Trusting the Machine: Analyzing Gen Z's knowledge and usage of ChatGPT and its impact on trust in generated text

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Abstract

Purpose: Ensuring the trustworthiness of chatbots like ChatGPT is increasingly important given their rapid adoption and potential societal benefits. This study focuses on Generation Z, the digital native demographic, by examining their trust, knowledge, and usage of ChatGPT. By analyzing these aspects, the study aims to identify patterns and provide practical recommendations for improving the trustworthiness of AI technologies. which is essential for fostering their optimal adoption and ensuring the responsible integration of AI technologies in society.

Method: To understand trust in AI among Generation Z, 15 semi-structured interviews were conducted with individuals aged 16-28 who use ChatGPT. These interviews allowed for in-depth exploration of participants' perceptions and behaviors. Purposive sampling ensured a balanced gender representation.

Result: The findings indicate that participants with a comprehensive understanding of ChatGPT's functionality exhibited significantly greater trust in its outputs. These individuals were more likely to perceive the AI's responses as reliable and accurate, as with deeper knowledge they were also more cognizant of the chatbots' limitations. This awareness fostered a balanced trust, appreciating the AI's capabilities while acknowledging its boundaries. Participants at the younger end of the Generation Z spectrum generally discerned appropriate and inappropriate uses through trial and error.

Conclusion: This study explored how Generation Z interacts with ChatGPT, revealing that deeper understanding of its capabilities enhances trust in its outputs, seen as reliable yet bounded by awareness of limitations. Younger participants learned usage norms through trial and error. Findings provide theoretical insights and practical guidance for AI scholars, developers, and educators. Future research should address limitations in sampling methods to ensure broader population representativeness.

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1. Introduction

ChatGPT, a chatbot powered by a large language model, rapidly gained over 1 million users within days of its launch in 2022 (Koonchanok 2023, Homolak 2023). This rapid expansion mirrors the broader growth of AI applications across industries, which has sparked a myriad of practical applications (Munakata, 1995). While promising societal and economic benefits (Russell, 2015; Buxmann, 2021), concerns about increased stress levels (Khanthavit 2023) and ethical implications, particularly in decision-making (Buxmann, 2021), have emerged. Poretschkin (2023) stresses the need for high-quality standards and risk mitigation in AI development to allow AI to reach its full potential. However, public attitudes towards large language models are generally neutral to positive (Koonchanok 2023), this reflects the potential benefits that AI can bring to humanity, making it worthwhile to investigate how to maximize these benefits while avoiding potential pitfalls (Russel, 2015). Trustworthiness of large language models is thus a crucial issue, emphasized by numerous, urging the development of robust AI systems.

Consequently, there is a growing body of research delving into the concept of trust in large language models, like ChatGPT. This exploration is driven by the urgent need to establish concrete methods for ensuring the trustworthiness of AI systems (Avin, 2021). Especially as AI systems become increasingly interconnected, the need for intelligent trust management mechanisms becomes more pressing to mitigate risks (Probst & Kasera, 2007). Research has identified several key factors that can improve trust in AI technology. Bitkina (2020) and Bedué (2021) both emphasize the importance of perceived performance, task difficulty, and the ability, integrity, and benevolence of the AI system. Lockey (2020) and Srinivasan (2020) further highlight the need for transparency, explainability, and the use of accurate, reliable, and bias-free data and algorithms. These factors collectively contribute to building trust in AI technology, which is crucial for its widespread adoption. These findings suggest that trust in large language models is influenced by a range of factors, including regulation, transparency in information, and design, and that these factors may vary across different generations. However, apart from these factors influencing trust in outputs, knowledge about how the chatbot works is not always

included in these considerations. This could be a very important overarching factor, as understanding the inner workings of the chatbot might significantly affect trust levels.

It is important to note that the Generation Z population is considered the generation that is most exposed to AI (Jabar et al., 2024). Being the most exposed demographic, they represent a significant target audience for AI applications and services. Understanding their preferences, concerns, and trust levels is essential for the successful adoption and acceptance of AI technologies among this demographic. Generation Z's attitudes toward AI underscore a desire for transparent and accountable systems, driven by discomfort with algorithmic ambiguity (Gupta, 2024). Their concerns regarding privacy and data security highlight the necessity for robust safeguards (Jabar et al., 2024). Research also indicates that Gen Z exhibits higher trust in digital assistants powered by AI compared to older generations. More interestingly, linear regression analyses revealed that different factors are influencing trust across generations (Noah & Sethumadhavan, 2019).

Followingly, the aim of this thesis is to explore the influence of an individuals' depth of understanding of the large language model ChatGPT on their trust in the textual outputs of the chatbot. While research consistently shows that knowledge about a topic can significantly impact trust in it (Karlgren, 2008; Dan-da, 2015), this may not hold true for chatbots, as individuals lacking in-depth understanding may overlook things like ethical implications. Additionally, distrust in aspects like algorithmic ambiguity of large language models may only stem from individuals with knowledge about their workings, emphasizing the critical role of education and transparency in shaping trust dynamics. Consequently, this study seeks to uncover whether and how varying levels of comprehension of ChatGPT shape trust evaluations, shedding light on the importance of bridging the gap between technical understanding and public awareness for fostering optimal adoption of AI technologies . This leads to the following research question:

> *"How does the depth of understanding large language models influence Gen Z's trust in these AI technologies?*

2. Theoretical Framework

2.1. Large language models

Artificial Intelligence has made profound impacts on organizations, societies, and individuals, offering systematic reasoning abilities based on input and learning from expected outcome variances (Kar, 2016). As it predicts and adjusts to changes in its environment, AI's algorithms have evolved from early focuses on supervised and unsupervised learning, drawing inspiration from nature's biological and physical principles, to newer capabilities in processing unstructured data like raw text and images.

Traditionally, AI algorithms required structured data for model building and information processing, limiting their capabilities (Duan et al., 2019). However, advancements have led to the emergence of algorithms like deep learning and reinforcement learning, enabling the analysis of various data formats such as images, audio, and video (LeCun et al., 2015). Additionally, the demand for industrial applications like text mining and natural language processing (NLP) has fueled the development of algorithms capable of handling unstructured data (Guan et al., 2019; Kushwaha and Kar, 2021).

The evolution of AI algorithms has been accompanied by challenges such as the need for abundant data and computational resources (Li et al., 2020). To address these challenges, newer models like federated learning and tiny machine learning (ML) algorithms have been introduced, catering to industrial applications where initial data may be scarce, known as the cold start problem (Li et al., 2020). Reinforcement learning has also gained prominence, particularly in marketing and financial management applications (Singh et al., 2022).

Simultaneously, the literature has witnessed a surge in chatbot-related studies, with chatbots integrating NLP and deep learning to provide real-time feedback to users (Bellegarda, 2004; Melis et al., 2017; Kushwaha and Kar, 2021). OpenAI's ChatGPT represents a significant advancement in chatbot capabilities, leveraging deep learning and the Generative Pre-training Transformer (GPT) architecture to generate human-like responses (Radford et al., 2018). Language models like GPT-3.5, which ChatGPT

currently uses for its free version, with its vast parameters trained on diverse datasets, further extend chatbot capabilities by simulating human-like interactions.

2.2. AI becoming a useful tool during the Generation Z lifespan

As AI continues to evolve, it has become an increasingly useful tool throughout the lifespan of Generation Z. Born roughly between the mid-1990s and the early 2010s, Gen Z spans a period of about 15 years, meaning its members have grown up experiencing different stages of AI development. This generational span highlights the rapid progression of AI technology and its expanding role in both professional and personal contexts.

The gradual public interest in AI during the early 1990s opened doors to other emerging or established fields such as control theory, operational research, and statistics. Decision theory and probabilistic reasoning started being adopted by AI researchers (Toosi et al., 2021). Along with that, the field of AI had become fragmented, with researchers focusing on narrow problems and using different methods (Sloman, 2006). This has led to a lack of consensus on the ultimate goal of AI, with some emphasizing long-term curiosity-driven research and others focusing on creating successful products and services and made AI more successful than it had ever been (Shneiderman, 2022). Around this time when AI started receiving significantly more attention, the first Gen Z-ers were born, marking a parallel emergence in technology and a new generation. The abundance of data across various domains, coupled with the integration of statistical techniques like machine learning and optimization into AI research methodologies, led to a notable resurgence of AI in specific domains. This resurgence encompassed various subfields, such as multiagent models, natural language processing, robotics, and computer vision (Toosi et al., 2021). As such, in the early 1990s, renewed optimism for AI surfaced. Some of the success was due to increasing computer power and some was achieved by focusing on specific isolated problems and pursuing them with the highest standards of scientific accountability.

Eventually, in 1997, AI-equipped machines showed off their power on the public stage.

Supercomputer manufacturer IBM had developed chess-playing AI software, called Deep Blue to run on their computer. Deep Blue eventually won in a chess match against the chess world champion, Garry Kasparov (Weber, 1997). This historic event, being broadcasted live, reignited public fascination with the potential of AI systems. The news was so astounding that IBM's stock prices surged to unprecedented levels (Higgins, 2017). This achievement was not a result of groundbreaking new concepts, but rather the meticulous application of engineering expertise and the significant advancement in computer speed and capacity by the 1990s. This remarkable progress is quantified by Moore's Law, which forecasts that computer speed and memory capacity will double every two years, driven by the doubling of the number of transistors in an electronic device. (Moore, 1998) The underlying challenge of "raw computer power" was gradually being addressed. Munakata (1995), also concludes, "…since about 1990, AI has been used in increasingly practical and widespread applications.". Once again, this illustrates that AI became increasingly beneficial precisely as the first Gen Z-ers were going to grow up, implying that they would be maturing alongside a phase of AI where it is genuinely useful to the public.

With the use of the greatly improved computer power, AI researchers started employing advanced mathematical techniques to a greater extent than ever before. It became widely recognized that numerous challenges AI faced were already under investigation by scholars in disciplines such as mathematics, electrical engineering, economics, or operations research (S. Russell & Norvig, 1995). Utilizing this common mathematical vocabulary ensured that accomplishments became quantifiable and verifiable, elevating AI to a more thorough scientific discipline. Algorithms initially crafted by AI researchers started emerging as integral components of bigger systems. AI successfully tackled numerous complex challenges, and their solutions demonstrated utility across the technology industry such as robotics, voice and image recognition, and worker safety through data mining. (Girasa, 2020).

During the initial years of the 21st century, the availability of extensive data, commonly referred to as "big data," along with more affordable and rapid computing capabilities, facilitated the effective application of advanced machine learning methods to numerous economic challenges. Furthermore, the utilization of big data extended its reach into diverse domains, including ecology for model training

purposes and various economic applications. (Hampton et al., 2013) Breakthroughs in deep learning, notably through deep convolutional neural networks and recurrent neural networks, propelled advancements and research in image and video processing, text analysis, and even speech recognition (LeCun et al., 2015).

Deep learning, a subset of machine learning, employs a deep graph structure comprising numerous processing layers to model high-level abstractions within data (LeCun et al., 2015). Cutting-edge deep neural network architectures occasionally achieve performance on par with human accuracy, particularly evident in computer vision tasks like recognizing patterns in databases such as identifying traffic signs. (Multi-column Deep Neural Networks For Image Classification, 2012)

The current state of AI, from 2020 onwards, is characterized by rapid advancements and widespread adoption across various industries, is commonly referred to as the "third AI boom" (Miyazaki & Sato, 2018). This period is marked by a surge in AI research, development, and implementation, driving transformative changes in technology and society. In 2017, Google researchers introduced the transformer architecture, a breakthrough innovation that leverages an attention mechanism. (Gong, 2022) This architecture revolutionized the field of natural language processing and quickly gained widespread adoption in the development of large language models.

Building upon this foundation, the concept of foundation models emerged in 2018. These models, trained on massive amounts of unlabeled data, possess the flexibility to be fine-tuned for various downstream tasks (Seelam, 2022). This approach marked a significant advancement in the field, enabling the creation of versatile language models capable of adapting to diverse applications. Whereas the first Gen Zers saw supercomputers using AI while growing up, Gen Zers on the younger end of the spectrum grew up with AI integrated into everyday tasks on a consumer level. This shift illustrates how AI evolved from a specialized, high-tech domain to a ubiquitous presence in daily life. In subsequent years, notable milestones were achieved in the development of large language models. In 2020, OpenAI unveiled GPT-3, a model renowned for its remarkable capabilities in generating coherent and contextually relevant text across a wide range of prompts. (Brown et al., 2020) In 2023, Microsoft Research conducted extensive

testing on the GPT-4 large language model. Their findings suggested that GPT-4 could be considered an early iteration of an artificial general intelligence (AGI) system, although it remained incomplete (Katz et al., 2023). AGI is explained as a category of artificial intelligence capable of matching or surpassing human performance across diverse cognitive endeavours. This stands in contrast to narrow AI, which is tailored for specific tasks (Pei et al., 2019). This assessment underscores the rapid progress in AI research and the potential implications for the future of artificial intelligence.

2.3. Generation Z and ai usage

Generation Z, is a group of individuals, who are according to the most scholars, born between 1995 and the early 2010s. Being characterized by their digital nativism, proficiency in using technology and social media, (Jayatissa, 2023), this generation has grown up with the internet and is highly reliant on information and communication technologies (Sihombing, 2022). Generation Z is the first generation to grow up with constant access to digital technology, social media, and the internet. As a result, they are considered "digital-first" and "technoholic," with an inherent affinity for AI technologies (Chan & Lee, 2023). Gen Z is likely to embrace AI in various areas from work to daily life, due to their potential to enhance their efficiency, connectivity, and access to information. Their strong inclination towards visual learning, rapid information access, and multitasking abilities (Jayatissa, 2023) make them well-suited for adopting AI technologies that cater to these preferences. Furthermore, their entrepreneurial problem-solving mindset and adaptability to change could lead to the development of innovative AI solutions that address pressing challenges faced by society.

Gen Z utilizes AI across various aspects of education and productivity. They employ AI for information acquisition, organization, and condensation, aiding in tasks like brainstorming, summarizing complex ideas, and constructing literature reviews (Dwivedi et al., 2023). Additionally, Gen Z leverages AI for language learning, administrative tasks, and enhancing productivity. AI assists in technical writing, grammar checks, and proofreading, as well as providing support for specific assignments and improving writing skills. Moreover, they utilize AI for personalized and immediate feedback in learning and to

expand knowledge, access learning resources, and receive feedback on writing and assignments (Kaledio et al., 2024).

Exploring how Generation Z uses ChatGPT for text generation differently leads to the subquestion:

"How does Generation Z use ChatGPT in their daily lives"

This inquiry seeks to uncover the motivations, practical applications, and perceived benefits that drive Gen Z's engagement with ChatGPT, offering insights into its evolving role in modern society.

2.4. Knowledge about LLMs

The landscape of AI awareness and understanding is complex and multifaceted. Studies have shown disparities in knowledge levels between different demographics. For instance, research indicates that men tend to have more knowledge about AI than women. In one study, it was found that while 71.28% of individuals had a basic concept of AI, only 35.3% were familiar with machine learning (ML) and deep learning (DL). Moreover, data from Liberati et al. (2009) suggests that initiatives focusing on data protection are crucial not only for preventing bias in decision-making but also for building trust in AI systems.

Further insights reveal that a significant portion of the Gen Z population lacks a comprehensive understanding of AI's implications. Many attribute this to a deficiency in knowledge, as highlighted by studies such as those conducted by B. Gong et al. (2019) and Brandes et al. (2020). Analysis of public awareness in the United States shows that education and income levels correlate with AI understanding. Higher-educated and higher-income individuals demonstrate greater awareness of AI in daily life, with postgraduates exhibiting the highest levels of knowledge. Moreover, age also plays a significant role in AI awareness, with Gen Z-ers generally more attuned to AI applications compared to their older counterparts. This trend is evident across various domains, such as identifying AI in customer service

chatbots and music playlist recommendations.

Whereas a substantial portion of the population possesses a basic understanding of AI, there are significant gaps in knowledge across demographics and characteristics, this leads to the sub question:

"What does Generation Z know about how ChatGPT answers their inputs?"

Additionally, leveraging Gen Z's understanding of AI applications can help inform the public on how to identify and utilize these technologies more effectively.

2.5. Skepticism in LLMs

The skepticism among Generation Z regarding AI stems from a multifaceted understanding of its implications. While acknowledging the consumer benefits and business value AI brings, Gen Z remains wary of the unintended consequences it may generate. These concerns encompass a spectrum of issues, ranging from privacy violations and discrimination to accidents and manipulation of political systems, which underscore the need for caution in AI adoption (Cheatham et al., 2019). Moreover, the uncertainty surrounding AI algorithms contributes to Gen Z's discomfort, highlighting the imperative for transparent and accountable AI systems. Privacy and data security concerns further accentuate the demand for robust safeguards to protect individuals' rights (Betriana et al., 2022).

In addition to these apprehensions, Generation Z advocates for strategies to address potential job displacement and calls for measures to ensure the harmonious coexistence of humans and AI (Gupta et al., 2024). This demographic recognizes the transformative potential of AI to enhance human connections and combat social isolation but emphasizes the necessity of regulatory frameworks to combat AI bias and safeguard against disastrous repercussions, such as compromising national security or endangering human life (Gupta, 2024). These findings contribute valuable insights to policy discussions, educational strategies, and business practices, offering guidance on how to harness the benefits of AI while navigating its potential pitfalls responsibly.

Overall, the skepticism of Generation Z towards AI reflects a nuanced understanding of its risks and rewards. Their demands for transparency, accountability, and ethical governance underscore the need for comprehensive approaches to AI development and deployment that prioritize human well-being and societal values.

2.6. Paradoxical trust in AI

Despite the prevailing skepticism surrounding AI among Generation Z, recent studies suggest that they paradoxically exhibit the highest levels of trust in AI technologies compared to other generations (Chan & Lee, 2023; Gillespie et al., 2023) This trust is multifaceted, stemming from a combination of factors unique to this demographic.

One key factor contributing to Generation Z's trust in AI is their perception of AI as a transformative force, particularly in education and mental health. Studies indicate that Generation Z views AI as a tool for personalized learning and mental health support, endorsing its potential to positively impact their lives (Gupta, 2024; Alanzi et al., 2023). This optimistic outlook reflects their openness to embracing emerging technologies and leveraging them to address societal challenges. Furthermore, despite being aware of the inherent risks and privacy trade-offs associated with AI, Generation Z demonstrates a remarkable acceptance of AI-powered tools like, virtual assistants and personalized recommendation systems. (T. M. Ho et al., 2022). This acceptance may stem from their digital nativity and familiarity with AI-driven interactions, leading to a greater willingness to trust AI systems. The Technology Acceptance Model (TAM) could also help explain this phenomenon: as more people use ChatGPT, their familiarity and comfort with the technology increase, leading to greater trust and acceptance. This model suggests that perceived ease of use and perceived usefulness are key factors

driving the adoption and trust in new technologies like ChatGPT (Venkatesh & Davis, 2000). Additionally, the lack of regulatory frameworks and international agreements surrounding AI governance and ethical design may contribute to Generation Z's trust in AI. With limited oversight and regulation, Generation Z may perceive AI technologies as largely beneficial, overlooking potential risks and harms (T. M. Ho et al., 2022). Given Generation Z's paradoxical stance on AI, skeptical yet highly trusting, this prompts the subquestion:

"How much trust does Generation Z have in the outputs of ChatGPT?"

This is crucial for understanding their reliance on AI-generated information and recommendations, despite acknowledging risks and the lack of strong regulatory oversight.

2.7. Summary

The interaction between Generation Z and AI, particularly large language models such as ChatGPT, is shaped by a complex interplay of trust, knowledge, and usage. Generation Z, characterized by their digital nativism and technological proficiency, exhibits a paradoxical attitude towards AI: while they harbor significant skepticism regarding its potential risks and ethical implications, they paradoxically demonstrate high levels of trust in its applications. The interplay of trust, knowledge, and the usage of ChatGPT plays a pivotal role in bridging the gap between technical understanding and public awareness, thereby fostering optimal adoption of AI technologies. This symbiotic relationship not only enhances comprehension but also builds confidence among users, particularly Generation Z, who are pivotal in shaping the future landscape of technology integration.

Understanding how Generation Z incorporates ChatGPT into their daily lives is crucial for discerning its impact and potential. By exploring their routines, from casual conversation to academic pursuits, we can uncover the breadth of its utility and influence. Equally significant is determining Generation Z's understanding of how ChatGPT processes and responds to their inputs. This knowledge

shapes their expectations and interactions with AI, influencing their trust and reliance on its capabilities. Trust forms the cornerstone of AI adoption. Investigating Generation Z's confidence in ChatGPT outputs illuminates their perceptions of its accuracy, reliability, and ethical implications. Such insights are essential for refining AI systems to align with societal expectations and ethical standards.

The three aforementioned sub questions—"How does Generation Z use ChatGPT in their daily lives?", "What does Generation Z know about how ChatGPT answers their inputs?", and "How much trust does Generation Z have in the outputs of ChatGPT?"—will be operationalized in the methodology to comprehensively capture how these concepts relate to each other.

3. Methodology

3.1. Research design

To achieve the theoretical aim of understanding trust in AI in Generation Z, several factors that influence an individual's perception must be considered. The data collection process participants were engaged through semi-structured interviews, providing an opportunity for deeper exploration and clarification of their responses, enriching the dataset with nuanced qualitative insights (Boeije, 2009). This approach ensured a multifaceted understanding of how knowledge about chatbots might influence an individual's perceptions and behaviors regarding AI, qualitative dimensions for comprehensive analysis and interpretation.

The qualitative aspect will try to consider various factors that influence an individual's perceptions and behaviors, in a semi-structured fashion. Semi-structured interviews emerge as a powerful methodological tool for unraveling the complexities inherent in investigating Gen Z's trust in ChatGPT. Through their inherent flexibility, adaptability, and collaborative nature, these interviews offer a nuanced lens through which the multifaceted interplay between technological innovation, cultural dynamics, and generational perspectives can be explored.

3.2. Participants

The intended research population for this study comprises individuals belonging to Generation Z, born between 1995 and 2012. Participants in the research must fulfill certain criteria to be included. They must be users of the chatbot Chat-GPT, this criterion ensures that participants have experience with the technology under investigation. The study also tried to keep the number of male and female participants equal so that possible gender based differences can be identified. Purposive sampling has been used to

select participants who meet these specific criteria, ensuring that the sample is representative of the population most relevant to the study's objectives. The researcher utilized both direct outreach to individuals in their immediate environment and snowball sampling technique by letting participants refer other participants who fulfill the criteria to be included. Table 1 shows an overview of the characteristics of the participants on which has been sampled. The research does not specifically target people under the age of 16, individuals with cognitive impairments, people under institutional care (such as hospitals, nursing homes, or prisons), specific ethnic groups, individuals in another country, or any other special group that may be more vulnerable than the general population. The focus is primarily on individuals who meet the specified criteria regarding age and technology usage.

Table 1

Characteristics participants purposive sampling

Participant number	**Age**	**Usage ChatGPT (1 – 10)**	**Gender**
1	16	4	Female
2	20	3	Male
3	19	3	Female
4	20	9	Male
5	20	7	Male
6	22	7	Male
7	28	10	Male

8	16	3	Female
9	17	7	Female
10	20	6	Male
11	19	10	Male
12	25	8	Female
13	18	7	Female
14	18	7	Female
15	19	6	Female

Note. Usage ChatGPT is the value the participant rated their usage of ChatGPT on a scale of 1 to 10

3.3. Data collection instrument and procedure

3.3.1 Interview protocol

Consent will be obtained orally and recorded. Participants will be informed that they have the right to withdraw from the research at any time without needing to provide an explanation or justification for their decision. Participants who may be dependent on or in a subordinate position to the researcher(s) will be assured of the voluntary nature of their participation. This assurance will be reinforced by maintaining anonymity, providing detailed information about the study's purpose, procedures, and potential risks and benefits, and emphasizing that refusal to participate will not result in any negative consequences. After their participation is concluded, participants will be provided with the researcher's contact details for further inquiries. Additionally, participants who express interest will receive a summary of the research results. All the interviews followed the interview scheme (see Appendix A) as a common thread, arising from the theoretical framework that identified three main topics. These three main topics encompass usage, knowledge and trust and have been turned into sub-questions to help answer the main research

question. These sub-questions are: "How does Generation Z use ChatGPT in their daily lives?", "What does Generation Z know about how ChatGPT answers their inputs?", and "How much trust does Generation Z have in the outputs of ChatGPT?" Each sub-question encompasses a subset of questions designed to collectively address these research inquiries. All data collected, including personal identifiable information, will be anonymized through pseudonymization before storage and analysis. Audio recordings will be encrypted using Bitlocker on a personal computer, and recordings will be deleted immediately after transcription. The interviews were conducted in Dutch. For the analysis and presentation of results, quotes derived from the interviews were translated using the back-to-back translation method to ensure their accuracy and validity. This process involved translating the quotes from Dutch to English and then translating them back to Dutch to check for consistency and correctness. This rigorous method was applied to validate the correctness of the quotes, ensuring that the original meanings were preserved and accurately conveyed in the analysis. Transcribed data will also be deleted after the thesis is submitted. The researcher is familiar with the UT Data policy and acknowledges responsibilities for proper data handling, including working with personal data, storage, sharing, and presentation/publication.

3.3.2 Procedure

The participants were invited to engage in semi-structured interviews, conducted in a private room, only with the interviewer present, to minimize external influences. Ethical approval was obtained from the BMS Ethics Committee and prior to the interviews commencing, participants provided oral consent. Semi-structured interviews enabled the researcher to gain insights into the underlying reasons and motivations behind participants' responses, providing a more comprehensive understanding of the phenomenon under investigation (Boeije, 2009). Furthermore, semi-structured interviews allow for follow-up questions, essential for clarifying responses, probing deeper into specific areas of interest, and eliciting additional information. Follow-up questions enable the researcher to explore unexpected or contradictory findings, as well as to uncover insights that may not have been initially apparent. This

iterative process of questioning fosters a dynamic exchange between the interviewer and participant, enhancing the richness and depth of the data collected.

After asking the participant for demographic information at the beginning general questions about the usage of ChatGPT were asked. The researcher asked questions such as '*Can you tell me about a recent experience where you interacted with ChatGPT? What was the context, and what were you trying to accomplish?'* This question, and 2 more questions, used the critical incident technique, and they were employed to elicit authentic experiences from participants. This method involves asking participants to recount specific incidents that were particularly significant or impactful, either positively or negatively. By focusing on these critical incidents, the study aims to gather rich, detailed accounts that reveal genuine interactions and experiences with the subject matter. This approach helps in capturing the nuances of participants' experiences, providing deeper insights into their perspectives and behaviors. The next theme tried to test the knowledge of the participants about how the chatbot works. This included question such as *'What do you know about how ChatGPT gets information to answer your inputs?'* Afterwards, questions such as 'W*hen interacting with a chatbot, what factors influence your confidence in its ability to provide accurate and helpful responses?'* tried to answer to which degree the participant trusts the outputs from ChatGPT. The procedure order is not strictly followed however; it is possible that follow-up questions about trust may be asked immediately. Along with that, each theme began with a quantitative question on a 1 to 10 scale to assess how much the participant uses ChatGPT, how much knowledge they believe they have about the workings of ChatGPT, and how much trust they have in its textual output. For the last two themes, participants were asked again after the final interview question to rate these on a 1 to 10 scale to see if their views had changed after discussing it. Lastly, the participants were asked if they have any remaining questions, after which the interviews ended. The interviews typically ranged between 15 and 25 minutes.

3.4. Data Analysis

The data analysis process for the interviews involved transcribing and coding the recorded interviews using the ATLAS.ti software, guided by the principles of grounded theory and following inductive analysis techniques (Bowen, 2006). Grounded theory was chosen as the analytical approach to this study to foster the generation of novel insights and context-specific recommendations. Grounded theory research typically involves three key coding steps for qualitative data analysis: open coding, axial coding, and selective coding (Corbin & Strauss, 1990). During open coding, the data were broken down and numerous codes were generated to capture initial patterns. Subsequently, axial coding involved reviewing previously identified categories and linking core categories to subcategories. Usually Grounded theory approaches seek to develop theories from data in selective coding, however that goes beyond the scope of this study due to this study's explorative nature and time-constrains. This holistic approach facilitated the identification and exploration of emerging patterns, relationships, and themes within the data, leading to a deeper and more nuanced understanding of the subject matter.

3.5. Intercoder reliability

To enhance the credibility of the qualitative data, an inter-coder reliability test was performed involving a second coder from the University of Groningen, who was not part of the research. Both the researcher and the second coder independently coded 20% of the transcripts using the same codebook and software, ATLAS.ti. Cohen's kappa was used to measure the agreement between the two coders. Cohen's kappa values range from -1 to 1, with scores closer to 1 indicating better agreement and higher reliability between the codes. Values between 0 and 0.30 are considered insufficient, values between 0.40 and 0.60 are satisfactory, and values above 0.80 indicate perfect agreement. (Boeije, 2009) Table 2 provides an overview of the calculated Cohen's Kappa values between the two coders for the main code trust, table 3 provides an overview of the calculated Cohen's Kappa values between the two coders for the main code

usage and table 4 provides an overview of the calculated Cohen's Kappa values between the two coders for the main code knowledge.

Table 2

Cohen's Kappa values for main code trust of 15% of the transcripts

Subcodes	**Cohen's Kappa Value**	**Explanation of code**
General reliability	0.84	Participants trust ChatGPT based on a general sense of reliability without specific evidence.
Accuracy and correctness	0.72	Trust is based on the correctness and precision of information provided.
Familiarity and alignment	0.79	Trust is influenced by how well the information aligns with the participant's prior knowledge.
Verification and fact-checking	0.83	Trust involves verifying information independently, particularly for critical details.

Contextual trust	0.69	Trust varies based on the complexity and importance of the task.
Selective trust	0.84	Participants trust ChatGPT for certain tasks but not others, based on personal judgement or intuition.
Convenience-driven trust	0.81	Trust is driven by the practicality and ease of ChatGPT's responses rather than preciseness.
Cross-referencing	0.90	Reliability is assessed by verifying information from ChatGPT with other sources.
Specificity and detail	0.78	Detailed and specific answers enhance perceived reliability.
Use of examples	0.92	Including examples in responses improves the credibility of information.
Inclusion of sources	0.87	Providing sources enhances trust in the accuracy of the information.

Language complexity	0.77	The complexity of language used can affect perceived reliability.
General trust against skepticism	0.74	Participants vary in their general trust or skepticism towards ChatGPT's outputs.

Table 3

Cohen's Kappa values for main code usage of 15% of the transcripts

Subcodes	**Cohen's Kappa Value**	**Explanation of code**
Educational tasks	0.74	Participant uses ChatGPT for educational task.
Professional tasks	0.82	Participant uses ChatGPT for professional task.
Personal interest	0.84	Participant uses ChatGPT for personal interest.
Timesaving	0.78	Participant uses ChatGPT for its timesaving capabilities.

Convenience	0.80	Participant uses ChatGPT for convenience.
Augmenting personal knowledge	0.79	Participant uses ChatGPT as the chatbot know more about a specific topic.
Specificity of responses	0.85	Participant uses ChatGPT because of the specificity of responses.
External motivation	0.75	Participant uses ChatGPT because of outside motivation like a teacher.
Issue of accuracy	0.66	Participant notes issue in accuracy of responses.
Lack of precision in task execution	0.88	Participant notes issue in chatbot not doing what was asked.
Fabrication of information	0.79	Participant notes issue in ChatGPT making up information.

Efficiency issue	0.84	Participant has trouble with efficiently getting a useful response.
Usability issue	0.72	Participant
Providing context	0.89	Participant provides context to make ChatGPT give better responses.
Division of queries	0.83	Participant divides their input in pieces to make ChatGPT give better responses.
Specific instructions	0.85	Participant gives specific instructions to calibrate responses.

Table 4

Cohen's Kappa values for main code knowledge of 15% of the transcripts

Subcodes	**Cohen's Kappa Value**	**Explanation of code**
Importance of understanding	0.71	Participant demonstrates importance of understanding how ChatGPT works.

Learning patterns	0.83	Participant shows learning patterns on how to refine queries.
Age dynamics	0.94	Age having an affect on experience with how trust is gained.
Trust and reliability	0.87	Understanding how ChatGPT generates information increasing trust.
Iterative learning process	0.82	Participants refined querying strategies through iterative adjustments.
Critical evaluation	0.79	Recognition of AI's limitations in finding reliable answers.

4. Results

4.1. Patterns in ChatGPT utilization

4.1.1 User demographics and usage

The analysis of ChatGPT usage patterns among participants, several demographic influences became evident. Key factors such as gender, age, education level, and employment status emerged as significant determinants of how frequently participants engaged with the AI tool. Gender plays a significant role in ChatGPT usage. Males (n = 7) reported a higher average usage level (7.43) compared to females (n = 8) on a 10-point scale (5.625). This suggests that males tend to engage with ChatGPT more frequently than their female counterparts. When examining age groups, another clear trend emerges. Participants aged 24 to 28 demonstrate the highest average usage (9.00), indicating that older users within the sample are more inclined to use ChatGPT. Participants aged 19 to 23 have an average usage of 6.375, while those aged 16 to 18 show the lowest average usage (5.60). Employment status shows that part-time employed participants have slightly higher average usage levels (6.67) compared to those who are solely studying (6.42).

4.1.2 Different use cases

There are different use cases for ChatGPT among the participants. Analysis reveals distinct patterns of use, with notable variations among different demographic groups. The primary applications include educational tasks, professional activities, and personal interests, each highlighting ChatGPT's versatility as a tool for various use cases. Educational purposes emerged as the most prevalent use case for ChatGPT, with 14 out of the 15 participants relying on it primarily for this reason. However, most participants are students, which correlates with the heavy reliance on ChatGPT for educational purposes. Many participants (n = 13, said to have used ChatGPT to assist with language for assignments. Similarly, Participant 5, relies on ChatGPT to prepare presentations and gather information for school assignments: "*If you have to prepare a presentation in class or something, you just throw all the questions that are*

asked into the ChatGPT and then you get a bit of an answer there". Another common educational use involves modifying text. Participant 3, frequently uses ChatGPT to change how things are worded and meet text minimum requirements to enhance their school assignments: "*Well, for profile assignment, we had to give it a bit more body. So, then I filled in those pieces in my ChatGPT and then told it to expand the text*." Summarizing long articles and extracting main points is another vital educational use. For instance, Participant 10, utilizes ChatGPT to make summaries of texts for his assignments. This allows them to manage large volumes of information more efficiently and focus on key concepts. Other named educational uses for ChatGPT consist of understanding complex concepts, translation, and inspiration for assignments. Professional use of ChatGPT, while secondary to educational purposes, is significant among participants engaged in work or internships, but also for participants in part-time employment. For example, Participant 4 uses ChatGPT extensively to help create content for websites and social media, and to write description for hotels during their internship. Administrative support is another key professional use. Participant 7 demonstrates this by using ChatGPT for a variety of work-related tasks, including drafting emails and preparing invoices. Personal use, while only 3 participants also used it for this reason, includes creative and informational purposes. Participant 3, for instance, uses ChatGPT for inspiration when writing poems, demonstrating the tool's capacity to support creative endeavours. Additionally, participant 7 also uses ChatGPT to help with personal matters like a soccer strategy. On top of that, participant 7 exemplifies extensive use across both educational and professional tasks, suggesting a high level of integration of ChatGPT into daily work:

> "*Yes, I use it often when I teach. Making quizzes, contacting parents when I need to draft an email. Let's see, I can use it at home. Invoice reminders, that's for my own work then. Yes, just a lot. Mostly text. I am currently building a website, I use it a lot. Emails, a lot. Even soccer strategy, for the team. Things like that."*

Additionally, participant 7 rated their usage of ChatGPT a 10 out of 10, reflecting a common trend among participants where higher usage ratings correspond to a broader range of applications.

4.1.3 Perceived benefits of utilization

In exploring the perceived benefits participants cited for using ChatGPT, several prominent themes emerged. A recurring motif among users was the significant time-saving benefit offered by ChatGPT. 12 out of 15 participants highlighted the efficiency in quickly providing information and assistance, which circumvents the need for extensive searches or prolonged deliberation. This is further illustrated by participant 10 when they got questioned about what factors influence their decision to use ChatGPT: "*I think primarily time savings. Time savings and also a bit of laziness in that regard perhaps, because I don't have the energy or especially the desire to do such a task myself."* Moreover, convenience emerged as a key factor, with participants noting that ChatGPT offers a more accessible and user-friendly alternative compared to traditional methods like searching on Google. This convenience extends to tasks such as language corrections and text expansion, as noted by participant 12, who found ChatGPT particularly useful for these purposes:

> "*So in instead of having to take some time to think about, OK, where do I place my comma? Because in Germany we use a lot of commas, I just say correct and then enter and add the text and within seconds he gives me the output."*

Participants also appreciated the chatbot's role in augmenting personal knowledge and understanding, as it often provides insights and explanations beyond their immediate expertise. Participant 13 demonstrates this when they were questioned about a situation where they experienced the output to be particularly useful or surprisingly good: "*Well, that was mainly for studying for my exams... it was explained much clearer and simpler."* Furthermore, the specificity and accuracy of responses were highlighted as

advantages over general internet searches. One of the participants (participant 1) shared their experience with the specificity of ChatGPT and compared it to a traditional search engine:

> "*Just yesterday, with a German assignment. Well, I had to look up all kinds of buildings and stuff from... about a German state. But all that information is quite hard to find. So with ChatGPT, you can ask very specific questions. On Google, it's very... very broad."*

This specificity allows users to obtain tailored information and guidance, which is crucial for tasks requiring precision and depth.

4.1.4 Motivations and implications in ChatGPT usage

Apart from the perceived benefits, several participants highlighted how ChatGPT is being integrated into their educational and professional environments. A number of participants (n = 3) mentioned that they received external motivation from their teachers or bosses who encouraged them to use ChatGPT. For example, one participant noted that their computer science teacher encouraged its use for assignments, indicating its perceived value for academic tasks. Another participant shared that their school promotes the use of ChatGPT, emphasizing the importance of learning to use the tool effectively as part of their educational experience. Additionally, a participant mentioned that their boss advocated for the use of ChatGPT, encouraging them to learn how to utilize it for work tasks. This reflects a growing trend of institutional support for ChatGPT, highlighting its integration into both educational and professional settings. This is further illustrated by a quote from participant 12:

"I was such an adamant hater of ChatGPT, but then I realised that it is a lot faster just to write the text in there and all of my colleagues were also using it so. My boss was kind of like yeah, just use it. Just get to learn how or just learn how to use it."

However, the participants' experiences with using ChatGPT underscore several challenges and limitations. Participant 1 observed that ChatGPT sometimes struggles with more complex assignments, particularly in coding, where it often makes mistakes. This issue of accuracy was echoed by participant 10, who discovered that ChatGPT generated false citations and non-existent articles, raising concerns about the reliability of the information provided. Participant 12 also mentioned an issue where ChatGPT did not correct errors as requested, instead responding to emails that were supposed to be corrected, indicating a lack of precision in task execution. Concerns about factual accuracy were further highlighted by Participant 4, who pointed out that ChatGPT can fabricate information, when asking about specific information:

> *"Well, for content for my internship, I had to write about hotels and accommodations and their locations. And well, I had to look up things about wheelchair accessibility and such. And well, it wrote all these things like this is wheelchair accessible and this is adapted for people with disabilities. Well, I'm not there, so how can ChatGPT exactly know that all that is adapted? Because it's not exactly stated, you know, on the internet. So, I was not so sure about that. I ended up calling the hotel myself for the information and it was totally different from the ChatGPT output."*

This sentiment of making things up was echoed by Participant 8, indicating a pattern of inaccuracy. Furthermore, Participant 9 found that ChatGPT lacked information on recent topics, such as a book published the previous year, highlighting limitations in the tool's ability to provide up-to-date information: "*Recent things, it just doesn't know anything about."* Efficiency and usability issues were also noted. Participant 11 had to frequently reset conversations to get relevant responses, indicating potential inefficiency in the user experience. Participant 13 also had to invest significant time and effort before eventually obtaining clear explanations, suggesting a need for improvement in the tool's ease of use. For participant 5 the threshold to use ChatGPT for school assignments was too low. They mentioned wanting to use the tool as little as possible, as they said over-reliance on the tool would lead to them not

learning anything at school. Educational policies and ethics were brought into focus by Participant 15, who mentioned new rules requiring authenticity statements about AI use in their schoolwork:

"At school, they're increasingly encouraging its use. They prefer that you learn to use it rather than not using it at all. But now there are new rules that make me think I might not want to bother with it. We recently have to fill out an authenticity statement about how you use AI with your schoolwork."

This implies an evolving educational landscape where ethical considerations and transparency in LLM-usage are becoming increasingly important.

4.1.5 Different techniques employed

The techniques employed by participants to enhance their interactions with ChatGPT encompass a variety of strategies. A repeated pattern among participants was the importance of specificity and clarity when posing questions to ChatGPT. Many participants stressed that clearly articulated and detailed queries significantly enhance the quality of the AI's responses. For instance, Participant 1 noted that asking very specific and brief questions often yields better results. Similarly, Participant 4 emphasized the necessity of providing specific context and examples to guide the AI's responses, avoiding unnecessary details that might confuse the system. Participants 5 and 6 also highlighted the value of formulating clear, precise questions, with Participant 6 adding that specifying the word count and exact requirements further improves the output. Participant 7 illustrated this point by sharing an example where they specified that a quiz's questions and answers should be in capital letters, which ensured the output met their exact needs from the first attempt.

Another effective technique identified was the division of complex queries into smaller, more manageable parts. Participants found that breaking down a large or multifaceted question into simpler segments often resulted in clearer and more specific answers. Participant 2 described how dividing a question into several parts helped avoid overwhelming responses and enhanced clarity. Participant 3 echoed this sentiment, explaining that starting with a broad topic and then narrowing down into smaller

questions helped generate more usable responses. This approach was particularly useful when dealing with complex topics or when detailed, nuanced answers were required. Some participants employed iterative refinement, where they would review and adjust the AI's responses multiple times to achieve the desired outcome. Participant 6, for instance, mentioned refreshing the answer multiple times to compare different responses and select the best one. Participant 10 adopted a similar approach, adjusting the response if the initial output did not meet their expectations. This iterative process allows users to fine-tune the AI's output, ensuring that the final response is as accurate and relevant as possible.

Providing additional context or specific examples was another strategy participants used to improve ChatGPT's responses. Participant 4 found it helpful to use a few good web pages as examples and give detailed information about the context to guide the AI. Participant 13 shared a similar approach, starting with a general topic and then delving into the examples and information provided by ChatGPT to refine the response. Participant 15 also emphasized the importance of supplying preliminary information and specific data to keep the AI's response relevant and structured according to their needs.

Participants also managed the length and complexity of ChatGPT's responses by providing explicit instructions on the desired output. Participant 9, for instance, would add phrases like "very short and in simple words" to ensure the response was concise and easily understandable. Participant 12 discussed their strategy of keeping LinkedIn contact requests under a specific character limit, and how they often had to adjust the AI's responses to meet these constraints. Participant 15 noted the importance of instructing the AI on the preferred format, such as summarizing without bullet points, to align the response with their expectations.

Interestingly, one participant mentioned using emotional triggers to influence ChatGPT's responses. Participant 12 described adding emotional pressure to improve the quality of the output, though they acknowledged that this approach sometimes led to the AI "breaking down" and providing suboptimal answers. This highlights a less conventional but noteworthy method of interaction that some users explore.

4.2. User knowledge and awareness of ChatGPT

4.2.1 User demographics and awareness

Gender distribution among the participants showed a slight variation in knowledge levels. While the majority of participants with low knowledge were female, the high knowledge category included a higher proportion of males. This suggests a possible trend where males might be more likely to achieve higher knowledge levels. Age also played a significant role in knowledge levels. Participants with low knowledge were predominantly younger, ranging from 16 to 20 years old. Conversely, those with high knowledge levels were older, with ages ranging from 20 to 28. This indicates that older participants tend to have higher knowledge levels, potentially due to more extended exposure to educational and professional experiences. This is further demonstrated by employment status. Participants with low knowledge were primarily students, while those with high knowledge were more likely to be employed part-time.

Education level was another critical factor correlating with knowledge levels. Participants with low knowledge typically had lower educational attainment, ranging from elementary school to senior general secondary education. In contrast, those with high knowledge had higher education levels, including senior general secondary education, university bachelor's degrees, and higher professional education. This correlation underscores the impact of formal education on knowledge acquisition.

Furthermore, the amount of usage, measured on a scale from 1 to 10, showed a clear association with knowledge levels. Participants with low knowledge had an average usage score of 6.1, while those with high knowledge had an average score of 7.75. This trend indicates that higher usage correlates with higher knowledge levels, highlighting the importance of engagement and practice in knowledge development.

4.2.2 Importance of knowing how to use ChatGPT

Participants generally indicated that increased knowledge about ChatGPT's workings and the subjects they inquire about could enhance their trust in the tool. For example, a younger participant noted that recognizing familiar information within ChatGPT's responses could help determine its reliability. Conversely, some participants with higher knowledge expressed skepticism about ChatGPT's reliability, suggesting that a deeper understanding might lead to less trust due to potential mismatches between available data and specific queries.

Participants frequently emphasized that a better understanding of how ChatGPT generates information could lead to higher trust. This sentiment was echoed by a participant who believed that knowing how information is gathered would logically increase trust. Another participant, drawing a parallel with Wikipedia, highlighted the importance of contextual knowledge in trusting ChatGPT, suggesting that users with higher knowledge might apply their expertise to validate the outputs provided by the AI tool.

The learning and usage patterns among participants varied significantly, with younger individuals or those with lower knowledge levels often relying on trial and error to learn how to use ChatGPT effectively. This is further illustrated by participant 5 sharing an experience on This method allowed users to refine their querying strategies over time, despite initially experiencing mistrust or confusion. For instance, one participant described how they adjusted their questions to eventually obtain reliable answers, indicating an iterative process of refining inputs to improve outputs. Another participant noted the importance of asking follow-up questions to increase trust, demonstrating a more interactive approach to using ChatGPT effectively.

Participants also stressed the importance of specificity in questions to obtain reliable answers. This was particularly evident among those who learned through trial and error, as they discovered that more precise queries yielded better responses. Higher-knowledge participants emphasized critical evaluation when using ChatGPT, acknowledging that some tasks are better suited for AI than others. This

nuanced understanding of ChatGPT's strengths and limitations reflects a sophisticated approach to its use. Participant 15 illustrated this by saying there is a certain level of knowledge required to give good input to ChatGPT, but there is always a degree of uncertainty where you can't do anything about it. It cannot always find a reliable answer to your question, as it can also consult sources where nothing is true, but uses it as the truth.

The dynamics of age and trust also emerged as a notable theme. Younger participants generally expressed a desire for more knowledge to enhance their trust in ChatGPT, often citing their experiences of trial and error. Older participants with higher knowledge demonstrated a more critical and context-aware approach, indicating a balanced view of trust influenced by both understanding and application of ChatGPT. Frequent users developed a more refined approach to querying, showing a practical understanding of ChatGPT's utility and limitations through repeated interactions.

4.3. Trust dynamics

4.3.1 How trust is defined by participants

The findings from participant interviews reveal a wide spectrum of definitions and perceptions of trust across various contexts as they were asked what trust in a ChatGPT output means to them. This diversity underscores the multifaceted nature of trust, emphasizing its nuanced conceptualization among individuals. These varied perspectives are crucial for interpreting the overarching themes and patterns that emerged in the study. By exploring these personal definitions, deeper insights were gained into the foundational elements that shape how trust is understood by participants. Some participants describe their trust in ChatGPT as stemming from a general sense of reliability. Participant 1 expressed that ChatGPT "*just seems reliable*", even though they could not pinpoint specific reasons. This suggests that initial

impressions and gut feelings play a role in establishing trust, indicating a reliance on perceived credibility rather than explicit evidence. However, accuracy and correctness seem to be cornerstones for several other participants. Participant 4 illustrates this by mentioning: "*Well, just that everything that comes out, that you know it's correct. That it's exactly the information I asked for*." This demand for precision is crucial for establishing and maintaining trust, as deviations from accuracy can undermine confidence under users. For several participants familiarity plays a crucial role in their trust assessment. Participant 14 mentions states: "*Well, if I recognize the info I need a bit, then I would trust it.*" This implies that prior knowledge acts as a validation mechanism, suggesting that participants also evaluate trust based on how well the information aligns with what they already know. Trust often coexists with a need for verification. While some participants may trust ChatGPT initially, they also acknowledge the importance of verifying critical information. Participant 7 mentions adjusting their trust if something seems off, indicating a cautious approach where initial trust might be re-evaluated based on further investigation or personal knowledge. In contrast to this, convenience and ease of use also factor into trust for some people. Participant 11 attributed their trust partly to "*laziness",* suggesting that the practicality of ChatGPT's responses sometimes outweighs the effort of rigorous factchecking. This convenience-driven trust reflects a pragmatic approach to utilizing AI-generated information. The context in which participants interact with chatbot will naturally influence their trust too. For tasks like learning or exam preparation (Participant 13), trust hinges on whether the LLM's explanations align with established knowledge. This context-specific evaluation underscores that trust is situation-dependent and influenced by the specific goals participants aim to achieve. How reasons of use and use cases affect trust will be further discussed in section 4.3.2 and 4.3.3 respectively.

4.3.2 How reason of use affects trust

Trust in ChatGPT is notably influenced by the context and complexity of the tasks for which it is used. Several participants, such as Participant 1, expressed a differential trust in ChatGPT based on the task at

hand. They trusted ChatGPT in academic tasks for simpler queries like looking up popular buildings for an assignment but were skeptical when it came to more complex tasks like coding or specific assignments, due to the potential for inaccuracies. This contextual trust depending on the importance of the information that is sought is further illustrated in an interview exchange with participant 7: The interviewer asked, "*So you never check the information from ChatGPT through another source?*" The participant responded, "*No, not quickly. But it depends a bit on what I'm looking for. I don't think I look up things that are so important that I really need to fact-check them*." When the interviewer probed further, asking for examples where fact-checking would be necessary, the participant explained, "*Yes, that would be something like writing something that really needs to be scientifically backed. Or whatever. Where you need to check your sources first. You don't know where the source is from*." Similarly, Participant 5 only used ChatGPT for straightforward tasks, avoiding its use for significant reports, indicating limited trust in its capabilities for more critical work. Participant 3 consistently exhibited doubt about ChatGPT's reliability for major tasks, preferring to use it for minor tasks where the stakes are lower. This cautious approach is mirrored by Participant 2, who fact-checks ChatGPT's outputs for school work and rephrases them to ensure accuracy.

Participants also highlighted the need for verification and fact-checking, especially for specific or detailed information. For instance, Participant 4 shared an experience where ChatGPT's general responses regarding wheelchair accessibility in a specific hotel led them to seek verification independently. This lack of trust in ChatGPT's ability to provide accurate specifics was echoed by Participant 15, who always provides preliminary data to guide ChatGPT, thus mitigating the risk of deviations and increasing the reliability of the information retrieved.

Participant 7's approach highlighted a selective trust, influenced by personal intuition and experience. They prefer to rely on their judgment for creative or intuitive tasks while acknowledging the breadth of information ChatGPT provides for more general inquiries. This selective trust is further illustrated by Participant 12 and Participant 13, who use ChatGPT for less critical tasks such as language corrections and summarizations rather than for important school-related assignments.

In academic settings, the convenience and time-saving aspects of using ChatGPT sometimes override the need for full trust in its outputs. Participant 14, for example, used both ChatGPT and other sources interchangeably to meet assignment requirements, showing that convenience can compromise the rigor of verification. Participant 6 demonstrated situational trust by relying on ChatGPT's data without verification, as they couldn't find the information elsewhere. This suggests that necessity can sometimes outweigh the need for accuracy, leading to a conditional trust based on the availability of alternative sources. Participant 9 provided insight into the temporal aspect of trust, noting that when time allows, they prefer to use multiple sources to verify information, thereby reducing reliance on a single source like ChatGPT. This aligns with other participants indicating that they would rather use other sources than ChatGPT when accuracy is paramount, and time is not a constraint.

4.3.3 The indicators of reliability

Firstly, cross-referencing with other sources was a prominent indicator of reliability. Participants frequently mentioned the importance of verifying ChatGPT's information against other reliable sources. This approach was particularly emphasized by Participants 2, 6, 10, and 15, who all highlighted the necessity of double-checking information to ensure its accuracy. This indicates a strong reliance on cross-referencing to determine the trustworthiness of the output. The specificity and detail of responses were also crucial factors. Participant 4, for instance, expressed a preference for detailed answers over general ones, suggesting that a lack of detail in the response signals a lack of confidence in the information provided by ChatGPT. This underscores the importance of depth and specificity in enhancing the perceived reliability of AI-generated content. The use of examples within responses was another significant indicator of reliability. Participant 3 noted that the inclusion of examples made the information more believable, as examples help to illustrate and substantiate the content provided by ChatGPT. This highlights the role of concrete illustrations in bolstering trust in the information presented. The inclusion of sources in the output was a noteworthy indicator for some users. Participant 14 indicated that having

sources included in the responses would enhance their trust in the information. This points to the importance of transparency and traceability in AI-generated content to bolster credibility.

Language complexity played a dual role in influencing perceptions of reliability. While Participant 8 was skeptical of outputs using very difficult words, questioning their validity, Participant 13 found formal writing more trustworthy. This dichotomy indicates that the style of language can impact perceived reliability differently, depending on the individual's perspective. Adjusting language complexity to suit the audience appears to be key in maintaining trust. Prior knowledge and user context also significantly influenced perceptions of reliability. Participant 7 trusted ChatGPT's output based on prior knowledge about its reliability and the expertise behind it, while Participant 12 relied on personal cues and an understanding of ChatGPT's strengths and limitations:

> "*So I know that if I had a task like R code, I would never go back to ChatGPT because it's just a waste of time. I don't think that there's anything that he should or could do differently because it's just a machine.*"

This suggests that user education about the tool could positively influence how its outputs are perceived in terms of reliability. Finally, general trust and skepticism varied among participants. While Participants 1, 5, and 11 did not have specific indicators and either generally trusted or distrusted the outputs, Participant 9 tended to trust ChatGPT by default, often due to a lack of knowledge on the topics being queried. This variation highlights the need for more user guidance on evaluating AI-generated content to foster informed trust.

5. Discussion

5.1 Findings & Theoretical implications

5.1.1 Findings related to ChatGPT usage

The age group analysis showed that older participants used ChatGPT more frequently than younger groups. This trend supports the notion that as Generation Z individuals progress through their educational and professional journeys, their reliance on AI tools like ChatGPT increases to meet academic and career demands (Chan & Lee, 2023). Educational purposes emerged as the predominant use case, which is consistent with literature highlighting Generation Z's use of AI for information acquisition, organization, and personalized feedback (Dwivedi et al., 2023). Participants frequently utilized ChatGPT for language assistance, presentation preparation, and text modification, emphasizing its role in enhancing academic performance. However, younger studying participants typically use ChatGPT for only 1 or 2 tasks, whereas older participants seem to integrate it into a variety of activities and have a deeper understanding of what using the tool can do. This is also reflected in the way that older participants use ChatGPT more in general.

For educational instances, an important implication of the study's results is that younger students do not use the tool to it's full potential. The limited utilization of ChatGPT among younger students presents an opportunity for educational institutions to foster greater AI literacy and utilization skills early on. By introducing comprehensive AI education programs, schools can empower students to explore and leverage ChatGPT's functionalities for a wider range of tasks.

This is however not the only important implication for educational instances. Institutional support for ChatGPT usage, as noted by some participants, underscores the growing acceptance and integration of AI tools in educational and professional settings. This reflects a broader trend towards embracing AI to enhance learning and work environments, as posited by Kaledio et al. (2024). However, despite of this

institutional support of teachers saying to use chatgpt, students didn't state receiving any AI literacy education at all, they merely got told that it is interesting to use. Some participants who are currently studying even expressed concerns about over-reliance on AI tools, fearing it might hinder their learning and critical thinking skills. This concern is less frequently discussed in existing literature, which tends to emphasize the positive impacts of AI on productivity and learning without adequately addressing potential downsides such as dependency and reduced skill development.

These are not the only reported challenges and limitations with the use of ChatGPT, as accuracy issues, information fabrication and inefficiency in certain context highlight the need for improving AI tools reliability and usability. The reported inaccuracies particularly in coding tasks and recent information, underscore the necessity for ongoing refinement and updates to ensure ChatGPT remains a dependable resource. Moreover, the issue of ChatGPT generating false citations and non-existent articles raises significant concerns about the reliability of AI-generated content. Participants' experiences with factual inaccuracies and fabrications suggest that while ChatGPT can enhance productivity, it also requires careful validation of its outputs.

Despite the challenges and limitations, participants also reported significant time-saving benefits and convenience as primary motivations for using ChatGPT. This aligns with the literature, which suggests that Generation Z values rapid information access and efficiency (Jayatissa, 2023). The specificity and accuracy of ChatGPT's responses were also highlighted, offering tailored information that enhances productivity and learning outcomes. Participants did however show the use of a lot of different strategies to try and get better results, this shows that users do not always receive the information that they want or do not trust it. The most used strategy therefore also was to check with other sources to see whether the output from ChatGPT was reliable.

5.1.2 Findings related to knowledge of ChatGPT

The distribution of gender among participants revealed notable disparities in their levels of knowledge. A majority of females were found among those with lower levels of knowledge, whereas males constituted a higher proportion in the group with advanced knowledge. This observation suggests a potential trend wherein males tend to achieve higher levels of knowledge in this context.

Age was another significant factor influencing participants' knowledge levels. The majority of individuals with low knowledge were younger, typically falling within the age range of 16 to 20 years. These demographic pattern resonates with findings from previous research, which have consistently highlighted age-related differences in AI awareness and understanding. Research has underscored significant disparities in AI knowledge across different demographic groups. For instance, studies have shown that men generally possess more extensive knowledge about AI compared to women (Liberati et al., 2009). Moreover, recent investigations, such as those conducted by B. Gong et al. (2019) and Brandes et al. (2020), have pointed to deficiencies in AI comprehension among a considerable portion of the Gen Z population. These studies attribute these knowledge gaps to various factors, emphasizing the need for targeted educational efforts. Insights from the interviews corroborate these trends, as participants with higher levels of education and those who use AI technologies more frequently demonstrated a better understanding of concepts related to ChatGPT. This reinforces the notion that educational background and exposure play pivotal roles in shaping individuals' understanding of AI technologies.

What is not typically shown in previous research is that younger participants generally expressed a desire for more knowledge to enhance their trust in ChatGPT, often citing their experiences of trial and error. Older participants with higher knowledge demonstrated a more critical and context-aware approach, indicating a balanced view of trust influenced by both understanding and application of ChatGPT. Frequent users developed a more refined approach to querying, showing a practical understanding of ChatGPT’s utility and limitations through repeated interactions. This highlights the fact that having knowledge about how a chatbot operates is essential because it enables informed decision-making and

responsible use of technology. Educational institutions should be more invested in AI literacy to prevent the trial-and-error phase where users may misuse AI due to lack of understanding. This education equips students with critical thinking skills, ethical awareness, and a deeper understanding of AI's societal implications, ensuring they are prepared to engage with the evolving digital landscape effectively.

5.1.3 Findings related to usage trust in ChatGPT

The participants' diverse definitions of trust highlight its multifaceted nature. Trust was described as a combination of perceived reliability, accuracy, and familiarity with the content. Participant 1's reliance on a general sense of reliability without explicit reasons underscores the role of initial impressions and perceived credibility. This aligns with the Technology Acceptance Model (TAM), where perceived ease of use and perceived usefulness foster trust and acceptance of technology (Venkatesh & Davis, 2000).

However, the emphasis of participants on accuracy reflects a demand for precision and correctness, underscoring the critical importance of accurate information in establishing trust. The requirement for familiarity, as expressed by some participants, aligns with the notion that trust is often built on prior knowledge and recognition, acting as a validation mechanism. This is particularly relevant in educational settings, where the alignment of ChatGPT's responses with established knowledge significantly influences trust. The convenience-driven trust noted by a participant illustrates the pragmatic approach some users adopt, where the ease of obtaining information outweighs the need for rigorous fact-checking. This mirrors findings from recent studies indicating Generation Z's paradoxical trust in AI, where convenience and digital nativity play pivotal roles despite underlying skepticism (Chan & Lee, 2023; Gillespie et al., 2023). An implication of not fact-checking is an increased susceptibility to misinformation. When users do not critically evaluate the credibility of their sources, they are more likely to accept and spread false or misleading information. Moreover, it can undermine the integrity of information ecosystems and erode trust in reliable sources.

The context and complexity of tasks also significantly affect trust in ChatGPT. Participants expressed varying levels of trust based on the task's importance and complexity. Participant 1's differential trust based on task complexity and Participant 5's limited use of ChatGPT for straightforward tasks highlight the conditional nature of trust. This reflects previous findings that Generation Z exhibits high levels of trust in AI for personalized and straightforward tasks while remaining cautious about its use for critical and complex tasks (Gupta, 2024).

These results both support and challenge existing literature. While the convenience-driven trust

and the pragmatic use of ChatGPT align with previous findings on Generation Z's paradoxical trust in AI, the cautious and selective trust expressed by participants underscores the underlying skepticism and demand for accuracy and reliability. This nuanced understanding reflects the complex interplay between trust, skepticism, and the contextual use of AI technologies. Given the selective trust and demand for accuracy, developers should prioritize transparency and explainability in their AI systems. Clear explanations of how AI arrives at certain conclusions can help user trust and mitigate constant skepticism when using ChatGPT. Once again, educators should emphasize the importance of critical thinking and digital literacy, helping students navigate AI technologies with healthy amount of skepticism. This includes teaching them how to evaluate the reliability of AI-generated information and the potential biases inherent in these systems.

5.2 Practical recommendations

Based on the findings above, the following practical recommendations aim to address key challenges and opportunities identified in the use and understanding of AI tools like ChatGPT.

The first recommendation focuses on educational institutions as they should integrate comprehensive AI literacy programs into their curricula. These programs should not only introduce students to AI tools like ChatGPT but also teach them how to use these tools effectively for a range of academic tasks. The curriculum should cover practical applications such as research, problem-solving, language assistance, and presentation preparation. Additionally, it should include critical thinking components that address the potential downsides of AI usage, such as over-reliance and accuracy issues. This dual approach will help younger students maximize the benefits of AI tools while fostering a healthy skepticism and understanding of their limitations. An example of an implementation can be curriculum development, courses can be designed that include modules on AI fundamental, ethical considerations, and practical usage.

The second recommendation focuses on AI developers as they should prioritize transparency and explainability in their systems to build trust and ensure reliability. Clear explanations of how AI tools like ChatGPT arrive at their conclusions can help users understand and trust the outputs. This involves

implementing features that provide insights into the decision-making process of the AI, allowing users to see why certain responses were generated. Additionally, continuous improvements in the accuracy and reliability of AI tools are essential, especially in areas where they currently fall short, such as coding tasks and generating factual information. An example of an implementation could be explainable AI features, by developing and integrating features that allow users to view the reasoning behind AI responses. For instance, a “Why this answer?” button that provides a brief explanation of the logic used by the AI. Another implementation could be a more distinct terms of use before being able to enter the ChatGPT site.

5.3 Limitations and future research

There are several limitations to this study. First, as the study captures perceptions and behaviors at a specific point in time. Rapid advancements in AI technology and changes in societal attitudes towards AI could lead to evolving perceptions and behaviors over time. The findings may become outdated or less relevant as technological advancements and societal shifts occur, limiting the study's long-term applicability. Because of this it would also be interesting to do a longitudinal study to track changes in trust, knowledge, and usage of AI over time. With this approach possible temporal relationships can be established and trends or patterns in how these variables evolve can be identified.

Additionally, selective sampling such as purposive and snowball sampling, can limit the generalizability of the study findings. Since participants are chosen based on specific criteria or referrals, the sample may not represent the broader population accurately. This can lead to biased results that reflect the views of a specific subgroup rather than the entire Generation Z demographic. Participants who are more interested or familiar with AI technologies like ChatGPT are more likely to volunteer or be referred, introducing self-selection bias. This can result in overrepresentation of individuals with positive or particular experiences with AI, skewing the data and potentially overestimating the level of trust and familiarity with the technology. Selective sampling may lead to a homogeneous sample where

participants share similar characteristics, backgrounds, or experiences. This homogeneity can limit the study's ability to capture the full range of perspectives and behaviors within the population, missing out on the diversity of opinions and experiences. When future researchers have the means to do so, they should employ random sampling techniques random sampling ensures that every individual in the target population has an equal chance of being selected, reducing bias and enhancing the generalizability of the findings.

Another interesting direction for research in the future could be using an experimental design to offer a more structured and controlled approach to studying the relationships between variables. In an experimental design, researchers could manipulate variables like exposure to AI information or trust-building exercises and observe effects like chatbot usage patterns. This control helps in establishing a clear cause-and-effect relationship on which a theory can be built, which is harder to achieve in interviews.

5.4 Conclusion

The study delved into the dynamic relationship between trust, knowledge, and usage of ChatGPT among Generation Z, revealing intriguing generational distinctions within this cohort. Participants who thoroughly understood ChatGPT's capabilities tended to trust its outputs more, perceiving the AI's responses as reliable and accurate. Their deeper knowledge also made them more aware of the chatbot's limitations, cultivating a balanced trust. Meanwhile, younger Generation Z participants typically learned to discern appropriate and inappropriate uses of ChatGPT through trial and error. Additionally, this study offers theoretical insights and practical recommendations that can benefit scholars in the field of artificial intelligence, AI tool developers, and educational institutions alike. However, since this study used convenience sampling, future research is needed to address this limitations and ensure broader representativeness of the population.

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Appendix

Appendix A – Interview scheme

Introduction:

- The interviewer will outline the interview's objective.
- Participants will be informed that their participation is voluntary, they can withdraw at any point without consequences, and stopping the interview is an option.
- It will be explained that the interview will be recorded for assessment, with recordings securely stored and participant anonymity ensured.
- Upon obtaining oral consent for participation and recording, the participant will be asked if they have questions before starting the interview.
- Additionally, demographic questions will be asked to better understand the participant.

Main questions:

Usage of ChatGPT

- On a scale of 1 – 10, how often do you use ChatGPT?
- How do you typically use ChatGPT in your daily life? Are there specific tasks or situations where you find it particularly helpful?
- Can you tell me about a recent experience where you interacted with ChatGPT? What was the context, and what were you trying to accomplish?
- Could you walk me through the process of how you decide to turn to ChatGPT for assistance or information? What prompts you to use it?
- Have you ever encountered a situation where the output from ChatGPT was particularly useful or surprising to you? Can you describe that experience?

- What factors influence your decision to use AI for a specific task or problem? Are there certain characteristics or capabilities of ChatGPT that make them more appealing to you?

Knowledge about the workings of ChatGPT

- One a scale of 1 – 10, how would you rate your knowledge about ChatGPT and its workings to give textual outputs?
- What do you know about how ChatGPT gets information to answer your inputs?
- What can you tell me about the mechanisms ChatGPT uses when generating responses?
- Can you elaborate on any insights you have into these mechanisms behind how ChatGPT selects and generates responses to user inputs?
- How would you describe the fundamental mechanics behind how a chatbot functions in assisting users?
- One a scale of 1 – 10, how would you rate your knowledge about ChatGPT and its workings to give textual outputs?

Trust in outputs of ChatGPT

- One a scale of 1 – 10, how much would you say you trust textual outputs from ChatGPT?
- How would you describe your level of trust in the responses provided by ChatGPT, and what factors influence that trust?
- When interacting with a chatbot, what factors influence your confidence in its ability to provide accurate and helpful responses?
- Can you share any experiences or instances where you felt confident or uncertain about the accuracy of ChatGPT's outputs? What contributed to those feelings?
- From your perspective, what indicators or cues do you rely on to assess the reliability and credibility of ChatGPT's responses?

- Can you discuss any strategies or precautions you take when using information or advice provided by ChatGPT to ensure its reliability?
- Based on the way you use ChatGPT, and the amount you use ChatGPT, does it sound plausible ChatGPT always manages to find a trustworthy answer to your query.
- One a scale of 1 – 10, how much would you say you trust textual outputs from ChatGPT?

Ending of the interview

- Asking the participant if they have any remaining questions.
- Thanking the participant for their time and participation.
- Provide the participant with contact details for any inquiries or further information about the study, including the option for participants to reach out if they wish to know the results of the study.

Appendix B – AI statement

During the preparation of this work the author used ChatGPT to generate sentences based on their own ideas After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the content of the work.

Furthermore, Quillbot was used in order verify spelling and grammar errors. After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the content of the work.

Appendix C – Literature log

Date	Database	Search	Number of hits	Relevant hits
21th Feb	Scopus	(“generation z” AND ai)	40	12
23th Feb	Scopus	(“generation z” AND ai OR artificial AND intelligence)	89	27
26th Feb	Scopus	(“generation z” OR “gen z” AND artificial AND intelligence)	109	32
32th Feb	Scopus	(“generation z” OR “gen z” AND ai OR “artificial intelligence” AND trust*)	12	4