

Assessing Malaysia higher education students' perceptions of artificial intelligence personalized learning tools

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Abstract: Artificial Intelligence (AI) is a transformative technology reshaping teaching and learning practices. By enabling personalized, cost-effective, and adaptive learning experiences, AI has become increasingly integrated into educational environments. However, its adoption also raises concerns related to credibility, trustworthiness, accuracy, privacy, and security. As part of a larger research project, this paper examines students' perceptions of AI-based personalised learning tools in Malaysian higher education institutions. Student perceptions were investigated using three variables derived from the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2): Performance Expectancy (PE), Effort Expectancy (EE), and Social Influence (SI), with an additional variable, Reliability and Trust (RT). A qualitative study involving in-depth interviews with thirteen participants was conducted to explore their experiences with an AI-based personalised learning tool, Brainly. Using thematic analysis, five themes were identified: support and customization, learning efficiency, accessibility and interactivity, peer encouragement and social comparison, and credibility and dependability. Learning efficiency emerged as the most prominent theme, with 92% of participants reporting enhanced understanding of complex topics, improved learning effectiveness through accessibility, immediate feedback, and interactive learning, and better efficiency in revision and practice. The findings provide insights for developers, academic institutions, and policymakers regarding AI personalised learning tool selection, syllabus development, and integration strategies.

Keywords: Artificial intelligence, Higher education, Perception, Personalised learning tool.

1. Introduction

The ubiquity of Artificial Intelligence (AI) has permeated many aspects of our daily lives [1]. AI offers time- and cost-effective solutions, ease of use, and many other advantages. In education, AI has revolutionized the way teaching and learning content are created and delivered [2]. However, the inception of AI that facilitates traditional learning methods has also raised several ethical and technical concerns. This led to a growing number of Artificial Intelligence in Education (AIED) studies [3]. AIED's revolutionary presence can be seen in generative AI, intelligent tutoring systems, robotics, adaptive learning systems, and analytic dashboards. Adaptive learning systems facilitate customised and personalised services that cater to individual learning capabilities and preferences. They are designed to tailor individual learners' pace, assessment, and feedback to accommodate unique needs, likes, and learning styles [4, 5].

As a developing country, Malaysia has an AI-driven development plan included in the 12th Malaysia Plan. The AI roadmap evidently displays the nation's focus and drive towards smart nations and the digital economy. It includes the digital transformation and readiness of industry, infrastructure, governance, and education. Aligned with educational goals, the nation constantly supports digital

literacy and educational technology transformation [6]. With growing AI awareness and adoption, many areas are still underexplored [7], such as higher education perceptions of AI-personalised tools [8], and how younger generations could use them to optimise their learning experiences and knowledge. This is also parallel with the country's goals to continuously grow knowledge workers among its citizens [9].

In recent times, the existence of AI-personalised tools has grown tremendously [10]. This is evidently displayed in the introduction and commercialisation of Socratic, Photomath, Khan Academy, Duolingo, Coursera, Quizlet Learn, ELSA Speak, Century Tech, LinkedIn Learning, and Brainly. Past studies highlighted the importance of further research into investigating and examining existing personalised AI tools' usability, functionalities, usefulness, effectiveness, and engagement to explore various aspects of these tools and enhance the trustworthiness, credibility, and reliability of these applications [10]. With a focus on personalised learning systems that specifically explore AI-personalised tools, this study aims to examine higher education students' perceptions of a particular AI-personalised tool that measures usefulness, ease of use, social influence, and dependability [11]. Therefore, this study formulates the following research question: What are students' perceptions of the efficacy of AI-based personalised learning tools?

2. Literature Review

Artificial Intelligence (AI) can be understood not as a single artefact but as a socio-technical infrastructure that integrates advanced computational methods, large-scale data pipelines, and human-organizational practices. Recent international guidance frames these capabilities as both an opportunity and a governance challenge for education systems [12]. The scalability and automation afforded by AI have amplified the value of large, heterogeneous datasets and accelerated the development of big-data analytics. This has enabled improvements in cost-efficiency, operational effectiveness, and decision support across domains such as health, engineering, and education. Within education specifically, these capabilities underpin what is broadly described as AIED, which is actively reshaping pedagogy, content delivery, assessment practices, quality assurance, and student support [13, 14]. Further discussion on AIED and AI-personalised tools was presented in the following section:

2.1. Artificial Intelligence in Education (AIED)

AIED generally refers to the application of AI recommender systems, knowledge tracing, or intelligent tutoring systems [15]. Prior studies on AIED report several clear benefits. First, instructional personalisation enables adaptive sequencing of content, mastery-based pacing, and targeted feedback that responds to individual learner profiles [16]. Second, AI can generate and deliver formative assessment and feedback at scale, including automated grading, diagnostic hints, and progress summaries [17]. Third, institutions benefit from administrative automation through AI-supported scheduling, grading support, and learner triage [18]. Fourth, AI-driven interactivity, including conversational tutors and immersive interfaces such as augmented or virtual reality, has been associated with increased student engagement, higher motivation, and improved time-on-task [19].

Over-reliance on AI can diminish metacognitive effort and critical thinking [20]. Unequal access to devices, connectivity, and assistive technologies can widen the digital divide. Ethical and legal issues arise from biased models, opaque decision pathways, pervasive data collection, and surveillance concerns. Academic integrity is threatened when system capabilities outpace assessment design. Data governance and privacy protections remain uneven across platforms and contexts. Many institutions also face capacity gaps, including unclear policies, limited staff training, and insufficient support for meaningful pedagogical integration [21]. More AI does not automatically translate into better learning. Gains materialise when integration is instructionally coherent, transparent, and deliberately scaffolded [22].

Within the broader spectrum, AIED is also often referred to as Personalized Learning Systems (PLS). These systems are described as AI-personalized learning tools because they tailor the learning

experience to each learner's needs, preferences, and current performance level. Conceptually, we categorize them into four interacting elements: (1) a learner model that estimates mastery, difficulties, and misconceptions; (2) an adaptation policy that selects the next activity, resource, or level of difficulty; (3) a content and feedback layer that provides explanations, examples, hints, quizzes, and corrective guidance; and (4) an analytics layer that aggregates performance data for learners and educators. In practice, students can receive different materials, different pacing, and different forms of feedback even when enrolled in the same course. The literature suggests that this form of personalization increases engagement and persistence by keeping tasks appropriately challenging, improves efficiency by focusing on specific weak areas, and enhances creativity by scaffolding ideation and problem-solving rather than simply delivering answers [23]. Data analytics generated by these systems also help instructors identify common misconceptions, knowledge gaps, and choke points in the syllabus, which enables targeted intervention rather than broad remedial teaching.

2.2. Artificial Intelligence Personalised Learning Tools

Artificial Intelligence (AI) personalised learning tools are defined as tailoring learning processes to student preferences [24]. This customization has been found to increase student productivity and creativity. The integration of this AI tool also becomes the key to the modernization of education. By fostering motivation and supporting quality learning environments, it enhances efficiency and effectiveness by facilitating individual learning paths that constantly offer flexibility and customization [25]. These tools adapt to individual learners' needs and preferences. They provide support in generating notes, quizzes, and tutorials that are well structured and defined. They are capable of examining students' weaknesses in any area or topic and generating frequent exercises. The support provided by these tools evidently boosts students' motivation and engagement, which consequently could reduce stress and demotivation that could lead to lower performance or scores [26]. The data analytics not only identify knowledge gaps but also display ideas and strategies for educators to address critical or difficult areas. The feedback feature that is offered in the tool also helps students and educators to understand further the strengths or weaknesses. This reflects that not only learners' motivation helps but also educators' motivation and drive to help students.

2.3. Artificial Intelligence Personalised Learning Tools Comparative Analysis

As part of research activities, this study conducted a comparative analysis of the existing Artificial Intelligence personalised learning tools. This analysis is critical for selecting the most suitable tool that aligns with participants' criteria and capabilities. From the ten AI tools listed in the previous section, the final four were selected based on their characteristics and suitability. These final four include Khan Academy, Coursera, LinkedIn Learning, and Brainly. The selection of these four was also based on researcher accessibility, ease of use, relevancy, and functionality within the scope of the study. Therefore, the comparison analysis was presented in Table 1, which differentiates the tools' content, features, cost, strengths, weaknesses, and certification. Therefore, this analysis concludes that Brainly was the best fit that aligned with the scope and context of the study. This is also because of the personalisation feature that the tool offers, which enhances the relevancy and accuracy of data obtained.

The platform currently facilitated successful completion certification that mapped AI-driven tutoring, adaptive learning, facts and expert-verified answers that boost learners' motivation, progress driven and learning outcomes evaluation and parameter. Although is not formally accredited certification the purpose merely on personalised learning support and the tool can be enhanced with the accredited certification as future added features.

Table 1.
Comparison Analysis of Four Personalised Artificial Intelligence Tools.

Criterion	Coursera	Khan Academy	LinkedIn Learning	Brainly
Content	University courses, professional certificates	Short lessons, mastery challenges	Professional courses, tutorials (hands-on), videos on lectures as well as nano tip videos for quick learning tips	Does not offer courses
AI personalisation	- Personalized course recommendations - Personalized learning pathways - Personalized feedback and support - Personalized career and skill development	- Personalized course recommendations - Personalized learning pathways - Personalized feedback and support - Personalized tutoring	- Personalized course recommendations - Personalized learning pathways - Personalized feedback and support - Personalized career and skill development	- Personalized course recommendations - Personalized learning pathways - Personalized feedback and support - Personalized tutoring and knowledge gap recommendation
Cost	Freemium	Free	Free trial or Subscription	Freemium
Track Progress	- Dashboards - To-do lists - Progress bars	- Progress maps - Achievement badges	- Progress dashboards - Personalised learning pathways	Progress dashboard
Offline access	For paid courses only	Limited	Available via app	Available for premium version only
Certification	- Professional certificates - Certification of completion	No formal certification (only badges and progress tracking)	Certification of completion	- Certification of completion - Focus more on learning support and knowledge gap progression
Strengths	- University partnerships - A lot of free courses available	Completely free to use	- Career-focused - Integrated with LinkedIn profile	- Peer-to-peer support - Gamified engagement - Large content base - Upload lecture materials to generate quizzes
Weaknesses	- Need to pay for certifications - Need premium version to use the AI feature -AI feature limited to certain professional certs only	- Limited higher education content - No formal certificate	- Paid subscription - Less academic/degree level rigor - Minimal quizzes, exercises to practice on	- Accuracy of answers - Inconsistent moderation - Surface-level learning by just asking questions
References	Coursera [27]	Khan Academy [28] and Khan Academy [29]	LinkedIn Learning [30]	Brainly [31] and Brainly Staff [32]

2.4. Derivation of Variables from UTAUT2 and Task Technology Fit

As part of research activities, this study conducted a comparative analysis of the existing.

3. Methodology

3.1. Research Design and Procedure

The study adopted a qualitative approach using semi-structured interviews. Semi-structured interviews were selected because they allow participants to express their views, experiences, and perceptions in detail while enabling the researcher to probe for further clarification and deeper understanding. The target population comprised students enrolled in Malaysian higher education institutions. A purposive sampling approach was employed to recruit 13 participants. Data collection continued until data saturation was reached, indicating that additional interviews were unlikely to generate new themes [33]. Based on Creswell and Poth [34], research on phenomenology can be measured with qualitative data collection from 5 to 25 participants, and researchers can continue until data are saturated, which implies that no newer themes emerge. These common rules are also supported and suggested by Creswell and Poth [34]; Braun and Clarke [35]; and Hennink and Kaiser [36]. Therefore, employing 13 participants is sufficient for the study to achieve its objectives.

Eleven semi-structured interview questions were prepared and used to gain an in-depth understanding of higher education students in Malaysia's perception of an existing AI-personalised tool with one testing module or subject on the introduction of Artificial Intelligence [37]. All questions were reviewed to ensure validity and reliability by two expert reviewers who have expertise in AI; one of them is a practitioner in AI, while the other reviewer is an academic in the AI field. Interviews were believed to be the most appropriate method of data collection due to their strength in capturing individual perceptions and experiences [37]. Before the commencement of the interview session, consent to participate in the discussion was obtained from the participants. Ethical approval for the study was obtained from the university Research Ethics Committee (2025/REC0258).

The population of this study comprised students enrolled in higher education institutions in Malaysia. Participants were selected using purposive sampling to ensure they were able to evaluate the AI-personalized learning tool and provide relevant feedback based on their experience with the trial learning module [38]. A purposive sample of 13 higher education students from Klang Valley, Malaysia, was recruited to participate in the interview session to provide insights into their perceptions and experiences of using Brainly as an AI-personalized learning tool. The voluntary participation and willingness of participants were highly sought to ensure the motivation and richness of the data gathered [38].

There were two main phases in this study. In Phase 1, the participants were required to sign up for a Brainly account and follow the data collection procedure prepared by the researcher on how to use the software. As part of the procedure, participants were required to go through one module provided by the researcher. This study employed a learning module entitled "What is Artificial Intelligence", developed by Gandhi [39]. The PowerPoint file consisted of 21 slides of module content related to the introduction to AI, including the cover and thank-you slides. Once participants completed this phase, they were required to be in Phase 2, which was a physical interview session that required them to answer semi-structured questions about their feedback on their Phase 1 experiences. A series of face-to-face semi-structured interviews was conducted on 24th October 2025 (Friday), and each session lasted approximately 60 minutes (1 hour). This interview protocol, presented in Table 2, guided three interviewers to record responses in text that the computer typed into an Excel file, which also recorded them electronically.

Table 2.
Interview Protocol.

Items	Questions
Users' overall view on AI-personalised learning tools Kashive, et al. [38]	Could you tell me about your overall view on using AI-powered personalised learning tools? What tools have you used?
Performance Expectancy (PE) towards Brainly Kashive, et al. [38]; Hamilton and Mulaudzi [40]; Ikram, et al. [41]; Benvenuti, et al. [42]; Kasneci, et al. [43]; Jian [44] and Changelima, et al. [45]	1. In what way do you find these tools beneficial for your learning? 2. In your opinion, how do these tools compare to traditional learning methods or other tools that you've used to enhance your learning ability? 3. Can you share a topic that was hard for you, and how AI tools helped (or failed to help) you learn it? 4. Do you think using AI-based learning tools will help you achieve your academic goals more effectively and efficiently? How? 5. Would you say that these tools helped improve your critical thinking skills and helped resolve certain problems? What types of activities or features helped most?
Effort Expectancy (EE) towards Brainly Hamilton and Mulaudzi [40] and Ikram et al. [41]	1. How do these tools catch your interest and make you stay focused while learning? 2. What challenges have you encountered while using AI-based personalised learning tools, and how did you overcome them?
Social Influence (SI) towards Brainly Kasneci et al. [43]	1. Have you ever experienced a situation where your friends/classmates/lecturers influenced your thoughts about using AI-based learning tools? Did that influence lead to a positive or negative outcome? 2. Have you felt the need to use AI tools just because your friends or other people around you are using it? If so, what tool was it? Did you feel encouraged or pressured to use it?
Reliability & Trust (RT) towards Brainly Hamilton and Mulaudzi [40]	1. What factors do you think makes an AI personalised learning tool reliable or unreliable for your studies? Do you check sources or accuracy of answers provided by these tools?

3.2. Instruments and Analyses

Eleven research instruments were adapted from Kashive et al. [38]; Hamilton and Mulaudzi [40]; Ikram et al. [41]; Benvenuti et al. [42]; Kasneci et al. [43]; Jian [44] and Changelima et al. [45]. There were four variables used to measure the students' perception: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Reliability and Trust (RT), as presented in Table 2. To measure PE, five questions were given to examine the degree to which a student believes AI tools improve their performance and outcomes. This was followed by two questions in EE to assess the degree of ease associated with using the system. Further, to measure SI, two questions were asked to understand students' decisions to use and, finally, one question was asked to investigate their perception of reliability and trust that shapes the adoption of the tool Kashive et al. [38]; Hamilton and Mulaudzi [40]; Ikram et al. [41]; Benvenuti et al. [42]; Kasneci et al. [43]; Jian [44]; and Changelima et al. [45]. Although some variables only have one or two questions, the rich data collection technique was not jeopardised because interviewers constantly asked further questions, such as “why” and “how”, to extend the data gathered.

Data preparation and analysis were based on Braun & Clarke's six stages of reflexive thematic analysis [46]. This approach was employed due to its flexibility, relevance, and reliability for this research context. The six phases included data familiarisation; initial code generation; theme identification; theme review; theme naming and definition; and report production. In Phase 1, data collection went through iterative processes involving repeated reading and re-reading for coding ideation. This was followed by Phase 2, initial code generation, in which codes were grouped into meaningful categories. Phase 3 involved a search for themes, combining codes into meaningful themes. The themes generated were further reviewed to ensure quality and pattern consistency that accurately

represented the data. This activity continued in Phase 5 with naming and defining the themes. The themes should not be redundant; they should be relevant, accurate, clear, and focused [46].

4. Results

A total of thirteen participants were included: eight male and five female students. All of them have experience with artificial intelligence tools as well as AI-personalised tools like Coursera and LinkedIn Learning, etc. Reflexive thematic analysis of interview data led to five themes that summarise meaningful viewpoints: support and personalisation, learning efficiency, accessibility and interactivity, learning aid and self-regulation, peer encouragement and social comparison, and credibility and dependability [46].

4.1. Overall View (initial feedback) – Support and Customization

This theme reflects participants' general views on Artificial Intelligence personalised tools. 85% (11/13) of participants reported that the existence of these tools has facilitated their learning pace, customisation that can address their weaknesses and boost their strengths. With this support, they can focus on specific topics in which they are poor, lack comprehension, and improve their understanding and confidence. Practical support provided indirectly has increased their interest, motivation, and engagement in revision for a particular module or course, especially difficult ones. However, most of them deemed these tools supportive learning assistants that could never replace the classroom environment. Several also raised concerns that dependence on any AI tools may lead to other unethical behaviour, like plagiarism and data privacy. Examples of tools that they have used include Duolingo, Brainly, and Turbolearn, which provide personalised quizzes and notes. Examples of participants' quotes:

P8: *“My overall view on using AI-powered personalised learning tools is positive. This is because they make learning more efficient as the content adapts to my pace, strengths and weaknesses. Instead of a 'one-size-fits-all' approach, AI tools can provide customised feedback, enhance my understanding of a certain topic and even suggest additional resources for improvement. I find this engaging and especially effective when it comes to my studies.”* Personally, I have used tools like Duolingo, which guides me through the process of learning foreign languages. It also aids me in translating words or phrases into languages that I am more comfortable with, and this allows me to catch up easily.”

P9: *“These tools make studying more efficient because they offer tailored content to suit one’s study pace.”*

P10: *“I find AI-powered personalised learning tools useful because they adapt to individual needs, give instant feedback, and make learning more engaging, though they raise concerns about over-reliance and privacy. I have used tools like Brainly and ChatGPT to support language learning, writing, and study preparation.”*

P13: *“Instead of a one-size-fits-all approach, AI tools can provide customized feedback and suggest additional resources for improvement.”*

4.2. Performance Expectancy (PE) – Learning Efficiency, Accessibility & Interactivity

This theme reflects participants' views that Artificial Intelligence tools have helped to enhance their learning efficiency and accessibility to any notes or further explanations they require on any subject or module. 69% (9/13) of participants agreed that this tool offered interactive learning that encouraged them to be better in their learning and assessment. The accessibility capabilities also referred to their time management. 77% (9/13) of participants felt they could easily manage their time with ease and flexibility to manage and control their learning processes and time. They have reduced some burdens or difficulties related to the module content and any other challenges. The interactive quizzes and notes that AI-personalised tools facilitated have increased the interest and motivation towards any higher-difficulty subject or module that has challenged them mentally and emotionally. The quotes of participants that related to performance expectancy included:

P1: “Yes, I am sure that AI-based learning tools would help me achieve my academic goals more effectively and efficiently. It is the way they can actually answer my questions and “teach” me in detail, because in learning, reading through the modules sometimes is not enough for me; I need to ask questions and practice questions. I believe that asking and practicing questions are very important in studying. In this way, AI could help me achieve my academic goals by helping me answer my questions, explaining the concepts in more detail, and generating questions to test my comprehension.”

P2: “I think AI tools are much faster and more flexible compared to traditional learning. Instead of spending hours flipping through notes, I can get a clear summary or explanation right away. Traditional methods are still important, but AI makes the process more efficient and less stressful.”

P10: “Yes, I would say these tools have helped improve my critical-thinking and problem-solving skills. Features like step-by-step explanations, interactive quizzes, and adaptive.”

4.3. Effort Expectancy (EE) – Learning Aid and Self-Regulation

This theme reflects participants having more control and authority over how they want to learn, with strong support and helpful tools. 92% (12/13) of participants expressed that they were not exposed to and limited to traditional ways of revising or studying the subject or module. By only reading the module content, they tended to get bored and reduce their motivation to further comprehend the syllabus. The platform aids them with better ways of revising, which are not static and passive anymore. The tool has been customized to their level of comprehension and increases their engagement, focus, and motivation. The instant feedback and gamified learning with rewarding tools have enhanced and changed their perception and experience of learning content, increasing their momentum and concentration. Quotes from participants that relate to the above explanation are as follows:

P1: “These tools catch my interest in a way that they can provide an immediate response or answer to my question, and they could literally answer whatever my question is. To stay focused, I feel it’s more about the way I control myself to avoid getting distracted.”

P2: “Yes, it has helped me improve my critical-thinking and problem-solving skills. The answer given by AI allows me to think and compare it with my own understanding instead of just accepting it. The most helpful features are instant feedback and examples from multiple perspectives.”

P8: “These tools catch my interest mainly through their interactive design and personalised approach. Instead of passively reading or listening, I get to engage with quizzes, simulations, or step-by-step problem-solving activities that keep me actively involved. The progress tracking and instant feedback also make learning feel rewarding, almost like reaching milestones in a game. Because the content adapts to my pace and skill level, I don’t get bored with material that’s too easy or overwhelmed with content that’s too hard. This balance helps me stay focused for longer periods and makes the learning process more enjoyable.”

4.4. Social Influence (SI) – Peer Encouragement and Social Comparison

This theme reflects participant peer influence and fear of being left behind. 54% (7/13) of participants viewed it as positive encouragement from their peers that consequently improved learning outcomes and efficiency. They were inspired by observing their peers’ utilization of AI-personalized tools that could help them have a better understanding. This influence also came from good reviews and feedback. This also increased their curiosity and self-initiative for learning drives. This positive peer pressure also led them to find the best critical approach in self-learning and a sense of competition. Some of their quotes included:

P4: “Yes, as the use of AI really does help people around me a lot, by not using it, I will be left behind in terms of output.”

P8: “Yes, I have. Sometimes at school, my friends talked about how they used AI to aid in their studies; they often shared the latest AI developments and cool tips I could use to better utilize AI. When doing coursework, we also used AI to gain information and ideas. All these shaped a positive perception in me of these kinds of AI-based learning tools. However, my lecturers have also cautioned me about over-relying on AI without verifying the

information. That initially felt like a negative influence, but it actually helped me develop a healthier approach: I now use AI as a supportive resource while still depending on textbooks, academic papers, and discussions for accuracy. In the end, both types of influence helped me strike a better balance.”

P9: “Yes, I have felt that need before. When many of my classmates started using ChatGPT to prepare for assignments and exams, I felt that if I did not at least try it, I might be at a disadvantage. At first, it felt a bit like peer pressure, since everyone was talking about how much easier studying became with it. However, once I tried it, the feeling shifted from pressure to encouragement. I realised that it could genuinely help me with clarifying concepts, generating practice questions, and even summarising study materials. So, while the initial motivation came from seeing others use it, the urge to continue using it came from recognising its real value for my own learning.”

4.5. Reliability & Trust (RT) – Credibility and Dependability

This theme reflects participants’ expectations toward an AI-personalised tool regarding its credibility and reliability. Participants valued the tool’s credibility of sources, including validated and verified sources. Eighty-five percent (11/13) of participants found it trustworthy, but they understood concerns about dependability without cross-checking and the risks that came along with the tool. This also explained the consistency of outcomes generated by the tool and helped avoid over-reliance. They treated it as a supportive assistant, but not as a major or single source of information on which they highly depended. They noticed and were aware of the inconsistencies that the AI-personalised tool carried. They understood the risks and weaknesses that the tool had, but viewed it as a reliable tool for learning and required some skills, such as digital literacy, to generate accurate prompts for the tool to work better.

P3: “I believe a factor that makes an AI learning tool reliable is the way it can learn the user’s behaviour and approach to studying and try to work its way with them. I definitely check the accuracy of the answers provided by the tool, as there have been instances whereby the answers provided were not what I was looking for.”

P5: “In my point of view, the reliability of AI learning tools depends on the accuracy of information as well as the credible references available. This is because well-structured answers that are provided, which cite encouraging sources, can validate a positive output. Hence, to ensure reliability, I make it a habit of double-confirming the response to ensure it relates to trusted resources.”

P7: “AI tools also provide references that are relevant to the topic, although you may need to double-check their validity, as some could lead to incorrect links or unreliable sources. Overall, the sources are quite accurate.”

P11: “Reliability depends on accuracy and up-to-date information, so I usually cross-check answers with textbooks or trusted sources to be sure.”

5. Discussion

The objective of the study was to examine Malaysian higher education students’ perceptions of an Artificial Intelligence (AI) personalised tool called Brainly. Brainly was selected as the subject of the study, and a module or course titled “What is AI” was provided by the researcher to participants to test the functionalities of Brainly and provide their feedback and experience. The findings highlighted that AI personalised tools could be a good option for learning support and aid, especially for complex modules or courses.

The outcomes could be categorised into three main insights. First, the flexibility offered by the platform has widened learners’ scope for revision and enhanced their comprehension. This has increased learners’ interest and motivation, encouraging them to continue studying even when the content is complex and difficult. The three themes generated above collectively demonstrate this outcome: support and customization, learning efficiency, and accessibility and interactivity. These capabilities enhance learners’ motivation and their willingness to remain persistent and consistent, ultimately improving comprehension and learning outcomes [47].

Second, the capabilities of AI-personalised tools aid learners in planning their study and revision. The quizzes and notes provided allow them to learn at their own pace and according to their own timelines, while also facilitating information and knowledge sharing among peers. Furthermore, these tools can encourage positive peer influence and foster healthy learning experiences through collaboration and mutual support. However, the possibility of learners becoming overly dependent on the tools for their studies should not be overlooked. These findings reflect all the themes discussed above: support and customization, learning efficiency, accessibility and interactivity, peer encouragement and social comparison, and credibility and dependability, with the strongest emphasis on support and customization. AI has further transformed learning and teaching by making learning outcomes more achievable, even when the subject matter is difficult and complex. By allowing learners to progress at a pace that aligns with their individual capabilities and performance, AI tools can consequently enhance learning optimization and productivity [48].

Finally, human intervention needs to remain part of the learning process. This finding emphasizes the importance of credibility and dependability. AI tools can be a good option for learners; however, additional guidance and comprehensive learning plans provided by educational institutions and educators may offer benefits beyond what the tools alone can provide. A guided approach can also provide educators and institutions with clear directions for preparing effective lesson plans. However, human oversight remains vital to optimize the learning experience, as learners and educators are still required to think independently and should not become overly dependent on AI tools. It is important to view AI as a supportive tool and educational infrastructure rather than a replacement for human judgment. A balanced combination of AI capabilities and human expertise will result in greater integrity and higher quality in both learning and teaching materials [41, 49].

6. Conclusion

This paper presented part of the larger study that covered insights into learners' perceptions, which revealed positive results regarding Artificial Intelligence (AI) personalisation tools. The semi-structured interviews successfully captured students' perceptions and experiences of using Brainly as an AI-personalized learning tool. Analysis of the interview data indicated positive perceptions regarding content customization, learning efficiency, accessibility, self-regulated learning, peer-supported learning, and the credibility of the information provided. The findings suggest that AI-personalized learning tools can enhance students' learning experiences and serve as valuable supplementary resources in higher education when supported by appropriate educator guidance and instructional strategies. Nevertheless, various aspects associated with human values and ethics are yet to be discovered. The larger study is exploring AI personalisation tools at higher education institutions, covering both educators and learners, with the UTAUT2 and Task Technology Fit models as lenses. This research in progress could widen the investigation into other human factors that benefit policymakers, educational institutions, educators, and many other stakeholders. Future research should investigate other variables related to humans in the adoption and utilisation of AI personalisation tools. It could be a longitudinal study, and other empirical data could provide insights into many other perspectives.

Institutional Review Board Statement:

Ethical approval for this study was obtained from the Sunway University Institutional Review Board (researchethics@sunway.edu.my), Sunway University Malaysia, approval number 2025/REC0258, 21st October 2025. All procedures performed in this study involving human participants were conducted in accordance with the ethical standards of the institutional research committee.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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