
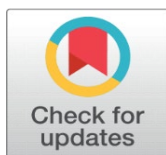
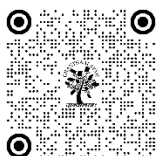


UNVEILING STUDENT MOTIVATIONS: A STUDY OF CHATGPT USAGE IN EDUCATION

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ABSTRACT

This research delves into the Uses and Gratifications of ChatGpt among students, employing a quantitative approach with surveys as the primary data collection tool. The study's primary objective is to uncover the motivations behind students' usage of ChatGpt, leading to a comprehensive understanding of the factors influencing their preferences. The analysis reveals that students predominantly utilize ChatGpt for Academic Content Creation, Information Seeking, Novelty, and Convenience. These findings provide valuable insights that can inform the development of more effective AI communication tools tailored to student needs. Moreover, this study expands the realm of the Uses and Gratification theory by investigating the motivations underlying the usage of ChatGpt, an artificial intelligence language model. The outcomes of this research hold significance for academics, researchers, and AI developers, contributing to their understanding of how individuals engage with and derive meaning from media in their daily lives.

Keywords: ChatGpt, Uses and Gratifications, Artificial Intelligence, Students, Education

1. INTRODUCTION

As artificial intelligence (AI) is becoming a part of our everyday life and continues to grow into a formidable tool in recent times, the Integration of AI is seen in almost all devices we use, and so does how we interact with it. One such interaction is with chatbots, which have become prevalent in our lives. One of the chatbots, Chat GPT, is an AI-based interface that has changed the dynamics of internet-based technologies since its inception. Artificial intelligence (AI) has become crucial for the average person with the advent of ChatGPT. ChatGPT is a

language model created by Open AI that works according to the GPT (Generative Pretrained Transformer) principle. It is designed to generate conversational, spontaneous text on consumer requests. The users will get clear answers to the questions using AI technology. The origin and development of ChatGPT were initiated by a non-profit company Open AI, which was formed in 2015. ChatGPT, the most trending AI generative application, was made available to the public on November 20, 2022. ChatGPT has become ubiquitous in a short time. It had over 100 million active users in January 2023, making it the fastest-growing consumer application [ChatGPT Sets Record for Fastest-Growing User Base - Analyst Note | Reuters. \(n.d.\)](#). The applications and usage of ChatGPT can be seen not only among the tech-savvy AI community but also in education, media, marketing, finance, health care, science, and more. [Taecharungroj \(2023\)](#) explores the functional domains of ChatGPT and its potential to impact technologies and humans. He discussed five domains: creative writing, prompt writing, essay writing, answering questions, and code writing. The study also identified the pros and cons of ChatGPT on technologies and humans. Even then, the endless possibilities of ChatGPT make it the future of AI-based technology.

2. CHATGPT IN EDUCATION

ChatGpt has become an essential academic tool for students in higher education. The platform allows students to learn quickly and reduces stress by being customizable and available 24/7. ChatGPT lets students adjust during learning, speeding up and improving their experience. ChatGPT's use in education is vital due to its wide range of applications. It provides students with opportunities and assists them in enhancing their learning experiences. It is an interactive learning experience that allows the students to ask questions and initiate discussions in real-time [Tlili et al. \(2023\)](#). Studies proved that students and research scholars use ChatGPT for various needs [Baidoo-Anu & Owusu Ansah \(2023\)](#). This technology had far-reaching consequences for academia and students in this short period [Van Dis et al. \(2023\)](#). [Samson Tan & Shannon Tan \(2023\)](#) explore the relevance of ChatGPT in higher education. The study addresses the opportunities and threats of ChatGPT from both student and teacher perspectives. ChatGPT lacks critical thinking and displays information irrationally, which has turned off many scientists. Furthermore, there is a risk that overreliance on ChatGPT could hinder students' ability to generate creative ideas [Arif et al. \(2023\)](#). Researchers propose using ChatGPT as an add-on to better writing, reviewing information, and rephrasing text rather than copying the blueprint. [Kitamura \(2023\)](#). The research about ChatGPT is still in the developing stage. More studies are coming on this because it is a nascent technology. So, it is vital to understand the motivations of students for using ChatGPT.

3. USES AND GRATIFICATIONS THEORY AND MEDIA USAGE

The uses and gratifications theory (UGT) are one of the most crucial theories researchers use to understand media usage [Malik et al. \(2016\)](#). Even though the idea was proposed in the 1940s [Chen et al. \(2023\)](#), the theory emerged during the late 1950s when researchers began to indulge in studies dealing with mass media campaigns' impact [Blumler \(1979\)](#). Studies during that time perceived the mass media impact would be the same among all its audiences. But UGT perceives audiences as active rather than passive [Katz et al. \(1973\)](#). So, the UGT proposes that the impact will differ according to each individual. With the inception of every new media, UGT is applicable in understanding the usage motivations. The UGT focuses

on the motives of using a particular media and the factors that influence the motives. It also proposes that different individuals use the media to fulfil different motives. With the advent of the internet, the uses and gratifications theory has been applied to multiple internet-based technologies [Papacharissi & Rubin \(2000\)](#). Studies have discovered the motivations of various social media platforms like Instagram, Facebook, Tiktok, Youtube, Whatsapp and more [Hossain \(2019\)](#); [Menon \(2022\)](#); [Alhabash & Ma \(2017\)](#). Also, some studies employ the uses and gratification theory to identify the motivations for using artificial intelligence applications. Studies have identified the reasons for using Alexa and Siri, virtual in-home voice assistants that work on artificial intelligence technology [Malodia et al. \(2021\)](#); [McLean & Osei-Frimpong \(2019\)](#). Even though ChatGPT is popular among the learner community, very scant literature deals with their motivations. The current study examines the different uses and gratifications behind using ChatGPT from the student's perspective. Beyond traditional and new media, the study applies the uses and gratifications theory to AI-powered ChatGPT to find specific gratifications.

4. RESEARCH OBJECTIVES

To identify the motivations of students in using ChatGpt.

5. RESEARCH QUESTIONS

What are the motivations of students for using ChatGPT?

6. RESEARCH METHODOLOGY

The study uses a quantitative research design with a questionnaire survey as the data collection method. The population identified for the study were students who were users of ChatGPT. The study sample is ChatGPT using University/college students in South India. The data collection procedure was an internet-based online survey (via Google Forms) through a snowball sampling method. The questionnaire contained both closed-ended and open-ended questions. The Google form link and QR code were shared on social media handles. The researchers distribute QR codes directly to students at the Central University of Tamilnadu, the University of Kerala and the Bangalore University. They request that students fill it out and share the link/QR code with their friends/peers. The survey questionnaire gathers demographic information about the participants and their motivations for ChatGPT. The survey also includes Information about the education of the respondents—undergraduate, postgraduate, integrated (UG and PG) and Research scholars (M. Phil/PhD) students—from different disciplines across South India. We have collected 443 (N=443) samples for the study. Of the 443, 48.1% are male, and 51.9% are female. The average age of the respondents is 24.39 years, the minimum age is 13 years, and the maximum is 58 years. The majority of the samples are postgraduate students. Most participants are from science and technology 32.5%, followed by commerce 30.9%, social sciences 29.6% and arts 7.0%. The average chatGPT usage duration of the respondents is 21.23 minutes in a single sitting. See [Table 1](#).

Table 1

Table 1 Sample Characteristics			
	Characteristics	Frequency/Mean	Percentage
Age		24.39 years	
Gender	Male	213	48.1

	Female	230	51.9
Education	Integrated UG and PG	46	10.4
	UG	107	24.2
	PG	180	40.6
	M.Phil./PhD	110	24.8
Department	Arts	31	7.0
	Social Sciences	131	29.6
	Science and Technology	144	32.5
	Commerce	137	30.9
Frequency of usage	Everyday	90	20.3
	Once in two days	56	12.6
	Few times a week	139	31.4
	Few times a month	158	35.7
Usage duration		21.32 minutes	

7. DATA ANALYSIS

7.1. CONTENT VALIDITY OF THE SCALE

A two-step procedure was employed in this study to identify the motives for using ChatGPT among the students. First, a literature review was conducted on the uses and gratifications of chatbots and artificial intelligence. Further, a focus group interview with 10 ChatGPT users generated a pool of additional gratification motives. The items from both sources were combined, and repetitive ones and the other outliers were removed. The items adopted, modified according to the need of the research, were referred to a panel of experts. Based on the expert opinion, consequent linguistic and structural modifications were carried out. All the items used in the study were selected and decided based on brevity, content clarity and simplicity. Finally, a final pool of 24 items was used in the survey, with respondents asked to rate each item on a 5-point Likert scale (1= Strongly disagree, 5= Strongly agree). The resulting data will provide insights into the motives and gratifications that drive students to use ChatGPT, helping to understand its usage patterns and potential benefits.

7.2. RELIABILITY TEST

Reliability is the potential of the measuring instrument to provide stable, accurate and consistent results. Internal consistency is one of the methods to measure the instrument's reliability by assessing the commonalities of the items used. It ensures the items are precise and accurate for measurements. Cronbach's alpha value is used to measure the internal consistency of the items. The scale is reliable if Cronbach's alpha is more than 0.7. It is identified from [Table 2](#) that Cronbach's alpha (α) for the items is 0.949, i.e., >0.7, which shows an internal consistency among all the items in the scale. So, all the items are reliable and fit for further analysis.

Table 2

Table 2 Assessment of Reliability		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.949	.949	24

Principal components analysis of the scale

Table 3

Table 3 KMO and Bartlett's Test			
Kaiser-Meyer-Olkin measure of sampling adequacy.			.953
Bartlett's Test of Sphericity	Approx. Chi-Square	6528.318	
	df	276	
	Sig.	0.000	

Table 4

Table 4 Factor Analysis							
S. No.	Items	1	2	3	4	Commonalities	Percentage Variance
D22	I use ChatGpt for writing my assignments.	.812				.663	11.109
D23	I use ChatGpt for preparing my seminar presentation.	.786				.597	
D18	I use ChatGpt for writing research papers.	.690				.666	
D24	I prefer ChatGpt for writing a thesis/dissertation/project.	.677				.456	
D17	I use ChatGPT to prepare my daily study notes.	.636				.608	
D11	I use ChatGPT to write a summary of some topic	.524				.618	
D2	I use chatGPT to get Information about a topic.		.725			.581	1.948
D3	I use chatGPT to gather Information for personal and academic growth.		.718			.600	
D1	I use chatGPT to validate or verify the Information.		.708			.571	
D5	I use chatGPT to get extra Information related to the course.		.657			.513	
D4	I use chat GPT to gather Information on planning and decision-making.		.618			.576	
D7	I use chatGPT to gain insights about various topics.		.579			.670	
D6	I use chatGPT for exam preparation.		.558			.775	
D13	I use chatGPT because it is new.			.822		.700	1.307
D12	I use chatGPT because it is innovative.			.754		.541	
D15	I use chatGPT as it is unusual.			.638		.584	
D16	I use ChatGpt because of the initial social hype.			.583		.658	
D9	I use chatGPT as I want to explore a recent trend.			.559		.678	
D14	I use chatGPT as I like to explore new possibilities for AI.			.552		.696	
D21	I use chatGPT as it saves a lot of time.				.746	.756	.991
D20	I use chatGPT as it is accessible anywhere.				.735	.728	
D19	I use chatGPT as it is available 24*7.				.700	.742	
D8	I use chatGPT as it is user-friendly.				.601	.740	
D10	I use chatGPT as it reduces human effort.				.552	.638	
Extraction Method: Principal component analysis.							
Rotation Method: Varimax with Kaiser Normalization.							
a. Rotation converged in 7 iterations.							

Factor analysis is employed to find the answer the research question 1 (RQ1), and the results are presented above. The principal component factor analysis has been performed to identify and extract the factors motivating to use of ChatGPT. The twenty-four questions relating to identifying the motivation factor have been loaded. The Varimax rotation has been used to simplify the factor structure. Factor loadings of more than 0.5 have been chosen and loaded on the extracted factors.

The Kaiser-Meyer-Olkin (KMO) measures of sample adequacy and Bartlett's test of sphericity have been applied to test whether the relationships among the items are significant. Bartlett's test of sphericity was adopted to test whether the data are statistically significant. The KMO value higher than 0.9 reveals the adequacy of the data collected for factor analysis. The result of Bartlett's test of sphericity is significant. Hence it is revealed that the data is fit for performing factor analysis. See [Table 3](#).

The communalities value of the items loaded in the factor analysis is given in [Table 4](#). The commonality value of all the items is above 0.3.

[Table 4](#) indicates the factor analysis. The first factor we labelled as *Academic content creation* consists of six statements (D22, D23, D18, D24, D17, D11), such as 'I use ChatGpt for writing my assignments.' (.812), 'I use ChatGpt for preparing my seminar presentation.' (.786), 'I use ChatGpt for writing research papers.' (.690), 'I prefer ChatGpt for writing a thesis/dissertation/project.' (.677), 'I use ChatGPT to prepare my daily study notes.' (.636), 'I use ChatGPT to write a summary of some topic' (.524). The highest factor loading was for statement D22, and statement D11 had the lowest factor loading. This factor explains 11.109 of the total variance.

The second factor, *Information Seeking*, comprises seven statements (D2, D3, D1, D5, D4, D7, D6), such as 'I use chatGPT to get Information about a topic.' (.725), 'I use chatGPT to gather Information for personal and academic growth.' (.718), 'I use chatGPT to validate or verify the Information.' (.708), 'I use chatGPT to get extra information related to course' (.657), 'I use chat GPT to gather Information on planning and decision-making.' (.618), 'I use chatGPT to gain insights about various topics.' (.579), 'I use chatGPT for exam preparation.' (.558). The highest factor loading was for statement D2 and statement D6 had the lowest factor loading. This factor explains 1.948 of the total variance.

The third factor *Novelty* has six statements (D13, D12, D15, D16, D9, D14) such as 'I use chatGPT because it is a new' (.822), 'I use chatGPT because it is innovative.' (.754), 'I use chatGPT as it is unusual.' (.638), 'I use ChatGpt because of the initial social hype.' (.583), 'I use chatGPT to explore a recent trend.' (.559), 'I use chatGPT as I like to explore new possibilities for AI' (.552). The highest factor loading was for statement D13, and statement D14 had the lowest factor loading. This factor explains 1.307 of the total variance.

The fourth factor, *Convenience*, has five statements (D21, D20, D19, D8, D10), such as 'I use chatGPT as it saves a lot of time.' (.746), 'I use chatGPT as it is accessible anywhere.' (.735), 'I use chatGPT as it is available 24*7.' (.700), 'I use chatGPT as it is user-friendly.' (.601), 'I use chatGPT as it reduces human effort.' (.552). The highest factor loading was for statement D21, and statement D10 had the lowest factor loading. This factor explains .991 of the total variance.

8. DISCUSSION

Recent research shows ChatGpt has become a crucial academic tool for students and higher education. Because the platform can be tailored to suit every student's needs and is available around the clock, it enables learners to learn at their own pace

and fosters a less stressful learning environment. ChatGPT allows students to make necessary adjustments during the learning process, thus accelerating and improving their learning experience.

This study attempts to examine the uses and gratifications of ChatGpt among students. A quantitative method used surveys as the primary data collection tool to achieve these objectives. The study adopted the uses and gratifications theory as its theoretical framework to identify the motivations behind students' use of ChatGpt.

The present study identified four motivations of students in using ChatGpt: Academic content creation, Information seeking, Novelty, and Convenience. The first-factor Academic content creation represents the students' use of ChatGpt for various academic content. The academic content includes assignments, research papers, presentations, study notes etc. Students are making use of ChatGpt mainly for their written tasks. ChatGpt can give them content according to their needs. We can interpret this as a significant innovation from the developers' side and a vital help for student break. Questions arise about whether this will negatively influence the student's creative thinking and writing capacity in the future. The second factor is Information seeking signifies the use of ChatGpt among students for various information needs. Students use ChatGpt to know about multiple information, validate and verify information, gather information for professional and personal growth decision-making, etc.

Here students should double-check the accuracy of the information provided by ChatGpt. There are critiques regarding the accuracy of ChatGpt. So verifying the information that ChatGpt offers is mandatory. The third factor is Novelty. This factor identifies the students' use of ChatGpt because of its newness. Students consider it as a recent trend and an innovation. They want to explore the possibilities of innovation. While doing so, consideration must be given to ethics as well. Because these innovations can also be misused, there are already questions arising. The fourth and final factor is Convenience. This factor includes the students' use of ChatGpt for their ease of use. It provides accessibility, availability, effortless nature etc. This Convenience factor will be critical for the development of ChatGpt in future. The more convenient the technology, the more chances of increasing the user base. So, it will be vital for the developers to focus on the Convenience of use.

9. CONCLUSION AND THEORETICAL CONTRIBUTIONS

The current study extends the scope of the Uses and Gratification theory by examining the motivations for using ChatGpt, an artificial intelligence language model. While the uses and gratifications theoretical framework has traditionally been used to explain the motives for media consumption, here we introduce a novel application of the theory to understand the specific motivations for using the ChatGpt, thus adding a new dimension to the theory. The research identified the students' reasons for using ChatGpt Academic content creation, Information seeking, Novelty, and Convenience. In conclusion, our study's findings will contribute to the growing scholarly understanding of ChatGpt, a novel AI language model. With the growth and development of ChatGpt, our study will contribute significantly to the scholars' knowledge of ChatGpt use and various implications. We hope future studies will contribute to the Uses and Gratifications of artificial intelligence-based language models.

10. ETHICAL CONSIDERATIONS

All subjects provide informed consent. The participants' anonymity will be preserved. Only academic data is generated. The research meets all ethical standards for human subjects.

11. LIMITATIONS

Apart from some valuable findings, our study also has limitations. First, ChatGPT is a novel platform. So, the users are still exploring its uses, possibilities, and functions. So, there are high chances for changing their motivations and usage priorities in the later stage. Another limitation is that we only studied the motivations for using ChatGPT among the students, and based on students' requirements, we created the questionnaire. So, there will be some limitations while applying the same model to a general population. The study didn't consider students' satisfaction levels in using ChatGPT, another major limitation of the study. We anticipate that future researchers will address the limitations identified in our research and further investigate the topic more comprehensively.

CONFLICT OF INTERESTS

None.

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