Percentage
a. Much more effective	21	26.25%
b. Somewhat effective	15	18.75%
c. Effective	35	43.75%
d. Less effective	9	11.25%
Total	80	100%

The analysis of learners' views on the effectiveness of personalized and adaptive learning has shown that the vast majority values this type of learning and knows its significance. 43.75% of learners went for effective, while 26.25% believe it is much more effective. Some other learners considered personalized and adaptive learning to be somewhat effective with 18.75%; the others see that it is less effective with 11.25%. Table 3.8 accents the fact that personalized and adaptive learning has benefits, and that learners try to recommend it to others.

Question Seven: Would you recommend personalized and adaptive learning to others?

Table 3.8

Recommendation of Personalized and Adaptive Learning

Options	Number of Students	Percentage
a. Yes	76	95%
b. No	4	5%
Total	80	100%

As it is shown in table 3.8 , a vast majority of learners (95%) recommend personalized and Adaptive learning to other learners. This indicates that learners recognize the importance of utilizing and conducting personalized and adaptive learning. Only four learners do not recommend personalized and adaptive learning to others.

Question Eight: What challenges have you faced with personalized and adaptive learning?

The Challenges Faced with Personalized and Adaptive Learning

Table 3.9

Options	Number of Learners	Percentage
a. Lack of human interaction	46	57.5%
b. Technical issues	29	36.25%
c. Limited content variety	3	3.75%
d. Difficulty in adapting to the system	2	2.5%
Total	80	100%

The analysis of the table 3.9 shows that more than half of the participants (57.5%) believe that lack of human interaction make the use of personalized and adaptive learning tools difficult. This implies that technology substitutes teachers in giving instruction and feedback to learners. Additionally, 36.25% learners argued that technical issues like the unavailability of devices, especially in EFL classrooms for a large number of students and lack of internet connection constitutes another challenge faced by learners .Another challenge 3.75% of the population avowed to face is the limited content variety and the other 2.5% suggested that the difficulty in adapting to the system considered as another challenge faced.

Section Three: Maintaining Personalized and Adaptive Learning through AI-Powered Assessment

Question Nine: How would you define AI-powered assessment?

Table 3.10

The Definition of AI-powered assessment

Options	Number of Students	Percentage
a. Traditional assessments graded by teachers	0	0%
b.Assessments that use artificial intelligence to analyze responses	77	96.25%
c. Assessments without any automated feedback	3	3.75%
Total	80	100%

The previous table demonstrates that the vast majority (96.25%) of the respondents define AI-powered assessment as the assessment that uses artificial intelligence to analyze responses. Only 3.75% declared that it is the assessment that is without any automated feedback. Whereas,

no one chooses the definition that says that AI-powered assessment is the traditional assessment graded by teachers. The analysis of this part indicates that learners know what is AI-Powered assessment.

Question Ten: Have your teachers used AI-powered assessment tools in your EFL classroom?

Table 3.11

The Use of AI-Powered Assessment in EFL Classroom

Options	Number of Students	Percentage
a. Yes	26	32.5%
b.No	54	67.5%
Total	80	100%

As indicated in the results (Table 3.11) most of the respondents (67.5%) answered no; their Teachers do not use AI-powered assessment in EFL classroom. Yet, 32.5% of the students opted for yes. This implies that teachers are either not aware of the importance of using AI-Powered assessment in EFL classrooms or not able to implement it due to many challenges. For the second part of this question, those who responded with yes were asked to determine AI-based assessment tools they have encountered.

Table 3.12

AI-based Assessment Tools

Options	Number of Students	Percentage
a. Intelligent Tutoring Systems	8	30.76%
b.Learning Analytics Dashboard	9	34.61%
c. Automated Essay Scoring	5	19.23%
d. Adaptive learning platforms	4	15.38%
Total	26	100%

Concerning the tools used in AI-based assessment (Table 3.12), 34.61% of the population opted for learning analytics dashboard. Likewise 30.76% of learners picked out intelligent tutoring systems. 19.23% of the respondents contended they use automated essay scoring to detect the errors committed while writing their production. Additionally, 15.38 % of the respondents answered by adaptive learning platforms such as Khan Academy, Smart Sparrow. The results imply that teachers use variety of AI-based assessment tools in their EFL classroom.

Question Eleven: What do you perceive the biggest advantage of AI-powered assessment tools in the classroom? (Select up to 2)

Table 3.13

The Advantages of AI-Powered Assessment Tools in Classroom

Options	Number of Students	Percentage
a. Faster grading/feedback	33	41.25%
b. Reduced human bias	25	31.25%
c. Personalized learning paths	11	13.75%
d. Scalability (assessing large groups)	3	3.75%
e. Adaptive testing (difficulty adjusts to skill level)	8	10%
Total	80	100%

Concerning the advantages of using AI-powered assessment tools in EFL classroom, (41.25%) of the population declared that the use of AI-powered assessment tools in the classroom faster grading as those tools utilize artificial intelligence to provide automated feedback to learners. Whereas, 31.25% of the respondants asserted that AI-powered assessment tools help in reducing human bias while analyzing learners' responses and giving feedback. Additionally, 13.75% of the students avowed that those tools aim at helping learners to conduct their own personalized learning path and know their own distinctive learning needs, styles, and preferences. A low percentage of students (10%) pointed out this kind of assessment helps in adjusting the level of difficulty of tests to the skill level to monitor their progress and learning path. However, few of them (3.75%) asserted that AI-powered assessment tools assess large groups, which humans cannot do. The analysis indicates that students use the AI-powered assessment tools for a variety of reasons that all serve the improvement of both the teaching/learning process.

Question Twelve: What challenges did you face while using AI-powered assessment tools?

Table 3.14

The Challenges Faced While Using AI-powered Assessment Tools

Options	Number of Students	Percentage
a. Lack of human touch	51	63.75%
b. Technical issues	16	20%
c. Privacy concerns	9	11.25%
d. Over-reliance on AI suggestions	4	5%
Total	80	100%

The analysis of the table 3.14 shows that more than half of the participants (63.75%) find that the lack of human touch is a challenge faced while using AI-powered assessment tools. This implies that this system has completely substituted teachers in teaching and learning. Additionally, 20% students argued that technical issues such as slow internet, forgotten passwords, and device problems stand as an obstacle for using AI-powered assessment tools. Another difficulty 11.25% of the population avowed to encounter is the privacy concerns like unauthorized data usage. Only 5% students declared that the over-reliance on AI suggestions considered as another difficulty and challenge while using that type of assessment.

Question Thirteen: Do you agree that AI-assessment tools adapt content to individual students' pace and style of learning?

Table 3.15

AI-assessment Tools Adaptation of Content to Individual's Pace and Style of Learning

Options	Number of Students	Percentage
a. Strongly agree	47	58.75%
b. Agree	16	20%
c. Neutral	15	18.75%
d. Disagree	2	2.5%
e. Strongly Disagree	0	0%
Total	80	100%

More than half of the population (58.75%) strongly agree that AI –assessment tools adapt content to individual students' pace and style of learning; and this is not surprising since a great number of them adhere that AI-powered assessment tools have advantages in learning as shown in (Table 3.13). 20% of students agreed on their role in the process of adaptation. Whereas 18.75% declared that, they are neutral; they are neither with nor against. Only 2 students disagreed that those tools adapt content to individual own features. Not surprisingly, that no one strongly disagreed with the idea. What (Table 3.15) demonstrates is those students differ in the degree of agreement concerning that issue.

Question Fourteen: How effective do you think AI-powered assessments are in maintaining personalized and adaptive learning?

Table 3.16

The Role of AI-powered Assessments in Maintaining Personalized and Adaptive Learning

Options	Number of Students	Percentage
a. Very effective	46	57.5%
b. Effective	28	35%
c. Little effective	4	5%
d. Not effective at all	2	2.5%
Total	80	100%

The analysis of students' views on the role of AI-powered assessments in maintaining personalized and adaptive learning has shown that the vast majority (92.5%) values the system and knows its significance. 35% of students went for effective. Not surprisingly, only few students considered that this process to be from little effective to not effective at all with 5% to 2.5% respectively. This implies that most students agree on the vital role that AI-Powered assessments plays in maintaining personalized and adaptive learning.

Question Fifteen: What features would enhance AI-powered assessments for personalized learning?

Table 3.17

Features Used to Enhance AI-powered Assessments for Personalized Learning

Options	Number of Students	Percentage
a. Better emotional and cognitive recognition	15	18.75%
b. Integration with human instructor feedback	57	71.25%
c. More transparent AI decision-making	8	10%
Total	80	100%

According to the results displayed in Table 3.17, a significant percentage of students (71.25%) declared that integrating AI-powered assessments with human instructor feedback would enhance its use, and this is not surprising because a larger number in Table 3.14 declared that lack of human touch considered as an obstacle when using AI-powered assessment tools. 15 students pointed out that it would be better if AI-powered assessment recognizes the emotional and cognitive side of the employer. A low percentage of learners (10%) declared that the transparency while making decision is a crucial feature that would enhance the use of AIpowered assessments for personalized learning.

3.3. Summary of Results and Findings From Students' Questionnaire

According to the data analyzed in the first section of the questionnaire, the age of the participants ranges between 18 and 24 years old. Moreover, those students have varying proficiency level in the English language ranging from the intermediate (65%)and the advanced (35%) levels. This variety of individual levels allowed for the collection of a variety of perspectives and views on the current study, and a better understanding of the role of AI-

powered assessment in maintaining personalized and adaptive learning. Those students can depend on themselves in learning which points that they are aware enough of their own needs to conduct personalized and adaptive learning, hence they provide more valid and constructive responses.

Section two entitled “Awareness and Experience with Personalized and Adaptive Learning” pointed out to the definition of personalized and adaptive learning, according to the majority of the respondents (56.25%), it is the technology adjusting content based on performance. Still, others (31.25%) asserted that it is a self-paced learning with customized resources. A large number of students (56.26%)declared that they have used personalized and adaptive learning tools such as Duolinguo and Coursera. Luckily, the greatest majority(91.25%) has an awareness and experience with personalized and adaptive learning. According to first-year Master students, this process has numerous benefits such as faster learning progress since it is a self-paced and individualized learning and flexibility in the learning pace. This justifies the finding that revealed that a large number of students avowed that personalized and adaptive learning is from effective to much more effective compared to traditional learning methods. They recommend it to others in order to benefit from its use in both teaching and learning. A great percentage of students contended that lack of human interaction (63.75%)and the technical issues(20%) considered as challenges faced with personalized and adaptive learning. Besides, others chose other problems such as limited content variety and difficulty in adapting to the system.

Concerning the last and the third section, the vastest majority of the population (96.25%) defined AI-powered assessment as the assessment that uses artificial intelligence to analyze responses as its name implies though their teachers have not used it in their EFL teaching/learning classrooms. For the students who answered yes, they encountered some AI-based assessment tools like intelligent tutoring systems, learning analytics dashboard, and

automated essay scoring. Furthermore, the greatest majority believe in the AI-powered assessment tools and are aware of its significance. They believe that those tools faster grading and help in conducting their own personalized learning path. Others (31.25%) added that AI-powered assessment tools reduce human bias and adjust difficulty to skill level. However, they asserted that they faced some challenges while using AI-powered assessment tools like the lack of human touch and technical issues. Still others (11.25%) claimed that those tools violate privacy concerns. Although the students faced challenges, the majority of them (78.75%) did not deny its importance in adapting the content to individual students' pace and style of learning; and they strongly agree with this process of adaptation. In addition to the adjustment of the content, the utmost of using AI powered assessment tools is to maintain personalized and adaptive learning. Almost all the population agreed on the effectiveness of the process and its fruitful outcomes. Finally, the respondents chose some features such as the integration with human instructor feedback and more transparency to enhance AI powered assessments for personalized learning.

Conclusion

The third chapter is the practical side of the current study; it has put under examination and analysis the hypothesis through students' questionnaire. The analysis of the responses from the questionnaire has shown that AI-powered assessment has a great role in maintaining personalized and adaptive learning, and the students are aware of this. The research has revealed that students use AI-powered assessment for a variety of reasons mainly to faster feedback and conduct their own personalized learning paths. Though, there are some challenges faced by learners such as lack of human touch and technical issues, first year master students recognize its significance and recommend it to others in both the teaching/learning process to ensure success and improvement.

General Conclusion

1. Concluding Remarks

This study has aimed to spotlight on students' attitudes towards the potential of AI-Powered assessment in maintaining personalized and adaptive learning. It has undergone two main phases to examine the topic deeply; both theoretically and practically in order to answer the research questions and test the hypothesis. The first two chapters have attempted to analyze each of the two variables respectively with a detailed discussion and investigation of related notions and concepts. The last one has taken a more practical approach by focusing on data collection and analysis. The findings revealed that students are aware of the importance of AI-powered assessment and its role in maintaining personalized and adaptive learning in EFL classrooms.

Additionally, the study has successfully answered the research question and hypothesis. Students recognize that AI-powered assessment tools are valuable educational tools that help in conducting their own learning paths to reach the required outcomes. Second, AI-powered assessment can easily and effectively adjust the content and level of difficulty of questions according to students' level of proficiency and strengths and weaknesses. Finally, using AIpowered assessment tools can faster learning progress by increasing learners' engagement and motivation in their educational and learning journey. Hence, the research hypothesis is proved; using AI-powered assessment has a profound role and impact in maintaining personalized and adaptive learning.

2. Pedagogical Implications and Recommendations

It is crucial for learners to realize the big role of AI-powered assessment in both teaching/Learning path. Teachers also should be aware of its importance in EFL classrooms to effectively reveal and address learners' needs. Consequently, they could easily adjust the content and keep up with learners' pace of learning to fulfill success. From students' answers on the questionnaire, it appears that teachers are not quite aware of the vital role of utilizing AI-powered assessment in their EFL classrooms; the primary aim of this educational research was to put emphasis on the role and importance of AI-powered assessment in the flexibility in the learning pace to facilitate both teaching and learning process. Here are some pedagogical implications and suggestions for further research projects:

-The Ministry of Higher Education had better provide teachers with effective training; so that they can use AI-powered assessment tools in EFL classrooms to foster engagement and better results and to enable learners to conduct their own learning progress.

-AI-powered assessment is effective if it is well prepared and planned. That is to say, teachers should ensure that the activities chosen align with SMART goals and meet the learners' needs and purposes to make best use of this type of assessment, students should be aware about the use of AI-powered assessment; it is not only for better retention of knowledge and rote memorization rather to develop their critical thinking and develop their learning skills.

-Students also need to be trained on how to interact with AI-based assessment tools, interpret automated feedback, and reflect on it. Teachers must not be enslaved by the old traditional method of teaching, they should be flexible and up-to day with the technological advancements in the educational field to ensure authenticity and relevance by using AI-powered assessment and selecting tasks that reflect real-life situations and communicative needs. -The government

should supply the institutions with the required technonlogical infrastructure such as internet to effectively implement AI-powered assessment in EFL classrooms.

-Transparent policies and data protection measures should be insured and applied while using AI-powered assessment which may violate data privacy of learners. Both teachers and learners need to afford more time, effort, and commitment to properly and successfully implement the AI-based assessment.

3. Limitations of the Study

The present study faced some obstacles as any other educational study. Below are the most remarkable constraints encountered. The unavailability of resources such as; books and articles that deal with this new topic make it harder to provide sufficient information and authentic data. Little was done in the area of AI-powered assessment and personalized and adaptive learning.

-The process of students' questionnaire was not as expected since not all the students wanted to answer it. Some of them ignored some questions, and others just answered for the sake of finishing the process not for the sake of collaboration and extending their views.

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Appendix

Students' Questionnaire

This questionnaire is part of a research work carried out in the department of English Language . It aims at investigating the role of AI-powered assessment in maintaining personalized and adaptive learning. It is designed for First year Master students.

I will be grateful for your responses that will remain confidential and will be used for research purposes only. Thank you for your valuable time and par ticipation as it plays a crucial role in the validity of this academic research.

Laifa Zahra

Second Year Master Student

Department of English

University of 8 Mai 1945, Guelma

Section One : General information

1. How old are you ?

a.Under 18	
b.18-24	
c.25-30	

2. How would you rate your current proficiency level in the English Language ?

a.Beginner	
b.Intermediate	
c.Advanced	

Section Two: Personalized & Adaptive Learning

3. How would you define personalized and adaptive learning?

a. Learning tailored to individual needs	
b. Technology adjusting content based on performance	
c. Self-paced learning with customized resources	

4. a. Have you ever used personalized or adaptive learning tools (e.g., AI-based learning platforms, customized learning paths, adaptive quizzes)?

a. Yes	
b. No	

5. What benefits of personalized and adaptive learning have you observed ?

a. Faster learning progress	
b. Better retention of knowledge	
c. Increased engagement	
d. Flexibility in learning pace	

6. How effective do you find personalized and adaptive learning compared to traditional learning methods?

a. Much more effective	
b. Somewhat effective	
c. Effective	
d. not effective	

7. Would you recommend personalized and adaptive learning to others?

a.yes	
b. no	

8. What challenges have you faced with personalized and adaptive learning?

a.Lack of human interaction	
b. Technical issues	
c. Limited content variety	
d. Difficulty in adapting to the system	

Section Three: Maintaining Personalized and Adaptive Learning Through AI-powered

Assessment

9. How would you define AI-powered assessment ?

a.Traditional assessments graded by teachers	
b.Assessments that use artificial intelligence to analyze responses.	
c.Assessments conducted only through paper-based tests. d.Assessments without any automated feedback.	

10. Have your teachers used AI-powered assessment tools in your EFL classroom?

a.yes	
b.no	

b. If yes, which of the following AI-based assessment tools have you encountered?

a. Intelligent Tutoring Systems	
b. Learning Analytics Dashboard	
c. Automated Essay Scoring	
d. Adaptive Learning Platforms (e.g., Khan Academy, Smart Sparrow)	

11. What do you perceive the biggest advantage of AI-powered assessment tools in classroom? *(Select up to 2)

a. Faster grading/feedback	
b. Reduced human bias	

c Personalized learning paths	
d. Scalability (assessing large groups)	
e.Adaptive testing (difficulty adjusts to skill level)	

12. What challenges did you face while using AI-powered assessment tools ?

a. Lack of human touch	
b. Technical issues	
c. Privacy concerns	
d. Over-reliance on AI suggestions	

13. Do you agree that AI-assessment tools adapt content to individual students' pace and style of learning?

a. Strongly Agree	
b. Agree	
c. Neutral	
d. Disagree	
e.Strongly Disagree	

14. On a scale of 1 to 5, how effective do you think AI-powered assessments are in maintaining personalized and adaptive learning ?

(1 = Not effective, 5 = Very effective)

1 2 3 4 5

Not effective - - - - - effective

15. What features would enhance AI-powered assessments for personalized learning?

a.Better emotional and cognitive recognition	
b.Integration with human instructor feedback	
c. More transparent AI decision-making	

الملخص

تهدف هذه الدراسة إلى إبراز الدور الذي يلعبه التقييم المدعوم بالذكاء الاصطناعي في الحفاظ على التعلم الشخصي والتكيفي. حيث تركز على وجهات نظر الطلاب اتجاه استخدام هذا النوع من الاختبارات في دعمهم على التعلم الشخصي و التكييفي. كما وتحاول هذه الدراسة على فهم الأسباب التي من أجلها يعتمد الطلاب على هذا النوع من التقييم ونتائج استخدامه. ضف إلى ذلك، يحاول هذا البحث أيضا إلى معرفة إذا ما كان الاساتذة يستخدمون التقييم المدعوم بالذكاء الاصطناعي في أقسام اللغات الاجنبية أم لا. ليس هذا فقط، بل ايضا تهدف هذه الدراسة إلى التأكد من الوظيفة والدور الذي يلعبه ذلك التقييم خاصة في دعم التعلم الشخصي والتكييفي. للتحقق من هذه الفرضية، تم الإعتماد على المنهج الكمي الوصفي لجميع البيانات وتحليلها للوصول إلى النتائج لقبول أو فند الفرضية. شكلت عينة البحث 92 طالب اولى ماستر في جامعة 8 ماي 1945 بقالمة. كشفت النتائج على صحة الفرضية الموضوع في بداية البحث. تبعا لأجوبة الطلاب، تبين أنهم على دراية تامة ووعي بأهمية التقييم المدعومة بالذكاء الاصطناعي على تعليمهم بصفة خاصة وعلى دعم نعلمهم الشخصي والتكييفي بصفة عامة.

الكلمات المفتاحية: اختبار، الذكاء الإصطناعي، التعلم الشخصي و التكييفي ، التكنولوجيا.