DOI: 10.20544/SERBE.09.01.24.P01

STUDENT'S PERCEPTIONS TOWARDS THE USE AND ACCEPTANCE OF CHATGPT IN HIGHER EDUCATION – EVIDENCE FROM NORTH MACEDONIA

Marina Mijoska[1], Kalina Trenevska Blagoeva[2]

Abstract

ChatGPT has gained popularity in higher education in recent years as a type of artificial intelligence (AI) technology that can support a variety of educational activities. Although the use of AI is widespread, there is a limited understanding of students' experiences, perceptions and behavioral intention to use ChatGPT. The main purpose of the research is to analyze student's perceptions and significance of determinants of young people's behavior towards the use of AI tools in education. The research is conducted among students at the Faculty of Economics – Skopje using quantitative research design. The research model is based on Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model which provides a framework for explaining and predicting technology use behavior. Original UTAUT2 constructs included are: performance expectancy; effort expectancy; social influence; facilitating conditions, hedonic motivation, habit and behavioral intention toward using technology. As extensions to the original model, two more constructs were added learning value and personal innovativeness. The results of this preliminary research showed that although students use ChatGPT with ease to enhance their leaning process,

[1] Ss.Cyril and Methodius University, Faculty of economics – Skopje, bvd. Goce Delcev 9V, Skopje, North Macedonia, marina@eccf.ukim.edu.mk

[2] Ss.Cyril and Methodius University, Faculty of economics – Skopje, bvd. Goce Delcev 9V, Skopje, North Macedonia, kalina@eccf.ukim.edu.mk

they have concerns about trust, reliability and accuracy of the information provided by ChatGPT, as well as ethical concerns. Utilizing ChatGPT improves their learning experience but they express moderate believe (hesitation) towards the reliability and accuracy of information provided by AI as well as privacy and security. Future research is targeted to validate the usage of UTAUT2 model as representation of real determinants that influence behavioral intention to use ChatGPT among students in higher education. This research represents pilot study in this field in the country. Hence it could be used as good base for further research in this area. As well it provides valuable insights for HEIs seeking to integrate AI tools effectively, addressing student concerns, and optimizing its benefits and challenges.

Keywords: ChatGPT, AI, higher education, UTAUT2, North Macedonia.

1. Introduction

Artificial intelligence (AI), is a field of science and technology that is expanding rapidly in last years. It is already perceived as critical driver of productivity and competitive advantage of organizations. Artificial intelligence is a broad term that refers to any type of computer software that engages in humanlike activities – including learning, planning and problem-solving. The use and application of AI has opened new possibilities and challenges for different industries. However, the rise of generative AI, of which ChatGPT is an example, has raised concerns about its potential impact on various industries and institutions (Strzelecki, A., 2023). Recent advancements in artificial intelligence (AI) significantly impact many aspects of education and learning (Swift, 2023). These developments/innovations have given both teaching staff and students new opportunities (Mirtskhulava and Momonov, 2021). AI is visibly disrupting higher education's administrative, teaching, learning and research activities. The strategic incorporation of AI tools and technologies in educational processes holds the promise of revolutionizing higher education through the enhancement of dynamic and engaging learning experiences.

ChatGPT, an AI-powered chatbot released by OpenAI, is equipped with a large language model that enables it to generate original text in response to prompts given by users. This technology, launched in November of 2022, is available for free through an OpenAI account (OpenAI, 2022). ChatGPT is a cutting edge AI language model that leverages generative AI techniques to provide algorithm generated conversational responses (Dwivedi et.al. 2023). ChatGPT is based on machine learning, which is currently the most popular technique in AI technology (https://unesdoc.unesco.org).

The available research indicates that the acceptance and use of ChatGPT have a beneficial effect on student involvement, motivation, and academic achievement. Students can benefit greatly from ChatGPT, as it facilitates student access to information and knowledge and contributes to their learning process (Cotton et al., 2023; Rudolph et al., 2023). Students may receive comments on their assignments through ChatGPT, allowing them to learn more effectively (Foroughi et.al. 2023).

In summary, the strategic incorporation of AI tools and technologies in educational processes such as ChatGPT holds the promise of revolutionizing higher education through the enhancement of dynamic and engaging learning experiences. Universities should carefully but proactively embrace AI catboats such as ChatGPT as powerful teaching, research, and service tool (Dempere, 2023). ChatGPT has the potential to enhance the productivity of knowledge work through various mechanisms, such as simplifying the information search process (Dwivedi et.al. 2023). The optimal utilization and strict adherence to established guidelines are crucial in order to fully leverage the educational benefits of AI, hence augmenting the overall standard of education in the era of digital advancements. ChatGPT has created educational opportunities by providing personalized learning experiences, assisting in creating educational content, overcoming language barriers etc. thus greatly reshaping teaching and learning outcomes. Generative AI technologies offer innovative opportunities for personalized learning, content creation, and educational assessment (Adıgüzel et.al. 2023). Multiple evaluations and tests have validated its capabilities particularly in the realm of higher education (Li et.al. 2023, Dwivedi et. al.2023).

However, while ChatGPT can offer numerous benefits for learners, its application within the education context can be associated with various concerns. Many educators have viewed ChatGPT as a potential opportunity for revolutionizing and advancing future learning and research (Foroughi et.al. 2023). But nevertheless, a significant group of educators considers it a threat due to its capability to generate content, and thus students may misuse it (Rudolph et al., 2023). There is also another group concerned with plagiarism issues in delivering student results. So the challenge of introduction of ChatGPT as a learning tools is more complex than any previous technology that reshaped education till now. The debate surrounding the use of ChatGPT in academia and education is strong.

Universities are increasingly considering how ChatGPT may impact higher education teaching and learning in the future, as the possibilities of this technology are vast and potentially game-changing (Lim et al., 2023). Understanding how students perceive the use of ChatGPT in higher education is critical for effectively addressing potential concerns, challenges, and implications, as well as ensuring that the technology is used in accordance with students' needs and expectations (Rudolph et al., 2023).

Based on this, two research questions were addressed: 1) how do students perceive ChatGPT's utilization in learning? and 2) What determines students' behavior towards usage of AI tools more specifically ChatGPT? The structure of the paper is as follows: after introduction (this section), in Section 2 relevant literature review on the discussed topic is provided. The methodology and model specification with detailed constructs description, hypothesis development and data are presented in Section 3. The detailed data analysis, and discussion of the results are presented in Section 4. The final remarks and conclusions, originality of the study, limitations of the research as well as future for research are presented in Section 5.

2. Literature Review

The literature of new technology adoption is versatile and there are several approaches that are elaborated and widely used by the researchers. The interest of the researchers towards understanding the factors that

influence organizational and individual acceptance of new technologies is nowadays not only general, but also industry or product focused. These models have their origins in the disciplines of psychology, information systems and sociology and are intended to predict and understand people's intention, behavior and attitude towards use of a different technologies and therefore they are relevant to explore the adoption of AI tools.

Unified Theory of Acceptance and Use of Technology (UTAUT) is formulated in order to incorporate different theories and to construct unified theory (Venaktesh et al., 2003). The role of UTAUT is to fully understand the usage as dependent variable. The UTAUT model integrates determinants/constructs examined across eight models that earlier research had used to explain information systems usage behavior like: Theory of Reasoned Action, Technology Acceptance Model, Motivational Model, Theory of Planned Behavior, A Combined Theory of Planned Behavior and Technology Acceptance Model, Model of Personal Computer Use, Diffusion of Innovations Theory and Social Cognitive Theory (Mijoska et.al., 2022). Formed in order to integrate these different theories and models, it represents an integrated theory of technology acceptance and therefore called unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003). The goal of UTAUT is "to explain user intentions to use an information system and subsequent usage behavior" (Venkatesh et al., 2003). This theory defines four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions. In the model performance expectancy, effort expectancy, and social influence are directly associated with behavioral intentions while facilitating conditions are associated with actual usage. Gender, age, experience, and voluntariness of use are assumed to moderate the impact of the four key constructs on usage intention and behavior. The basic UTAUT model is presented in Figure 1.

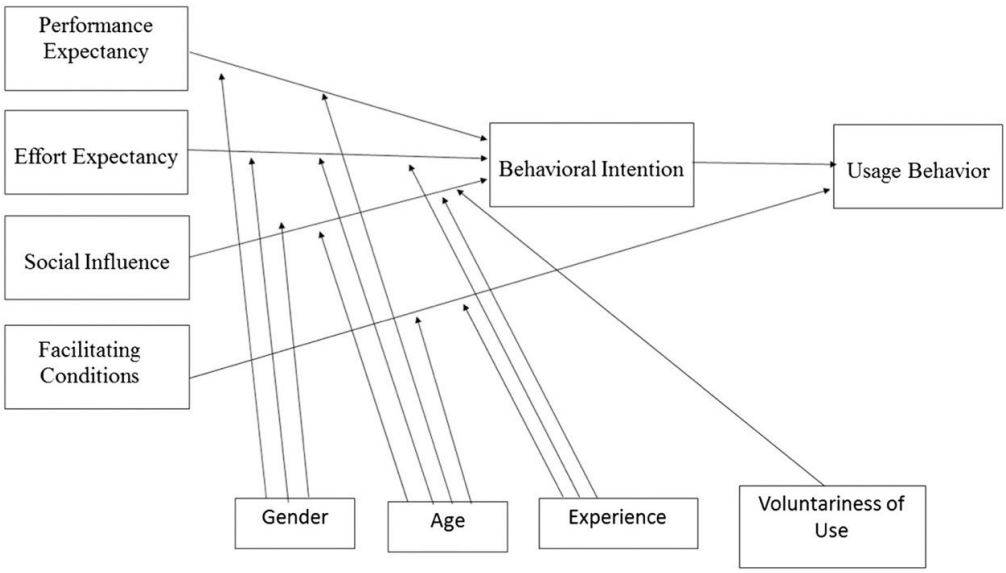

Figure 1. The UTAUT model

Source: Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003), "User Acceptance of Information Technology: Towards a Unified View". MIS Quarterly, 27, 425-478

UTAUT is appropriate model for organizations that are in the process of introducing new IT and their employees are attending training of some sort, investigating both mandatory and voluntary use. The UTAUT methodology is primarily focused on acceptance in organizational context. The extension of UTAUT is UTAUT2 (Venaktesh, Tong and Xu, 2012). In UTAUT2 the theory is tested from consumer viewpoint, focused on consumer technologies. Actually, UTAUT was extended to be applicable to other context, such as the context of technologies for mass consumerism. New contexts actually resulted in several types of important changes. The original UTAUT has been modified by three extensions: (1) investigation of its applicability in the context of new technologies, new user populations and new cultural settings, (2) the addition of new constructs in order to expand the scope of the endogenous theoretical mechanisms outlined in UTAUT and

(3) inclusion of exogenous predictors of the UTAUT variables (Venkatesh et al., 2012). In order to use the proposed moderators of the constructs certain preconditions from the methodological viewpoint should be fulfilled. Therefore, in many investigations some constructs were dropped out, and more often some of the moderators due to methodological reasons. The research model proposed in this study representing modified UTAUT2 model is presented on Figure 2 (without moderators).

UTAUT2 has been employed in the education context to explain students' behaviors towards various technologies (such as for example online learning (Mijoska et.al. 2022) and demonstrated a high explanatory power (Foroughi, et.al. 2023). In the context of ChatGPT, UTAUT and its extended versions have been extensively used as theoretical frameworks in different studies to explain user acceptance of AI tools (Habibi et.al. 2024, Polyportis and Pahos 2024, Romero Rodríguez et.al, 2023, Strzelecki, 2023, Sobaih, et.al. 2024, Matalka et.al.2024, Bouteraa et al., 2024, Menon, and Shilpa, 2023 etc.).

3. Methodology and research design

The research model proposed in this study aiming to understand students' behavior towards use of ChatGPT is based on UTAUT2 (Venkatesh et al., 2012) modified and extended by the constructs Learning Value and Personal Innovativeness.

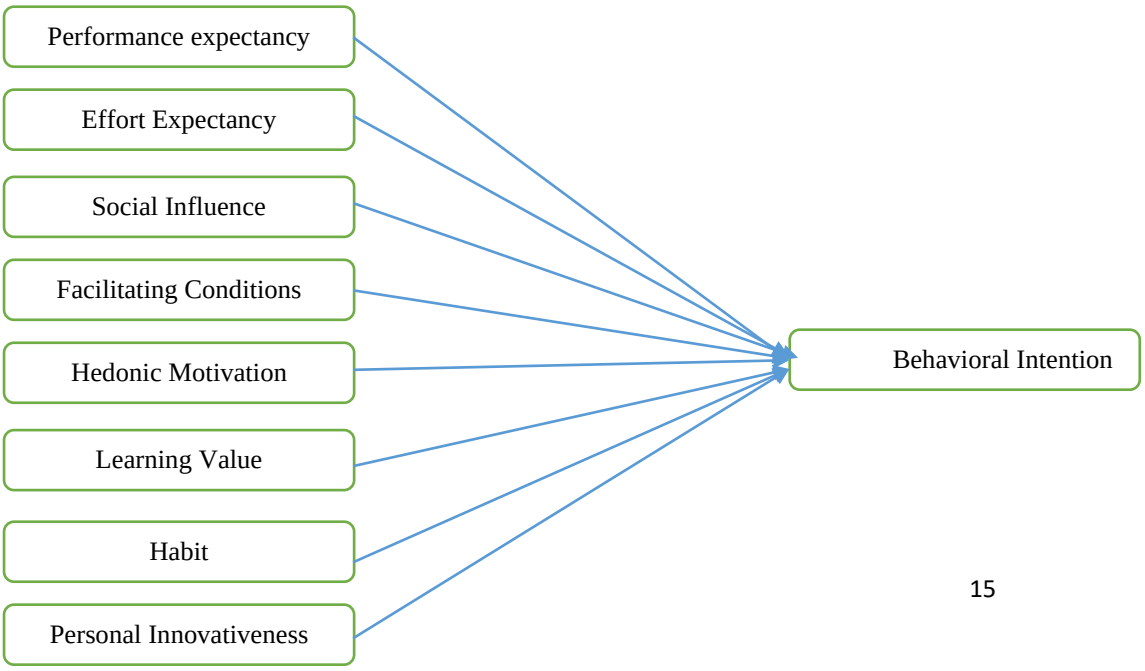

Figure 2. The Research Model (based on UTAUT2 model)

The main criticism of the UTAUT2 model and its extension is the complexity. Due to the multitude of constructs, the model become very complex. Moderators raise explanatory power but also the models complexity, therefore the extended model is often applied without moderators which is case in this study as well. Another reason for dropping out the moderators (gender, age in this research is the characteristics of the sample i.e. the respondents. They are mainly young people, students, with similar experience regarding the usage of technology.

Performance expectancy is defined as the degree to which using a technology will provide benefits to consumers in performing certain activities; effort expectancy is the degree of ease associated with consumers' use of technology; social influence is the extent to which consumers perceive that important others (e.g., family and friends) believe they should use a particular technology; and facilitating conditions refer to consumers' perceptions of the resources and support available to perform a behavior (e.g., Brown and Venkatesh 2005). Performance expectancy, effort expectancy, and social influence are expected to influence behavioral intention to use a technology, while behavioral intention and facilitating conditions determine technology use. In the original UTAUT2 three more constructs are added –hedonic motivation, habit and price value. Hedonic motivation can be briefly defined as the "fun" dimension of the attitude (Bruner and Kumar, 2005). More precisely, hedonic motivation can be defined as "the fun or pleasure derived from using a technology" and it has been shown to play an important role in determining technology acceptance and use (Brown and Venkatesh 2005). Therefore, hedonic motivation is predictor of consumers' behavior and use of technology. Experience and habit are related predictors that are shaping user adoption of technology. Experience is measured in quantity of time of operational usage of certain technology by an individual. The more experienced the customer is, the higher is the possibility for him to have positive attitude towards using a new technology. Habit has been defined as the extent to which people tend to

perform behaviors automatically because of learning (Limayem et al., 2007) Habit is understood as "learned sequences of acts that become automatic responses to specific situations which may be functional in obtaining certain goals or end states" (Verplanken et al., 1997). Some authors stress out that intention is the main causal mechanism behind the enactment of behavior (Ajzen, 2002). Limayem et al. (2007) defined IS habit as "the extent to which using a particular IS has become automatic in response to certain situations." The key word in this definition is automatic, while habit is logically connected with prior behavior, as well. Experience may, or may not result in the formation of habit. Passage of time can result in the formation of differing levels of habit depending on the extent of interaction and familiarity that is developed with a target technology (Venkatesh et al., 2012). In this context, habit is a perceptual construct that reflects the results of prior experiences. Kim and Malhotra (2005) and Limayem et al. (2007) found empirical evidence that prior use was a strong predictor of future technology use. In their research, Wang, Harris and Patterson (2013) concluded that experience accumulates, customers' continued use of a certain technology is initially largely rational driven (self-efficacy), then largely emotional driven (satisfaction), and, finally, habitual (habit). Over time, habit completely mediates the impact of intentions on future usage.

Learning value. Venkatesh et al. (2012) highlighted that the factors that affect the adoption of new information systems differ depending on the specific circumstances and contexts. In this sense, the price value (PV) construct defined in the original model as a specific predictor for consumer technologies because consumers as individuals bear the costs unlike workers as employees, in the context of ChatGPT is less important since ChatGPT is available for free i.e. there is unlimited access to ChatGPT without any fees or subscriptions (for the basic version). Therefore this construct was omitted from our research model. In the context of learning, perceived learning value becomes important for an individual, since when a learner perceive a learning tool as valuable for enhancing knowledge, saving time, and achieving learning goals, he is motivated to use the technology (Yakubu and Dasuki, 2019). Price value construct was replaced with learning value in the research of Foroughi et.al. (2023) and Sitar- Taut and Mican, (2021) as well. Learning value is defined as user's perception of a particular system utility

(Sitar-Taut and Mican, 2021). Learning value measures students' perception regarding the value of ChatGPT as a learning tool in terms of saving time and improving the learning process (Foroughi et.al. 2023).

Personal innovativeness. Agarwal and Prasad (1998) describes personal innovativeness as the degree to which an individual is ready to try new technologies. In the research of Brusch and Rappel (2020) personal innovativeness is positively related to the intention to use of new technology and innovative individuals are more likely to accept the challenges of using new technology with ease. Khazaei and Tareq (2021) found out that individuals with higher personal innovativeness are less influenced by the opinions of others i.e. the social influence constructs are less significant in behavioral intention than PI. Alkawsi et al., (2021) concludes that performance expectancy and effort expectancy may play a less important role in their adoption decision in favor of personal innovativeness. Innovators are more likely to use new technology as they possess positive attitudes towards innovations (Foroughi et.al. 2023). These research confirm that PI is significant construct and have strong meaning in shaping ones behavior towards the use of technology. PI is a personally related factor that has shown significant power in explaining individual differences in technology adoption (Cheng, 2014).Therefore we hypothesized this relationship in our research model as well.

Based on the discussion above, and the proposed research model as presented in Figure 2, the following research hypotheses were set:

H1: Performance expectancy will positively influence behavioral intention.

H2: Effort expectancy has a positive effect on behavioral intention.

H3: High social influence will lead to increased behavioral intention.

H4: Facilitating conditions have a positive effect on behavioral intention.

H5: High hedonic motivation will lead to increased behavioral intention.

H6: Higher learning value has positive effect on behavioral intention.

H7: Habit has a positive effect on behavioral intention.

H8: Personal innovativeness has a positive effect on behavioral intention

4. Data analysis and results

This study employs a quantitative research design and questionnaire was distributed by using electronic survey or e-survey via Google Form. A questionnaire was developed to be the instrument for data collection. For the analysis in this study, authors designed the research in two segments: the first step was to create a structured questionnaire measuring the frequency of usage, utility and reasons for using, as well as ethical and trust concerns of ChatGPT usage. The second part of the questionnaire was designed entailing the extended UTAUT2 model, in order to create reliable constructs that can be used to analyses the determinants of student's behavior. Population of interest in this research are university students (mostly students aged 18-25). The data is collected by distributing online questionnaire on Google platform among undergraduate students at the largest state university Ss. Cyril and Methodius in Skopje. The research is based on the responses starting from April 2024 till the first half of May 2024. All basic UTAUT2 factors were measured by the original items developed by the authors of the UTAUT2 model (Venkatesh et al., 2012). Regarding the new construct in the model in this research – learning value and personal innovativeness they are measured by six and four items respectively, developed on the basis of similar research that have applied UTAUT in the context of AI tools usage and measured the impact of this constructs on technology adoption and user behavior (Sitar-Taut and Mican, 2021, Foroughi et.al. 2023). Five-point Likert scale was included with level of agreement from 1-Strongly disagree, 2- Disagree, 3-Neither agree nor disagree, 4- Agree, and 5-Strongly agree.

The total number of received responses at the time of analysis is 116, but after the filtering of the data, 105 questionnaires were included in this preliminary research. The rest were excluded from further analysis due to the missing data (more than 10% missing data), low standard deviation in answers, and more than one answer in the fields (Hair, 2010). In Table 1 demographic characteristics of the sample are presented.

The data shows 61% female and 39% male respondents. Most of them, over 75%, are from the e–business department (Faculty of Economics – Skopje). All of them, 100%, have heard about ChatGPT before this study, and 93% have used ChatGPT before this study in general (for non-academic purposes like personal projects or for fun). 93% of the respondents have also used ChatGPT in an academic setting, for example for learning purposes, or during lectures or as part of an academic program before this study. Regarding their experience in using ChatGPT, frequency and duration of usage per session, self-confidence and expectations i.e. believes that using ChatGPT will become an essential part of your academic workflow in the future, the statistics are given in the Table 1.

Table 1. Demographic characteristics

Demographic characteristics	Item	Percentage
Gender	Female	61.0
	Male	39.0
Residence	Skopje	79.0
	Other	21.0
Experience	More than a year	58.1
	More than six months	19.0
	More than one month	16.2
	One month or less	6.7
Frequency of usage	Daily	2.9
	Weekly	39.0
	Fortnightly	9.5
	Once in a month	30.5
	Rare	18.1
On average, how much time do you spend using ChatGPT in each session?	Less than one hour	59.0
	More than one hour	26.7
	More than two hours	9.5
	More than four hours	4.8
Self-confidence	Very confident	30.5
	Confident	37.1
	Neutral	22.9

	Not too confident	9.5
Expectations	Extremely essential	27.6
	Very essential	27.6
	Neutral	39.0
	Not very essential	2.9
	Not at all essential	2.9

The profile of our respondents is mostly female, reside in the capital, with experience in ChatGPT for more than a year, who uses ChatGPT weekly for less than an hour, confident in using this AI tool, with high expectations towards the future use of ChatGPT i.e. with the believe that ChatGPT will become an essential part of their academic workflow in the future. This description of the sample provide confirmation for the further analysis of the results since the respondents are quite familiar with the usage of the tool in and outside academic setting.

Regarding the purpose of usage, mostly the respondents use it for problem-solving activities related to learning. Information gathering and research are next, followed by using ChatGPT for homework and assignments accomplishment as most usual utility. Below average, respondents use this tool for fun and entertainment, exam preparation, self-improvement career guidance etc. This insight confirms that the main utility of ChatGPT is related to studies.

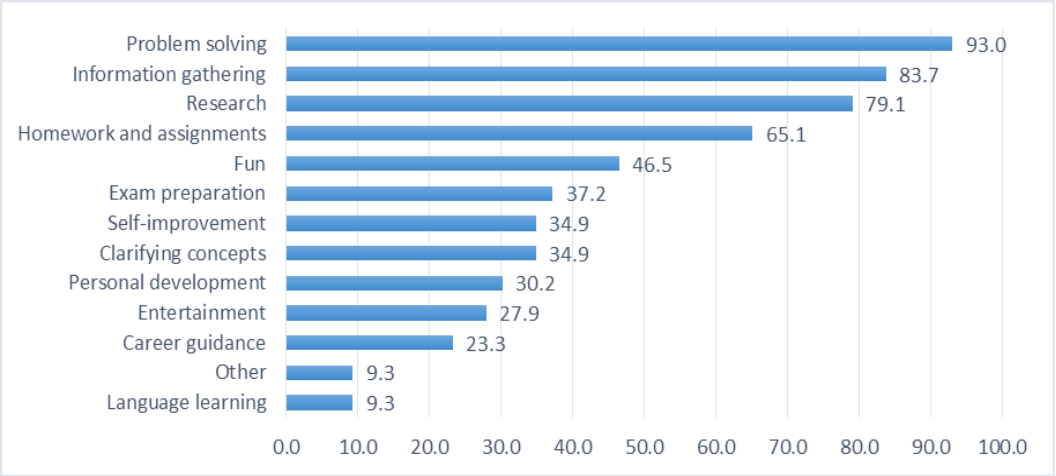

Figure 3. Utility (Purpose of usage)

Among most common reasons for using AI tools perceived by the respondents are time saving, convenience (quick and convenient access to information) and assistance with difficult concept. Below average are other less important reasons like personalized learning experience, interactive learning, and trendy to use tool, practice and reinforcement and other.

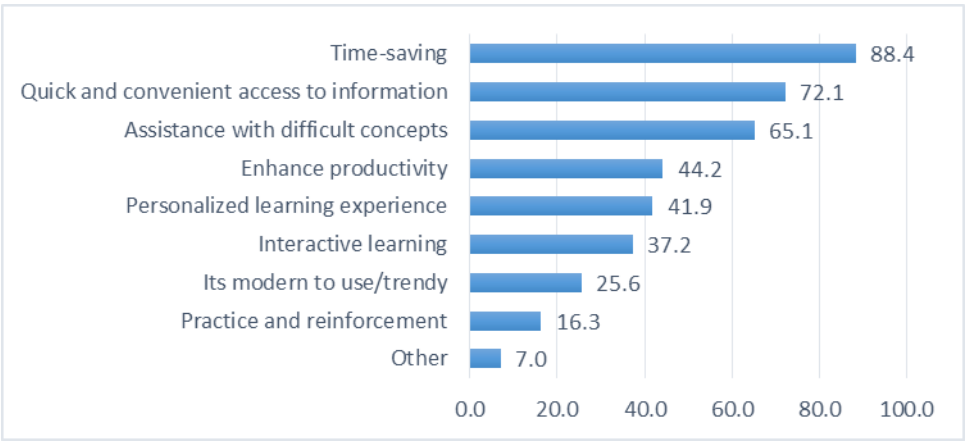

Figure 4. Reasons for usage

Acceptance and use of ChatGPT in the education setting may pose significant ethical issues, academic integrity and trust concerns. For example, ChatGPT may inadvertently generate responses that may be similar or even identical to existing material, causing students to violate academic integrity when they fail to cite the content generated (Foroughi et.al.2023). More

importantly, there is a significant concern regarding the accuracy and reliability of the information provided by ChatGPT. While this chatbot can generate answers to a wide range of questions, there is a risk that the responses may be significantly inaccurate or biased, mainly when the underlying training data contains errors or biases. This issue may result in severe consequences for academic research and teaching if incorrect, inaccurate, or biased information is propagated (Foroughi et.al. 2023). Foroughi et.al. (2023) also suggest that it is critical to consider the ethical and academic integrity concerns associated with using ChatGPT in education while exploring the opportunities it may offer to boost students' learning. In this sense, we analyze the student's perceptions towards these concerns. The next findings of the study are related to trust and ethical concerns.

Perceived Trust. Whether students accept and trust the information provided by ChatGPT as reliable and accurate is a major concern. Students may doubt the credibility of a chatbot's responses, particularly when dealing with complex or critical academic tasks (Cooper, 2023; Cotton et al., 2023; Mhlanga, 2023). This may have an effect on their perception of utilization of ChatGPT as an educational tool and as an acceptable teaching resource. Based on the results presented in Table below, students in our research are mostly concerned about security and privacy issues when using ChatGPT (3.19). ChatGPT is competent in providing the information and guidance ones need as scored with highest average value (3.56), meaning that users believe in the tools competency reliability and transparency. ChatGPT operates as a black box, meaning users cannot easily understand or verify the underlying processes that generate its responses. Besides that, most of the respondents recognize ChatGPT as transparent source of information (3.56).

Table 2. Perceived Trust

Statement	Average
TR1 ChatGPT is competent in providing the information and guidance I need	3.56
TR2 ChatGPT is reliable in providing consistent and dependable information	3.30
TR3 ChatGPT is transparent	3.56

TR4 ChatGPT is trustworthy in the sense that it is dependable and credible	3.35
TR5 ChatGPT will not cause harm, manipulate its responses, create negative consequences for me	3.26
TR6 ChatGPT will act with integrity and be honest with me	3.37
TR7 ChatGPT is secure and protects my privacy and confidential information	3.19
TR8 ChatGPT provide trustworthy information	3.42
TR9 ChatGPT provide accurate information	3.51

Ethical Concerns. There may be ethical issues with the use of ChatGPT in higher education. Students, for example, may be concerned about issues such as data privacy, security, and bias in ChatGPT responses. Students' willingness to use ChatGPT for academic tasks may be influenced by these ethical concerns (Cooper, 2023; Cotton et al., 2023; Mhlanga, 2023, Stahl and Eke, 2024). Ethical Concerns can also highlight the difficulties of detecting and preventing academic dishonesty and plagiarism (Zeb et.al. 2024). Thus, suggests strategies that universities can adopt to ensure ethical and useful use of these tools is very important.

The participants in this study disagree with the statement that using AI-enabled tools should be prohibited in educational institutions (2.37), but agree that it is necessary to develop ethical guidelines for using ChatGPT as the institution's liability in order to avoid ethical dilemmas. This shows that HEIs for sure should think about shaping the usage of ChatGPT in order to overcome ethical challenges.

Table 3. Ethical concerns regarding usage of ChatGPT

Statement	Average grade
ETH1 ChatGPT can provide unreliable data, threatening the students' efforts.	2.93
ETH2 Developing ethical guidelines for using ChatGPT is the institution's liability.	3.19
ETH3 I refrain from writing the text for assignments to avoid ethical dilemmas.	2.77

ETH4 I use ChatGPT only for creative ideas concerning education.	3.14
ETH5 It is unethical for students to depend on the ChatGPT tool to write their assignments	2.84
ETH6 Using AI-enabled tools should be prohibited in educational institutions.	2.37

Based on the mean of analyzed critical success factors of the behavioral intention towards usage of ChatGPT defined in the research model (Figure 2), several preliminary insights can be derived. Descriptive statistics are presented in the Table 4 below. The lowest average value is evident for the construct habit (2.85). This implies that habit is less perceived as important factor in the behavioral intention to use ChatGPT meaning that most of the respondents are not addicted in using ChatGPT and they do not feel that they must use it in their studies. The highest average value has effort expectancy (4.39) meaning that the expected effort in using the tool is a strong factor perceived by the respondents in our sample. Our experience shows that by regular usage students can improve their skills, since the interaction with the tool should be meaningful. In order the communication with ChatGPT to be useful and productive the user/student should practice i.e. for example should precisely know what to ask and how to pose the right question in order to get meaningful answer. Using ChatGPT to complete their academic assignments and facilitate their studies was seen as simple. Respondents agree that learning how to use ChatGPT is easy, the interaction with ChatGPT is clear, simple and understandable and that it is easy to become skillful at using ChatGPT. Facilitating conditions (3.98), personal innovativeness (3.88) and learning value (3.84) constructs are also scored with high average value. The participants in the study agree that they have the resources and knowledge need to use ChatGPT for their studies, and they can get help from others when facing difficulties in using ChatGPT. They perceive ChatGPT as compatible with other technologies and tools they use in their studies. Students perceive the learning value in using ChatGPT in increasing the knowledge and enhancing the success in the studies. ChatGPT is a very effective educational tool that improves the learning process. ChatGPT saves students time in searching for materials and preparing for exams. ChatGPT saves my time preparing projects, assignments and

homework related to studies. ChatGPT helps students to achieve their learning goals.

Surprisingly the results i.e. the average value for social influence constructs is above the average (3.53) but lower than other construct. This mean that students are less under the influence from the pears, people which opinion they value. They are mostly led in using AI tools based on personal innovativeness spirit. The data shows that the respondents, like experimenting with new technologies and they are very natural in trying new tools in general.

Table 4. Descriptive statistics

Construct	Average grade
Performance expectancy	3.77
Effort expectancy	4.39
Social influence	3.53
Facilitating Conditions	3.98
Hedonic Motivation	3.82
Learning Value	3.84
Habit	2.85
Personal Innovativeness	3.88
Behavioral Intention	3.74

5. Conclusion and Recommendations

Understanding student attitudes towards ChatGPT in higher education is important because it can influence user acceptance, learning outcomes, pedagogical decisions, user experience, and ethical considerations. The results of this pilot study provide various implications and insights for HEIs for accelerating and managing the ChatGPT adoption.

This research is limited by the fact that the sample size is small, the sample was drawn from only one state university, i.e. Faculty. In order to analyses the effect of moderators and to generalize the results a larger and more heterogeneous sample is tended to be provided. . After completing the data collection phase as expected at the end of May 2024, and enlarging the

sample to a statistically satisfactory level for more comprehensive analysis, a future research plan holds for testing the UTAUT2 model by enhancing the research design, with several methods that can be used – exploratory factor analysis, Cronbach's Alpha, ANOVA, single or multiple regression, PLS-SEM etc.so the next step is to validate the significant influence of defined model constructs on the behavioral intention to use ChatGPT among students in the country. Future researchers could also consider using different research methods to address the potential impact of ChatGPT on students' learning outcomes, such as academic performance or productivity. Since ChatGPT use in higher education is still an emerging area of research, future studies can focus on diversity of elements important to the understanding of ChatGPT adoption and utilization in higher education and hence assist HEIs in developing effective educational applications for this technology.

References

Adıgüzel, T., Kaya, M.H. and Cansu, F.K. (2023). Revolutionizing education with AI: Exploring the transformative potential of ChatGPT. Contemporary Educational Technology, 15(3), ep.429

Agarwal, R. and Prasad, J. (1998). A conceptual and operational definition of personal innovativeness in the domain of information technology. *Information systems research*, *9*(2), pp.204-215.

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior 1. *Journal of applied social psychology*, *32*(4), pp.665-683.

Alkawsi, G., Ali, N., & Baashar, Y. (2021). The moderating role of personal innovativeness and users experience in accepting the smart meter technology. Applied Sciences, 11(8), p. 3297.

Bouteraa, M., Bin-Nashwan, S.A., Al-Daihani, M., Dirie, K.A., Benlahcene, A., Sadallah, M., Zaki, H.O., Lada, S., Ansar, R., Fook, L.M. and Chekima, B. (2024). Understanding the diffusion of AI-generative (ChatGPT) in higher

education: Does students' integrity matter?. *Computers in Human Behavior Reports*, *14*, p.100402.

Brown, S.A. and Venkatesh, V. (2005). Model of adoption of technology in households: A baseline model test and extension incorporating household life cycle. *MIS quarterly*, pp.399-426.

Bruner II, G.C. and Kumar, A. (2005). Explaining consumer acceptance of handheld Internet devices. *Journal of business research*, *58*(5), pp.553-558.

Brusch, I. and Rappel, N. (2020). Exploring the acceptance of instant shopping–An empirical analysis of the determinants of user intention. *Journal of Retailing and Consumer Services*, *54*, p.101936.

Cheng, Y.M. (2014). Exploring the intention to use mobile learning: the moderating role of personal innovativeness. *Journal of Systems and Information Technology*, *16*(1), pp.40-61.

Cooper, G. (2023). Examining science education in ChatGPT: An exploratory study of generative artificial intelligence. *Journal of Science Education and Technology*, *32*(3), pp.444-452.

Cotton, D. R. E., Cotton, P. A., & Shipway, J. R. (2023). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. Innovations in Education and Teaching International, 1–12.

Dempere, J., Modugu, K., Hesham, A. and Ramasamy, L.K. (2023), September. The impact of ChatGPT on higher education. In Frontiers in Education (Vol. 8, p. 1206936). Frontiers Media SA.

Dwivedi, Y.K., Kshetri, N., Hughes, L., Slade, E.L., Jeyaraj, A., Kar, A.K., Baabdullah, A.M., Koohang, A., Raghavan, V., Ahuja, M. and Albanna, H. (2023). "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. International Journal of Information Management, 71, p.102642.

Foroughi, B., Senali, M.G., Iranmanesh, M., Khanfar, A., Ghobakhloo, M., Annamalai, N. and Naghmeh-Abbaspour, B. (2023). Determinants of

intention to use ChatGPT for educational purposes: Findings from PLS-SEM and fsQCA. *International Journal of Human–Computer Interaction*, pp.1-20.

Habibi, A., Muhaimin, M., Danibao, B.K., Wibowo, Y.G., Wahyuni, S. and Octavia, A. (2023). ChatGPT in higher education learning: Acceptance and use. *Computers and Education: Artificial Intelligence*, *5*, p.100190.

Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010). *Multivariate Data Analysis*. 7th Edition, New York: Pearson

Khazaei, H., & Tareq, M. A. (2021). Moderating effects of personal innovativeness and driving experience on factors influencing adoption of BEVs in Malaysia: An integrated SEM–BSEM approach. Heliyon, 7(9),

Kim, S.S. and Malhotra, N.K. (2005). A longitudinal model of continued IS use: An integrative view of four mechanisms underlying postadoption phenomena. *Management science*, *51*(5), pp.741-755.

Li, L., Ma, Z., Fan, L., Lee, S., Yu, H. and Hemphill, L. (2023). ChatGPT in education: A discourse analysis of worries and concerns on social media. Education and Information Technologies, pp.1-34.

Lim, W. M., Gunasekara, A., Pallant, J. L., Pallant, J. I., & Pechenkina, E. (2023). Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators. The International Journal of Management Education, 21(2), 100790

Limayem, M., Hirt, S.G. and Cheung, C.M. (2007). How habit limits the predictive power of intention: The case of information systems continuance. *MIS quarterly*, pp.705-737.

Matalka, M., Badir, R., Ayasrah, F., Ahmad, A., Al-Said, K., Nassar, H., Alzoubi, S. and Alzoubi, M.(2024). The adoption of ChatGPT marks the beginning of a new era in educational platforms. *International Journal of Data and Network Science*, *8*(3), pp.1941-1946.

Menon, D. and Shilpa, K. (2023). "Chatting with ChatGPT": Analyzing the factors influencing users' intention to Use the Open AI's ChatGPT using the UTAUT model. Heliyon, 9(11).

Mhlanga, D. (2023). Open AI in education, the responsible and ethical use of ChatGPT towards lifelong learning. In FinTech and Artificial Intelligence for Sustainable Development: The Role of Smart Technologies in Achieving Development Goals , pp. 387-409

Mijoska, M., Trenevska Blagoeva, K. and Trpkova-Nestorovska, M. (2022), Understanding Students' Online Learning Behavior Using UTAUT Model– The Case of North Macedonia, Proceeding of the 3rd International scientific conference Economic And Business Trends Shaping The Future (EBTSF22), pp. 291-302

Momonov, G. & Mirtskhulava, L. (2021). Artificially intelligent chatbots for higher education: A review of empirical literature. 57. P.5-10.

OpenAI. (2022). ChatGPT: Optimizing language models for dialogue. https://openai.com/blog/chatgpt/

Polyportis, A. and Pahos, N. (2024). Understanding students' adoption of the ChatGPT chatbot in higher education: the role of anthropomorphism, trust, design novelty and institutional policy. *Behaviour & Information Technology*, pp.1-22.

Romero Rodríguez, J.M., Ramírez-Montoya, M.S., Buenestado Fernández, M. and Lara Lara, F. (2023). Use of ChatGPT at university as a tool for complex thinking: Students' perceived usefulness, *Journal of New Approaches in Educational Research*, 12 (2), pp.323-339

Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education. Journal of Applied Learning and Teaching, 6(1), pp.1-22

Sitar-Taut, D.A. and Mican, D. (2021). Mobile learning acceptance and use in higher education during social distancing circumstances: An expansion and customization of UTAUT2. *Online Information Review*, *45*(5), pp.1000-1019.

Sobaih, A.E.E., Elshaer, I.A. and Hasanein, A.M. (2024). Examining Students' Acceptance and Use of ChatGPT in Saudi Arabian Higher

Education. *European Journal of Investigation in Health, Psychology and Education*, *14*(3), pp.709-721.

Stahl, B.C. and Eke, D. (2024). The ethics of ChatGPT–Exploring the ethical issues of an emerging technology. *International Journal of Information Management*, 74, p.102700.

Strzelecki, A. (2023). To use or not to use ChatGPT in higher education? A study of students' acceptance and use of technology. *Interactive Learning Environments*, pp.1-14.

Swift, B. (2023). So, you want to use ChatGPT in the classroom this semester? Times Higher Education, London, United Kingdom.

Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, pp.425-478.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. MIS quarterly, 36(1),pp. 157-178

Wang, C., Harris, J. and Patterson, P. (2013). The roles of habit, self-efficacy, and satisfaction in driving continued use of self-service technologies: A longitudinal study. *Journal of Service Research*, *16*(3), pp.400-414.

Yakubu, M.N. and Dasuki, S.I. (2019). Factors affecting the adoption of e-learning technologies among higher education students in Nigeria: A structural equation modelling approach. *Information Development*, *35*(3), pp.492-502.

Zeb, A., Ullah, R. and Karim, R. (2024). Exploring the role of ChatGPT in higher education: opportunities, challenges and ethical considerations. *The International Journal of Information and Learning Technology*, *41*(1), pp.99-111.

DOI: 10.20544/SERBE.09.01.24.P02

FINANCIAL INTEGRATION OF SMALL OPEN COUNTRIES IN MODERN CONDITIONS

Mirnesa Baraković Nurikić[1]

Abstract

The integration of financial markets has increased following the emergence of globalization, technological advances, and the modernization of payment systems. Capital account liberalization also contributed to the global trend of financial integration. The aim of the work is to explain the concept of financial integration and to determine the current conditions for financial integration. Descriptive statistical methods such as descriptive methods, hypothetical-deductive methods, methods of generalization and abstraction, and methods of systematization and comparison were used in the research. The basic conclusion reached is that it is necessary for countries to be integrated into the global world market, but also that all countries (especially small countries) must take care to adapt their opening to the world market to the current macroeconomic conditions of that country. The above is necessary in order for the benefits of integration to be greater than he costs. Financial integration therefore appears as a very important issue, because both the economic literature and empirical research show that the integration and development of financial markets contribute to economic growth, influencing free exchange and more efficient allocation of capital.

Keywords: financial integration, liberalization of capital flows, small open countries, Covid-19

[1] Tuzla University, Faculty of Economics, Urfeta Vejzagića 8, 75000 Tuzla, Bosnia and Herzegovina, E-mail: mirnesa-barakovic@hotmail.com