Exploring factors influencing ChatGPT use among students: Evidence from Morocco

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Abstract

This study aims to investigate the key determinants of attitude and intention to use ChatGPT among students in Moroccan universities. Data was collected through a survey of 287 Moroccan respondents and analysed using structural equation modelling. The results revealed that students who perceived ChatGPT as useful ultimately developed a different overall attitude toward the tool compared to those who initially resisted its use. Similarly, students' perceptions of ChatGPT's alignment with academic integrity significantly influenced their attitudes. Interestingly, ethical considerations, religiosity, and digital literacy did not have a statistically significant impact on either attitude or behavioural intention. These findings suggest that perceived usefulness, initial resistance, and concerns about academic integrity are key factors shaping students' overall perceptions and readiness to use ChatGPT among students.

Keywords: Intention to use; perceived ease of use; perceived credibility, SEM, Morocco.

1.Introduction

The rapid advancement of artificial intelligence (AI) has significantly influenced the academic landscape, offering students new tools to enhance their academic output and learning experience. One of the most popular tools used by students nowadays is ChatGPT, a language model used to generate text, assist with writing, and answer complex questions. Still, its widespread utilization among students has raised concerns among educators and specialists regarding its impact on academic integrity and the development of independent scholarly skills. In societies where academic achievement is closely tied to social mobility (i.e., Morocco), the use of ChatGPT needs careful examination. In that context, a number of studies have highlighted a growing popularity of ChatGPT in academic settings, with many students reportedly using it to draft assignments and prepare for assessments (Lee & Choi, 2020; Kim & Wong, 2023). These studies have also raised ethical concerns, warning against potential misuse for academic dishonesty (Strzelecki, 2023; Tiwari et al., 2024).

In the Moroccan context, where academic integrity remains a core value, the unethical use of ChatGPT could pose serious challenges to the educational system. Despite these concerns, there is a notable lack of empirical research exploring how Moroccan students engage with this tool. While global studies have explored various aspects of ChatGPT's use, the cultural, educational, and ethical dimensions specific to Morocco remain underexplored. This ga*p* hinders a comprehensive understanding of the local implications of ChatGPT use in higher education.

The current research paper seeks to address this ga*p* by investigating how Moroccan students use ChatGPT, with a particular focus on the factors influencing their attitude and willingness to adopt the tool. Specifically, it examines the key factors (i.e., perceived usefulness, ease of use, perceived academic integrity, unfair evaluation of students, biases, and ethical values) shaping students' attitudes and intent to use ChatGPT. Furthermore, this research considers the ethical beliefs of students, including the potential moderating role of religiosity. Accordingly, this study addresses the following research questions:

RQ1. What are the determinants of attitudes towards ChatGPT among Moroccan students?
RQ2. How do attitudes towards ChatGPT affect its usage intentions?
RQ3. Does religiosity moderate the link between ChatGPT attitudes and intentions?

2. Literature review

2.1. Theoretical framework

The Unified Theory of Acceptance and Use of Technology (UTAUT) serves as a theoretical framework to understand technology acceptance among students, emphasizing factors like performance expectancy, effort expectancy, and social influence (Venkatesh et al., 2003). In the context of ChatGPT, exploring students' perceptions of its usefulness, ease of use, and resource availability can be used to help students in their assignments and research. Smith & green (2017) emphasises that students are likely to avoid plagiarism if their peers disapprove it. The UTAUT has been widely applied in various educational technology contexts, demonstrating its effectiveness in predicting and explaining user acceptance (Teo, 2011).

2.2. Conceptual Model and hypothesis development

The proposed conceptual model incorporates constructs that have been mainly borrowed from prior literature, and include perceived usefulness, ease of use, perceived academic integrity, unfair evaluation of students, biases, and ethical values. The moderating effect of religiosity in the linkage between attitude and intention to use ChatGPT is also scrutinized.

Based on the Theory of Planned Behavior (Ajzen, 1991), this study hypothesizes that a positive attitude toward ChatGPT significantly predicts an individual's behavioral intention to use it. TPB posits that behavioural intention is influenced by one's attitude toward the behavior, along

with subjective norms and perceived behavioral control. In this context, if users perceive ChatGPT as useful, they are more likely to develop favorable attitudes toward it, which in turn strengthens their intention to use the tool. Therefore, the hypothesis proposes that individuals with more positive attitudes toward ChatGPT will show a higher intention to engage with it.

H1: *Individuals with more positive attitudes toward ChatGPT are more likely to have stronger behavioral intentions to use it.*

ChatGPT resistance refers to the opposition shown by the students towards its use driven by concerns about plagiarism, accuracy and academic integrity (Tiwari et al., 2024). Students can exhibit resistance to using ChatGPT due to uncertainties regarding academic integrity lack of accuracy and fear of plagiarism issues (Zhang and Tur, 2023)). Resistance can also come from the influence of surroundings concerning inaccurate outputs (Ahmed and Sobaih, 2023). Based on the above, we hypothesize that:

H2. *Students' resistance to ChatGPT negatively impacts their Attitude towards using ChatGPT.*
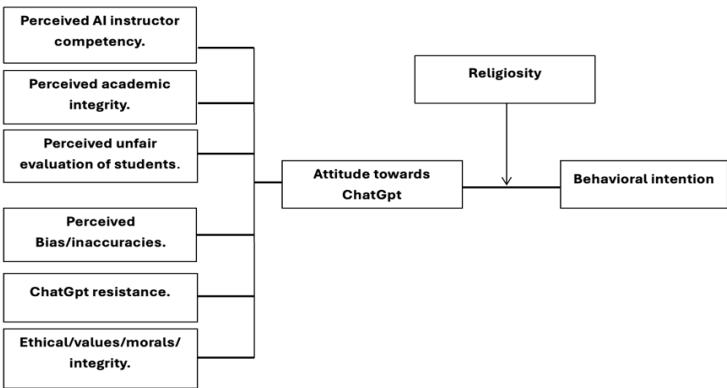

Figure 1 Conceptual model Source (Authors' work)

Ethics reflect the beliefs that can conflict with the use of ChatGPT due to educational integrity concerns (Farhi et al., 2023). Moral values that disagree with ChatGPT's components can direct students to develop negative attitudes regarding utilizing ChatGPT (Lee & Choi, 2020; Martin, 2022). Learners who prioritize ethical considerations in their academic matters may perceive ChatGPT as an immoral tool that compromises educational honesty (Lee & Choi,2023). Hence:

H3. *Students' moral values negatively impact their Attitude towards using ChatGPT.*

Academic integrity is the adherence to academic honesty principles (Bin-Nashwan et al., 2023). Perceiving ChatGPT use as an act of academic dishonesty can be a serious issue impacting students' attitude towards the tool (White & Lee, 2024) . Academic integrity is a fundamental setting in the students' resistance to adopting ChatGPT. It is therefore crucial for students to

understand how to ethically use ChatGPT before integrating it to the academic diaspora. Therefore:

H4. *Perceived Academic Integrity negatively impact students' Attitude towards using ChatGPT.*

Perceived credibility stands for the extent to which students trust the accuracy and the credibility of the output of the tool, that can influence their willingness to use it in the learning process (Strzelecki, 2023). Perceived credibility of ChatGPT output can impact the student's use of the tool when they observe inaccuracies in the work provided by the tool; leading to not incorporating it in their learning process (Ahmed & Sobaih, 2023). The lack of accuracy can lead to misinformation and confusion resulting in hesitation to adopt ChatGPT, neglecting its potential benefits (Zhang and Tur, 2023). Based on the above, we hypothesize that:

H5. *Perceived Inaccuracies negatively impact students' Attitudes towards using ChatGPT.*

Instructors' AI competency refers to the level of understanding the educator possesses regarding AI. Instructors understanding of AI can significantly affect the perception of students towards ChatGPT (Smith & Jones, 2023; Brown et al., 2022). If students observe that their instructor is familiar with the tool, they may be encouraged to use it themselves, on the other hand if the instructor is not proficient AI wise, they will fear the instructor disapproval (Smith & Jones, 2023). Hence:

H6. *Perceived instructors' AI competency negatively impacts students' attitude towards using ChatGPT.*

In academic affairs, the potential of unfair evaluation due to the wide use of ChatGPT during assessments is raising concerns among students (Lee & Choi, 2020; Kim & Wong, 2023; Patel & Singh, 2024; Johnson & Garcia, 2024). Unequal access to ChatGPT and the lack of AI comprehension of the instructor may lead to biased grading without knowing if the work was AI-generated or organic work by the student. These concerns appeal the educational core to implement clear guidelines and AI policies for students' usage to ensure transparency and equitable access chances (Johnson & Garcia, 2024). Students with higher religiosity Hence:

H7. *Perceived Unfair evaluation of students negatively impacts students' attitude towards using ChatGPT.*

Also:

H8. *Student religiosity moderates the relationship between attitude toward using ChaGPT and behavioral intent.*

3. Methods

This study used a non-probabilistic sampling approach combining self-selection and snowball sampling due to the exploratory nature and accessibility constraints. A structured questionnaire was used, adapted from validated instruments, and designed to assess constructs using a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Data collection was conducted online, primarily through WhatsApp and social media platforms. The use of Structural Equation Modeling (SEM) for analysis was justified by its ability to simultaneously assess complex relationships between multiple independent and dependent variables, offering strong reliability and validity for model testing in behavioral research. Data collection was conducted over a one-month period, from March 25 to the end of April. A total of 287 participants completed the survey. The responses were assessed for reliability, accuracy, and suitability for hypothesis testing. Given that French is widely spoken in Morocco, the survey was administered in both French and English (Chetioui & Abbar, 2017; Lebdaoui et al., 2021). To ensure linguistic accuracy, a back-translation method was employed to convert the English version into French. The study utilized constructs adapted from established literature (see Appendix), and all variables were measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Demographic data—including gender, age, city of residence, and education level—were collected at the end of the survey (see Table 1).

4. Results

We used structured equation modeling (SEM) to examine the connections between various variables presented in the conceptual model. Partial Least Squares (PLS) was designated as the appropriate method for this study due to the complexity of relationships among. Our findings demonstrate that the Cronbach's alphas (CA) and composite reliabilities (CR) of all constructs exceed the suggested value of 0.7, indicating acceptable levels of construct reliability; The achieved loading of above 0.7 for all indicators suggests that their reliability has been established. The attainment of convergent validity was established by evaluating the (AVE) for each construct. Our analysis revealed that all constructs had an AVE greater than 0.5, confirming the convergent validity of the proposed conceptual model. The discriminant validity has been assessed through Heterotrait-Monotrait ratio of correlations (HTMT) criterion. It evaluates the extent to which the correlation between two constructs surpasses the correlations between any construct and itself (Chetioui et al., 2023). The 0.9 threshold was not exceeded by any of the HTMT values found (the tables of results are available upon request). Our analysis conveys that the theoretical model can be effectively tested as all constructs have acceptable results in terms of construct reliability, convergent validity, and discriminant validity.

According to Chin (1998), a key indicator for evaluating the structural model is the coefficient of determination (R^2) of the endogenous latent variables. An R^2 value exceeding 0.2 is typically

considered to represent moderate explanatory power. The R² of both attitude and intention to use ChatGPT were both above 0.2 and are therefore considered moderate; The findings offer important insights into the factors shaping attitudes toward and behavioral intentions to use ChatGPT. H1 reveals a strong positive relationship between attitude toward ChatGPT and the intention to use it, with a statistically significant beta coefficient of 0.556 ($p < 0.001$). This underscores the critical role of fostering favorable perceptions of ChatGPT to enhance user engagement. In contrast, H2 indicates a significant negative effect of resistance to ChatGPT on user attitudes ($\beta = -0.253$, $p < 0.001$), suggesting that hesitancy—possibly due to unfamiliarity or fears of technological displacement—can erode positive perceptions. This highlights the importance of targeted educational initiatives to reduce resistance and increase acceptance. H3 tested the influence of ethical values, moral principles, or integrity on attitudes toward ChatGPT but found no significant effect ($\beta = 0.018$, $p = 0.734$). This suggests that these factors may not be central concerns for users, potentially due to widespread acceptance of AI technologies or a lack of awareness of their ethical implications. As such, ethical considerations may not significantly influence ChatGPT usage decisions among students. Conversely, H4 shows that perceived academic integrity has a strong positive effect on attitudes ($\beta = 0.531$, $p < 0.001$), indicating that students' confidence in ChatGPT's ability to support academic standards contributes meaningfully to their acceptance of the technology. However, H5 finds that concerns about bias or inaccuracies in ChatGPT do not significantly impact attitudes ($\beta = 0.079$, $p = 0.177$), suggesting either limited awareness of these issues or a lower level of concern among users. Similarly, H6 demonstrates that perceived AI competency of instructors does not significantly influence student attitudes toward ChatGPT ($\beta = 0.033$, $p = 0.586$), implying that students form their views independently of their instructors' technical proficiency. H7 reveals that concerns over unfair student evaluations involving ChatGPT can negatively affect attitudes ($\beta = 0.149$, $p = 0.010$). This highlights the need for transparent policies regarding the use of AI in assessment to preserve trust and foster positive perceptions. Finally, H8 suggests a marginally significant moderating effect of religiosity on the relationship between attitude and intention to use ChatGPT ($\beta = 0.101$, $p = 0.063$), indicating that religious beliefs may subtly shape openness or resistance to AI, although the effect is not pronounced.

Table 1 Direct and indirect effects. Source (Authors' work)

	Relationships	Beta	S.D.	T-statistic	P-value
H1	Attitude towards ChatGpt-> behavioral intention	0.556	0.067	0.869	0.000
H2	ChatGpt resistance -> Attitude towards ChatGpt	-0.253	0.054	0.466	0.000
H3	Ethical/values/morals/integrity -> Attitude towards ChatGpt	0.018	0.053	0.314	0.734
H4	Perceived academic integrity -> Attitude towards ChatGpt	0.531	0.065	0.815	0.000
H5	Perceived bias inaccuracies -> Attitude towards ChatGpt	0.079	0.059	0.135	0.177
H6	Perceived instructor Al competence-> Attitude towards ChatGpt	0.033	0.006	0.544	0.586
H7	Perceived unfair evaluation of students-> Attitude towards ChatGpt	-0.149	0.057	0.589	0.001
Moderating effects					
H8	Attitude towards ChatGPT*religiosity -> Behavioral intention	0.101	0.054	0.875	0.063

5. Discussion and Conclusion

The current research advances the theoretical understanding of technology acceptance by contextualizing it within the framework of artificial intelligence (AI) usage in higher education. First, the strong positive relationship between attitude and behavioral intention reaffirms central tenets of the Technology Acceptance Model (TAM), emphasizing that fostering positive perceptions is essential for adoption. The significant negative impact of resistance contributes to resistance-to-innovation theory, suggesting that emotional and cognitive barriers substantially shape user attitudes. Additionally, the lack of influence from ethical values challenges assumptions in previous literature that morality is a primary determinant in AI-related decisions, particularly in academic contexts. This may indicate a shifting normative baseline where users prioritize functionality and utility over ethical considerations, or a gap in awareness that warrants further exploration. Moreover, the significance of perceived academic integrity highlights a novel driver of positive attitudes towards AI tools in education. The non-significance of perceived bias and instructor AI competence suggests that students may decouple their own engagement with AI tools from concerns over system errors or authority figures' proficiency. Finally, the moderating role of religiosity, although marginal, opens avenues for integrating cultural and spiritual dimensions into AI acceptance theories, particularly in non-Western or religiously influenced educational contexts.

For educators, institutions, and policymakers, these findings offer actionable insights. First, since attitude is a key driver of intention, educational campaigns that highlight ChatGPT's benefits and responsible use can encourage constructive adoption. The negative impact of resistance suggests a need for training and awareness programs to demystify AI tools and alleviate concerns related to job displacement or misuse. The non-significance of ethical values in shaping attitudes indicates a possible disconnect between ethical awareness and AI use. Institutions should therefore consider integrating more explicit discussions on academic ethics and AI into curricula. Concerns about unfair evaluation indicate that transparency in how AI

influences grading and assessment is vital to maintain trust. Finally, the moderating effect of religiosity, though small, suggests that AI adoption strategies should consider cultural and religious values to ensure inclusive implementation.

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