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TEACHER CONCEPTUAL CHANGE IN TESTING AND ASSESSMENT IN THE ERA OF ARTIFICIAL INTELLIGENCE BOOM

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Abstract: With the boom of generative Artificial Intelligence (AI) tools in the past few years, the impact of those tools in education is undeniable. Besides the benefits of AI in reducing lesson planning and content design, teachers also face significant challenges in maintaining fairness and validity in testing and assessment. Through a mixed-methods approach employing a survey questionnaire and semi-structured interviews, this study aims to investigate teachers' conceptual change in testing and assessment in the context of AI boom in terms of their perceptions of AI's general effects on assessment, the things that motivate or hinder teachers' use of AI, their concerns about the use of AI, and the process in which their conceptual change occurred. The research findings show that teachers demonstrate different levels of conceptual change because they understand AI assessment transformation potential, yet lack knowledge about sophisticated AI-based methods. The biggest concerns among the participants include a lack of digital proficiency as well as a fear of reduced teacher agency and academic integrity, which also suggests the need for additional measures to enhance teacher AI literacy, foster ethical use of assessment, and support pedagogical innovation. The concerns indicate that their conceptual change process remains in progress. This research contributes to understanding how educators can effectively navigate the evolving demands of testing and assessment in a rapidly digitizing educational landscape.

Keywords: generative AI, teacher conceptual change, testing and assessment

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SỰ THAY ĐỔI NHẬN THỨC CỦA GIÁO VIÊN VỀ KIỂM TRA ĐÁNH GIÁ TRONG KỶ NGUYÊN TRÍ TUỆ NHÂN TẠO BÙNG NỔ

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Tóm tắt: Với sự bùng nổ của các công cụ trí tuệ nhân tạo (AI) tạo sinh trong vài năm gần đây, tác động của những công cụ này đối với giáo dục là không thể phủ nhận. Bên cạnh lợi ích của AI trong việc giảm bớt công sức khi lập kế hoạch bài giảng và thiết kế nội dung, giáo viên cũng đối mặt với những thách thức đáng kể trong việc duy trì tính công bằng và chính xác trong kiểm tra đánh giá (KTĐG). Thông qua phương pháp nghiên cứu kết hợp, sử dụng bảng hỏi và phỏng vấn bán cấu trúc, nghiên cứu này tìm hiểu sự thay đổi nhận thức của giáo viên về KTĐG trong bối cảnh sự bùng nổ của AI, bao gồm: nhận thức của họ về tác động chung của AI đối với KTĐG, những yếu tố thúc đẩy hoặc hạn chế giáo viên sử dụng AI, các mối quan ngại về việc sử dụng AI, cũng như quá trình thay đổi nhận thức của họ. Kết quả chỉ ra rằng giáo viên thể hiện mức độ thay đổi nhận thức về AI khác nhau bởi vì họ hiểu được tiềm năng đổi mới KTĐG của các công cụ AI nhưng chưa quen thuộc nhiều với các phương pháp KTĐG tinh vi dựa trên AI. Những mối quan ngại lớn nhất của người tham gia bao gồm: thiếu kỹ năng số và lo ngại về việc giảm quyền tự chủ của giáo viên cũng như liên chính học thuật. Những quan ngại này biểu thị quá trình thay đổi nhận thức của họ vẫn đang tiếp tục tiến triển, và cần có thêm các biện pháp nâng cao hiểu biết về AI cho giáo viên, thúc đẩy việc sử dụng hình thức KTĐG đúng tiêu chuẩn đạo đức và hỗ trợ đổi mới sư phạm. Nghiên cứu này đóng góp vào việc hiểu cách các nhà giáo dục có thể điều chỉnh sao cho hiệu quả theo những yêu cầu đang thay đổi liên tục về KTĐG trong bối cảnh giáo dục số hóa nhanh chóng.

Từ khóa: AI tạo sinh, sự thay đổi nhận thức của giáo viên, kiểm tra đánh giá

1. Rationale for the Study

Educational practices worldwide experience both positive transformations and complex challenges due to the introduction of Artificial Intelligence (AI) tools into educational settings. Generative AI tools such as ChatGPT, Gemini or Claude with large language models for various uses in all aspects of life, or more specific tools for certain purpose (for instance, Google Studio, Capcut or Pike Labs for video generating; Gamma and Canva for slideshow generating; OtterAI or Fireflies AI for note-taking and transcribing) have efficiently helped teachers create customized learning materials and immediate feedback systems, reducing their everyday workload with the teaching tasks (Iqbal et al., 2025; Williams, 2025). Students also benefit from AI because it enables personalized learning paths and automates instructional tasks, enhancing educational quality and accessibility. Nonetheless, the rapid adoption of AI in classrooms poses multiple challenges for teachers, who need to modify their teaching and assessment methods (Williams, 2025). Particularly, in terms of testing and assessment, concerns have been raised regarding the reliability, validity, and fairness of AI-mediated assessment (Greenstein & Cho, 2024). Understanding AI's effects on testing and assessment, therefore, has become crucial for

those in the educational field, as this technology can bring substantial changes to these fundamental processes.

Standardized exams have played an important role in Vietnam's educational system, both for student advancement and for teacher performance evaluation (Duong & Nguyen, 2023). The rapid appearance of AI tools that generate assessments as well as evaluate students' work and potentially cheat on tests can create dual benefits and fundamental threats for educational professionals. The way teachers understand testing through valid learning evidence, and their assessment roles and fairness maintenance practices, is experiencing major changes, provoking a need for policymakers and researchers to explore more.

Despite the growing need for research on changes in teacher assessment practices during AI integration, such studies remain scarce. The current body of research mainly focuses on technological capabilities and institutional policy responses but lacks studies on teachers' experiences, perceptions, and conceptual shifts regarding AI in assessment (Mulyani et al., 2025; Tan et al., 2024). The process of teachers' conceptual change regarding AI in education warrants further investigation, as it can help develop better professional development programs and educational policies (Tan et al., 2024; Mulyani et al., 2025).

With the need to understand how teachers conceptualize and adapt their assessment practices in response to AI integration, this study was conducted to investigate how Vietnamese teachers' conceptual change in testing and assessment occurs in the context of the AI technology revolution.

2. Research Aims and Research Questions

In short, the present study aims at seeking answers to the following questions:

1. *How do teachers perceive AI's general effects on testing and assessment practices in their classrooms?*
2. *What factors motivate or hinder teachers' adoption of AI tools in their assessment strategies?*
3. *Through what processes does conceptual change occur among these teachers?*

For the scope of the study, the researcher tried to include teachers from junior high school, senior high school, and tertiary levels as well as several cities/provinces to capture a holistic perspective across Vietnam's educational landscape. Nevertheless, while the author acknowledges that comparative analyses between these distinct contexts may bring valuable insights- such as differences in assessment pressures, teacher autonomy, and ethical requirements in testing- the current study opts for a general approach to investigate the conceptual change about AI testing and assessment tools of Vietnamese teachers as a cohesive group. Besides, as AI applications in testing and assessment are quite new in Vietnam, the surveyed population was expected to be quite small for robust subgroup analyses and pose risks of fragmenting the dataset. Moreover, despite contextual differences, Vietnamese teachers at all levels seem to face some common realities such as limited technical training, policy pressures on digital transformation in education, and concerns about assessment validity and academic integrity. These factors can justify the researcher's decision to choose a holistic approach for this study.

3. Brief Literature Review

3.1. Teacher Conceptual Change

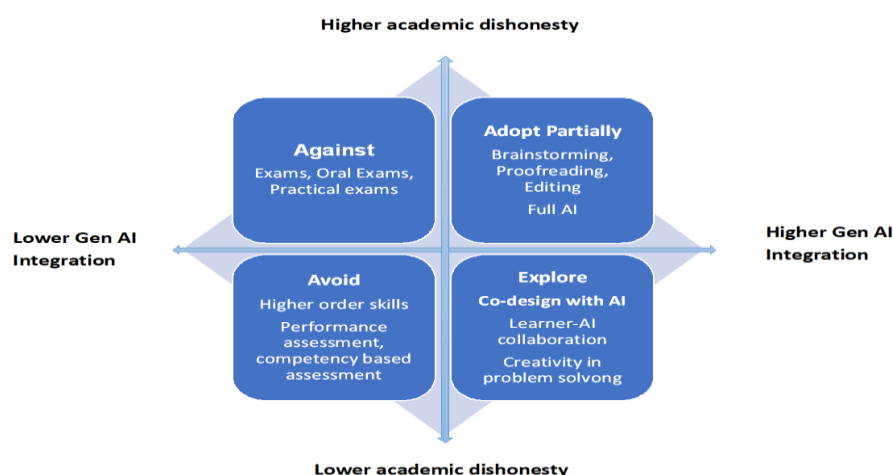
Educational theory identifies conceptual change as the process through which people transform their existing beliefs and frameworks and understandings when they encounter new information or teaching methods (Dole & Sinatra, 1998; Ouyang & Jiao, 2021). The process of conceptual change requires learners to rebuild their mental structure through a fundamental transformation that leads them from one conceptual framework to another (Sinatra & Mason, 2013). The process of conceptual change comprises four essential elements: identifying flaws in previous knowledge, encountering new concepts, experiencing mental disagreements with current beliefs, and adopting new conceptual frameworks (Sinatra & Mason, 2013).

Multiple factors determine the extent and likelihood of conceptual change among teaching professionals. The Cognitive Reconstruction of Knowledge Model (CRKM) by Dole and Sinatra (1998) identifies multiple domains which affect conceptual change in educational settings. First, the process of learning new concepts depends heavily on individual characteristics, which include existing beliefs, their levels of attention and motivation, as well as personal interest in the material. Second, the extent of cognitive dissonance that leads to change depends on how clear, credible, and compatible new information appears to the receivers. Third, the social environment, together with cultural background and professional learning networks, determines how well people can transform their conceptual frameworks. Finally, teaching methods which respect prior beliefs, promote reflective thinking, and create purposeful cognitive conflicts can also lead to substantial conceptual transformations.

3.2. Teacher Change and Technology

The widespread adoption of modern technology, with Artificial Intelligence (AI) in particular, has brought substantial changes to teachers' conceptual change processes around the world. Digital educational tools have brought new teaching approaches, real-time data analysis capabilities, and individualized learning approaches, which enhance teaching methods yet force teachers to reassess their fundamental professional understanding (Palaiologou, 2020; Huang et al., 2024). The educational process of conceptual change requires teachers to transform their instructional approaches from traditional teacher-centered methods to data-driven technology-based approaches that focus on student needs. Hwa (2018) showed that teachers who used mobile serious games evolved into facilitators who used adaptive methods instead of delivering content directly, which required them to transform their teaching and assessment approaches. In addition, the implementation of technology creates educational spaces that enable teachers to work together through shared lesson plans and student data evaluation to develop peer learning and reflective practices that enhance conceptual restructuring (Balanskat et al., 2006). Teachers need to acquire new skills for data analysis and technology management but this process creates professional identity conflicts when they need to adapt to technological requirements (Huang et al., 2024).

Khlaif et al. (2025) have developed a conceptual framework to describe 4 categories of assessment in Gen AI situations as follows:

Figure 1*The Against, Avoid, Adopt, and Explore (AAAE) Framework**(Khlaif et al., 2025, p. 14)*

Much as AI and related technologies deliver substantial operational improvements through automated workflows and data-driven decision systems, they also create conflicts with teachers' professional freedom (Cukurova, 2025; Krumsvik, 2024). The highest level of assessment requires human judgment because machines cannot deliver fair results or valid assessments or provide individualized feedback. Research conducted throughout Asia demonstrates that teachers face a professional dilemma because they want to enhance teaching quality through technology, yet they worry about losing their professional expertise (Fang et al., 2024; Tran, 2025). The extensive AI training programs in Vietnam help teachers become more comfortable with technology, yet they must think about their teaching values and their professional identity (Vietnam News, 2025). The success of educational technology depends on how well it respects teacher autonomy and integrates their conceptual frameworks.

3.3. Teachers' Attitudes Towards AI in Testing and Assessment

In education, teachers, policymakers, and researchers face a requirement to perform extensive conceptual transformations as they must reassess their professional duties and their beliefs about educational fairness and assessment validity, and their definitions of valid educational assessment. The AI revolution represents more than digital tool expansion or educational practice superficial updates because it forces fundamental changes at epistemological and methodological levels (Krumsvik, 2024; Sinatra & Mason, 2013).

AI technology has established a new educational framework that transforms traditional teaching methods, assessment techniques, and professional development approaches (Krumsvik, 2024). The educational sector needs to transition from traditional teacher-controlled assessment methods to AI-based adaptive evaluation systems, which use data for decision-making (Ouyang & Jiao, 2021).

The evaluation process in education benefits from Artificial Intelligence (AI) through the implementation of AI technologies for assessment. The evaluation process receives support from AI technologies, which operate through automated grading systems, personalized feedback mechanisms, and adaptive testing and learning analytics platforms that analyze student performance data to guide teaching practices (Tran, 2025). The AI-driven math tutoring system from Carnegie Learning operates alongside Examsoft, which provides secure digital testing

through AI-based performance assessment analytics. The systems use natural language processing (NLP) to evaluate complex essay responses while they quickly grade objective questions.

AI assessment applications feature three main capabilities, which include immediate data analysis and customized test questions based on student abilities and individualized feedback for targeting particular learning gaps. The system reduces teachers' workload while producing more efficient, uniform assessment results.

The implementation of AI assessments faces ongoing challenges because AI systems develop biased algorithms, produce unfair results from unbalanced training data, and AI decision systems remain unexplained and automated testing systems create academic integrity risks (Kabbar & Barmada, 2024; Tan et al., 2024). AI assessment implementation requires proper teacher oversight to achieve ethical and valid results.

3.4. The Vietnamese Context

The Vietnamese government has made AI implementation a core part of its educational transformation strategy, which directly affects how teachers develop their concepts. The Ministry of Education and Training, through its National AI strategy, works to develop digital competencies that should be used to integrate AI tools into educational and assessment systems (Vietnam News, 2025). The training program for 4000 teachers in Quang Tri province, through Khan Academy's Khanmigo platform, demonstrates direct funding for teacher development programs that focus on AI adoption.

Vietnamese educators have documented that AI teaching tools create both positive and negative reactions, which lead teachers to develop innovative thinking while gaining a better understanding of implementation challenges (Tran, 2025). Teachers transformed their understanding of AI from seeing it as a new tool to recognizing it as an essential partner for personalized education and assessment, which led to substantial changes in their professional beliefs about teaching and student involvement. The digital literacy gap and teacher concerns about losing control of their instruction continue to be major issues which match broader Asian concerns about technology versus professional freedom (Krumsvik, 2024).

4. Research Methodology

4.1. Research Design

The research uses a mixed methods approach with a sequential explanatory design, which starts with quantitative data collection and analysis before moving to qualitative data collection and analysis for additional explanation (Creswell & Clark, 2018; Fetters et al., 2013). The sequential explanatory design suits this research because it enables teachers to demonstrate their development of AI perceptions through quantitative surveys, followed by qualitative interviews to examine conceptual change and professional development needs. The quantitative phase receives priority because it enables researchers to create interview protocols that match emerging patterns and insights, which results in deeper contextualized teacher AI assessment experiences.

4.2. Participant Sampling

For the survey stage, participants were randomly sampled by sending the survey link to various communities and the researcher's teaching networks. In the end, the survey received 116 valid responses, 39% of which from tertiary teachers (N=45), 31% senior high school teachers (N=36) and 30 % junior high school teachers (N=35). Those teachers came from 5

different provinces/cities in Vietnam, with more than 10 majors of teaching, from languages to science, economics and literature.

For the interview stage, 6 interviewees were selected through purposive sampling to include teachers from different educational settings, teaching experience levels, and subject areas, to achieve diverse and representative findings. This sampling method was used because it could offer valuable, diverse perspectives that aligned with the study objectives (Palinkas et al., 2015). The research design selects cases that provide essential information on teachers' perceptions of AI and the transformation of assessment practices.

4.3. Data Collection Procedures

The first instrument of the study was a survey questionnaire which assessed teacher opinions about AI applications in educational assessment throughout the previous five years until the present day. The research collected quantitative data on the development of teacher awareness and acceptance over time. The questionnaire contains 30 Likert-scale items, 5 multiple-choice questions, and 2 open-ended questions, which helped the researcher obtain quantitative results. Four domains were incorporated in the questionnaire: (1) perceptions of AI and its impacts, (2) motivation for use, (3) barriers and concerns, and (4) conceptual change indicators. The detailed items were developed with reference to the questionnaires by Reina-Parrado et al. (2025) and Boillat et al. (2022). To ensure clarity and reliability, the questionnaire was piloted with 6 teachers, 2 from each context, to the target sample. The feedback was given on item clarity, response time (15-20 minutes), and the appropriateness in Vietnamese culture, which led to some simplification of terminologies and rephrasing of three Likert-scale items for better comprehension.

Data cleaning of questionnaire responses involved several main steps. First, incomplete responses (initially 124 reduced to 119 valid ones after excluding 5 responses with over 20% of the data missing, 3 more responses removed after screening for logical response patterns among Items 7-15 about respondent's familiarity with types of AI tools, Items 31-35 about their conceptual change phase across the time and Item 37 about the specific AI tools they have used).

Based on the analysis of questionnaire responses, the researcher selected 6 participants who showed interest in studying their AI and technology development needs and who exhibited different features of conceptual change processes to conduct semi-structured interviews. The semi-structured interview method was applied because it provides researchers with the ability to explore new findings while allowing participants to share detailed opinions and reveal hidden aspects of survey results (Arksey & Knight, 1999). The guiding themes in the interviews were the same four domains in the survey questionnaire. In the interviews, each lasting around 20 minutes, the researcher tried to explore deeper into their survey answers, such as how teachers understand AI effects on assessment fairness and validity, their methods for implementing AI, their challenges with AI integration, and their requirements for successful technology adoption.

To ensure clarity of information and avoid misunderstandings, all survey and interview processes were conducted entirely in Vietnamese, the mother tongue of the researcher and all participants. Ethical clearance was obtained from informed consent delivered to the participants, and pseudonyms were used in data reporting.

4.4. Data Analysis Procedures

The quantitative data from the questionnaire survey were analyzed using MAXQDA, which enabled researchers to perform statistical analyses of the Likert-scale and multiple-choice items, as well as systematic coding of the 2 open-ended responses. The data at this stage

produced initial themes that guided the development of interview questions and focus areas.

As for the interview data, the researcher audio-recorded all interviews, then created a complete transcription. Subsequently, thematic analysis was applied to those interview transcripts to discover common patterns, opposing views, and indicators of conceptual change (Braun & Clarke, 2006). The researcher developed themes on AI understanding and assessment concept evolution, professional growth, and training requirements through continuous and expert evaluation. In accordance with the procedure of thematic analysis by Braun and Clarke (2006), these coded themes were reviewed once again by the researcher to ensure the coherence within the data of each respondent in the interview. The final set of themes, after being refined, was also discussed with one colleague, which provided researcher triangulation to confirm that the themes were reasonably developed without individual bias.

The study employed an extensive analytical framework to integrate quantitative patterns with detailed qualitative accounts, yielding results that maintained both validity and relevance to the research context.

5. Findings

5.1. Teachers' Perceptions of AI's Effects on Testing and Assessment Practices

The survey data show that teachers have mostly positive views of AI's ability to change assessment methods in educational settings. About 73% of teachers understand that AI can bring transformative changes to assessment development; nevertheless, only 45% of them feel capable of using AI tools in their current assessment methods. Three main advantages of AI identified by the largest number of participants include automated grading (70%), individualized feedback (45%), and adaptive testing systems (42%).

Despite the strong interest in AI implementation, the participants remain unclear about its practical application. The survey results indicate that 45% of teachers lack knowledge about complex AI assessment methods and their applications. Those teachers recognize AI, but they need training to understand advanced tools, which include natural language processing for essay evaluation and AI-based predictive student performance analysis.

The semi-structured interviews provided detailed information about teachers' reactions to integrating AI-based assessment, as reflected in their conflicting emotions and varying levels of readiness. One expressed his belief that AI technology brings revolutionary changes to student assessment through time-saving automated feedback systems:

I truly see the potential of AI in revolutionizing how we assess our students- saving time and offering tailored feedback. Yet, I'm not sure where to start or whether I should trust these tools with grading important exams. I hope my schools can have some kind of training in using AI for testing. (Teacher 3, Junior High, Science)

Another teacher, Teacher 5, a junior high school mathematics teacher, expressed confusion about AI technology because he did not understand its operational mechanisms or its ability to produce fair results.

Meanwhile, many teachers expressed their widespread concern about their limited technical abilities when working with AI tools, such as: *"The software system produces unexpected results, which makes me concerned about students cheating through the system while the assessment outcomes do not accurately show their actual performance."* (Teacher 3, Senior High, English).

In sum, teachers show interest in AI assessment tools because they believe these systems

will improve assessment efficiency and student personalization; yet, they remain concerned about ethical problems, loss of teaching freedom, and practical implementation difficulties. Teachers understand that AI will transform testing and assessment, but they need extensive training to navigate the changing educational landscape with confidence.

5.2 Motivators and Barriers to Teachers' Adoption of AI Tools in Assessment Strategies

The survey results demonstrate that teachers adopt AI in assessment when they believe it benefits education and feel confident in their abilities. More than 65% of teachers supported AI tool adoption because these tools help with grading efficiency and individualized feedback, which they found essential. The practical benefits of AI technology became evident to teachers through their experience. For example, Teacher 4, an English language teacher at a provincial senior high school, stated that AI tools enable her to quickly detect students' weaknesses while allowing her to dedicate more time to individual student support. In addition, teachers decided to adopt AI because they wanted to learn about new technologies and sought professional development opportunities, which led them to use AI to improve teaching.

The research identified multiple essential obstacles that prevent teachers from adopting AI tools, as summarized in the table below.

Table 1

Summary of Responses- Barriers and Concerns About AI Use

Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Q24. I'm afraid the AI systems may give wrong answers or wrong judgements	0%	6%	19%	50%	25%
Q25. I'm afraid that the confidential data about testing uploaded onto AI tools will be used uncontrollably.	0%	13%	37%	25%	25%
Q26. I feel like I don't have enough skills to use AI tools for testing and assessment.	3%	9%	20%	45%	23%
Q27. I think AI tools may reduce my skills in testing and assessment.	6%	7%	25%	40%	22%
Q28. I think when AI becomes popular, I may lose my job.	15%	37%	20%	22%	6%
Q29. I think AI tools cannot give accurate assessment of my learners' assignments as I do.	0%	6%	35%	21%	38%
Q30. I'm afraid that AI tools can lead to unfairness in the marking of my learners' tests and assignments.	5%	10%	30%	35%	20%

Firstly, the survey results indicate that 75% of teachers were worried about the accuracy of AI tools. Another main challenge preventing AI adoption, according to 68% of participants, is teachers' lack of technical ability to operate AI systems and understand their outputs. This is confirmed as a recurring theme in the interviews. For instance, Teacher 2, a Literature teacher at a university in Hanoi said: *"I want to use AI tools, but I often find them too complex"*. Teacher 3 also expressed his frustration when facing difficulties with effective implementation, as the answers he got from AI tools were sometimes incorrect. Some teachers showed their need for specific training programs to acquire the necessary skills for AI tool operation and result interpretation: *"Without proper training, I feel I am unable to use these technologies"* (Teacher 6, university, French).

Some other concerns in the evaluation process of AI assessments were ethical issues, data protection, and system reliability. Results from interviews also indicate that some teachers face personal obstacles, which include their desire to maintain teaching independence and their doubts about AI system precision. Teacher 3 and Teacher 6 stated that their inability to access structured training programs and continuous technical support creates major obstacles for AI tool implementation. Teacher 4 also explained her hesitation to change:

“I know that we’ll have to live with it [AI], but what I’ve been doing for years is still the standard we have to follow. If I change to using AI tools, I’m afraid the testing and assessment standards will be disrupted”. (Teacher 4, senior high, English)

The teachers view assessment work as a specialized professional skill that AI systems could reduce to basic mechanical operations while eliminating essential human judgment. The teacher explained that AI systems can generate scores and feedback, but they fail to deliver the same level of professional understanding that teachers bring to the assessment of student learning.

5.3 Teacher Conceptual Change Process

The research results demonstrate that the participating teachers have developed their beliefs about AI-enhanced assessment through three developmental stages. These stages could be termed: Initial Awareness (having some vague ideas about AI), followed by Cautious Exploration (starting to use AI but with plenty of worries and consideration), and then Partial Integration (confidently applying AI in several daily assessment tasks). Whatever stage of conceptual change they are in, almost all of them show a feature of ongoing evolution.

Over a third of the surveyed respondents, including Teacher 1 and Teacher 5 in the interviews, were at the stage of Initial Awareness, in which they recognized AI but still resisted its use. These teachers saw AI growth in education but still used traditional assessment methods because they had always used them. The survey results show that 38% of teachers use AI tools rarely or not at all for assessment and express deep concerns about adopting new assessment methods. Teachers who expressed skepticism about AI assessment tools during interviews stated their reluctance to use AI for assessment work because traditional methods had proven successful for many years.

Roughly 40% of the participants were in the stage of cautious exploration, where they are increasingly curious about AI tools but still have many concerns. They wanted to learn about AI functions but still doubted its practical implementation and potential risks. The survey results show that these teachers were trying AI tools for grading and feedback, but they remained uncertain about the validity and fairness of these systems. The interview data shows teachers are unsure about AI grading tools because they doubt their precision and fear losing their professional decision-making authority.

The Partial Integration phase could be found in 22% of the participating teachers, who used basic AI tools for automated essay scoring and plagiarism detection; yet, they continue using traditional assessment methods. The interview responses from this group demonstrate a seeking approach which combines new tools with their current expertise: *“I use AI for specific tasks, yet I create all final assessments independently. I need additional training to master the combination of new and old methods.”*

Interestingly, despite the differences in their stages of the conceptual change process toward the use of AI in testing and assessment, the vast majority of respondents showed ongoing evolution in their minds. This feature was evident through their dedication to professional development and their progressive understanding of AI assessment tools. The respondents

demonstrate their willingness to test advanced AI capabilities while showing interest in transforming their assessment methods. The interview participants demonstrate their ability to think critically while their beliefs about assessment methods transform. Teacher 5 claimed, *“The more I work with AI systems, the more I understand their ability to improve assessment fairness and individualize testing methods”*, while teacher 6 expressed, *“I maintain a reserved yet positive outlook regarding assessment method transformations”*.

6. Discussion

The study results of teachers' positive yet reserved attitude toward AI assessment functions truly align with worldwide trends (Iqbal et al., 2025; Williams, 2025). The significant level of teacher uncertainty about AI implementation demonstrates a major gap between teacher readiness and actual implementation capabilities.

The motivating forces for teachers to use found in the current studies include grading efficiency, personalized feedback, technological skill development, professional development chances, as well as teachers' beliefs about AI's potential uses and confidence in their AI skills. These factors align with previous studies indicating that teachers adopt AI because they understand its operational value and actively seek educational innovation (Mulyani et al., 2025; Iqbal et al., 2025).

The obstacles and concerns related to AI application found in this study also support findings from previous studies such as insufficient institutional backing and insufficient technical expertise and negative personal attitudes (Huang et al., 2024); teachers' lack of advanced knowledge about complex AI assessment systems (Tan et al., 2024); technology replacing educational roles matches previous research findings (Cao et al., 2025; Palaiologou, 2020).

As for the changes, teachers have developed their understanding of AI assessment tools by moving from basic awareness to exploration and integration, and finally to expert-level evolution. Such processes support the notion that teachers need to develop their skills through continuous learning and reflective practice to successfully implement AI (Hwa, 2018; Khlaif et al., 2025). The development of teacher beliefs about AI follows a pattern that researchers support through their work on structured professional development systems (Khlaif et al., 2025) and ethical guidelines for AI education (Williams, 2025; Xia et al., 2024).

7. Conclusion

Teachers currently experience a complex process of conceptual change, as they understand AI assessment transformation yet face multiple knowledge deficits and concerns. The research results demonstrate that teachers require specific training programs, ethical frameworks, and continuous assistance to master AI assessment methods effectively.

The research findings offer specific recommendations that educational administrators, training organizations, and policymakers can use to create lasting AI-based teaching assessment systems. The development of complete professional development programs should focus on teaching practical AI methods, ethical principles, and assessment tool operation techniques. Educational institutions need to create specific guidelines that define proper AI application methods for assessment while protecting academic standards and maintaining fairness in evaluation. Educational institutions, together with their staff members, should establish safe platforms that enable teachers to exchange their AI assessment experiences and both positive and negative implementation results. The successful implementation of AI in assessment

strategies requires organizations to boost educational advantages and career development opportunities while removing institutional barriers, ethical worries, and individual doubts.

From an academic perspective, this study contributes to the literature on teacher conceptual change and on AI use in testing and assessment. Researchers interested in similar topics may consider conducting longitudinal studies to track teachers' conceptual change over time as AI tools evolve, action research studies to evaluate the effectiveness of certain AI tool use, more in-depth qualitative studies to explore teachers' conceptual change process and its translation into classroom practices, or a study with similar research design but focusing specifically on a particular group of teachers or incorporating analyses on the relation between contextual factors (like the school level or urban/rural area).

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APPENDIX

