

Fostering Differentiated Instruction through AI Tools: Perceptions of In-Service Teachers in Morocco

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Abstract

While educational systems worldwide are rapidly embracing Artificial Intelligence (AI) tools, getting a deeper understanding of the way teachers perceive it is of great importance for a well-informed integration. Educational reforms in Morocco continuously emphasize inclusive practices and the inclusion of digital tools, which makes AI adaptation as a transformative tool in classroom instruction. This study investigates the perceptions of Moroccan in-service teachers regarding the use of AI tools to enhance Differentiated Instruction (DI). Adopting a quantitative design, data were collected through a questionnaire that was administered to a sample of 213 teachers across various Moroccan regions. The findings reveal a generally positive stance regarding the implementation of AI tools in promoting DI. However, this promising support comes with notable challenges, namely a lack of training, insufficient infrastructure, and the digital divide. This study contributes to existing literature by showing in-service teachers' attitudes towards the integration of AI in assisting DI practices. It also offers practical recommendations for policymakers, curriculum designers, and teacher trainers seeking to incorporate inclusive practices through AI integration.

Keywords: Artificial Intelligence, Differentiated Instruction, Digital Divide, Inclusive Practices, Teacher Perceptions

1. Introduction

AI has quickly rendered itself as a driving force in education globally. Lamrabet et al. (2024) stated that AI “has become an integral part of our lives, impacting various sectors like healthcare, finance, and education.” AI tools can assist in giving customized feedback and, henceforth, help in

assessment. International organizations expect AI to have a revolutionary impact on education. For instance, UNESCO's Director-General has spotlighted the promising impact of AI on education (Lamrabet et al., 2024). Meanwhile, researchers warned against the discrepancy between enthusiasm and practice when it comes to the implementation of AI-driven tools to enhance classroom practice. Petrucco et al. (2025) claimed that despite expressing positive perceptions of AI tools, teachers do not always translate them into well-planned classroom use, underscoring the need for systematic implementation, ample teacher training, and informed ethical and equity concerns. Tripathi et al. (2025) conducted a qualitative study on teachers' use and engagement with AI; they found that "beyond surface-level tool adoption, AI integration fundamentally reshapes teachers' professional beliefs and sense of agency, prompting ongoing renegotiation of their pedagogical identities and classroom authority".

DI is a spreading pedagogical approach that effectively aims to address learner differences by tailoring material, methods, and assessment. Recent studies suggest that AI can help in differentiating instruction by expediting the process of altering content, developing innovative teaching strategies and procedures, and crafting inclusive assessment techniques. Although national discourse in Morocco is rapidly advocating for digital transformation in education, there is still a dearth of empirical data regarding how in-service teachers see and apply AI to assist DI. Existing studies focus on policy regulations and how AI is generally perceived, leaving a gap in comprehending how it is actually used, how often it is used, and what challenges underlie its use. Furthermore, the DI and AI relationship does not exist nationally in the literature. In order to close this gap, the current study investigates how Moroccan in-service teachers view AI tools for promoting customized instruction, as well as their reported usage levels and practical difficulties.

Recent literature has supported the positive side of using AI in educational contexts. Studies have revealed that practitioners valued AI tools in different areas of teaching and learning, like lesson planning, enhanced instruction, adaptive feedback, and tailored assessment (Lamrabet et al., 2024; Shi et al., 2024). In the same vein, Moroccan studies have stated promising attitudes toward AI among both pre-service and in-service teachers, who favor its capacity for fostering effective teaching and addressing diverse learners (Fakhar et al., 2024; Nafidi, 2024). Yet, despite these promising positive attitudes by teachers in Morocco, real classroom implementation remains finite.

In spite of the massive literature on AI in education, several gaps persist. First, most studies have focused on the perceptions of teachers towards the use of AI instead of its significant role in supporting DI. Second, research has been conducted mainly in developed or high-income educational settings, overlooking developing and underdeveloped contexts. Third, very little is known about how Moroccan in-service teachers view and utilize AI tools to facilitate DI. Consequently, empirical evidence regarding real classroom usage and implementation difficulties remains limited. Thus, the current study attempts to explore Moroccan in-service teachers' attitudes toward AI tools for supporting DI, their levels of use, and the challenges they face during implementation.

1.1. Research Questions

This research tries to find answers to the following questions:

- **RQ1:** What are the perceptions of Moroccan in-service teachers of the role of AI tools in supporting DI?
- **RQ2:** To what extent do Moroccan in-service teachers integrate AI tools to facilitate DI practices?
- **RQ3:** What barriers and challenges do Moroccan in-service teachers face when implementing AI tools into DI instructional practices?

1.2. Research Hypotheses

- **H1:** Moroccan in-service teachers hold a generally positive perception of AI tools in reinforcing DI.
- **H2:** There is a moderate to high frequency of AI tool usage among in-service teachers in their DI practices.
- **H3:** In-service teachers report significant challenges in using AI tools for DI.

2. Literature Review

2.1. Differentiated Instruction

DI is widely defined as a philosophical framework created to go beyond the traditional approaches to learning that consider learners as homogeneous. It was championed to focus on diverse types of learners depending on their preferences, needs, and readiness level. Henceforth, “a differentiated classroom provides different avenues to acquiring content, to processing or making sense of ideas, and to developing products so that each student can learn effectively” (Tomlinson, 2001). She also states that DI’s main goal is to shake up what is going on in the classroom to help learners with multiple ways of taking information, making sense of it, and showing benchmarks of what they learn (Tomlinson, 2001). It also refers to well-informed and creative planning of varied approaches to what students learn, how they learn it, and how they demonstrate their learning (Tomlinson & Edison, 2003). “Differentiation is not just a set of instructional tools but a philosophy that a teacher and a professional learning community embrace to reach the unique needs of every learner” (Gregory, 2013). It is also seen as a way for teachers to make instructional decisions based on students’ needs through a wide range of learning opportunities that target their readiness levels, interests, and preferred learning styles (Tomlinson & Moon, 2013). Therefore, adapting to each student’s unique needs is crucial for enhancing their academic performance.

According to Tomlinson & Moon (2013), DI consists of four integrated elements: content, process, product and the learning environment. Firstly, content refers to concepts, knowledge, and skills students are expected to acquire. Secondly, the process involves the way students approach, make sense of, and assimilate the content. Thirdly, the product represents the way students show and apply their understanding. Finally, the learning environment consists of the effective and physical climate of the classroom, which should aim to support students and welcome them to learn (Tomlinson, 2001). Teachers and practitioners adapt the previously mentioned elements depending on students’ readiness level, interests, and learning profiles (Tomlinson, 2001). Heacox (2012) says that recognizing and accepting individual differences keeps students interested and helps them do better in school and in life. Teachers may better help students of all kinds, encourage them to learn, and improve learning outcomes in the classroom by carefully adjusting the content, process, product, and learning environment.

2.2. Technology and Differentiated Instruction

Technology has become a driving force in addressing different learners’ needs, preferences, and readiness levels. Internet Communication Technology tools support DI by providing multiple arrays to access content, interact with learning tasks, and express understanding (Hall et al., 2004). For instance, multimedia tools, virtual platforms, and online simulations give distinct visualizations of knowledge that enable learners to process information at their own pace (CAST, 2018). Furthermore, technology fosters engagement by providing interactive activities, simulated content, and digital platforms that help students receive timely and accustomed feedback. Moreover, online environments offer multiple means of communication and interaction by allowing students to

demonstrate understanding via different forms of products such as videos, PowerPoint presentations, digital portfolios, and collaborative work platforms (CAST, 2024).

2.3. Artificial Intelligence

Artificial Intelligence (AI) is the computer science track that allows computers to imitate human behavior. “Replicating human intelligence, solving knowledge-intensive tasks, building machines which can perform tasks that require human intelligence, creating a system which can learn by itself are the few specific goals of AI” (Ghosh & Arunachalam, 2021). AI is characterized by its intelligent agents that gain a deep knowledge of environments and act accordingly to achieve data-driven objectives (Russell & Norvig, 2003). A key feature of AI is its reliance on database approaches like machine learning to enhance performance on tasks by finding patterns in vast datasets instead of just depending on direct programming. “It is the replica of how the human intelligence works, but it does not deliver the methods that are biologically observable” (Mahato, 2022).

In education, AI yields itself as a promising tool for fostering inclusivity via differentiated instruction (Luckin et al., 2022). By harnessing AI-driven features, educators and practitioners can produce personalized learning avenues, provide real-time feedback, and adapt instructional content to meet individual learners’ needs (Holmes et al., 2022). Generative AI (GenAI), which was created as a subset of AI that is designed precisely to generate new data and content, has gained more attention in educational settings in the last few years (Chan, 2023; Ng et al., 2023a). There is still debate on whether GenAI should or should not be used in schools because of ethical considerations and the digital divide. However, many GenAI tools, like ChatGPT, Copilot, Elicit, Consensus, and Connected Papers, are already being utilized in teaching and learning (Schofield & Zhou, 2025).

2.4. Empirical Studies

Empirical research has recently grown in interest in teachers’ views, readiness, practices, and challenges regarding the implementation of AI in education. Different research designs have been used internationally to account for the impact of AI in classroom practice. These studies indicate a conventionally great deal of acceptance and validation of AI use. However, they have also consistently claimed a noticeable gap between positive perceptions and day-to-day pedagogical use.

This trend was confirmed by multiple investigations. For example, in a mixed methods design research, Kim & Kim (2020) discovered that teachers report the positive value of AI tools in scaffolding and providing individualized feedback, though they stated some issues related to pedagogical training needs, transparency of AI system decisions. A new large-scale quantitative study exploring AI literacy and familiarity among elementary and secondary school teachers found that although the majority of teachers are conscious about ChatGPT and similar AI tools, their actual implications in the classroom are still somewhat restricted (Philippakos & Rocconi, 2025). Qi (2025) carried out a cross-sectional quantitative study with 500 K-12 teachers in China. The study investigated teachers’ perceptions and readiness regarding AI-enabled tools integration. Findings underline a mismatch between teachers’ positive attitudes and actual poor classroom use, which is traced back to their lack of professional development, training, and institutional support.

In the same token, Loke et al. (2024) ran a systematic review about K-12 pre-service teachers’ perceptions of AI using the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) model. They analyzed newly published empirical studies (2020-2024) to discover how teachers’ AI perceptions shape their actual classroom implementation. The findings reveal that in-service teachers’ views are strongly shaped by their competency and familiarity with the AI tools.

3. Research Methods

In order to conduct effective research, designs and instruments must be chosen in a wise way that suits the study's aims. According to Cohen et al. (2018), "the methodology must be appropriate to the research question and the aims of the investigation" (p. 123). Creswell & Creswell (2018) describe research design as "the plan or proposal to conduct research" (p. 5). As a result, this study employs a quantitative descriptive methodology to evaluate in-service EFL teachers' attitudes towards leveraging AI to promote DI. In the same token, this approach enables the collection of numerical data to account for trends and patterns in teachers' perceptions. The methodology section describes the study's participants, sampling strategy, research instrument, data collection techniques, and strategies for ensuring its validity and reliability.

3.1. Research Design

The design of the research represents its roadmap that guides every single step in the research journey. "A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process" (Bryman, 2012, p. 46). For this, the design of this study is quantitative. Creswell (2014) states that quantitative research is a framework to assess objective theories through exploring the correlation between variables. Quantitative data have proven that figures are more beneficial than words when used to measure a factor (Babbie, 2020). Henceforth, the quantitative research approach is suitable for capturing a great amount of data regarding teachers' attitudes, practices and challenges related to the implementation of AI to enhance DI.

3.2. Participants

This study recruited in-service teachers from several regions of Morocco. A total of 213 teachers volunteered for this research. They were chosen using a convenience sampling procedure, depending on their availability and disposition to respond to the questionnaire. The sample included teachers of various educational levels, ages, genders, and professional experiences to ensure a diverse range of perspectives. This diversity was intended to improve the validity and usefulness of the findings on teachers' attitudes toward the use of AI to facilitate DI in classrooms. All participants voluntarily cooperated in the study, read the ethical consideration section and agreed to its terms.

3.3. Research Instrument

An adapted questionnaire was utilized to collect data. It was adapted from Lagnidi & Brigui (2025) with slight amendments to the sections, adding the AI variable to make it suitable for the study's aims. It was distributed online via Google Forms. The questionnaire has four sections (Demographic Information, Attitudes toward DI, Practices of DI, and challenges to implement AI tools in DI classes) and 14 items in total. To measure responses, a 5-point Likert scale (from "Strongly Agree" to "Strongly Disagree") was incorporated. It is worth mentioning that the questionnaire has no reversed items in all the sections. A thorough review by two specialists was conducted to ensure the instrument's internal and face validity. "Validity is important in all forms of research and all types of tests and measures" (Gay et al., 2012).

A pilot study, consisting of 35 responses, was run to ensure the reliability of the items. Fraenkel & Wallen (2006) define reliability as the stability and consistency of a measuring instrument from one administration to another as well as from one item to another. Cronbach's alpha was used to measure the questions' internal consistency and reliability. As shown in Table 1, the results indicate a good level of reliability for the first and third sections ($\alpha=0.805$ and $\alpha=0.881$, respectively). For the second section, the results show an acceptable level of reliability ($\alpha=0.701$). A

Cronbach's Alpha value that is around 70 or above is usually regarded as adequate for determining internal consistency (Taber, 2018).

Table 1: The Questionnaire Reliability Based on Cronbach's Alpha Coefficient

	Cronbach's Alpha Value	Number of Items
Attitudes	.805	4
Practices	.701	5
Challenges	.881	5

To guarantee the form's validity, the researchers used Exploratory Factor Analysis (EFA) employing a varimax rotation of all Likert-scale items in the questionnaire. EFA is one of the most widely used statistical methods in social sciences and psychology (Finch, 2025). This sort of analysis was implemented because there were more than 100 participants (213). Kaiser (1974) claims that the Kaiser-Meyer-Olkin (KMO) sampling adequacy measurement (.813) is very good for factor analysis. Barlett's Test of Sphericity is likewise of statistical significance ($p < .05$), so we can proceed with factor analysis (see table 2 below) .

Table 2: The KMO and Bartlett's Tests Results

Test	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.820
Bartlett's Test of Sphericity	
Approx. Chi-Square	335.945
df	78
Significance	.000

Principal Axing is used as an extraction technique to determine the common variance among items following extraction. After identifying the commonalities, the data reveals a significant amount of variation between the items and extracted variables. All of the items' extractions reveal a very strong and strong relationship (extraction $> .50$).

3.4. Data Collection Technique

The questionnaire was distributed virtually via a Google Forms link shared in teacher groups on social media platforms, specifically WhatsApp and Facebook. Participants were informed of the study's purpose and assured that their responses would remain anonymous and confidential. Data were collected over a two-week period to allow for a sufficient sample size. Informed consent was obtained prior to completing the questionnaire, and participation was entirely voluntary.

3.5. Data Analysis Procedure

Responses are uploaded to Excel and numerically encoded before being analyzed using descriptive statistics, applying SPSS software. Frequencies, percentages, averages, and standard deviations are used to assess teachers' attitudes, reported practices, and challenges. The findings contribute to the identification of patterns and trends in AI use and DI practices development in ELT classes.

The data were loaded into IBM SPSS (version 26) for analysis. Descriptive statistics are used to investigate the participants' demographic information and responses to the five-point Likert scale items. Table 3 depicts how we interpret the ratings from the five-point Likert scale.

Table 3: The Interpretations of our Five-Point Likert-Scale Measurement

Scale Value	Description	Interpretation Range	Interpretation
1	Strongly Agree	1.00 – 1.80	Strongly Agree
2	Agree	1.81 – 2.60	Agree
3	Neutral	2.61 – 3.40	Neutral
4	Disagree	3.41 – 4.20	Disagree
5	Strongly Disagree	4.21 – 5.00	Strongly Disagree

4. Results

This section presents and analyzes the data from the research questions that investigate in-service EFL instructors' attitudes regarding using AI tools to facilitate DI. It also explores the pedagogical implications of these findings for Moroccan classrooms, namely the incorporation of AI technologies into classroom practices. Additionally, the chapter discusses the study's possible contributions to instructional improvement in Moroccan education. Finally, a general conclusion summarizes the main findings and discusses the study's shortcomings. The findings are then thoroughly examined in light of the research objectives and existing literature.

4.1. Attitudes

Table 4 shows the participants' perspectives on DI over four items. The means range from 1.73 to 3.68 on a five-point Likert scale, indicating varied levels of agreement. The first two items, which emphasize the value of diverse methods and the role of differentiation in addressing individual differences, have lower mean scores (1.73 and 1.80, respectively), showing strong agreement. In contrast, the remaining negatively phrased items had higher mean scores (3.31 and 3.68), indicating general disagreement. Standard deviations range from 1.28 to 1.38, representing a moderate level of variation among responders.

Table 4: Teachers' Attitudes Towards Differentiated Instruction Practices

Descriptive Statistics					
	N	Min	Max	Mean	Std. Deviation
I believe that using diverse strategies makes the content more engaging for learners.	213	1	5	1.73	1.328
Differentiated pedagogy helps improve understanding by considering individual differences.	213	1	5	1.80	1.277
I do not notice a significant difference in student engagement when using differentiated methods.	213	1	5	3.31	1.342
I do not see the necessity of varying activities within a single session to meet different learners' needs.	213	1	5	3.68	1.384
Valid N (listwise)	213				

4.2. Practices

Table 5 summarizes teachers' perspectives on the impact of DI and AI in Moroccan classrooms. The averages of the five items range from 1.89 to 3.28 on a five-point Likert scale, demonstrating varied degrees of agreement. The lowest mean (1.89) was found for the item "I use a

variety of educational resources suited to different learning styles," indicating great agreement with this beneficial practice. Similarly, there was strong agreement on classifying students by need ($M = 2.05$) and enabling student choice ($M = 2.35$).

Nevertheless, the item "I do not adapt AI tools to match learners' abilities" received the highest average score (3.28), indicating a general disagreement with this negatively worded statement. This signifies that many teachers do strive to adapt AI tools. The standard deviations vary from 1.14 to 1.59, indicating moderate to high variability in teachers' responses.

Table 5: Implications of Differentiated Instruction and Artificial Intelligence in Moroccan Classes

Descriptive Statistics					
	N	Min	Max	Mean	Std. Deviation
I use a variety of educational resources suited to different learning styles.	213	1	5	1.89	1.195
I allow students to choose topics or tasks based on their interests.	213	1	5	2.35	1.142
I organize students into groups based on their needs or levels.	213	1	5	2.05	1.178
I use varied methods to explain concepts.	213	1	5	2.28	1.591
I do not adapt AI tools to match learners' abilities.	213	1	5	3.28	1.405
Valid N (listwise)	213				

4.3. Challenges

The results presented in Table 6 show that delivering DI using AI tools presents mediocre to low-level challenges for participants. The most commonly mentioned difficulty was integrating AI technologies ($M = 2.72$, $SD = 1.45$), which was reported within the neutral range, indicating a good variety of perceptions. It was followed by worries that some AI tools are unsuccessful in accounting for individual learner differences ($M = 2.53$, $SD = 1.33$), reflecting agreement. Teachers also agreed on the necessity for further training ($M = 2.23$), a scarcity of technological resources ($M = 2.24$), and the time-consuming nature of implementing AI ($M = 2.37$). These findings indicate that institutional support, training, and technology adaptation are required to successfully deploy AI-assisted differentiated education.

Table 6: Challenges in Applying Differentiation Pedagogy using Artificial Intelligence tools

Descriptive Statistics					
	N	Min	Max	Mean	Std. Deviation
I face difficulty integrating AI tools in teaching.	213	1	5	2.72	1.452
I need more training on using AI in education.	213	1	5	2.23	1.416
I lack sufficient technical resources.	213	1	5	2.24	1.389
Using AI requires a lot of time and effort.	213	1	5	2.37	1.377
Some AI tools do not consider individual learner differences.	213	1	5	2.53	1.334
Valid N (listwise)	213				

5. Discussion

Consistent with the previous studies, the findings indicate generally positive perceptions towards AI in promoting DI. The study of Fakhra et al. (2024) reports a high level of teachers' enthusiasm concerning the implementation of AI in education in spite of the limited resources and lack of training. Additionally, inclusive education highlights the need for differentiated teaching to

improve engagement and learning outcomes for learners with varied types of needs. By leveraging AI tools which provide real-time, swift feedback, teachers can foster personalized learning experiences by supporting learners' learning styles, learning pace, content, and learners' products (Chen et al., 2020). In Morocco, El Khdar (2026) reports that EFL teachers increasingly welcome the possibilities that AI can offer in facilitating DI for different tasks.

These affordances place technology as a valuable tool for implementing differentiated instruction, allowing teachers to adapt tasks and assessments more efficiently while monitoring student progress. However, research also indicates that teachers face challenges, namely limited technological training, unequal access to digital resources, and uncertainty about selecting appropriate tools for effective differentiation (Smale-Jacobse et al., 2019). Our research is closely consistent with the literature, as it states that Moroccan teachers report some worries about using AI tools, which is traced back to their lack of training. The findings also echo the claim that although teachers clearly acknowledge the benefits of AI, they still lack confidence in utilizing its features in education (Jabal, 2025). Digital infrastructural scarcity is another major obstacle proposed by the current study. UNESCO (2026) notes that Moroccan schools have made significant progress in connectivity, but areas in the suburbs and outside major centers still face infrastructural limitations. This supports our conclusion that schools in rural areas do not have decent internet connectivity or modern gadgets (Aberouch, 2025). Respondents to our questionnaire emphasize this kind of digital divide. Therefore, targeting unbalanced digital infrastructure and integrating AI training in teacher education and training professional development programs should be a priority (Fakhar et al., 2024; Aberouch, 2025). Overall, technology offers powerful opportunities to support learner variability and promote more inclusive, personalized instruction when integrated strategically.

Despite the growing body of research on AI in education (e.g., Chen et al., 2020; Holmes et al., 2022; Woo et al., 2023) and differentiated instruction (Tomlinson, 2001; Smale-Jacobse et al., 2019), there remains a small number of studies that overtly examine how educators can use AI to perpetuate DI in EFL contexts, particularly in Morocco. Most previous studies treat AI and DI as separate domains, focusing either on technological adoption or pedagogical differentiation, but rarely address their intersection in classroom practice.

This study contributes to the existing body of literature in three main ways. First of all, it bridges the gap between AI in education and DI by examining their incorporation within a single pedagogical framework. Second, it provides empirical insights from the Moroccan EFL context, which is still weakly researched in the AI-assisted instructional realm of studies. Last, it offers practical perceptions into how AI tools can support teachers to turn DI principles into classroom practice through real-time adaptation of content, process, assessment and learning environment.

6. Conclusion

This research examines the perceptions of Moroccan in-service teachers regarding the role of AI in enhancing DI in EFL classes. The findings indicate that teachers generally hold positive attitudes about embryonic AI in developing DI strategies through assisting personalized learning experiences, diversifying learning materials, and facilitating the management of mixed-ability classes. This promising view reflects the growing trust in AI's great potential to make instruction more adaptable and learner-centred. Nevertheless, despite these optimistic perceptions, there is a mediocre use of AI to differentiate instruction in classrooms, confirming that good intentions and enthusiasm alone are not enough to ensure pedagogical rigour.

The results also show remarkable barriers that limit the use of AI to differentiate instruction. Teachers report difficulties related to the absence of official AI training and DI strategies, creating a gap between the positive perceptions of teachers and their practical preparedness to confidently

utilize AI in the classroom. As Moroccan schools continually aim to explore digital transformation, addressing these obstacles becomes vital to ensure equal and sustainable AI inclusion.

Though the study contributes valuable insights into the literature, it has its own methodological limitations. Firstly, the instrument used is a self-reported questionnaire, and its data may reflect the teachers' perceptions more than the actual classroom practices. Secondly, the quantitative design does not capture in-depth views of AI adoption and its context. Lastly, the sample size is neither large enough nor generalizable, even though it has participants from different regions of the country. That is to say, it may not capture the perceptions of all subjects and educational settings, especially those in remote areas where the digital divide is apparent.

In accordance with the findings, various recommendations are proposed to support the usefulness of AI in DI in Moroccan schools. For an enhanced AI-supported instruction, several pedagogical and technical trainings are required to equip Moroccan EFL teachers with the necessary strategies to embrace DI techniques. Policy makers and stakeholders should make digital investment a priority to bridge the digital divide amongst different regions of Morocco and secure equal access to digital resources. National guidelines and circulars need to be issued to encourage responsible and ethical AI integration in classrooms. Moreover, fostering and organizing international and national conferences, seminars, and workshops for teachers can encourage creativity, collaboration, and cascading effective AI strategies that facilitate differentiation. Finally, upcoming research should include in-depth insights from qualitative designs. Also, mixed-methods research approaches are encouraged to capture more solid conclusions in diverse educational settings and may lead to further exploration of how AI can ease the incorporation of DI to reach different kinds of learners in the Moroccan context.

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