

# Exploring How ChatGPT Utilisation Influences Online Motivation

<sup>\*1</sup> Nor Hafizah Mohamed Harith, <sup>\*2</sup> Mazlan Che Soh, <sup>3</sup> Sharifah Faatihah Syed Mohd Fuzi, <sup>4</sup> Nur Zafifa Kamaruzaman, <sup>5</sup> Noor Hanim Rahmat, <sup>6</sup> Sulikah Asmorowati

<sup>1,2,3,4,5</sup> Faculty of Administrative Science & Policy Studies, Universiti Teknologi MARA

<sup>5</sup> Akademi Pengajian Bahasa, Universiti Teknologi MARA

<sup>6</sup> Faculty of Social & Political Science, Universitas Airlangga, Indonesia

**\*Corresponding Author**

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## ABSTRACT

The use of AI in education has transformed the experience of learners. Much empirical research has been conducted on how ChatGPT has influenced learners. Previous empirical studies have examined the impacts of ChatGPT on academic performance; however, little research has explored the influence of ChatGPT utilisation on online motivation. The expectancy-value theory and the technology acceptance model (TAM) were adopted in the study. The study was carried out to explore how ChatGPT utilisation is associated with online motivation among higher education learners. The study adopted a quantitative survey design. A total of 211 undergraduate and postgraduate students from Universiti Teknologi MARA, Malaysia, participated in the study. The findings of the study confirm the expectancy-value theory: higher self-efficacy and greater task value are positively associated with students' learning motivation in the context of ChatGPT utilisation, with most mean scores at 4 or above. In addition, the results of the study support the Technology Acceptance Model (TAM) (Davis, 1989) by confirming that the perceived usefulness and perceived ease of use of ChatGPT shape the attitudes and behavioural intention among the learners and increase the learners' perceived academic achievement, with most mean scores of 4 and above. Furthermore, the correlation analysis shows that there is a highly significant association between ChatGPT and expectancy components ( $r=.512^{**}$ ) and ( $p<.001$ ) and between ChatGPT and value components ( $r=.539^{**}$ ) and ( $p<.001$ ). However, there is a moderate association between ChatGPT and expectancy of social support ( $r=.455^{**}$  and  $p<.001$ ). The findings of the study suggest that future pedagogical methods integrating AI tools in higher education are positively associated with student motivation, engagement, and academic performance, revealing the potential to improve teaching and learning practices.

**Keywords:** ChatGPT, Online Motivation, Higher Education, Technology Acceptance Model, Expectancy-Value Theory

## INTRODUCTION

### Background of Study

Generative artificial intelligence has become increasingly embedded in the higher education ecosystem, with ChatGPT used by students to obtain explanations, generate ideas, support writing, translate information, and explore alternative approaches to academic tasks. Its conversational interface and immediate responses may make online learning more accessible and interactive. Nevertheless, the educational value of ChatGPT depends not merely on access to the technology but also on how learners evaluate its outputs, regulate their use of the tool, and integrate the information it generates into meaningful learning activities. Youssef et al. (2024) reported that ChatGPT usage can support student engagement, critical thinking, academic learning, and achievement, although its outputs still require verification and critical evaluation.

Online motivation refers to the beliefs, values, and social conditions that initiate and sustain learners' participation in online learning. In this study, the effects are examined through expectancy, value, and social support. Expectancy covers learners' self-efficacy and beliefs about their control over learning; value reflects intrinsic goals, extrinsic goals, and the perceived usefulness of learning tasks; and social support covers engagement with peers and support from instructors. Lai et al. (2023) identified intrinsic motivation as the strongest predictor of students' intention to use ChatGPT for active learning, while Strzelecki (2024) found that performance expectancy and hedonic motivation contributed to students' behavioural intention to use the technology. These findings indicate that ChatGPT usage should be examined within a broader motivational framework rather than treated only as a technological behaviour.

### Statement of Problem

Existing research presents ChatGPT as a potentially useful educational tool but also identifies tensions around the quality, reliability, and consequences of its use. Although Youssef et al. (2024) reported positive effects on engagement, critical thinking, and academic achievement, students may still encounter inaccurate, incomplete, or contextually inappropriate information. Dikilitaş et al. (2024), in a rapid, systematic review of empirical research, similarly identified pedagogical opportunities associated with ChatGPT but cautioned that the passive acceptance of ready-made responses may limit critical thinking, creativity, and responsible knowledge construction. Heung and Chiu's (2025) systematic review and meta-analysis further showed that findings concerning behavioural, cognitive, and emotional engagement are not uniformly positive across educational contexts.

A further issue is that motivation in AI-assisted learning is multidimensional. Learners may perceive ChatGPT as useful while still lacking confidence in completing difficult online tasks, attaching limited value to learning activities, or experiencing insufficient support from instructors and peers. Annamalai et al. (2025) found that autonomy and relatedness were key determinants of students' motivation for the continuous use of ChatGPT, whereas Mahande et al. (2026) showed that self-efficacy and motivation significantly influenced performance in blended learning environments involving ChatGPT. However, studies focusing primarily on acceptance, usage, or academic performance may not show how ChatGPT relates separately to expectancy, value, and social support. Therefore, the present study examines ChatGPT utilisation within a broader online-motivation framework comprising these three dimensions.

### Objective of the Study and Research Questions

This study explores how the ChatGPT utilisation influences online motivation. Specifically, this study seeks to answer the following questions:

How do learners perceive the ChatGPT utilisation in online learning?

How do learners perceive expectancy in online learning?

How do learners perceive task value in online learning?

How do learners perceive social support in online learning?

Is there a significant relationship between ChatGPT and online motivational factors?

H<sub>01</sub>: There is no significant relationship between ChatGPT and online motivational factors.

## LITERATURE REVIEW

### Theoretical Framework of the Study

Expectancy-Value Theory (Wigfield & Eccles, 2000)

Expectancy-value theory proposes that learners' expectancy of success and academic achievement are

influenced by ability-related beliefs and the subjective value they assign to a task (Wigfield & Eccles, 2000). These elements work together, with expectancy of success and value beliefs central to determining educational performance and behavioural persistence (Urhahne & Wijnia, 2023). In expectancy-value models, students' perceived competence and excellence in performing academic tasks can be developed through self-efficacy and self-concept (Tan & Prihadi, 2022; Wigfield & Eccles, 2000); through these, students can maintain consistent effort and be more committed to achieving academic goals. Meanwhile, task values consist of utility, attainment, intrinsic interest, and cost, which are the primary factors that drive students' intention and academic achievement (Klinke et al., 2024; Wigfield & Eccles, 2000). The utility value is defined by the perceived relevance of coursework to short- and long-term professional objectives, while attainment value reflects the belief about the significance of personal achievement (Meyer et al., 2024). A further component is

intrinsic value and the perceived cost of the tasks performed by students. The intrinsic value comes from individual interest and enjoyment, and the perceived costs stem from the potential opportunity costs associated with academic success (Reinholz et al., 2021). Wigfield and Eccles (2000) argued that ability, belief, and task value vary across subjects and tasks due to greater social comparison, evaluative feedback, and changes in learning environments.

### **Technology Acceptance Model (TAM) (Davis, 1989)**

Historically, research has highlighted the Technology Acceptance Model (TAM), originally proposed by Davis (1989), as one of the most well-established and widely adopted theoretical frameworks for predicting and explaining how end-users accept or reject new information technologies (O'Dea, 2025; Yeoh et al., 2025). At the core of this framework is the premise that user acceptance is primarily determined by two fundamental cognitive beliefs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Davis, 1989). Specifically, perceived usefulness is defined as the degree to which an individual believes that employing a particular system will enhance their job performance, whereas perceived ease of use represents the extent to which they believe using that system will be effortless (Davis, 1989; Marín Díaz et al., 2024). A key aspect of this model is how these two primary constructs interact to shape user behaviour: perceived ease of use is theorised to directly influence perceived usefulness. In contrast, both constructs jointly determine an individual's attitude and subsequent behavioural intention to use the technology (Yurder, 2025). This foundational relationship has been extensively validated across various fields, including education (Galimova et al., 2024) and hospitality management (Li et al., 2026). Ultimately, this behavioural intention serves as the most proximal and powerful predictor of actual system use (Davis, 1989). As research has evolved, evidence suggests that the successful implementation and deployment of any technological innovation depend not merely on its technical features but also on users' subjective perceptions of its functional utility and user-friendly design. However, modern organisational policies and motivational factors often moderate this relationship in corporate environments (Ajibade, 2018).

### **Past Studies on ChatGPT and Online Motivation**

Recent studies have examined how ChatGPT influences students' learning experiences, engagement, and academic behaviour. Youssef et al. (2024) conducted a survey-based study among university students in Ajman, United Arab Emirates, to examine the effects of ChatGPT usage on academic learning and achievement. The findings indicated that ChatGPT supported engagement, effort, ambition, and academic tasks, demonstrating its potential to support learning when students use the tool purposefully. At the same time, the study highlights the importance of examining learners' actual usage patterns because perceived benefits may vary depending on the academic task and how students evaluate ChatGPT-generated information.

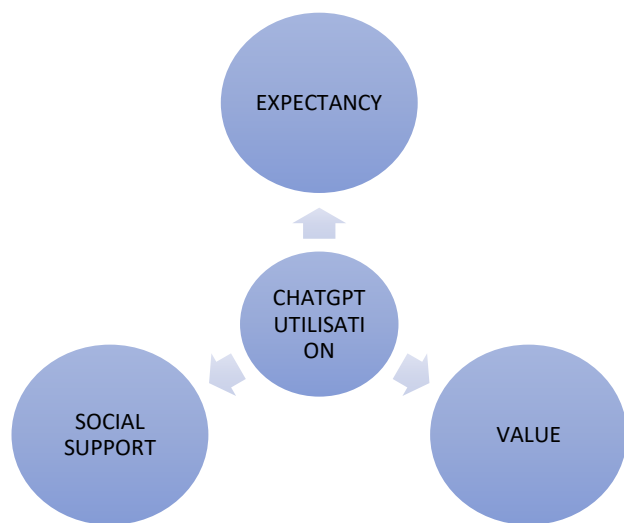
Dikilitaş et al. (2024) synthesised empirical research on students' use of ChatGPT in higher education through a systematic rapid review. The review identified pedagogical opportunities linked to independently accessing and generating educational content, but it also raised concerns about students becoming passive recipients of pre-packaged knowledge. The authors emphasised responsible and ethical use, reflection on long-term learning effects, and the need for further empirical investigation of how ChatGPT affects the quality of students' learning. These observations suggest that motivation should be examined with self-regulation, critical engagement, and the social conditions supporting online learning.

In an online reading study, Rahmat (2026) examined the relationship between online reading strategies and ChatGPT usage among undergraduates. This line of inquiry indicates that the educational influence of ChatGPT is closely connected to students' learning strategies rather than to usage alone. Taken together, previous studies show that ChatGPT may enhance accessibility, engagement, and learning support, but its contribution depends on learners' expectancy beliefs, the value attached to learning tasks, and the academic support surrounding its use. The present study extends this discussion by assessing ChatGPT utilisation in relation to the three components of online motivation: expectancy, value, and social support.

### Conceptual Framework of the Study

Figure 1 illustrates the conceptual framework for exploring how ChatGPT utilisation influences online motivation. The framework is grounded in the expectancy-value theory proposed by Wigfield and Eccles (2000), which holds that learners' motivation is influenced by their expectations of success and the value they attach to learning activities. In this study, online motivation is represented by the factors of expectancy, value, and social support, adopted from the instrument developed by Fowler (2018). Expectancy refers to learners' beliefs about their ability to perform successfully in online learning tasks, while value reflects the perceived usefulness and importance of these tasks. Social support covers the encouragement and assistance received from instructors, peers, and learning resources that contribute to learner engagement and persistence. According to the expectancy-value theory, students are more motivated when they believe they can succeed and perceive learning activities as meaningful and beneficial.

The framework is further supported by the Technology Acceptance Model (TAM) developed by Davis (1989), which explains users' acceptance and use of technology based on its perceived usefulness and ease of use. By integrating TAM and expectancy-value theory, the framework proposes that effective use of ChatGPT can strengthen learners' expectancy, enhance the perceived value of online learning, and provide additional learning support, thereby raising overall online motivation and engagement.



**Figure 1: Conceptual Framework of the Study**

## METHODOLOGY

This quantitative study explores the relationship between ChatGPT utilisation and online motivation. Data collection was conducted over two months, from 1 July 2026 to 28 August 2026. A convenience sampling method was employed, resulting in 211 participant responses. To ensure that the sample aligned with the research objectives, specific inclusion and exclusion criteria were established:

**Inclusion criteria:** participants had to be actively enrolled undergraduate students at Universiti Teknologi MARA (UiTM).

**Exclusion criterion:** individuals who were not UiTM undergraduate students were excluded from the study.

Participants were recruited by making the survey accessible through official UiTM platforms, ensuring it reached the targeted student population. Ethical guidelines were strictly followed, and informed consent was obtained from all participants before they were given access to the survey. Following the collection phase, a manual data-cleaning approach was used. The raw dataset was checked for completeness and to identify any invalid or incomplete responses. After this manual screening process, a clean sample of 211 valid participant responses was finalised for statistical analysis.

The instrument used is a five-point Likert-scale survey based on Fowler (2018) and Youssef et al. (2024) to measure the variables in Table 2 below. Table 1 below shows the categories used for the Likert scale: 1 is Never, 2 is Rarely, 3 is Sometimes, 4 is Often, and 5 is Always.

The questionnaire items were adopted verbatim from their sources. No adaptation, translation, or modification processes were performed. Consequently, additional expert content validation and pilot testing were not conducted before deployment, as the study relied on the established validity of the original authors' work. Furthermore, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were not conducted for this specific sample. Therefore, rather than claiming independent construct validity, this study relies on the internal consistency (reliability) of the current dataset alongside the original theoretical frameworks.

**Table 1: Likert Scale Used**

|   |           |
|---|-----------|
| 1 | Never     |
| 2 | Rarely    |
| 3 | Sometimes |
| 4 | Often     |
| 5 | Always    |

**Table 2: Distribution of Items in the Survey**

| SECTION | VARIABLE                           | CONSTRUCT      | Sub-Category                | NO OF ITEMS INDICATORS | TOT      |
|---------|------------------------------------|----------------|-----------------------------|------------------------|----------|
| B       | ONLINE MOTIVATION<br>Fowler (2018) | EXPECTANCY     | Self-Efficacy               | 7                      | 11(.877) |
|         |                                    |                | Control of Learning Beliefs | 4                      |          |
|         |                                    | VALUE          | Intrinsic Goal Orientation  | 4                      | 14(.889) |
|         |                                    |                | Extrinsic Goal Orientation  | 4                      |          |
|         |                                    |                | Task Value                  | 6                      |          |
|         |                                    | SOCIAL SUPPORT | Social Engagement           | 5                      | 12(.883) |
|         |                                    |                | Instructor Support          | 7                      |          |

|   |                                |                                |  |   |          |
|---|--------------------------------|--------------------------------|--|---|----------|
|   |                                |                                |  |   |          |
| C | CHAT GPT Youssef et al. (2024) | Critical thinking abilities    |  | 4 | 15(.934) |
|   |                                | Perceived Academic achievement |  | 4 |          |
|   |                                | ChatGPT usage                  |  | 5 |          |
|   |                                | Student engagement             |  | 3 |          |
|   |                                |                                |  |   | 53(.956) |

**Table 3: Reliability Levels, Cronbach's Alpha Ranges, and Their Interpretations**

| Reliability Level | Cronbach's Alpha range | Interpretation                             |
|-------------------|------------------------|--------------------------------------------|
| Excellent         | 0.9 and above          | Indicates very high internal consistency   |
| Good              | 0.80-0.89              | Reflects strong internal consistency       |
| Acceptable        | 0.70-0.79              | Indicates acceptable internal consistency  |
| Questionable      | 0.60-0.69              | Reflects questionable internal consistency |
| Poor              | Below 0.6              | Indicates poor internal consistency        |

To determine the internal reliability of the instrument, reliability analysis was conducted. Table 3 above shows the distribution and interpretation of the Cronbach's alpha range. According to Ahmad et al. (2024), Cronbach's alpha scores between 0.7 and 0.9 are considered acceptable to excellent.

Table 2 also shows the reliability of the survey. The analysis shows a Cronbach alpha of .877 for expectancy, .889 for value, .883 for social support, and .934 for ChatGPT. The overall Cronbach's alpha for all 53 items is .956, thus indicating good reliability of the instrument used. Further analysis using SPSS was conducted to present findings to answer the research questions for this study. Furthermore, the data were assessed for relevant statistical assumptions before conducting the Pearson correlation analysis, including the linearity test, normality test, and identification of potential outliers. The questionnaire with negatively worded items was reverse coded using formula  $6 - X$  for the five Likert scales, i.e., it became 1=Always, 2=Often, 3=Sometimes, 4=Rarely, and 5=Never. Only one item was negatively worded: "I feel disconnected from my teacher and fellow students in classes", under social support.

## FINDINGS

### Demographic Analysis

According to Ziegenfuss et al. (2021), researchers report demographic data in percentages to establish sample representativeness and allow generalisation to a larger population. The reporting also provides an overview of participants' characteristics. Percentages offer a clear picture of the sample composition.

**Table 4: Percentage for Demographic Profile**

| Question | Demographic Profile | Categories                             | Percentage (%) |
|----------|---------------------|----------------------------------------|----------------|
| 1        | Gender              | Male                                   | 30%            |
|          |                     | Female                                 | 70%            |
| 2        | Field of Study      | Science & Technology                   | 22%            |
|          |                     | Social Sciences, Humanities & Business | 78%            |
| 3        | Level of Study      | Diploma                                | 28%            |
|          |                     | Bachelor's Degree                      | 61%            |
|          |                     | Postgraduate                           | 11%            |

Table 4 shows the demographic profile of the study respondents. A total of 30% of the respondents were male, and 70% were female. The majority of the respondents, i.e., 78%, were from social sciences, humanities, and business schools, while only 22% were from science and technology. In terms of level of study, the majority of the students were bachelor's degree students; 28% were diploma students, and 11% were postgraduate students.

### Descriptive Statistics

Why is there a need to report the mean and standard deviation? According to Vetter(2017), the mean (M) represents the average, or centre, of a data set. Standard deviation (SD) indicates the typical distance of individual observations from the mean value, which shows the data's variability or spread. A low SD means the data points are clustered close to the mean, while a high, and preferred, SD means they are spread out.

### Findings for ChatGPT Utilisation

This section presents data to answer research question 1: How do learners perceive the relationship between ChatGPT's utilisation and online learning? In the context of this study, the TAM is applied to measure the construct, in which ChatGPT is viewed as an educational technology that can enhance learning experiences by supporting critical thinking, academic achievement, ChatGPT usage, and student engagement, as measured by the instrument developed by Youssef et al. (2024). Thus, ChatGPT utilisation is measured by: (i) critical thinking abilities, (ii) perceived academic achievements, (iii) ChatGPT usage, and (iv) student engagement.

**Table 5: Mean (M) and Standard Deviation (SD) for Critical Thinking Abilities (CT)**

| ITEM                                                                                                                                                                   | M    | SD   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|
| CTQ1 I usually need clarification on the precision and reliability of information provided by ChatGPT, which enhances my critical thinking skills.                     | 4.11 | 0.80 |
| CTQ2 ChatGPT's responses made me doubt their validity, leading me to seek further clarification or evidence.                                                           | 4.24 | 0.76 |
| CTQ3 I actively explore alternative viewpoints or sources of information when using ChatGPT to ensure a comprehensive understanding of the topic.                      | 4.19 | 0.78 |
| CTQ4 I need clarification about the accuracy of ChatGPT's output, which often encourages me to evaluate the information and conduct additional research independently. | 4.24 | 0.75 |

Table 5 shows the mean score and standard deviation for critical thinking abilities. The highest mean scores were for CTQ2 ( $M = 4.24$ ,  $SD = 0.76$ ) and CTQ4 ( $M = 4.24$ ,  $SD = 0.75$ ). The results indicate that the use of ChatGPT raises concerns about the validity and accuracy, which leads respondents to seek clarification and encourages them to evaluate the information further and conduct additional research independently. The third highest mean value was CTQ3 ( $M = 4.19$ ,  $SD = 0.78$ ), suggesting that respondents do explore alternative viewpoints or additional resources to gain a better understanding of certain topics. The lowest mean score was CTQ1 ( $M = 4.11$ ,  $SD = 0.80$ ), in which the respondents agreed that ChatGPT can enhance their critical thinking skills by providing further clarification on the information derived from ChatGPT in terms of precision and reliability. Overall, the findings indicate that students perceive ChatGPT as a useful tool for supporting online learning, particularly when they critically analyse, evaluate, and verify the information generated by the tool.

**Table 6: Mean (M) and Standard Deviation (SD) for Perceived Academic Achievements (AA)**

| ITEM                                                                                                                                              | M    | SD   |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------|------|
| AAQ1 I actively explore alternative viewpoints or sources of information when using ChatGPT to ensure a comprehensive understanding of the topic. | 4.00 | 0.81 |
| AAQ2 ChatGPT brings innovative ideas that are ready to be shared with students.                                                                   | 3.61 | 0.96 |
| AAQ3 Students can anticipate robust writing guidance from ChatGPT.                                                                                | 3.83 | 0.84 |
| AAQ4 ChatGPT has improved my academic performance.                                                                                                | 4.00 | 0.81 |

Table 6 reveals the results on perceived academic achievement based on mean value and standard deviation. The mean scores ranged from 3.61 to 4.00. The highest score belonged to AAQ1 ( $M = 4.00$ ,  $SD = 0.81$ ) and

AAQ4 ( $M = 4.00$ ,  $SD = 0.81$ ). The results reveal that most respondents agreed that the use of ChatGPT can improve students' academic performance and that students can explore alternative viewpoints and other sources of information. This was followed by AAQ3 ( $M = 3.83$ ,  $SD = 0.84$ ), indicating that students can anticipate stronger writing guidance while using ChatGPT in their learning. Lastly, the respondents agreed that ChatGPT can bring innovative ideas that are ready to be shared with students (AAQ2) ( $M = 3.61$ ,  $SD = 0.96$ ). Overall, the results show agreement among respondents that the perceived academic achievements are important considerations in the usage of ChatGPT in online learning.

**Table 7: Mean (M) and Standard Deviation (SD) for ChatGPT Usage (CU)**

| ITEM                                                                                                          | M    | SD   |
|---------------------------------------------------------------------------------------------------------------|------|------|
| CUQ1 ChatGPT is a state-of-the-art writing model that is favorably used today.                                | 4.09 | 0.82 |
| CUQ2 Students seek help from ChatGPT's assistance in composing essays and articles.                           | 4.09 | 0.83 |
| CUQ3 ChatGPT helps students in English language translation.                                                  | 4.15 | 0.77 |
| CUQ4 Employing ChatGPT significantly improves human productivity.                                             | 3.82 | 0.97 |
| CUQ5 The advent of ChatGPT marks a groundbreaking transformation in Natural Language Processing capabilities. | 3.81 | 0.87 |

Table 7 presents the mean (M) and standard deviation (SD) for respondents' perceptions of ChatGPT usage, indicating a generally positive consensus across all items. Respondents showed the strongest agreement and highest consensus regarding the tool's practical, task-oriented applications, specifically rating its helpfulness in English language translation (CUQ3) the highest ( $M = 4.15$ ,  $SD = 0.77$ ), closely followed by its use as a state-

of-the-art writing model (CUQ1;  $M = 4.09$ ,  $SD = 0.82$ ) and as an assistant for composing essays and articles (CUQ2;  $M = 4.09$ ,  $SD = 0.83$ ). In contrast, statements addressing broader, macro-level impacts received slightly lower levels of agreement and greater variability in responses. Claims that ChatGPT significantly improves human productivity (CUQ4;  $M = 3.82$ ,  $SD = 0.97$ ) and represents a groundbreaking transformation in Natural Language Processing (CUQ5;  $M = 3.81$ ,  $SD = 0.87$ ) yielded the lowest means and highest standard deviations. Overall, the tight cluster of standard deviations below 1.0 indicates general agreement across items, but the data suggest that while users highly value the immediate, practical utility of the tool, they hold slightly more diverse and reserved opinions regarding its overarching philosophical and industry-wide implications.

**Table 8: Mean (M) and Standard Deviation (SD) for Student Engagement (SE)**

| ITEM                                                                                        | M    | SD   |
|---------------------------------------------------------------------------------------------|------|------|
| SEQ1 ChatGPT is more interactive, human-like, and engaging for the students.                | 3.81 | 0.87 |
| SEQ2 ChatGPT increases confidence in my ability to conduct research/to search for materials | 3.89 | 0.89 |
| SEQ3 ChatGPT is easy to use and more engaging for me                                        | 4.04 | 0.75 |

Table 8 reveals a consistently positive trend in how students engage with ChatGPT. Interestingly, students expressed the strongest agreement regarding the tool's ease of use (SEQ3), which yielded the highest mean and the greatest consensus ( $M = 4.04$ ,  $SD = 0.75$ ). Furthermore, the findings suggest that using ChatGPT increases students' academic confidence, particularly in conducting research and sourcing materials (SEQ2;  $M = 3.89$ ,  $SD = 0.89$ ). It is worth noting, however, that while students still viewed the tool favourably, they were slightly more reserved about describing ChatGPT as highly interactive or 'human-like' (SEQ1;  $M = 3.81$ ,  $SD = 0.87$ ). Overall, the low standard deviations point to a shared sentiment among the respondents: they clearly appreciate the platform for being accessible and for building their research confidence, even if they do not fully perceive it as a human-like conversational partner.

## FINDINGS FOR EXPECTANCY

This section presents data to answer research question 2: How do learners perceive the relationship between expectancy and online learning? In this study, this is measured by (i) self-efficacy and (ii) control of learning beliefs.

**Table 9: Mean (M) and Standard Deviation (SD) for Self-Efficacy (ESE)**

| Statement                                                                                          | M    | SD   |
|----------------------------------------------------------------------------------------------------|------|------|
| ESEQ 1 I believe I'll receive excellent grades in my classes.                                      | 3.76 | 0.73 |
| ESEQ2 I'm certain I can understand the most difficult material presented in the readings.          | 3.44 | 0.82 |
| ESEQ3 I'm confident I can learn the basic concepts that are being taught.                          | 4.02 | 0.71 |
| ESEQ4 I'm confident I can understand the most complex material presented by the instructor online. | 3.36 | 0.90 |
| ESEQ5 I'm confident I can do an excellent job on assessments online                                | 3.89 | 0.76 |
| ESEQ6 I'm certain I can master the skills being taught online.                                     | 3.50 | 0.82 |
| ESEQ7 Although online classes can be challenging, I think I can do well.                           | 3.82 | 0.77 |

Table 9 presents the mean and standard deviation scores for learners' self-efficacy in online learning. The highest mean score was for ESEQ3 ("I'm confident I can learn the basic concepts that are being taught") at  $M = 4.02$  ( $SD = 0.71$ ). This was followed by ESEQ5 ("I'm confident I can do an excellent job on assessments online") at  $M = 3.89$  ( $SD = 0.76$ ), ESEQ7 ("Although online classes can be challenging, I think I can do well") at  $M = 3.82$  ( $SD = 0.77$ ), and ESEQ1 ("I believe I'll receive excellent grades in my classes") at  $M = 3.76$  ( $SD = 0.73$ ). Lower mean scores were recorded for ESEQ6 at  $M = 3.50$  ( $SD = 0.82$ ), ESEQ2 at  $M = 3.44$  ( $SD = 0.82$ ), and ESEQ4 at  $M = 3.36$  ( $SD = 0.90$ ). Overall, learners expressed greater confidence in mastering basic concepts and completing online assessments than in understanding the most complex material presented by the instructor.

**Table 10: Mean (M) and Standard Deviation (SD) for Control of Learning Beliefs (ECB)**

| Statement                                                                                  | M    | SD   |
|--------------------------------------------------------------------------------------------|------|------|
| ECBQ1 If I study in appropriate ways, then I'll be able to learn the material.             | 3.93 | 0.78 |
| ECBQ2 It's my own fault if I don't learn the material taught.                              | 4.18 | 0.84 |
| ECBQ3 If I try hard enough, then I'll understand the material presented.                   | 4.21 | 0.74 |
| ECBQ4 If I don't understand the material presented, it's because I didn't try hard enough. | 3.93 | 0.92 |

Table 10 reports the mean and standard deviation scores for learners' control of learning beliefs. The highest mean score was recorded for ECBQ3 ("If I try hard enough, then I'll understand the material presented") at  $M = 4.21$  ( $SD = 0.74$ ), followed by ECBQ2 ("It's my own fault if I don't learn the material taught") at  $M = 4.18$  ( $SD = 0.84$ ). ECBQ1 ("If I study in appropriate ways, then I'll be able to learn the material") and ECBQ4 ("If I don't understand the material presented, it's because I didn't try hard enough") recorded the same mean score of 3.93, with standard deviations of 0.78 and 0.92, respectively. The findings suggest that respondents generally attributed successful online learning to their own actions and learning approaches, with sustained effort emerging as the most prominent control belief.

## Findings for Value

This section presents data to answer research question 3: How do learners perceive the relationship between value and online learning? In this study, this is measured by (i) intrinsic goal orientation, (ii) extrinsic goal orientation, and (iii) task value.

**Table 11: Mean (M) and Standard Deviation (SD) for Intrinsic Goal Orientation (VI)**

| Statement                                                                                                     | M    | SD   |
|---------------------------------------------------------------------------------------------------------------|------|------|
| VIQ1 I prefer online material that really challenges me, so I can learn new things.                           | 3.45 | 0.88 |
| VIQ2 I prefer online material that arouses my curiosity, even if it's difficult to learn.                     | 3.48 | 0.92 |
| VIQ3 I The most satisfying thing for me is trying to understand the online content as thoroughly as possible. | 3.82 | 0.86 |
| VIQ4 I choose assignments that I can learn from even if they don't guarantee a good grade.                    | 3.66 | 0.90 |

Table 11 shows the findings for intrinsic goal orientation. The mean scores indicated moderate agreement, ranging from 3.45 to 3.82. The highest mean score was VIQ3I ( $M = 3.82$ ,  $SD = 0.86$ ), in which respondents agreed that online learning can satisfy them whenever they are required to have a thorough understanding of the online content. In addition, the respondents' intrinsic goal motivation can be achieved when they are able to choose the assignment for their learning, although it does not guarantee a good grade (VIQ4I) ( $M = 3.66$ ,

SD = 0.90). VIQ2I recorded a mean of 3.48 and a standard deviation of 0.92, while the lowest score was VIQ1I (M = 3.45, SD = 0.88). The results suggest that online learning can satisfy students' curiosity, and at the same time, they are able to learn new things from challenging online material.

**Table 12: Mean (M) and Standard Deviation (SD) for Extrinsic Goal Orientation (VE)**

| Statement                                                                                                                 | M    | SD   |
|---------------------------------------------------------------------------------------------------------------------------|------|------|
| VEQ1 Getting a good grade is the most satisfying thing for me.                                                            | 4.59 | 0.64 |
| VEQ2 I want to do well in my classes so that I can get awards and recognition.                                            | 4.27 | 0.85 |
| VEQ3I want to get better grades than most of the other students in my classes.                                            | 4.19 | 0.85 |
| VEQ4I want to do well in my classes because it's important to show my ability to my family, friends, employer, or others. | 4.37 | 0.82 |

The mean value and standard deviation for extrinsic goal orientation are presented in Table 12. The items measuring extrinsic goal orientation show the highest mean value, which is 4.59, and the lowest is 4.19. The respondents agreed that the main source of students' satisfaction came from obtaining a good grade (M = 4.59, SD = 0.64). The second highest score was VEQ4I with a mean of 4.37 and a standard deviation of 0.82, indicating that students would perform well in class whenever they wanted to show their abilities to family, friends, employers, and others. Thirdly, the other sources of extrinsic motivation came from awards and recognition (M = 4.27, SD = 0.85) as well as their desire to have better grades compared with other students (M = 4.19, SD = 0.85). Overall, the results indicate that students' extrinsic motivation included good academic grades, receiving recognition, and confirming their abilities to other people.

**Table 13: Mean (M) and Standard Deviation (SD) for Task Value (VT)**

| Statement                                                                        | M    | SD   |
|----------------------------------------------------------------------------------|------|------|
| VTQ1 I think I will be able to use what I learn in this course in other courses. | 4.13 | 0.67 |
| VTQ2 It is important for me to learn the course material in this class.          | 4.24 | 0.65 |
| VTQ3 I am very interested in the content area of this course.                    | 4.01 | 0.74 |
| VTQ4 I think the course material in this class is useful for me to learn.        | 4.07 | 0.79 |
| VTQ5 I like the subject matter of this course.                                   | 4.03 | 0.75 |
| VTQ6 Understanding the subject matter of this course is very important to me.    | 4.29 | 0.63 |

As Table 13 illustrates, students place a high value on the course material, with all items scoring above 4.0. Respondents felt most strongly about the fundamental importance of understanding the subject (VTQ6; M = 4.29, SD = 0.63) and learning the content (VTQ2; M = 4.24, SD = 0.65). They also recognised the material's practical utility, expressing strong confidence that these skills would transfer to future coursework (VTQ1; M = 4.13, SD = 0.67). Interestingly, while overall scores remained highly positive, items measuring intrinsic personal interest (VTQ3; M = 4.01, SD = 0.74) and general affinity for the subject (VTQ5; M = 4.03, SD = 0.75) scored slightly lower. Ultimately, the low standard deviations across items reveal a clear consensus: students are primarily motivated by the practical necessity and transferability of the course, even if their personal interest in the subject is slightly less pronounced.

## Findings for Social Support

This section presents data to answer research question 4: How do learners perceive the relationship between social support and online learning? In this study, this is measured by (i) social engagement and (ii) instructor support.

**Table 14: Mean (M) and Standard Deviation (SD) for Social Engagement (SSE)**

| Statement                                                                   | M    | SD   |
|-----------------------------------------------------------------------------|------|------|
| SSEQ1 I feel "disconnected" from my teacher and fellow students in classes. | 2.82 | 1.18 |
| SSEQ2 I pay attention in classes.                                           | 3.89 | 0.78 |
| SSEQ3 I enjoy class discussions.                                            | 3.93 | 0.81 |
| SSEQ4 I feel like I can freely communicate with other students in classes.  | 3.91 | 0.81 |
| SSEQ5 I have strong relationships with fellow students in this course.      | 3.79 | 0.91 |

As Table 14 illustrates, students report generally positive social engagement, particularly valuing active classroom participation. Respondents reported that they enjoy discussions (SSEQ3;  $M = 3.93$ ,  $SD = 0.81$ ), feel they can freely communicate with peers (SSEQ4;  $M = 3.91$ ,  $SD = 0.81$ ), and maintain attention during class (SSEQ2;  $M = 3.89$ ,  $SD = 0.78$ ). However, the development of deeper personal bonds (SSEQ5;  $M = 3.79$ ,  $SD = 0.91$ ) scored slightly lower than these general interactions. Notably, while the negatively worded item on feeling “disconnected” (SSEQ1) yielded a low average ( $M = 2.82$ ), its high standard deviation ( $SD = 1.18$ ) reveals a highly varied experience. This suggests that while the majority of students feel socially integrated, a notable minority still struggles with a sense of isolation despite the collaborative environment.

**Table 15: Mean (M) and Standard Deviation (SD) for Instructor Support (SIS)**

| Statement                                                                                        | M    | SD   |
|--------------------------------------------------------------------------------------------------|------|------|
| SISQ1 I feel like I can freely communicate with the instructor in this class.                    | 3/88 | 0.80 |
| SISQ2 The instructor responds to questions, clearly, completely, and in a timely manner.         | 4.07 | 0.76 |
| SISQ3 The instructor’s expectations for me in this class are clear.                              | 3.89 | 0.80 |
| SISQ4 The instructor provides the guidance I need to be successful in this class.                | 4.10 | 0.75 |
| SISQ5 The instructor presents the material in a way that makes it relevant to me.                | 4.12 | 0.66 |
| SISQ6 In this course, I have the freedom to guide my own learning                                | 4.25 | 0.71 |
| SISQ7 The instructor provides regular feedback that helps me gauge my performance in this class. | 3.96 | 0.80 |

Table 15 shows the mean score and standard deviation for instructor support. The highest mean score was for the item ‘In this course, I have the freedom to guide my own learning’ ( $M = 4.25$ ,  $SD = 0.71$ ). This was followed by an item where the instructors present the material in a way that makes it relevant to me ( $M = 4.12$ ,  $SD = 0.66$ ). Next came an item on the instructor providing the guidance I needed to be successful in this class. On the other hand, the lowest mean was for the item on feeling able to communicate freely with the instructors in this class ( $M = 3.88$ ,  $SD = 0.80$ ).

## Exploratory Statistics

According to He (2024), correlation is a statistical technique that shows how strongly two variables are related, or the degree of association between them. It is a common tool for describing simple relationships without making a statement about cause and effect. This section presents data to answer the research question on correlation. He (2024) notes that the coefficient is significant at the 0.05 level, and positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation ranges from 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0.

## Findings for the Relationship between ChatGPT and Online Motivational Factors

This section presents data to answer research question 5: Is there a significant relationship between ChatGPT and online motivational factors?

$H_{01}$ : There is no significant relationship between ChatGPT and online motivational factors.

To determine if there is a significant association in the mean scores between ChatGPT and online motivational factors, data were analysed using SPSS for correlations. Results are presented in Table 16 below.

**Table 16: Correlation between ChatGPT and Online Motivational Factors**

|                                                              |                     | EXPECTANCY | VALUE  | SOCIALSUPPORT |
|--------------------------------------------------------------|---------------------|------------|--------|---------------|
| CHATGPT                                                      | Pearson Correlation | .512**     | .539** | .455**        |
|                                                              | Sig. (2-tailed)     | <.001      | <.001  | <.001         |
|                                                              | N                   | 211        | 211    | 211           |
| **. Correlation is significant at the 0.01 level (2-tailed). |                     |            |        |               |

Table 16 shows that there is an association between ChatGPT and online motivational factors. Correlation analysis shows that there is a highly significant association between ChatGPT and expectancy components ( $r=.512^{**}$ ) and ( $p<.001$ ) and between ChatGPT and value components ( $r=.539^{**}$ ) and ( $p<.001$ ). However, there is a moderate association between ChatGPT and expectancy of social support ( $r=.455^{**}$  and  $p<.001$ ). The null hypothesis is rejected for  $H_{01}$ .

## CONCLUSION

### Summary of Findings and Discussion

The main goal of the study was to examine how learners perceive ChatGPT's utilisation as influencing online learning. In this study, this is measured by (i) critical thinking abilities, (ii) perceived academic achievements, (iii) ChatGPT usage, and (iv) student engagement.

The first objective of the study was to examine how learners perceived the use of ChatGPT in influencing online learning. The results show that a majority of the learners agreed that the answers given by ChatGPT in terms of critical thinking skills made them doubt their validity. Thus, they would seek further clarification or evidence. This confirms the findings of Youssef et al. (2024) and Dikilitaş et al. (2024), which highlight the concerns that the use of the chatbot had been cautious and that it encourages students to use it responsibly, diligently, and ethically, and to improve their critical thinking.

Next, the effect of ChatGPT use on the learners' perceived academic achievement was that the learners found ChatGPT helpful for exploring alternative viewpoints. Regarding the usage of ChatGPT, the results reveal that most of the learners agreed that the use of ChatGPT relates to higher levels of perceived academic success, and

they are able to explore alternative viewpoints or other sources of information. Regarding the usage of ChatGPT on the learners' engagement, the learners agreed on the ChatGPT tool's practical, task-oriented applications, specifically rating its helpfulness in English language translation and as an assistant for composing essays and articles. Lastly, the findings show that the learners appreciated the platform for building their research confidence, even if they did not perceive it as a human-like partner. The findings are similar to those of Mo et al. (2026) and Mahande et al. (2026). These studies show that ChatGPT usage is positively associated with perceived academic achievements. In addition, the study supports Stratton-Maher and Kelly's (2026) research, which shows that students use ChatGPT to help with research and critical thinking.

The second objective of the study was to answer whether the learners' perceived expectancy influenced their learning, which was measured by self-efficacy and control of learning beliefs. The findings revealed that the learners were confident in learning the basic concepts taught. This shows that learners were confident about mastering the online learning presented by the instructor. Regarding the control of learning beliefs, the study found that the learners' successful online learning was attributed to their own sustained efforts and learning approaches. These findings align with Bandura's (1986) social cognitive theory, in which self-efficacy is a critical factor in perceived academic achievement. In addition, Annamalai et al. (2025) and Mahande et al. (2026) have confirmed that self-efficacy affects learning in online environments. This is further supported by Urhahne and Wijnia (2023).

The third objective of the study was to examine how the learners perceived the values of online learning as measured by intrinsic goal orientation, extrinsic goal orientation, and task value. Findings show the learners' agreement that online content supported their understanding. These findings align with Mo et al. (2026).

Regarding extrinsic motivation, the highest mean indicated that learners agreed that the main source of their satisfaction came from achieving a good grade. The results indicated that students' motivation included achieving good academic grades and receiving recognition from others. This is consistent with Mahande et al. (2026).

Lastly, on task value, the highest mean showed that learners were mostly motivated by the importance of understanding the subject. Overall, this highlights that the students were motivated by practical necessity and the transferability of the course. This finding is consistent with Izni et al. (2024), who found a significant correlation between task value and motivation.

The fourth objective of the study was to examine how learners perceive social support as influencing online learning. In this study, this is measured by (i) social engagement and (ii) instructor support. Findings for social engagement were characterised by active participation and open communication with peers. In terms of instructor support, the students felt well supported. The null hypothesis is rejected for  $H_{01}$ . The findings show consistency with the past studies by Ahmad et al. (2024), Abdul Talib et al. (2024), Izni et al. (2024), Rosly et al. (2025), and Yusop et al. (2022). These studies found a significant relationship between social support, expectancy, perceived value, and online learning motivation.

## IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

### Theoretical and Conceptual Implications

This study supports the relevance of expectancy-value theory (Wigfield & Eccles, 2000) in online learning motivation. The research findings revealed that the expectancy components adopted in the study, i.e., self-efficacy and control of learning, together with value components, i.e., the intrinsic, extrinsic, and task values, contribute to student engagement and academic performance when using AI tools to support the learning process. The study confirms that high self-efficacy and strong task value shape learning motivation to use ChatGPT tools to support students' learning.

In addition, the results of the study support the Technology Acceptance Model (TAM) (Davis, 1989) by confirming that perceived usefulness and perceived ease of use shape the attitudes and behavioural intention among the learners. The high mean scores indicate that respondents generally perceived ChatGPT as a useful tool for supporting their academic activities and learning experiences. Similarly, respondents expressed

favourable perceptions of ChatGPT's ease of use in relation to their online learning experiences, including engagement and satisfaction.

These findings are also consistent with expectancy-value theory, as respondents reported favourable perceptions of expectancy beliefs and perceived task value in the context of ChatGPT utilisation. The findings suggest that learners perceive ChatGPT as a valuable and accessible learning support tool, with potential relevance to their motivation and engagement in online learning.

### **Pedagogical Implications**

The study has pedagogical implications for today's new era of teaching and learning in higher education. This study highlights the value of incorporating ChatGPT or other AI tools in the university teaching curriculum. As a result, it is suggested that generative AI tools be integrated as a new pedagogical method, particularly in higher education. Not only does it enhance the motivation of the students, but it has also been shown to be an effective tool for assisting learners in higher education to explore new knowledge and achieve better academic outcomes.

### **SUGGESTIONS FOR FUTURE RESEARCH**

Several key areas of future research are recommended to develop a deeper understanding of AI integration in higher education. First, the study has adopted the cross-sectional survey; thus, it is suggested that future research investigate the impacts of AI usage on students' critical thinking and cognitive development over a longer period using a longitudinal methodology. Second, the limitations highlight that the use of convenience sampling limits the generalisation of the findings, as the study sample did not cover a wide range of disciplines or genders. Thus, future research should investigate the usage of ChatGPT across disciplines in universities and include all genders equally. Third, it is worth pursuing a qualitative study to provide an in-depth analysis of learners' experiences of using ChatGPT. This will reveal the diverse perceptions of how ChatGPT usage affects online learning motivation. Finally, the current research adopted existing instruments verbatim without conducting Exploratory Factor Analysis (EFA) or Confirmatory Factor Analysis (CFA); the construct validity for this specific demographic was not statistically re-established. Hence, future quantitative research should prioritise EFA and CFA to rigorously validate these measurement models within the local university context.

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## APPENDIX

This instrument is adopted from Fowler (2018) and Youssef et al. (2024)

| SECTION | VARIABLE                           | CONSTRUCT                      |                             | NO OF ITEMS INDICATORS |    | TOT |
|---------|------------------------------------|--------------------------------|-----------------------------|------------------------|----|-----|
| B       | ONLINE MOTIVATION<br>Fowler (2018) | EXPECTANCY                     | Self-Efficacy               | 7                      | 11 | 37  |
|         |                                    |                                | Control of Learning Beliefs | 4                      |    |     |
|         |                                    | VALUE                          | Intrinsic Goal Orientation  | 4                      | 14 |     |
|         |                                    |                                | Extrinsic Goal Orientation  | 4                      |    |     |
|         |                                    |                                | Task Value                  | 6                      |    |     |
|         |                                    | SOCIAL SUPPORT                 | Social Engagement           | 5                      | 12 |     |
|         |                                    |                                | Instructor Support          | 7                      |    |     |
|         |                                    |                                |                             |                        |    |     |
| C       | CHAT GPT Youssef et al. (2024)     | Critical thinking abilities    |                             | 4                      |    | 16  |
|         |                                    | Perceived Academic achievement |                             | 4                      |    |     |
|         |                                    | ChatGPT usage                  |                             | 5                      |    |     |
|         |                                    | Student engagement             |                             | 3                      |    |     |
|         |                                    |                                |                             |                        |    | 53  |

### SECTION B – ONLINE MOTIVATION

#### (i) EXPECTANCY(E)

#### (a) SELF- EFFICACY (ESE)

| Statement                                                                                 | 1 | 2 | 3 | 4 | 5 |
|-------------------------------------------------------------------------------------------|---|---|---|---|---|
| ESEQ 1 I believe I'll receive excellent grades in my classes.                             |   |   |   |   |   |
| ESEQ2 I'm certain I can understand the most difficult material presented in the readings. |   |   |   |   |   |

|                                                                                                    |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|--|--|--|--|--|
| ESEQ3 I'm confident I can learn the basic concepts that are being taught.                          |  |  |  |  |  |
| ESEQ4 I'm confident I can understand the most complex material presented by the instructor online. |  |  |  |  |  |
| ESEQ5 I'm confident I can do an excellent job on assessments online                                |  |  |  |  |  |
| ESEQ6 I'm certain I can master the skills being taught online.                                     |  |  |  |  |  |
| ESEQ7 Although online classes can be challenging, I think I can do well.                           |  |  |  |  |  |

**(b) CONTROL OF LEARNING BELIEFS (ECB)**

| Statement                                                                                  | 1 | 2 | 3 | 4 | 5 |
|--------------------------------------------------------------------------------------------|---|---|---|---|---|
| ECBQ1 If I study in appropriate ways, then I'll be able to learn the material.             |   |   |   |   |   |
| ECBQ2 It's my own fault if I don't learn the material taught.                              |   |   |   |   |   |
| ECBQ3 If I try hard enough, then I'll understand the material presented.                   |   |   |   |   |   |
| ECBQ4 If I don't understand the material presented, it's because I didn't try hard enough. |   |   |   |   |   |

**(ii) VALUE (V)**

**(a) Intrinsic Goal Orientation (VI)**

| Statement                                                                                                   | 1 | 2 | 3 | 4 | 5 |
|-------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| VIQ1I prefer online material that really challenges me, so I can learn new things.                          |   |   |   |   |   |
| VIQ2I prefer online material that arouses my curiosity, even if it's difficult to learn.                    |   |   |   |   |   |
| VIQ3 The most satisfying thing for me is trying to understand the online content as thoroughly as possible. |   |   |   |   |   |
| VIQ4I choose assignments that I can learn from even if they don't guarantee a good grade.                   |   |   |   |   |   |

**(b) Extrinsic Goal Orientation(VE)**

| Statement                                                                                                                 | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| VEQ1 Getting a good grade is the most satisfying thing for me.                                                            |   |   |   |   |   |
| VEQ2 I want to do well in my classes so that I can get awards and recognition.                                            |   |   |   |   |   |
| VEQ3I want to get better grades than most of the other students in my classes.                                            |   |   |   |   |   |
| VEQ4I want to do well in my classes because it's important to show my ability to my family, friends, employer, or others. |   |   |   |   |   |

**© Task Value (VT)**

| Statement                                                                        | 1 | 2 | 3 | 4 | 5 |
|----------------------------------------------------------------------------------|---|---|---|---|---|
| VTQ1 I think I will be able to use what I learn in this course in other courses. |   |   |   |   |   |
| VTQ2 It is important for me to learn the course material in this class.          |   |   |   |   |   |
| VTQ3 I am very interested in the content area of this course.                    |   |   |   |   |   |
| VTQ4 I think the course material in this class is useful for me to learn.        |   |   |   |   |   |
| VTQ5 I like the subject matter of this course.                                   |   |   |   |   |   |
| VTQ6 Understanding the subject matter of this course is very important to me.    |   |   |   |   |   |

### (iii) SOCIAL SUPPORT (S)

#### (a) Social Engagement (SSE)

| Statement                                                                  | 1 | 2 | 3 | 4 | 5 |
|----------------------------------------------------------------------------|---|---|---|---|---|
| ISSEQ1 feel "disconnected" from my teacher and fellow students in classes. |   |   |   |   |   |
| SSEQ2 I pay attention in classes.                                          |   |   |   |   |   |
| SSEQ3 I enjoy class discussions.                                           |   |   |   |   |   |
| SSEQ4 I feel like I can freely communicate with other students in classes. |   |   |   |   |   |
| SSEQ5 I have strong relationships with fellow students in this course.     |   |   |   |   |   |

#### (b) Instructor Support (SIS)

| Statement                                                                                | 1 | 2 | 3 | 4 | 5 |
|------------------------------------------------------------------------------------------|---|---|---|---|---|
| SISQ1I feel like I can freely communicate with the instructor in this class.             |   |   |   |   |   |
| SISQ2 The instructor responds to questions, clearly, completely, and in a timely manner. |   |   |   |   |   |
| SISQ3 The instructor's expectations for me in this class are clear.                      |   |   |   |   |   |
| SISQ4 The instructor provides the guidance I need to be successful in this class.        |   |   |   |   |   |
| SISQ5 The instructor presents the material in a way that makes it relevant to me.        |   |   |   |   |   |
| SISQ6 In this course, I have the freedom to guide my own learning                        |   |   |   |   |   |
| SISQ7 The instructor provides regular feedback that helps me                             |   |   |   |   |   |

gauge my performance in this class.

## SECTION B-CHATGPT

### (i) CRITICAL THINKING ABILITIES (CT)

| ITEM                                                                                                                                                                   | 1 | 2 | 3 | 4 | 5 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| CTQ1 I usually need clarification on the precision and reliability of information provided by ChatGPT, which enhances my critical thinking skills.                     |   |   |   |   |   |
| CTQ2 ChatGPT's responses made me doubt their validity, leading me to seek further clarification or evidence.                                                           |   |   |   |   |   |
| CTQ3 I actively explore alternative viewpoints or sources of information when using ChatGPT to ensure a comprehensive understanding of the topic.                      |   |   |   |   |   |
| CTQ4 I need clarification about the accuracy of ChatGPT's output, which often encourages me to evaluate the information and conduct additional research independently. |   |   |   |   |   |

### (ii) PERCEIVED ACADEMIC ACHIEVEMENTS (AA)

| ITEM                                                                                                                                              | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| AAQ1 I actively explore alternative viewpoints or sources of information when using ChatGPT to ensure a comprehensive understanding of the topic. |   |   |   |   |   |
| AAQ2 ChatGPT brings innovative ideas that are ready to be shared with students.                                                                   |   |   |   |   |   |
| AAQ3 Students can anticipate robust writing guidance from ChatGPT.                                                                                |   |   |   |   |   |
| AAQ4 ChatGPT has improved my academic performance.                                                                                                |   |   |   |   |   |

### (iii) CHATGPT USGAE (CU)

| ITEM                                                                                | 1 | 2 | 3 | 4 | 5 |
|-------------------------------------------------------------------------------------|---|---|---|---|---|
| CUQ1 ChatGPT is a state-of-the-art writing model that is favorably used today.      |   |   |   |   |   |
| CUQ2 Students seek help from ChatGPT's assistance in composing essays and articles. |   |   |   |   |   |
| CUQ3 ChatGPT helps students in English language translation.                        |   |   |   |   |   |
| CUQ4 Employing ChatGPT significantly improves human productivity.                   |   |   |   |   |   |

|                                                                                                               |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| CUQ5 The advent of ChatGPT marks a groundbreaking transformation in natural language processing capabilities. |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------|--|--|--|--|--|

**(iv) STUDENT ENGAGEMENT (SE)**

| ITEM                                                                                        | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------------------------------------------------------------|---|---|---|---|---|
| SEQ1 ChatGPT is more interactive, human-like, and engaging for the students.                |   |   |   |   |   |
| SEQ2 ChatGPT increases confidence in my ability to conduct research/to search for materials |   |   |   |   |   |
| SEQ3 ChatGPT is easy to use and more engaging for me                                        |   |   |   |   |   |