



## Exploring the user perceptions on ChatGPT in Indian context: A study of behavioural patterns through the UTAUT model

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### Abstract:

**Aim:** This research aims to investigate the perception of ChatGPT technology among university students in Odisha, India, employing the Unified Theory of Acceptance and Use of Technology (UTAUT) model to understand the factors influencing students' intention to use ChatGPT.

**Sample:** The study sampled 198 university students from Odisha who actively use ChatGPT technology.

**Study Design:** Utilizing a quantitative research approach, this study collected and analysed data on students' perceptions and usage of ChatGPT through a structured survey questionnaire.

**Place and Duration of the Study:** The study was conducted among university students in Odisha, India, between October 2023 to January 2024.

**Methodology:** Data collection involved administering a structured survey questionnaire to the selected participants. The questionnaire comprised two sections: one capturing demographic details and the other focusing on factors related to ChatGPT adoption intention. The collected data were analysed using inferential statistical techniques such as correlation analysis and regression analysis.

**Results:** The analysis revealed significant relationships between performance expectancy, effort expectancy, social influence, facilitating conditions, and students' intention to use ChatGPT.

**Conclusion:** The findings of this study contribute to a deeper understanding of students' perceptions and behaviours regarding ChatGPT technology in educational contexts. The study underscores the importance of factors such as performance expectancy, effort expectancy, social influence, and facilitating conditions in shaping students' intention to adopt ChatGPT.

**Recommendation:** Based on the study's findings, it is recommended that educators and policymakers leverage insights to effectively integrate ChatGPT into educational practices. Strategies should focus on addressing perceived barriers and enhancing facilitating conditions to promote the widespread adoption of ChatGPT technology among university students in Odisha and beyond.

**Key Words:** ChatGPT, technology acceptance, university students, Odisha, UTAUT model.

### 1. INTRODUCTION:

ChatGPT, an AI-powered language model developed by OpenAI, has gained prominence in various fields, including education, by providing natural language processing capabilities. ChatGPT provides potential for academic support, cooperation, and personalized learning in the setting of higher education (Wu et al., 2023). ChatGPT can provide interactive talks between students and teachers, providing personalized instruction and real-time feedback, in contrast to traditional educational tools. due to its adaptability, it can be used for a variety of educational purposes, including question-answering, clarifying, content creation, and discussion stimulation.

With the use of sophisticated deep learning algorithms, ChatGPT can mimic human answers to text-based inputs, producing a dialogue experience that is very similar to speaking with peers or human tutors (Biswas,2023). Because ChatGPT is human-like, it's appealing. ChatGPT's human-like characteristics make it a desirable tool for improving learning environments, especially in situations where students need fast feedback and individualized attention to



succeed. Furthermore, ChatGPT can communicate with users in a natural way regardless of their language background or skill level thanks to its comprehension and processing of natural language.

ChatGPT facilitates group discussions, brainstorming sessions, and information sharing activities among students in addition to its role in individualized learning and academic support (Zhong, 2023). It also acts as a virtual assistant or tutor, enabling students to investigate ideas, look for clarification, and have meaningful conversations.

## **2. LITERATURE REVIEW:**

In recent times, there has been an increasing focus on the integration of artificial intelligence (AI) technologies, such as ChatGPT, into educational environments. The OpenAI-developed ChatGPT is an advanced artificial intelligence (AI) language model that can converse like a human and do natural language processing.

It is critical to comprehend how university students view ChatGPT in order to evaluate the technology's possible effects on educational outcomes and learning experiences. Many studies have examined how students perceive ChatGPT in educational settings. Iqbal et al. (2022) looked at university students' opinions on using ChatGPT for academic support through a qualitative study. The results showed that, generally speaking, students thought ChatGPT was a useful tool for getting knowledge and support quickly, especially outside of regular classroom settings. Furthermore, a study conducted in 2023 by Soller et al. looked into how well students thought ChatGPT facilitated knowledge sharing and collaborative learning. According to the study, students valued ChatGPT's capability to lead discussions in groups, offer prompt feedback, and improve peer-to-peer contact. These results imply that ChatGPT is regarded by college students as a useful tool for fostering academic collaboration and collaborative learning.

Apart from examining students' perspectives, studies have also looked into how university students use ChatGPT technology. Researchers have examined the factors influencing students' adoption behaviour as well as the degree to which they utilize ChatGPT for academic reasons. Tiwari et al. (2023) found that an array of features, such as perceived usefulness, simplicity of use, and social impact, influenced university students' utilization behaviour when they performed survey research to determine how frequently they used ChatGPT.

Additionally, a study conducted in 2023 by Ausat et al. investigated how ChatGPT could help students with their academic performance and information-seeking habits. According to the study, academic attainment was higher among students who regularly utilized ChatGPT to access course materials and get help with their studies than among their counterparts who did not use the platform. These results imply that ChatGPT technology may have a beneficial effect on students' academic performance and learning outcomes. Based on studies, the majority of learners view ChatGPT as a useful resource for getting immediate assistance and promoting teamwork. However, further research is needed to explore the long-term effects of ChatGPT usage on students' learning experiences and academic outcomes, as well as to identify strategies for effectively integrating ChatGPT into educational settings.

## **3. OBJECTIVES OF THE STUDY:**

- To study the awareness level of ChatGPT among university students in Odisha
- To analyse the factors influencing university students' intention to use ChatGPT technology using UTAUT model

## **4. THEORETICAL FRAMEWORK:**

The Unified Theory of Acceptance and Use of Technology (UTAUT) model proposes that users' intentions to adopt and use a technology are influenced by four key factors (Sarfraz, 2017). First of all, users' perceptions of the efficiency with which technology will assist them in accomplishing activities are reflected in Performance Expectancy. Second, according to Dwidevi (2019), Effort Expectancy measures how simple users believe the technology is to be used. Thirdly, social influence takes into account how users' opinions about technology are influenced by their peers, teachers, and social networks. Lastly, Facilitating Conditions evaluate the technical and organizational support that is offered for the usage of technology. By having an awareness of these characteristics, companies can better anticipate and facilitate users' adoption and use of new technologies by addressing issues with functionality, usability, social impact, and the accessibility of required resources and assistance (Williams, 2015).

**Performance Expectancy:** This describes how much people believe that using the technology will improve their productivity or make jobs easier for them to complete. Presented more simply, it concerns consumers' perceptions of how much easier, faster, or more efficient the technology will make their work. Users' expectations about how well technology will improve task efficiency, effectiveness, quality, productivity, and overall performance are included in performance expectations.

H1: Performance Expectancy significantly affects users' behavioural intentions to use ChatGPT



**Effort Expectancy:** This concept is associated with how simple people think the technology is to use. It evaluates the level of complexity that people believe it to be to interact with and use the technology. Users are more likely to be inclined to utilize technology positively if they believe it is simple to use. Effort Expectancy includes the degree to which people believe implementing the technology will be effortless.

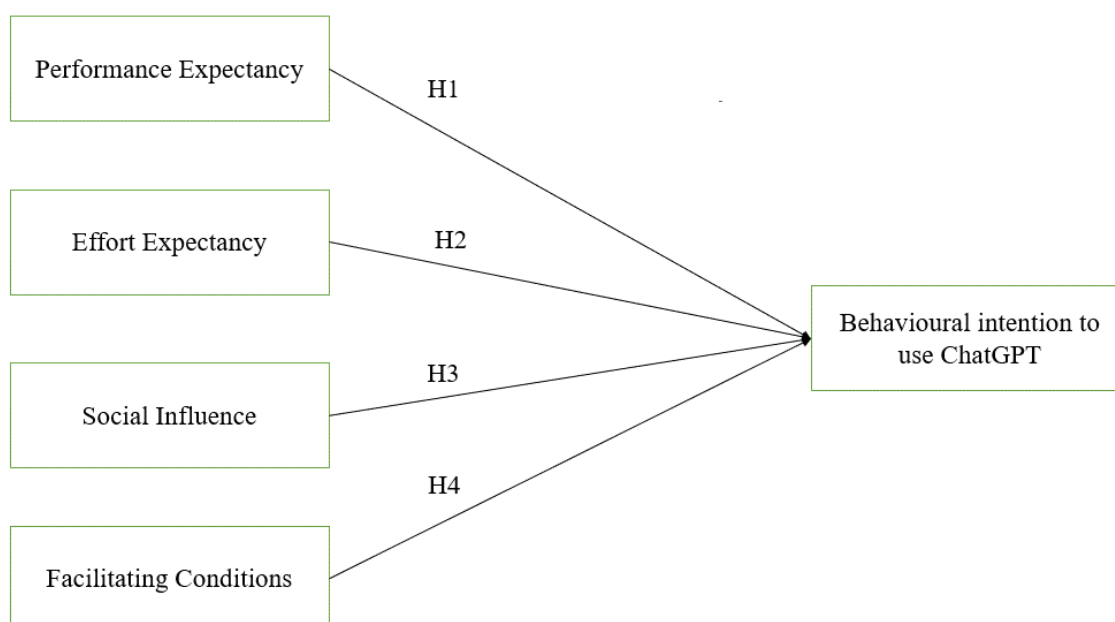
H2: Effort Expectancy significantly affects users' behavioural intentions to use ChatGPT

**Social Influence:** The term takes into account how users' intentions to embrace a technology are influenced by social influences. Peers, coworkers, managers, and other social networks can have an impact on users' views and actions about technology. Users are more likely to plan to utilize the technology themselves if they see others implementing it successfully or if their social networks encourage or urge them to do so.

H3: Social Influence significantly affects users' behavioural intentions to use ChatGPT

**Facilitating Conditions:** Facilitating conditions refer to the organizational and technical support available to users for utilizing the technology. This includes factors such as the availability of training, technical support, resources, and infrastructure within the organization. If users perceive that the necessary support and resources are readily available, they are more likely to feel confident in using the technology, thus increasing their intention to adopt it.

H4: Facilitating Conditions significantly affects users' behavioural intentions to use ChatGPT



## Conceptual Model

### 5. RESEARCH METHODOLOGY:

This study uses a quantitative research methodology to collect and evaluate data on how Odisha university students perceive and use ChatGPT. University students were provided with a structured survey questionnaire with an emphasis on their opinions on ChatGPT and how they use it for academic purposes. To guarantee the questionnaire's reliability, Cronbach's alpha was employed. Regression analysis and correlation analysis was used to test hypotheses obtained from the UTAUT model and investigate links between variables. The data was analysed using statistical software package SPSS.

#### Sample

The study focused on Odisha university students who make frequent use of ChatGPT. Students who owned one or more smartphones and had accounts with websites that provided ChatGPT-related services formed the participant pool. The research utilized a non-probability sampling methodology to choose participants, and a snowball sampling strategy was selected because of its effectiveness in obtaining precise and reliable data. This approach made it easier to find eligible candidates who had prior experience using ChatGPT. 207 of the 240 distributed surveys were returned, and 198 of those were determined to be reliable enough to be subjected to further statistical analysis.



## Data Collection

A structured survey questionnaire was designed to collect data on various aspects of participants' perceptions and usage of ChatGPT. The survey comprised questions about performance expectancy, effort expectancy, social influence, facilitating conditions, and intention to utilize ChatGPT, among other aspects from the UTAUT model. Adapted from existing measures, the questionnaire employed a 5-point Likert scale to gauge participants' attitudes, ranging from "Strongly disagree" to "Strongly agree". Two sections made up the primary data collection process using structured questionnaires: the first part collected demographic information such as gender, age, and educational background; the second part concentrated on adoption intention and other characteristics.

## 5.1 DATA ANALYSIS:

### Demographic profile of respondents

Demographic Variable	Category	Number of Respondents	Percentage (%)
<b>Gender</b>	Male	104	52.53
	Female	94	47.47
<b>Age</b>	18-20 years old	70	35.35
	21-23 years old	84	42.42
	24-26 years old	42	21.21
	27+ years old	2	1.01
<b>Stream</b>	Science	84	42.42
	Engineering	56	28.28
	Arts	35	17.68
	Commerce	31	15.66
<b>Educational Qualification</b>	High School Diploma	42	21.21
	Bachelor's Degree	126	63.64
	Master's Degree	28	14.14
	Doctoral Degree	2	1.01
<b>Monthly Allowance</b>	Below ₹5,000	56	28.28
	₹5,001 - ₹10,000	70	35.35
	₹10,001 - ₹15,000	49	24.75
	₹15,001 - ₹20,000	17	8.59
	Above ₹20,000	6	3.03
<b>Access to Internet</b>	Yes	191	96.46
	No	7	3.54
<b>Hours Spent Online</b>	Less than 2 hours	28	14.14
	2-4 hours	77	38.89
	4-6 hours	63	31.82
	6-8 hours	21	10.61
	More than 8 hours	9	4.55

Source: Authors Calculation

The table presents the demographic profile of 198 respondents involved in the study. Among the respondents, there is a slightly higher representation of males (52.53%) compared to females (47.47%). In terms of age distribution, the majority fall within the 21-23 years old category (42.42%), indicating a predominant presence of young adults. Regarding educational background, Bachelor's Degree holders comprise the largest group (63.64%), followed by those with High School Diplomas (21.21%). Science and Engineering faculties have the highest representation among respondents, accounting for 42.42% and 28.28% respectively, while Arts and Commerce faculties follow with 17.68% and 15.66% respectively. Most respondents receive monthly allowances between ₹5,001 - ₹10,000 (35.35%), and a significant majority (96.46%) have access to the internet. Additionally, the majority of respondents spend 2-4 hours online daily (38.89%). These demographic insights provide valuable context for understanding the perspectives and behaviours of university students in Odisha towards ChatGPT technology.



### Cronbach Alpha Reliability Test

#### Reliability Statistics

Cronbach's Alpha	N of Items
.884	20

Source: Field survey (Using SPSS)

Reliability statistics, specifically Cronbach's Alpha, assesses the internal consistency or reliability of a scale or questionnaire. In this context, a Cronbach's Alpha value of 0.884 indicates a high level of internal consistency among the items in the scale, suggesting that the items are closely related and measure the same underlying construct. The N of Items refers to the number of items included in the scale, which in this case is 20. Overall, a Cronbach's Alpha value of 0.884 suggests that the scale has good reliability, indicating that the items are consistently measuring the construct they are intended to measure.

### Awareness of ChatGPT technology

	Frequency	percentage
<b>Aware of ChatGPT technology</b>	153	77%
<b>Not aware of ChatGPT technology</b>	45	23%

Source: Authors Calculation

Among the respondents, 153 individuals (77%) indicated that they were aware of ChatGPT technology.

On the other hand, 45 respondents (23%) stated that they were not aware of ChatGPT technology.

Overall, this table provides insight into the level of awareness of ChatGPT technology among university students in Odisha. It indicates a relatively high level of awareness among the respondents, with the majority being aware of ChatGPT technology.

### Results of Regression Analysis (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.880 <sup>a</sup>	.774	.727	.667

a. Predictors: (Constant), Facilitating Conditions , Social Influence , Performance Expectancy, Effort Expectancy

Source: Field survey (Using SPSS)

The examination reveals that this model effectively explains 77% of the impact exerted by the independent variables - Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions - on the dependent variable, which is the behavioural intention to utilize ChatGPT technology. This assertion is supported by the Adjusted R square value of 0.727. The results suggest correlation between the intention to use ChatGPT technology and the independent variables: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. This relationship is evidenced by the regression model's R coefficient of 88%. Moreover, the R Square value stands at 77%, indicating that the model elucidates a significant portion of the overall variance.

### Results of Regression Analysis (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.976	4	7.244	16.288	.000 <sup>b</sup>
	Residual	8.450	19	.445		
	Total	37.426	23			



a. Dependent Variable: Behavioural intention to use
b. Predictors: (Constant), Facilitating Conditions, Social Influence, Performance Expectancy, Effort Expectancy

Source: Field survey (Using SPSS)

According to the ANOVA findings, the resulting probability value of .000b signifies the significance of the regression model. This implies that the model is Significant for forecasting the association between the independent variables and the dependent variable. The p-value |t| (at a 95% confidence level) being below 0.05 further supports this significance.

**Hypothesis Testing**

Hypothesis	Path	Unstd. Beta	Std. Beta	Std. Error	t-value	Sig.	Decision
H1	Performance Expectancy → behavioural intention	0.678	0.775	0.118	5.758	0.002	Supported
H2	Effort Expectancy → behavioural intention	0.639	0.652	0.158	4.031	0.004	Supported
H3	Social Influence → behavioural intention	0.787	0.832	0.312	7.037	0.046	Supported
H4	Facilitating Conditions → behavioural intention	0.759	0.809	0.118	6.461	0.005	Supported

Source: Field survey (Using SPSS)

**6. FINDINGS :**

The results of the data analysis provide insights into the perception and utilization of ChatGPT among university students in Odisha. The results show how students' intentions to utilize ChatGPT are positively affected by Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. The findings highlighted the significance of these four factors in influencing users' tendency to embrace ChatGPT technology within the Indian context. These observations can be used to develop strategies for encouraging Indian users to accept and use ChatGPT, emphasizing the need of eliminating perceived barriers and improving supportive environments to enable widespread adoption.

**7. LIMITATIONS AND FUTURE SCOPE OF THE STUDY:**

This study highlights several limitations that warrant further exploration and analysis. Cultural norms vary both within and between nations, yet the study overlooks within-country variability by assigning a single score to each country. Future studies could solve this by taking into account different cultural traits, like a willingness to participate. The potential for research in this area is vast and diverse. Enhancing the analysis to look at how patterns alter over time may be beneficial, given how technology and human behaviour are always evolving. Examining the effects of privacy issues, data security, and user interface design may help to better understand the uptake of ChatGPT. Furthermore, performing analysis across geographic locations and demographic groups may yield insightful information about the various challenges and outcomes encountered. Further studies can employ longitudinal frameworks to monitor shifts in perspectives over time and apply qualitative techniques to gain more profound understanding. Studies that compare different demographics and institutions may be able to identify contributing elements.

**8. CONCLUSION:**

The potential of ChatGPT technology in educational settings, particularly among university students in Odisha, India, is substantial. This study aimed to deepen understanding by employing the Unified Theory of Acceptance and Use of Technology (UTAUT) model, expanding its application to ChatGPT adoption. By focusing on students' perceptions and behaviours towards ChatGPT key factors were identified influencing its adoption. The findings also highlighted the importance of targeting specific demographic groups, such as university students aged 25-35 with bachelor's or master's degrees, who are more likely to accept and utilize ChatGPT technology. Regular analysis of technological strategies is essential to ensure the safety and reliability of ChatGPT usage. Moreover, providing user-friendly interfaces and clear instructions on how to utilize ChatGPT through mass communication channels can boost user confidence and promote its effective integration into educational practices.

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