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Examining the Factors Influencing Students' Intention to Use ChatGPT as a Virtual Assistant for Academic Learning

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Abstract

Generative artificial intelligence (AI), such as ChatGPT, enables interactive natural language conversations tailored to the specific needs and questions of users in real time, providing on-demand support. This pilot study, conducted among students (n=100) at a Croatian university, analyzes the factors that influence students' intention to continue using ChatGPT as a virtual assistant for academic learning. Spearman correlation results show that factors such as perceived compatibility, relevance to academic learning, perceived usefulness, quality of results, hedonic motivation, trust, social influence, and computer anxiety are statistically significantly ($p<0.01$) associated with the intention to use ChatGPT among users (n=77), while a statistically significant weak association ($p<0.05$) was confirmed with the perception of ChatGPT's ease of use. The results of this pilot study reveal that the intention to use ChatGPT differs not only between users and non-users but also among users, depending on the intensity of use of the tool as a virtual assistant for academic learning. No significant differences were found between users and non-users on factors such as trust, social influence, compatibility, technological issues, and perceived ease of use. Furthermore, regular users reported significantly higher scores on constructs such as perceived usefulness, relevance to academic learning, hedonic motivation, and intention to use ChatGPT compared to occasional users. The findings of this study can inform the development of strategies for implementing generative AI in educational settings and encourage further research on its adoption and acceptance in higher education, ultimately fostering a more personalized and engaging teaching and learning experience.

Keywords: adoption, artificial intelligence, students, ChatGPT, academic learning

1. Introduction

ChatGPT is a generative artificial intelligence (AI) model that enables interactive conversations in natural language by tailoring responses to the specific needs and questions of users in real time, providing on-demand support (OpenAI, 2023). This tool leverages vast amounts of data and prior training to understand language and generate responses that are

coherent and relevant to users. ChatGPT is employed across various business, educational, and other contexts. This paper places particular emphasis on its application in higher education.

The use of ChatGPT in education facilitates the creation of new educational experiences for all stakeholders in the teaching process and the development of innovative teaching methodologies. It promotes active learning and collaborative learning (Almulla, 2024) by enhancing the educational experience of university students.

In this regard, Al Shloul et al. (2024) conclude that the integration of ChatGPT into the teaching process enables innovative approaches to interactive learning and personalized assistance by advancing students' understanding and exploration of complex concepts. Additionally, the authors highlight the importance of activity-based learning, which furthers student engagement, motivation, and critical thinking skills, consequently leading to improved academic performance.

In the educational process, there are three key stakeholders: students, teachers, and educational content. The achievement of learning outcomes partially depends on "student engagement," while learning is the process of acquiring knowledge, skills, and competencies within a specific context.

Brodhagen and Gettinger (2012) use the synonymous term "academic engaged time," defining it as "the amount of time during which students are actively, successfully, and productively engaged in learning relevant academic content." In this context, in addition to the time spent learning, the authors emphasize the importance of student self-motivation, initiative, and self-regulation, as well as cognitive and emotional variables associated with students.

Among the main advantages of ChatGPT in education, Liu et al. (2023) highlight the tool's ability to provide personalized educational experiences for students. On the other hand, the authors express concerns regarding academic integrity, plagiarism, and potential challenges in the development of students' critical thinking skills.

Mai et al. (2024) report divided opinions among educators regarding the integration of ChatGPT as an AI chatbot in education. Some educators believe that the use of ChatGPT should be banned in educational institutions due to potential negative effects, such as plagiarism. However, based on the results of their literature review, the authors conclude that, despite ChatGPT's limitations, both educators and students find the tool beneficial for enhancing the efficiency and effectiveness of learning and that it should be integrated into curricula.

Furthermore, despite considering potential limitations and ethical implications, Al Shloul et al. (2024) argue that ChatGPT has the potential to "revolutionize education" and emphasize the need for continuous evaluation of its integration into various educational contexts. They also highlight the necessity of developing institutional guidelines and policies for incorporating generative AI into teaching, aligning with UNESCO's guidelines for policymakers on artificial intelligence and education (UNESCO, 2021).

Based on an extensive theoretical analysis, Ali et al. (2024) suggest that ChatGPT ought to be made an integral part of teaching in a way that complements traditional teaching methods but does not replace them. They also emphasize the importance of fostering critical thinking among students who use ChatGPT and developing their information literacy. The authors stress the need for further research in various educational settings to encompass diverse demographic groups of students.

Practice in the Croatian higher education context has shown that integrating ChatGPT into learning and teaching processes is a growing phenomenon, especially among students who increasingly use generative artificial intelligence tools to support their academic activities. Teachers face growing challenges in adapting to new developments when preparing teaching activities and assessment tasks. Although influenced by global trends, the Croatian education system has unique characteristics and challenges that require a deeper understanding of how ChatGPT fits into the global learning environment (Al Shloul et al., 2024; Ali et al., 2024; Mai et al., 2024;). Moreover, the ethical guidelines for the use of artificial intelligence in education, issued by the European Commission (2023), lay the foundation for the responsible integration of artificial intelligence into educational environments, which can inform local practices in Croatia. Therefore, further research is needed on how students perceive the potential of ChatGPT as a virtual assistant for academic learning.

ChatGPT represents an innovation in the educational process, and its acceptance by students is of utmost importance. According to Davis (1989), the intention to use is a significant predictor of the actual use of an innovative tool. Therefore, identifying the predictors of the intention to use ChatGPT is vital in terms of understanding the acceptance and adoption of this innovative tool. Given all the aforementioned, it is deemed justified to conduct theoretical and empirical research on the factors influencing students' intention to use ChatGPT as a virtual assistant for academic learning, using as an example a Croatian higher education institution.

2. Literature Review

In general, in the process of accepting new technology, intention to use can better explain its acceptance compared to actual usage, as it represents an individual's willingness to engage in a particular behavior (Venkatesh et al., 2003). In other words, in the context of this paper, if students intend to use ChatGPT as a virtual assistant for academic learning, they are likely to do so. As previously mentioned, the introduction of ChatGPT into education has a range of advantages and disadvantages. Some of the advantages include (adapted from:; Al Shloul et al., 2024; Aslanyan-rad, 2024; Babić & Etinger, 2024; Liu et al., 2023;):

- Interactive learning: student - artificial intelligence
- Personalized assistance (individualized requirements, preferred learning styles)
- A dynamic learning environment, constructivist approach to learning, active learning
- Increase in motivation in self-regulated learning: independence and efficiency
- Increase in activity and enjoyment in learning
- Enhanced learning experiences: improves self-reflection abilities
- Assistance in developing basic skills (writing, research, programming, etc.)
- Opportunities for fast and efficient knowledge acquisition
- Ability to provide quick responses and solutions in real time – when students face difficulties or have questions
- Expansion of students' knowledge base, encouraging the development of creative thinking abilities, generating new ideas, and unconventional ways of thinking, etc.

Some of the observed challenges include (adapted from:; Al Shloul et al., 2024; Babić & Etinger, 2024; Liu et al., 2023):

- Important ethical questions
- Concerns regarding academic integrity: cheating or plagiarism of work
- Credibility of sources: inevitably inaccurate data, information, and knowledge
- Lack of rules and guidelines for the use of ChatGPT in education

- Privacy concerns
- Reduced motivation to conduct independent research, draw personal conclusions, or develop solutions
- The ease of access to information through ChatGPT may hinder the development of critical thinking, problem-solving, creativity, innovation, etc.

In promoting the acceptance of ChatGPT in the educational process, the results of Almulla (2024) highlight the key roles of interactive and collaborative learning. Their research findings suggest that social interaction, information quality, accuracy, and relevance of content influence the acceptance of ChatGPT. Furthermore, the results indicate that perceived ease of use and perceived usefulness have played mediating roles in students' satisfaction with learning while using ChatGPT.

The results of Kronberg (2024) show that male participants report a higher frequency of ChatGPT usage compared to females, while there is no difference between groups regarding the perception of future intent to use the tool. Small differences are also observed in AI anxiety among those with high experience in technology, as well as between the perception of quality and accuracy of ChatGPT's results.

Based on the results of their research, Rahman et al. (2023) emphasize the importance of perceived usefulness, ease of use, and informativeness in shaping students' attitudes toward using ChatGPT for learning, which consequently affects their intention to use it. It is also worth noting that the level of enjoyment among students became more pronounced only when trust was involved, meaning that perceived enjoyment does not have a significant impact on attitudes unless trust mediated the relationship between enjoyment and attitudes toward using ChatGPT.

The results of Balaskas et al. (2025) indicate that perceived ease of use and perceived intelligence play a significant part in the intention to adopt ChatGPT, while perceived usefulness plays a limited role. Perceived risk fully mediates the relationship between perceived usefulness and the intention to adopt ChatGPT and partially mediates the relationships between perceived ease of use and perceived intelligence. Meanwhile, perceived trust fully mediates the relationship between perceived usefulness and partially mediates perceived ease of use, but not perceived intelligence. Furthermore, the results of their research indicate that demographic differences, such as age and prior experience with artificial intelligence, affect the adoption of ChatGPT.

One example of ChatGPT's application in education is the transformation of English language learning. According to the results of the research conducted by Zhou et al. (2024), perceived usefulness, boredom, and a sense of control are the main factors influencing students' tendency to use ChatGPT. They conclude that the integration of AI tools into teaching must include both functional and motivational aspects of learning.

3. Research Methods

The aim of this research was to identify potential predictors of students' intention to continue using ChatGPT as a virtual assistant for academic learning at a Croatian university. In this regard, the following research questions were formulated:

- *Which factors influence students' intention to use ChatGPT as a virtual assistant for academic learning?*

- *How are the selected factors related to students' intention to use ChatGPT as a virtual assistant for academic learning?*

3.1 Participants

One hundred students from various fields of study at the integrated Juraj Dobrila University of Pula participated in this research, 64% of whom were from the Faculty of Informatics in Pula, 11% of Digital and Audiovisual Communication, 8% of University Undergraduate Study Early and Preschool Education in the Croatian language, 8% of Faculty of Engineering, 4% of Faculty of Economics and Tourism "Dr. Mijo Mirković", 3% of Academy of Music, 2% of Faculty of Natural Sciences.

The sample included 55% full-time students and 45% part-time students. Among the participants, 54% were women, 43% were men, and 3% chose not to disclose their gender. Regarding academic performance, 73% of participants self-assessed as average students, 23% as excellent students, and 4% identified themselves as belonging to the group of students with learning difficulties.

Almost all participants in the study, 94% of them, were ChatGPT users in their daily lives. Among them, 61% occasionally used ChatGPT, while 33% used it regularly. Only 6% of respondents stated that they had never used ChatGPT in their lives.

The results of this study showed that 77% of participants had experience using ChatGPT as an assistant for academic learning, while 23% were non-users of ChatGPT as an auxiliary tool for academic purposes.

A large majority of participants in the ChatGPT user group (62%) used ChatGPT as a learning assistance tool several times a week at university, while only one-third (30%) used ChatGPT for learning assistance at home. Interestingly, only 14% of participants used ChatGPT as a virtual learning assistant at home for less than one hour daily, and 13% did so at university. On average, participants rated their knowledge of using ChatGPT as a virtual assistant for academic learning as good (M=3.44; SD=0.77), based on a 1 (insufficient) – 5 (excellent). Furthermore, the results indicated that participants' self-assessment of their satisfaction with ChatGPT as a virtual learning assistant received an average rating of very good (M=3.61; SD=0.89).

The largest share of respondents, 85.7%, stated that they used ChatGPT for academic learning to explain tasks and exercises from lectures, followed by finding additional resources and learning materials (64.9%), assistance with coding and programming (61%), developing creative ideas or brainstorming (53.2%), exam preparation through simulation of questions and answers (53.2%), solving mathematical or technical problems (36.4%), analyzing study materials and discussing them (35.1%), writing seminar and other papers (28.6%), and learning and practicing foreign languages (18.2%).

As shown in Figure 1, the largest share of respondents (82%) reported using ChatGPT for academic learning to save time, followed by easier access to information (81%). The smallest proportion, 17%, stated that ChatGPT helped with developing their critical thinking.

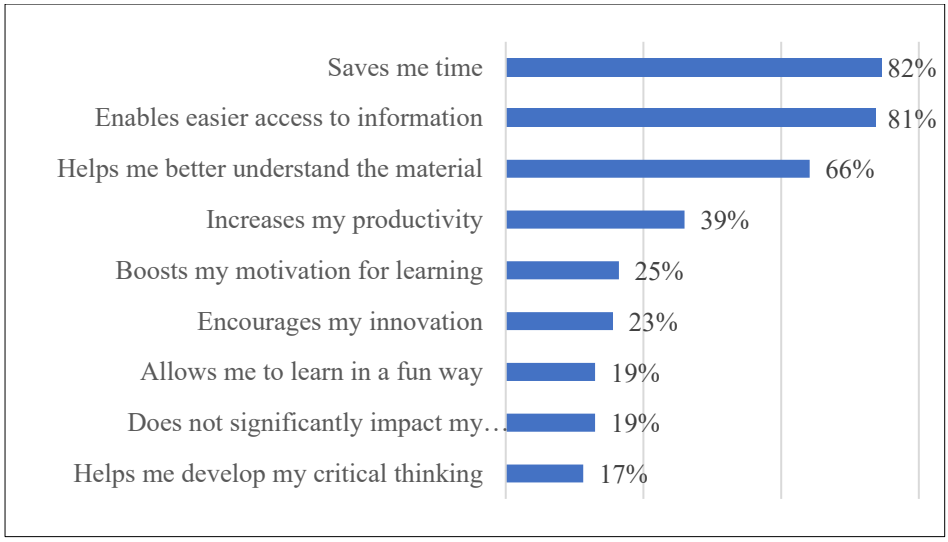

Figure 1: Percentage of responses from ChatGPT users based on the educational activities in which they use ChatGPT to assist with learning during their studies.
Source: (Author)

In response to the question "Which features of ChatGPT are the most useful for your learning during studies?", all participants (100%) identified "quick information retrieval" as the most beneficial feature, followed by "24/7 availability" (99%). Only a small percentage of ChatGPT users in this study reported that it helped with fostering critical thinking (18%), providing motivational messages for learning (9%), and delivering quick answers to questions (1%) (see in Fig. 2).

Figure 2: Percentage of responses from ChatGPT users regarding the most useful features of ChatGPT for learning during their studies.
Source: (Author)

3.2 Instrument and Procedure

The research was conducted in September 2024, based on a voluntary and anonymous approach. The online platform Google Forms was used to create the survey questionnaire,

which was then distributed to students through forums in the faculty e-learning system "Merlin," used for online and hybrid teaching, as well as through student groups in Google Chat. Prior permission for conducting the research was obtained from the relevant authorities at higher education institutions. A new questionnaire was developed for this study, consisting of 25 socio-demographic questions and 39 statements related to factors influencing the acceptance of ChatGPT, with responses measured on a five-point Likert scale (1 – strongly agree, 5 – strongly disagree). The questionnaire was designed based on technology acceptance models: UTAUT2 (Venkatesh, Thong & Xu, 2012), TAM3 (Venkatesh & Bala, 2008), UTAUT (Venkatesh et al., 2003), TAM2 (Venkatesh & Davis, 2000), TAM (Davis, 1989), as well as the work of Al Shloul et al. (2024), Liu et al. (2023), Babić (2016), Babić & Bubaš (2015), Wu et al. (2011), and the teaching practices of the author of this paper. A separate analysis of the pilot study was conducted based on data collected from 45 participants (Babić & Etinger, 2024), with data collection continuing at the same university, and a new analysis of the data was performed, which is presented in this paper. The statements in the scales remained unchanged in both studies. The collected data was analyzed using SPSS and MS Excel. Given the small number of participants who participated in this pilot study, according to Conover (1999), the Mann-Whitney U test and the Spearman test were chosen.

Table 1. Cronbach alpha coefficients for the scales used in the pilot study by ChatGPT Users (n=77).

Factors (scale)	Number of items	Cronbach's alpha
Perceived compatibility	3	.67
Relevance to academic learning	3	.88
Perceived usefulness	4	.93
Output quality	3	.82
Hedonic motivation	3	.89
Trust	5	.89
Social influence	4	.90
Computer anxiety	5	.82
Perceived ease of use	4	.78
Intention to use ChatGPT as a virtual assistant for academic learning	3	.88

Source: (Author)

The Mann-Whitney U test was chosen to compare the median between two independent samples, while the Spearman test was used to examine the relationship between the selected factors and the intention to use ChatGPT as a virtual assistant for academic learning. Both tests do not require the assumption of a normal data distribution and provide reliable results even in the case of small samples. To determine the normality of the data distribution on the selected scales, the Shapiro-Wilk test was performed. In particular, intention to use ChatGPT as a virtual assistant for academic learning, output quality, perceived ease of use, perceived usefulness, computer anxiety and hedonic motivation showed significant deviations from normality, with p-values less than 0.05, indicating a non-normal distribution of the data. On the other hand, social influence, perceived compatibility, and trust did not show significant deviations, with p-values of 0.069, 0.069, and 0.344, respectively. These findings emphasize the need for non-parametric statistical methods in further analysis. Tab. 1 presents Cronbach's alpha coefficients for the scales used in the pilot study by ChatGPT users, indicating that all scales had good internal consistency (above 0.78).

4. Findings

4.1 Differences in the Perception of Selected Factors Between Users and Non-users of ChatGPT as a Virtual Assistant for Academic Learning

The results of the Mann-Whitney U test used to examine the differences in perception of the selected factors in this pilot study between users of ChatGPT (n = 77) and non-users of ChatGPT (n = 23) are shown in Tab. 2. As shown in Tab. 2, compared to non-users, users of ChatGPT rated the relevance of ChatGPT for academic learning (U= 550.50, Z = -2.76, p = 0.006), perceived usefulness (U= 394.50, Z = -4.04, p < 0.001), output quality (U=645.50, Z = -1.99, p = 0.046), hedonic motivation (U=410.00, Z = -3.93, p < 0.001) and intention to use ChatGPT as a virtual assistant for academic learning (U=419.00, z=-3.86, p<0.001) significantly higher. On the other hand, no significant differences were found between users and non-users in the perception of factors such as trust, social influence, compatibility, technological problems and ease of use between users and non-users (p > 0.05).

Table 2. The results of the Mann-Whitney U test for differences between users and non-users of ChatGPT regarding the perception of selected factors

Factors	Students		z-score	Mann Whitney U-test (p-value)	p-value
	User (n=77) Mean rank	Non-user (n=23) Mean rank			
Perceived compatibility	52.86	42.59	-1.50	419.00	.133
Relevance to academic learning	54.85	35.93	-2.76	550.50	.006
Perceived usefulness	56.88	29.15	-4.04	394.50	.000
Output quality	53.62	40.07	-1.99	645.50	.046
Hedonic motivation	56.68	29.83	-3.93	410.00	.000
Trust	53.21	41.43	-1.71	677.00	.087
Social influence	53.27	41.24	-1.76	672.50	.079
Computer anxiety	47.71	59.83	-1.77	671.00	.076
Perceived ease of use	52.39	44.17	-1.20	740.00	.231
Intention to use ChatGPT as a virtual assistant for academic learning	56.56	30.22	-3.86	419.00	.000

Source: (Author)

4.2 Differences in the Perception of Selected Factors Between Occasional Users and Regular Users of ChatGPT as a Virtual Assistant for Academic Learning

Table 3 shows the results of the Mann-Whitney U test, which was used to examine the differences between occasional and regular ChatGPT users in relation to the selected factors in this pilot study. Significant differences were found for the following factors: perceived compatibility (U=433.00, Z = -2.95, p< 0.01), relevance to academic learning (U=261.50, Z = -4.27, p< 0.01), perceived usefulness (U=316.50, Z = -4.15, p<0.01), output quality (U=433.00, Z = -2.95, p<0.01), hedonic motivation (U=336.50, Z = -3.95, p<0.01), trust (U=352.50, Z = -3.76, p = 0.000), social influence (U=352.50, Z = -3.77, p<0.01), and intention to use ChatGPT as a virtual assistant for academic learning (U= 249.00, Z = -4.89, p< 0.01), with regular users rating all of these factors significantly higher than occasional users. However, no significant differences were observed for two factors: computer anxiety (U=559.50, Z = -1.19, p = 0.234) and perceived ease of use (U=554.50, Z = -1.66, p = 0.098), between the two groups of users.

4.3 Students' Intention to Use ChatGPT as a Virtual Assistant for Academic Learning

Participants were asked to assess their intention to use ChatGPT as a virtual assistant for academic learning on a 5-point Likert scale (1 – strongly disagree to 5 – strongly agree). The results of the descriptive statistical analysis of the data collected in this pilot study showed that more than half of the respondents who were ChatGPT users, 59.74 %, stated that they would likely continue to use ChatGPT as a virtual assistant for academic learning in the near future. Almost one-third of ChatGPT users, 28.57 %, stated that they would not likely continue to use ChatGPT as a virtual assistant for academic purposes, while 11.69 % of users were undecided.

Table 3. The results of the Mann-Whitney U test for occasional users (n=46) and regular users (n=31) of ChatGPT as virtual assistant for academic learning regarding the perceived factors

Factors	**Users of ChatGPT as virtual assistant for academic learning**		**z-score**	**Mann Whitney U-test (p-value)**	**p-value**
	Occasional users (N=46) Mean Rank	*Regular users (N=31) Mean Rank*			
Perceived compatibility	31.63	49.94	-2.95	433.00	.003
Relevance to academic learning	29.18	53.56	-4.27	261.50	.000
Perceived usefulness	30.38	51.15	-4.15	316.50	.000
Output quality	32.91	48.03	-2.95	433.00	.003
Hedonic motivation	30.82	51.15	-3.95	336.50	.000
Trust	31.16	50.63	-3.76	352.50	.000
Social influence	31.16	50.63	-3.77	352.50	.000
Computer anxiety	41.47	35.34	-1.19	599.50	.234
Perceived ease of use	35.55	44.11	-1.66	554.50	.098
Intention to use ChatGPT as a virtual assistant for academic learning	28.91	53.97	-4.89	249.00	.000

Source: (Author)

4.4 The Relationship Between Intention to Use ChatGPT as a Virtual Assistant for Academic Learning and Other Relevant Factors Among ChatGPT Users

The relationship between the selected factors and the intention to use ChatGPT as a virtual assistant for academic learning was analyzed using Spearman correlation (n=77). Analysis of the results revealed a statistically significant correlation ($p < 0.01$) between ChatGPT users' responses across 8 variables, while only 1 variable showed significance at $p < 0.05$ (Tab. 4).

According to Cohen et al. (2007), the strongest positive correlations with the intention to use ChatGPT as a virtual assistant for academic learning were observed for perceived compatibility ($r = .65$), relevance to academic learning ($r = .61$), and perceived usefulness ($r = .60$), indicating a strong relationship. Additionally, hedonic motivation ($r = .55$) and quality of results ($r = .51$) also showed a strong correlation. Also, moderate correlations were found between intention to use ChatGPT as a virtual assistant for academic learning and trust ($r = 0.46$), social influence ($r = 0.40$); whereas a negative correlation was found with computer

anxiety (r = - 0.40). A weak but statistically significant correlation ($p<0.05$) was observed between perceived ease of use and intention to use (r = 0.25).

Table 4. The relationship between factors and the intention to use ChatGPT as an academic assistant was analyzed using Spearman's correlation (n=77)

Factors	**Spearman's correlation with the** *Intention to use ChatGPT as a virtual assistant for academic learning* **(r)**
Perceived compatibility	.65**
Relevance to academic learning	.61**
Perceived usefulness	.60**
Output quality	.51**
Hedonic motivation	.55**
Trust	.46**
Social influence	.40**
Computer anxiety	-.40**
Perceived ease of use	.25*

*Note: * $p < 0.05$; ** $p < 0.01$.*

Source: (Author)

5. Discussion

Based on the analysis of the reviewed relevant and recent literature, the factors that play a part in influencing students' intention to use ChatGPT were selected, thus providing an answer to the first research question.

For the purpose of this study, a new survey questionnaire was developed, where certain scales were adapted and enhanced to investigate students' perceptions of the selected factors in the context of ChatGPT as a virtual assistant for academic learning. The results of internal consistency (Tab. 1) showed that all scales had satisfactory internal consistency.

Moreover, the identified differences between users and non-users of ChatGPT as a virtual assistant for academic learning (Tab. 2), and the differences between occasional users and regular users (Tab. 3) suggest that the results in this study are valid.

The results of the research (Tab. 2) showed that the participants who used ChatGPT had a positive perception of compatibility. For example, 64% of them believed they had the necessary resources to effectively use ChatGPT as a learning aid, indicating that they have recognized the innovation as aligning with their existing values, needs, and experiences. This is consistent with existing research in the field of technology acceptance (TAM 3; Venkatesh & Davis, 2000).

Furthermore, the survey results showed that the majority of respondents, on average, had a positive perception of the perception of usefulness of ChatGPT as a tool for aiding their academic learning and the perception of ease of use (Tab. 2). This aligns with previous research highlighting these as two of the most significant factors influencing the intention to accept new technology (Davis, 1989; Venkatesh & Davis, 2000).

Interestingly, there was no statistically significant difference among the groups of students regarding the perception of ease of use, while a statistically significant difference was found in the perception of usefulness (Tab. 2), favoring the users of ChatGPT for learning assistance. This can be linked to the students' experience working with ChatGPT, which aligns with the findings of Venkatesh & Bala (2008), who established that "experience actually moderates the effect of perceived ease of use on behavioral intention, with this effect becoming weaker as experience increases."

Also, the identification of differences between groups of respondents (Tab. 2, Tab. 3) in the perception of the observed factors leads to the conclusion that the experience of students in working with ChatGPT is of exceptional knowledge for students' perception of the use of virtual assistance tools in academic learning. This is in line with previous findings in models of acceptance of technologies and innovations. For example, ChatGPT users positively perceived hedonic motivation in relation to the use of ChatGPT as a virtual assistant for academic learning, and there was a statistically significant difference compared to non-users who perceived a low level of hedonic motivation. This concept is significant in the context of research on technology acceptance, because it shows how emotional aspects, such as satisfaction or fun, can influence the user's intention to use it. Hedonic motivation is recognized as one of the key factors influencing the acceptance of technology, especially in the context of consumer use, where the emphasis is often on personal pleasure and experience (Thong & Xu, 2012; Venkatesh et al., 2003,).

ChatGPT users in this study perceived the relevance for academic learning statistically significantly differently compared to ChatGPT non-users. It highlighted, in accordance with previous research, a user's opinion on the importance of a certain technology or tool for performing their professional tasks and achieving goals at the workplace (Davis, 1989).

The examination of the data gathered in this study showed that ChatGPT users statistically significantly perceived output quality (quality of results) higher than non-ChatGPT users. This supports previous research suggesting that a user's perception of the level of accuracy, precision, usefulness, and relevance of the results or information that a technology or tool provides in the context of technology adoption directly influences the user's perception of usefulness and satisfaction (Davis, 1989; Venkatesh et al., 2003).

The respondents showed a low level of trust and there was no significant difference between the groups of students depending on the use and non-use of ChatGPT as a tool to assist in learning. However, according to the data (Tab. 3), it was found that student users who had more experience in working with ChatGPT perceived trust at a higher level and there was a statistically significant difference compared to students who occasionally used ChatGPT for academic learning. According to previous research, trust is an important factor in technology acceptance research and refers to the user's willingness to use technology with the belief that it is reliable, safe and ethically acceptable (Balaskas et al., 2025; Wu et al., 2011;).

ChatGPT users rated its usefulness, output quality, relevance to academic learning, hedonic motivation, and intention to continue using it significantly higher than non-users. However, there were no significant differences between the two groups in terms of trust, social influence, perceived compatibility, computer anxiety, and ease of use. These results suggest that a key difference between users and non-users is in their perceptions of use and satisfaction with using ChatGPT, which may have implications for strategies for promoting and integrating AI tools into the education system.

The results of descriptive statistical data (n=77) analysis showed that more than half of the respondents who used ChatGPT (59.74%) stated that they would likely continue to use

ChatGPT as a virtual assistant for academic learning in the near future. The above results may indicate that there is a significant percentage of students who are not inclined to use this tool or lack a positive attitude toward this technology that would replace traditional methods. Therefore, it can be suggested that there is a need for further education on the application of ChatGPT tools in educational settings to reduce indecision and increase trust in this innovative technology based on artificial intelligence.

Based on the results of the analysis of the collected data, it was determined that the vast majority of respondents (94%) used ChatGPT in their daily work, while only 77% of them used ChatGPT as a virtual assistant for academic learning. This indicates that students at Juraj Dobrila University in Pula are embracing innovative generative artificial intelligence and that there is a justified need to understand better the factors influencing the level of ChatGPT adoption among students in order to make better decisions regarding the integration of this tool for learning and teaching purposes.

Based on the previously derived results, both research questions posed in this pilot study have been answered. The factors influencing students' intention to use ChatGPT as a virtual assistant for academic learning were identified, and it was determined that these factors are significantly associated with the intention to continue using this tool.

Respondents rated their knowledge of using ChatGPT to aid learning on average with a grade of good, which indicates that students need education to integrate this AI tool into the learning process. Respondents rated their overall satisfaction with ChatGPT as very good, which indicates that students perceive the benefits of ChatGPT as a virtual assistant for academic learning.

In this context, the vast majority of students, 85.7% of them, used academic learning to explain tasks and to explain tasks and exercises from lectures, then to find additional resources and materials for learning (64.9%). This aligns with previous findings by Al Shloul et al. (2024) and Liu et al. (2023). The results of this research showed that only a small proportion of students, 18.2% of them, used ChatGPT for learning and practicing foreign languages, which is a good indicator of the possibility of student recognition of this tool, and it can be concluded that there is a need to integrate ChatGPT into the teaching process, which would facilitate the application of ChatGPT as a virtual assistant for academic learning as indicated by Zhou et al. (2024).

As shown in Fig. 1, the largest proportion of respondents, 82%, stated that they used ChatGPT for academic learning to save time, then to enable easier access to information (81%), which can lead to the conclusion that students use ChatGPT to shorten the time to solve their tasks in a way that does not encourage critical thinking, which is also indicated by the obtained research result, namely only 17% of respondents stated that the use of ChatGPT helped in their critical thinking. Time spent in learning is an important factor of achievement according to Brodhagen and Gettinger (2012), and this opens up the possibility of additional research on how the method of using ChatGPT affects student achievement in the observed research context. As a utility, all students stated that the greatest utility of ChatGPT as a learning aid was "quick information retrieval", then 99% of them considered it to be "24/7 availability", which is in line with UNESCO (2021).

6. Conclusion

The aim of this study was to identify the factors that influence students' intention to use ChatGPT as a virtual assistant for academic learning and to confirm the significant influence of factors such as perceived compatibility, relevance for academic learning, perceived

usefulness, quality of output, hedonic motivation, trust, social influence, research anxiety, and perceived ease of use on the intention to use ChatGPT as a virtual assistant for academic learning. For the purposes of this pilot study, based on recent and relevant literature, a new instrument was developed that includes adapted and improved scales to examine these factors. All measurement scales showed good internal consistency. In addition, the observed differences between ChatGPT users and non-users, as well as between different groups, suggest that the results of this study are valid.

The results of this pilot study indicate that students' perceptions of compatibility, trust, social influence, computer anxiety, and ease of use of ChatGPT are not significantly different ($p>0.05$) between users and non-users, indicating the need for further research into how these variables influence their intention to use this tool as a virtual assistant for academic learning. No significant difference ($p>0.05$) was found between occasional and regular ChatGPT users in terms of computer anxiety and ease of use, suggesting that these variables may not be key factors driving the adoption of this tool in a higher education educational setting in a learning context. More than half of the students (59.74%) of this Croatian university who already use ChatGPT intend to continue using this tool for academic purposes in the future. Spearman correlation results revealed a correlation between all observed factors and students' intention to use ChatGPT for academic purposes

The most significant factors influencing their decision include how well ChatGPT aligns with their existing needs and values (perceived compatibility), how useful it is for their academic learning (relevance to academic learning and perceived usefulness), the quality of the results generated by ChatGPT (output quality), and how enjoyable they find using it (hedonic motivation). These factors were strongly associated ($p<0.01$) with their intention to keep using ChatGPT for academic learning.

This pilot study provides significant insight into the experiences and attitudes of students from different faculties at Juraj Dobrila University in Pula regarding the use of ChatGPT in academic learning. However, the research has limitations, such as the relatively small number of participants and the focus on a single Croatian university, which may limit the generalizability of the results to the wider academic community. Also, considering that the majority of participants were from the Faculty of Informatics (64%), it is possible that the results better reflect the attitudes and experiences of students with a technical orientation than students from other disciplines. Future research is encouraged to include a larger number of participants.

The findings of this research have implications for both researchers and practitioners. Researchers can further evaluate and refine the structure for comprehending the adoption and acceptance of ChatGPT as a virtual assistant for academic learning by incorporating additional factors. All interested stakeholders in the education system and other practitioners can use the results of this study when integrating ChatGPT into education, particularly at higher education institutions. In conclusion, although this research focuses on the context of Croatian higher education at a single institution, global trends showing the increasing acceptance and adoption of AI tools like ChatGPT for academic purposes suggest that the findings could have broader implications for international educational practice and policy, helping to improve understanding of the challenges faced by all stakeholders in the educational process.

Several recommendations for students' adoption of ChatGPT as a virtual assistant for academic learning:

- Develop strategies and policies for the effective implementation of ChatGPT in university teaching.
- Provide students with guidelines and training on the proper use of ChatGPT as a virtual assistant for academic learning
- Encourage students to critically evaluate the results generated by ChatGPT, developing their analytical skills and avoiding passive acceptance of the content produced by ChatGPT
- Promote innovation and critical thinking through the creative use of ChatGPT in educational activities.
- Enable students to use ChatGPT as a virtual assistant in academic learning, with support from professors, mentors, university administration, and others.
- Increase the perception of ChatGPT's educational value, for example, in achieving better academic performance, improving the quality of learning, and more.
- Develop new models of teaching and learning that incorporate generative artificial intelligence, like ChatGPT for personalized education.
- Educate students about the ethical and moral principles of using ChatGPT, with an emphasis on academic integrity, privacy protection, and responsible use of technology, among other key aspects.

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