

Acceptance of ChatGPT in social work students

Bozana Meinhardt-Injac^{1,*}, Julius Späte², Lutz Siemer³, Stefanie Witter⁴

¹ Catholic University of Applied Social Sciences, 10318 Berlin, Germany

² University of Applied Sciences Potsdam, 14469 Potsdam, Germany

³ Saxion University of Applied Sciences, 7513AB Enschede, Netherlands

⁴ Faculty of Applied Social Sciences Würzburg-Schweinfurt, Technical University of Applied Sciences, 97070 Würzburg, Germany

* Corresponding author: Bozana Meinhardt-Injac, bozana.meinhardt-injac@khsb-berlin.de

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Abstract: Recent advancements in natural language processing (NLP) and large language models (LLM) such as ChatGPT, have generated high expectations and concerns regarding the future impact of AI on education and learning. In light of this, our goal was to investigate the usage of ChatGPT among social work students and to identify factors that predict its adoption according to the Technology Acceptance Model (TAM). To achieve this, we conducted an online study with a large sample of social work students ($N = 875$). The results revealed that ChatGPT has been widely adopted, with 80% of social work students reporting its use for study-related tasks. However, the frequency of use was moderate. Thus, although students experiment with ChatGPT, they do not use it very frequently for their studies. Its primary applications include clarifying questions, explaining concepts, analysing, editing, and writing texts, as well as conducting literature reviews. The frequency of ChatGPT use was primarily predicted by its perceived usefulness, followed by perceived ease of use. Interestingly, affinity for technological interaction did not emerge as a significant predictor. This suggests that even students who are typically less interested in technology are utilizing ChatGPT for their studies due to its perceived usefulness. Overall, these findings highlight the widespread adoption of ChatGPT among social work students and emphasize the importance of perceived usefulness in driving its usage.

Keywords: ChatGPT; social work education; technology acceptance model; perceived usefulness; affinity for technological interaction

1. Introduction

Artificial Intelligence (AI) was introduced in the 1950s, sparking discussions about the automatization of various fields, including decision-making processes. Since then, AI has revolutionised our lives and has played an important role in education for the past decades. Some widely used AI applications are designed to support learning (e.g., intelligent tutoring systems; AI-assisted simulations in game-based learning, automatic essay writing), teaching (e.g., automatic assessment, smart curation of learning material) and administration (e.g., admissions, identifying dropouts and students at risk) [1,2]. Although the role and impact of AI in education have been extensively researched, promoting its benefits while avoiding its risks remains a challenge [3,4].

Recent developments in natural language processing (NLP) and large language models (LLM) such as ChatGPT, have raised great expectations but also concerns about the future impact of AI on education and learning. Since the release of the ChatGPT in November 2022, there has been a rapid increase in publications discussing the benefits and threats of its use in education [5]. ChatGPT can improve

student engagement and introduce personalized learning by adapting to students' levels of knowledge, needs and preferences. It provides immediate and direct responses to search queries, supports students in creative writing, brainstorming and generating new ideas, offers personalized tutoring and explanations, aids in understanding concepts, answers questions, summarizes information, and assists in exam preparation [3,6,7]. Additionally, it increases accessibility for disabled students and assist in language learning. ChatGPT may also enhance teaching practices by providing access to a wide range of learning resources, aiding in lesson planning, and automating student assessment and feedback [3,6,7].

However, there are significant disadvantages that need careful considered. The use of ChatGPT in education presents challenges regarding accuracy and reliability, potential plagiarism and a negative impact on teachers' ability to accurately assess student performance. It may limit critical thinking and the development of problem-solving skills in students. Furthermore, the use of ChatGPT raises ethical implications and can lead to bias. Issues related to the processing and security of private data remain unresolved, potentially resulting in unfair or discriminatory outcomes (e.g. hate speech or other harmful content) [3,6,7].

In the general population, ChatGPT has quickly gained popularity; however, there is limited understanding of its adoption among student populations [8,9]. In a large national survey in Germany, about two-thirds of students reported using an AI-based tool as a part of their studies, with approximately 50% using ChatGPT. Students in engineering, mathematics and natural sciences use AI-based tools most frequently [10]. A useful framework for explaining the acceptance and adoption of ChatGP among students is the Technology Acceptance Model (TAM), which suggests that the acceptance of new technology is influenced by perceived usefulness and perceived ease of use [11]. Perceived usefulness refers to the belief that ChatGPT will enhance performance and productivity, while perceived ease of use refers to the belief that it will be easy to understand and use. A study suggests that students are comfortable adopting ChatGPT, and that frequent use contributes to habitual behaviour and perceived usefulness [12]. Another study explored doctoral students' acceptance of ChatGPT in writing and found that attitudes, perceived usefulness, and perceived ease of use shape their intention to use it [13]. Additionally, other studies highlight the significance of usefulness and ease of use, alongside external factors such as privacy, security, and social influence [14], as well as the perceived pleasure and satisfaction of learners [15] in the acceptance and use of ChatGPT. Understanding these factors can inform the implementation and promotion of the ChatGPT in education.

In social work education, the use of AI and ChatGPT is an emerging field of research. The integration of technology and development of digital skills, including AI skills, have had a low impact on social work education so far [16,17]. In line with this, social work students show only average technical efficacy, meaning their belief in their own capability to use technology is moderate, and at individual level, negative reactions to technology use are not uncommon [18]. However, recent developments in AI, along with the digitalisation driven by COVID-19, have highlighted the importance of technology in social work education and the need for professional support for social work students in acquiring digital and AI skills and using them reflectively. "Social work education has an ethical responsibility to prepare students,

as best as is possible, for the world they face today, and through an examination of the evidence the world they are most probable to be interacting in tomorrow” [19]. Accordingly, recent publications have called for social work educators to play a greater role in teaching, learning, developing, and researching AI [20–22].

Considering that AI and ChatGPT have the potential to innovate social work education and practice [21], our aim was to investigate 1) the actual use of ChatGPT by social work students and 2) the factors predictive of ChatGPT adoption. Consistent with the Technology Acceptance Model-TAM [11] and previous studies, we focused on the role played by perceived usefulness, perceived ease of use, and affinity for technology interaction. We expected all factors to be significant predictors of the actual adoption of ChatGPT among social work students, but no hypothesis about the relative contribution of each factor was postulated.

2. Methods

2.1. Participants

The sample consisted of $N = 875$ social work students. The majority of participants were undergraduate students (90%), while 8.7% were master students and 0.9% were PhD students. Of the participants, 75.5% were female, 20.6% were male, and 3.6% identified as diverse or other. The average age was 26.5 years, with an age range of 18 and 55 years. To ensure anonymity and data protection, no information was collected regarding the participants’ university or place of residence. All participants were informed in writing about the aims and methods of the study, as well as the institutional affiliations of the researchers. Participation was entirely voluntary. In accordance with the Declaration of Helsinki, informed consent was obtained from all participants.

2.2. Procedure

The study was conducted using the online platform LimeSurvey from 15 December 2023 to 20 January 2024. Students were recruited via email through academic networks and personal contacts. A total of 24 educational institutions offering Bachelor’s and Master’s degree programs in social work in Germany were contacted.

2.3. Instruments

2.3.1. Scale on ChatGPT use

To evaluate the use of ChatGPT by social work students, several relevant applications were adopted from previous studies [3,6,7,10]. These applications include: 1) *literature study* (e.g., for literature searches); 2) *text analysis, processing and creation* (e.g., for essays); 3) *programming and simulation*; 4) *exam preparation*; 5) *language processing* (e.g., transcription); 6) *clarification of questions and explanation of subject-specific concepts* (e.g., to explain a specific theory); 7) *translations*; 8) *concept development* (e.g., for generating new ideas); 9) *problem solving and decision making* (e.g., when dealing with case studies); 10) *data analysis, visualization and modelling*. Two additional applications were included to reflect the specifics of

studying social work: *contextualization of theories and concepts* (e.g., applying theories to real contexts to understand their practical application) and *discussion and reflection* (e.g., on ethical dilemmas or complex social problems). Contextualizing theories and concepts and bridging the gap between theory and practice is a particular challenge in social work education [23]. Ethical reflection and the corresponding discussion skills are essential competencies for every social worker and are also a relevant part of the social work degree program [24].

In total, we included 12 different applications for using ChatGPT in social work education [25]. For each of the 12 applications, participants were asked to indicate the frequency of use on a 6-point Likert scale ranging from “not at all” to “very frequently”. Higher values indicated more frequent use. The reliability of the scale measuring ChatGPT use was good, with a Cronbach’s alpha of 0.88.

2.3.2. Scales for perceived usefulness and perceived ease of use

The two constructs were assessed using scales developed by Davis [11]. The Perceived Usefulness Scale consisted of six items that capture different aspects of usefulness (i.e., performance, productivity, speed, effectiveness; e.g., “Using ChatGPT in my studies would enable me to accomplish tasks more quickly”). The scale assessing Ease of Use also consisted of six items, evaluating different aspects of AI-human interaction (i.e., easy of use, understandability, flexibility; e.g., “I would find it easy to get Chat GPT to do what I want it to do”). For each of the twelve items, participants were asked to indicate how likely or unlikely the statement was at a 7-point Likert scale, including the following response options: Extremely likely, quite likely, slightly likely, neither, slightly unlikely, quite unlikely, and extremely unlikely [11]. The scale has been adopted in numerous studies on technology acceptance and has proven to be a reliable predictor of technology use. In our study, the reliability of the two scales was excellent, with Cronbach’s alpha of 0.96 for Perceived Usefulness and 0.95 for Perceived Ease of Use.

2.3.3. Affinity for Technology Interaction Short Scale (ATI-S)

A short version of the Affinity for Technology Interaction Scale [26] was applied in the present study. The scale consisted of four items addressing different aspects of interaction with technical systems: 1) I like to engage in greater detail with technical systems; 2) I enjoy testing the functions of new technical systems; 3) It is enough for me that a technical system works; I don’t care how or why; 4) It is sufficient for me to know the basic functions of a technical system. Participants were required to indicate the degree to which they agree or disagree with these statements. Responses were given on a 6-point Likert scale ranging from completely disagree to completely agree. The responses to the negatively phrased items were reversed, and a mean score was computed across all four items. The reliability of this scale was good, with a Cronbach’s alpha of 0.82.

3. Results

3.1. ChatGPT use in social work students

Overall, 80% of students reported using ChatGPT for their studies. Most students (70%) utilized ChatGPT to clarify questions and explain specific concepts (e.g., to

explain a particular theory). Furthermore, over 65% of students used ChatGPT for text analysis, processing and creation (e.g., for papers/essays), followed by literature search (55%). The mean frequency of use was ≥ 3 on a scale from 2–6. All data are presented in **Table 1** and in **Figure 1**. No gender differences were found regarding the use of ChatGPT ($t(842) = -0.88, p = 0.37$), but there was a small, yet significant, negative correlation between age and frequency of ChatGPT use ($r(699) = -0.09, p < 0.05$), indicating that older chronological age was associated with less frequent use of ChatGPT.

Table 1. Proportion (%) of students using ChatGPT for various study-related applications, along with the mean frequency of use calculated for each application. Note that non-users were excluded from the mean frequency calculations. The frequency scale ranges from 1 (not et al.) to 6 (very frequently). SD = Standard Deviation.

<i>Application</i>	<i>ChatGPT Use</i>	<i>Mean Frequency of Use</i>	<i>SD (mean Frequency)</i>
Literature Study	55%	3.49	1.19
Text Processing	65%	3.78	1.20
Programming	8%	3.28	1.35
Exam Preparation	49%	3.51	1.17
Language Processing	43%	4.03	1.31
Clarification	70%	4.15	1.20
Translations	34%	3.59	1.23
Concept Development	47%	3.69	1.22
Problem Solving	40%	3.38	1.17
Data Analysis	16%	2.88	1.04
Contextualization	44%	3.44	1.24
Reflection	36%	3.32	1.18

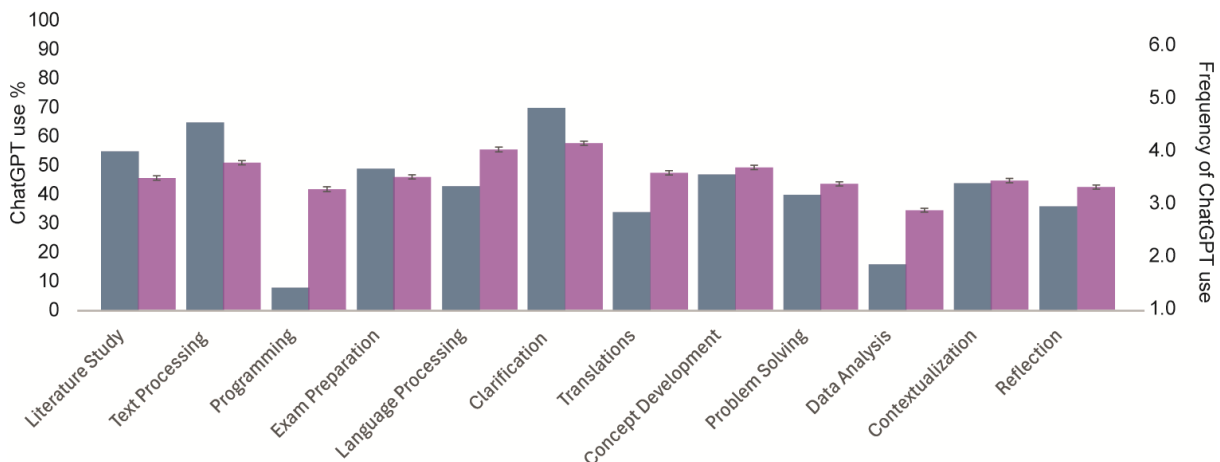


Figure 1. Proportion (%) of students reporting ChatGPT use (in blue). The mean frequency of use (pink; scale 1–6) is calculated only for students who reported using ChatGPT. For most applications, the mean frequency of use is relatively moderate. Thus, although students experiment with ChatGPT, they do not use it very frequently for their studies.

Next, we provide descriptive statistics for perceived usefulness, perceived ease of use, and affinity for technology interaction. These calculations were performed for the entire sample, and for ChatGPT users only. All data are shown in **Table 2** and **Figure 2**. There were significant differences between users and non-users in their evaluation of the ChatGPT usability ($t(873) = -22.72, p < 0.001$), and perceived ease of use ($t(873) = -20.92, p < 0.001$), but no significant difference was found in affinity for technology interaction ($t(870) = -1.33, p = 0.18$).

Table 2. Mean (M) and standard deviation (SD) for the perceived usefulness of ChatGPT, the perceived ease of use of ChatGPT and the general affinity for technology interaction. The data is presented once for the entire sample ($N = 875$ participants) and separately for ChatGPT users ($N = 723$) and non-users ($N = 152$). Note that the scale for usefulness and ease of use ranges from 1–7, while the scale for affinity for technology interaction ranges from 1 to 6.

	<i>M_{full}</i>	<i>SD</i>	<i>M_{user}</i>	<i>SD</i>	<i>M_{non-user}</i>	<i>SD</i>
Usefulness	3.01	1.23	3.34	1.03	1.35	0.68
Ease of Use	3.53	1.07	3.81	0.79	2.17	1.19
Affinity for Technology	3.21	1.13	3.25	1.10	3.10	1.25

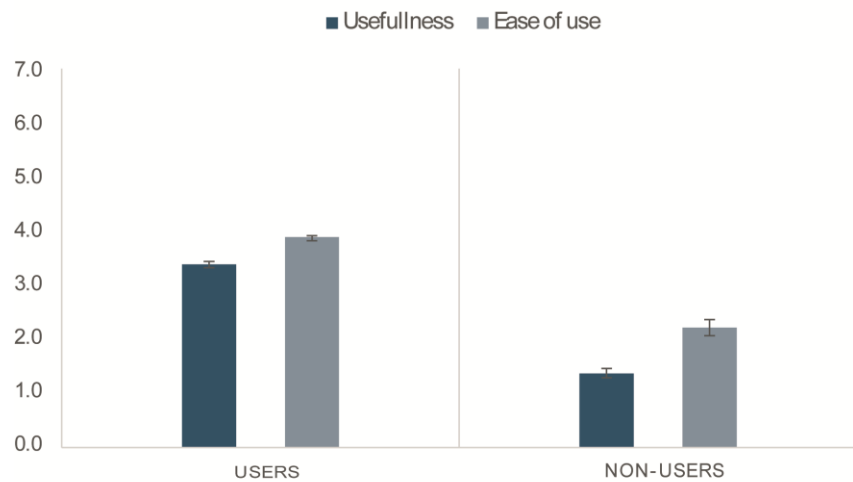


Figure 2. Differences between ChatGPT users and non-users in their judgments regarding perceived usefulness and ease of use.

3.2. Factors predicting use of ChatGPT in social work students

To identify factors that may predict the use of ChatGPT among social work students, we conducted a multiple regression analysis with the average frequency of use as the dependent variable and perceived usefulness, perceived ease of use, affinity for technological interactions, and chronological age as predictor variables. The regression model was significant and explained 54% of the variance in the sample: Adjusted $r^2 = 54, F(4839) = 255.63, p < 0.001$. Perceived usefulness was the strongest predictor of ChatGPT use, explaining 53% of the variance (see also **Table 3**), while perceived ease of use just reached statistical significance. Affinity for technology interaction and chronological age were not found to be significant.

Table 3. Results of the multiple regression analysis predicting the frequency of ChatGPT use among social work students. The model was significant, with perceived usefulness being the strongest predictor of ChatGPT use.

	<i>beta</i>	<i>SD</i>	<i>t</i> (839)	<i>p</i>
Usefulness	0.53	0.02	3.37	0.001
Ease of Use	0.05	0.03	2.01	0.05
Affinity for Technology	-0.006	0.02	-0.32	0.74
Age	-0.002	0.003	-0.81	0.41

4. Discussion

The main objectives of the present study were to gain initial insights into the use of ChatGPT for study-related applications among social work students and to identify factors that best predict the frequency of ChatGPT use. To this end, we conducted an online survey with a representative sample ($N = 875$) of social work students in Germany. While there are some studies on ChatGPT use in general student populations [3,6,7,10], this study is the first to focus specifically on social work students. Somewhat unexpectedly, the study revealed widespread adoption of ChatGPT, with 80% of social work students reporting its use for study-related tasks. However, the frequency of use was moderate. Thus, although students experiment with ChatGPT, they do not use it very frequently for their studies.

ChatGPT is most commonly used for clarifying questions and explaining subject-specific concepts (e.g., explaining a particular theory), analyzing, editing and writing texts (e.g. for essays) and conducting literature research (e.g., for literature studies). ChatGPT users and non-users differed in their perceptions of usefulness and ease of use, but not in their affinity for technology interaction. Users rated both the usefulness and perceived ease of use positively, while non-users tended to rate these dimensions negatively. The affinity for interacting with technology was at a medium level in both user and non-user groups. In line with this, the regression model demonstrated the key role of perceived usefulness as a predictor for the use of ChatGPT, while perceived ease of use played a significant but minor role.

The results of this study indicate a similar use of ChatGPT among social work students as observed in other student populations in Germany [10]. Furthermore, our findings suggest that social work students utilize ChatGPT for a variety of tasks that were also identified in previous studies, such as clarifying questions, creative writing, brainstorming and generating new ideas, personalized tutoring and explanation, aiding in understanding concepts, answering questions, summarizing information and preparing for exams [3,6,7]. Consistent with the TAM model [11], perceived usefulness emerged as the best predictor of ChatGPT use, while perceived ease of use played a minor role. This aligns with previous studies on ChatGPT use in the general student population, which identified perceived usefulness and perceived ease of use as the primary factors predicting ChatGPT usage [12–14].

The current study revealed that social work students possess an average level of interest in using technology, a finding that aligns with previous research examining the technological proficiency of social work students [18]. This consistency suggests that the relationship between social work students and technology has remained stable

over time, as indicated by both the current and prior studies. It is somewhat surprising that affinity for technological interaction does not predict the use of ChatGPT. This indicates that even students who generally exhibit little interest in engaging with technology are willing to adopt ChatGPT for their studies, primarily due to its perceived usefulness.

Implications of the Study

The findings of this study have several important implications for educators, policymakers, and researchers in the field of social work education.

While the widespread adoption of ChatGPT presents opportunities for enhancing student learning and engagement, it also poses challenges for educators. Firstly, the integration of AI tools like ChatGPT in education requires teachers to adapt and consider how best to utilize these technologies. There is concern that ChatGPT may enable students to complete course assignments with minimal effort or produce written work instantly. However, ChatGPT can improve student engagement, personalize learning, and automate student assessment and feedback [3,6,7]. Therefore, it is crucial for social work educators to engage meaningfully with AI and consider its benefits and impact on teaching and assessment. Our study aligns with recent calls for social work educators to take a more active role in AI teaching, learning, development, and research [20–22]. Furthermore, the significant predictors of ChatGPT usage identified in this study, particularly perceived usefulness, highlight the importance of demonstrating the practical benefits of AI tools to students. Educational institutions should emphasize how AI can enhance learning outcomes, improve productivity, and support students in their academic endeavours [3,6,7].

The findings also suggest a need for ongoing discussions around the ethical implications of AI use in education [3,6,7]. Educators should foster an environment where students can critically reflect on the ethical dimensions of using AI tools, including issues related to data privacy, plagiarism, and the potential impact on critical thinking and problem-solving skills [27].

Lastly, this study serves as a foundation for future research into the role of AI in education. Researchers should explore the long-term effects of AI tools on student learning, engagement, and skill development [28], as well as investigate the experiences of diverse student populations to ensure that the benefits of such technologies are accessible to all.

Limitations of the Study

This study has several limitations that should be acknowledged. First, the sample consisted primarily of social work students from Germany, which may limit the generalizability of the findings to other populations or educational contexts. The unique characteristics of students in different countries or disciplines may influence their use of ChatGPT and their perceptions of its usefulness and ease of use.

Second, self-reported data may be subject to biases, such as social desirability bias, where participants may overstate their use of ChatGPT or their perceived ease of use and usefulness to align with perceived norms. This could lead to inflated estimates of ChatGPT usage and its perceived benefits.

Finally, the study did not explore the long-term effects of ChatGPT use on learning outcomes or the quality of students' work. Future research should consider longitudinal designs to assess how the integration of AI tools like ChatGPT impacts

academic performance, critical thinking skills, and overall learning experiences over time.

Conclusion

Overall, our findings indicate a transformative shift in how social work students approach their studies, with AI tools like ChatGPT playing a pivotal role in shaping their educational experiences.

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