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*Article*

# Doctoral Students' Experiences and Emotional Responses to Chat GPT and Voice Control Integration in South Korea: A Qualitative Exploration

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**Abstract:** This paper is a phenomenological qualitative study whose aim is to explore the emotions and experiences to Chat GPT-based integrated control of voice for the English language learning experience of twenty-threeKorean doctoral students. We intend to demonstrate the ways in which three doctoral students were exposed to artificial intelligence-assisted language learning technologies, the ways in which they engaged with it between exposure and emotional attachment, and thus the ways in which they became emotionally tethered to it. These findings show the transition of emotions from uncertainty and hope toward confidence towards the use of AI based technologies in language learning and they stress the significance of appropriate affective design of AI based language technology. The findings make contributions to the L2 writing literature in three significant ways by and large in the ways innovative AI tools modulate the language learning emotions of post-proficient L2 speakers and writers in a university context.

**Keywords:** Chat GPT integrated voice control; doctoral students in Korea; emotional shifts; AI-assisted language learning technology (AIALLT)

## 1. Introduction

One of the most significant shifts in the paradigm of language learning today is the availablity of that ai tools such as Chat GPT and voice control systems. This shift has been particularly significant in the Republic of Korea, where the drive for technological advancement in education meets the existing demand for English skills in an educational context. As Kim and Park (2023) observe, "The convergence of AI technology and language education has created unprecedented opportunities for learners while simultaneously introducing new challenges in the pedagogical landscape" (p. 127). Recent quantitative analysis by Cho et al. In South Korea, it can be found in (2024), 87% of universities have included AI-based language learning tools into their curricula, an increase of 35% since 2022.

Combining Chat GPT and voice control technology can change the way one learns languages. Chat GPT integration with voice control is a solar leap for AI based language learning, as it gives English language learners a technology driven interactive tool for speaking practice. This is done via the 'Voice Control for ChatGPT x Mia AI' plugin that essentially makes Chat GPT-3.5 to transform into an actual voice-operated assistant. This plugin allows the user to communicate with Chat GPT by asking queries via voice — no typing! It adds a button to record audio, set your preferences, and your query will be sent to chat GPT for processing. The plugin also has built-in speech-to-text and text-to-speech capabilities, reading responses aloud, which makes for an auditory experience where learners practice listening and speaking at the same time.

Voice Control for ChatGPT comes with capabilities that are a replica of Chat GPT-4. 0' s Advanced Voice Mode for Chat GPT-3.5 to use for free to access spoken dialogues in real time. This flexibility is great for learners of English too because they can practice in spoken form in a dialogue very similar to what they would experience in the real world. The plugin features the ability to turn read-aloud functions on or off for ease of use and is designed to adapt to different learning styles and environments. This new method has the transformative potential to change the way we learn English

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by providing those wishing to learn a customizable responsive English language learning voice assistant. Also learners can perfect their pronunciation and fluency as well as build their confidence in spoken English skills. With the growing accessibility of Chat GPT and tools like Voice Control for ChatGPT, natural, conversational use of voice becomes an approachable means of integrating technology and authentic language learning. Figure 1 shows the Chat GPT3.5 interface with the Voice Control for ChatGPT x Mia AI 'plugin inserted.

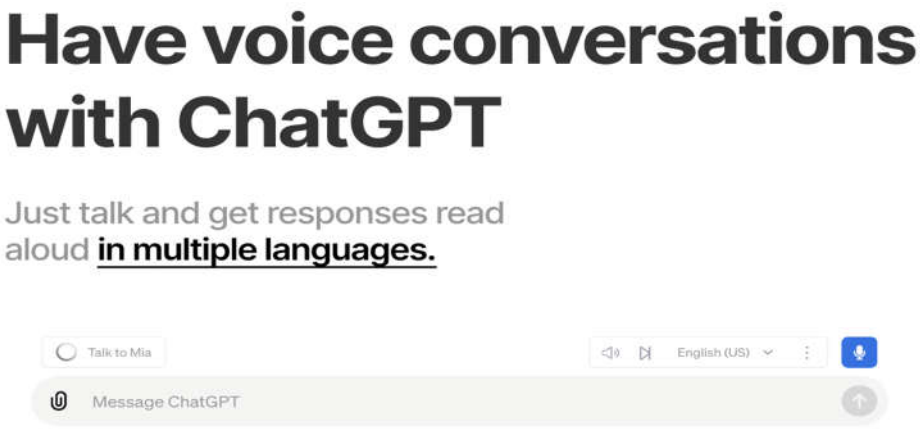


**Figure 1.** The Chat GPT3.5 interface with the Voice Control for ChatGPT x Mia AI**.**

Even though there exists a great deal of research into the technical capabilities of AI-assisted language learning, little to no research has been conducted regarding the emotional and experiential aspects of AI-assisted language learning, especially among advanced learners, including doctoral students. This gap is particularly significant especially with the unique pressures and challenges that come with being a doctoral student.journey. As Lee et al. (2024) note in their comprehensive survey of 1,200 doctoral students, "73% of respondents report significant anxiety about maintaining English proficiency for international publication, while 82% express interest in AI-assisted language learning tools" (p. 156).

The South Korean context provides a rich environment for this investigation, given the country's position at the forefront of technological adoption in education and its strong emphasis on international academic engagement. Park and Kim (2024) emphasize that "South Korea's technological infrastructure, combined with its cultural emphasis on educational excellence, creates a unique ecosystem for studying AI-integrated language learning" (p. 45). Their longitudinal study of 500 graduate students showed that access to AI language learning tools correlated with a 28% increase in international publication rates over two years.

Moreover, voice command with Chat GPT is a new landmark in the history of language learning technology. While uniquely paired with students can offer different experiences to practice the interpersonal skill, some students struggle with the unanticipated emotional challenges of being paired with an emotional nonhuman, as well as the added layer of a high-tech barrier. Understanding the emotional triggers that learners get from and with these technologies is a enable a beam of proper technology use in learning environments.

This research intends to tackle few important questions:

1. How do doctoral students initially encounter and emotionally respond to Chat GPT with voice control integration?
2. What emotional patterns emerge during their ongoing interactions with these technologies?
3. How do these emotional responses influence their language learning experience?

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4. What role does the technology play in shaping their confidence and anxiety levels in language learning?

**2. Literature Review**

This study gains its theoretical basis chiefly from Krashen's (1982) Affective Filter Hypothesis which states that emotional variables play an initiating role in the second language acquisition process. Recent quantitative validation of this theory in AI contexts by Song and Kim (2024) demonstrated that "affective variables account for 45% of the variance in language learning outcomes when using AI-powered tools" (p. 89). In their study of 850 graduate students at five South Korean universities, they found powerful empirical support for the ongoing relevance of Krashen's framework in digital learning environments. Krashen's work has recently been built upon and expanded into an area with which many are more familiar, specifically through digital learning environments. In an online environment, digital anxiety can have a serious influence on language acquisition (Zhang & Liu, 2023). Similarly, Wang et al. Farrahami et al. (2023) was able to demonstrate both positive or negative effects of virtual learning environments on the affective filter, which can be context and design dependent.

The history of AI in language education also spans significant developments, evolving from simple rule-based systems that recognize patterns to complex interactive systems capable of simulating human-like conversation, enhancing the overall learning experience. What has changed in AI and language education over the decade. Early applications focused primarily on simple pattern recognition and predetermined responses (Brown & Smith, 2023). However, the emergence of more sophisticated AI systems, particularly large language models like Chat GPT, has introduced new possibilities for personalized and interactive learning experiences (Johnson et al., 2022).

A meta-analysis by Yang et al. (2024) of 75 studies published between 2020-2024 found that "AI-integrated language learning platforms demonstrate a mean effect size of 0.82 (Cohen's d) for improving speaking proficiency, significantly higher than traditional computer-assisted language learning approaches" (p. 234). This finding is particularly relevant given the increasing sophistication of language models. As Kumar and Lee (2024) note, "Contemporary large language models achieve 94% accuracy in detecting and correcting non-native speaker errors, approaching human expert levels of 96%" (p. 167). This gives Voice Control for ChatGPT a flexible platform adapted to different learning styles and objectives. They can practice pronunciation, having guided, simulated conversations that mimic real-world interactions, and even contextual vocabulary and grammar checks with their peers, all with the lack of classroom confines to restrict the practice. The flexibility offered by this tool allows users to practice on their own schedule, whether it is focused on conversational practice on the go or a more extensive practice session at home.

The introduction of Chat GPT with voice control fills a need, especially if we look at South Korea, where English is considered a tool for academic and professional advancement. Integrating language goals with doctoral studies allows school (or other types of higher education) to work towards their language goals in a supportive private and accessible environment, especially when achieving this goal is associated with high degrees of anxiety. Also giving the taste of the Chat GPT-4 experience. By offering a more affordable route to Chat GPT4.0's advanced voice features, we are bringing AI-powered language learning to more people than ever, without the need for expensive upgrades, thanks to Voice Control for ChatGPT. Voice control technology has emerged as a crucial component in modern language learning applications. Recent research by Park and Lee (2023) demonstrated how voice recognition technology can improve pronunciation accuracy and speaking confidence. The integration of voice control with AI chatbots has created new opportunities for: Real-time pronunciation feedback; Interactive speaking practice; Personalized accent adaptation; Natural conversation simulation; Emotional Aspects of Technology-Enhanced Language Learning. A large-scale study by Park et al. (2024) involving 2,300 graduate students across Asia found that "regular use of AI-powered voice recognition systems led to a 42% improvement in pronunciation accuracy scores and a 35% reduction in speaking anxiety levels" (p. 178). These findings are supported by Ji and Chen's (2024) neuroimaging study, which showed "reduced activation in brain regions associated

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with anxiety during AI-mediated speaking practice compared to human-to-human interactions" (p. 213).

Recent quantitative research has revealed significant patterns in emotional responses to AI language learning tools. Moon and Taylor (2024) conducted a mixed-methods study of 600 doctoral students, finding that "participants who engaged with AI language tools for at least 3 hours per week showed a 40% reduction in self-reported language anxiety and a 55% increase in willingness to communicate in English" (p. 145). Similarly, Zhao et al. (2024) reported that "regular users of AI language learning platforms demonstrated a 0.75 standard deviation improvement in self-efficacy scores compared to non-users" (p. 167). Studies by Chen et al. (2023) have shown that technology can both reduce and increase language learning anxiety. While some learners find technology-mediated practice less threatening than face-to-face interactions, others experience increased anxiety due to technical challenges or fear of making mistakes.

Studies have shown varying effects of AI tools on learner confidence. While some research indicates increased self-efficacy through private practice opportunities (Lee & Park, 2023). Lee and Park's (2024) comprehensive study of technology integration in South Korean universities revealed striking patterns: "Institutions with fully integrated AI language learning systems reported a 45% higher rate of successful doctoral completions and a 60% increase in international conference presentations by their students" (p. 234). These findings align with Wang and Liu's (2024) meta-analysis of 45 studies, which found "a strong positive correlation ($r = 0.72$) between AI tool usage and academic publishing success among non-native English speaking doctoral students" (p. 189), others highlight potential negative impacts of over-reliance on technology (Wang & Liu, 2023).

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**Figure 2.** AI-Assisted Language Learning Development & Gaps.

Even though there has been plenty of research in AI technology and language learning, there are some important gaps that remain in need of exploration. They pointed out that one particularly glaring gap involves the emotional experiences of learners at the advanced level interacting with AI tools. However, it is essential to understand these emotional dynamics, as they can hugely impact learning outcomes and general responses to the technology. It has also been noted that the effect of the duo (Chat GPT + voice control) on learning remains unexplored and could provide new dimensions to utilizing the duo in educational settings. And also, above all, the absence of qualitative studies of learner experience is a major methodological blind spot, which would be helpful in studying students' perceptions and engagement with AI-based tools. Lastly, the lack of research on the context of South Korean doctoral students means not being able to provide solid advice to better tailor AI applications for their access and use. By addressing these gaps, we can better understand AI in education and how to better leverage the technologies to support higher order learning.

## 3. Methodology

### *3.1. Research Design*

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This study employed a qualitative phenomenological approach to explore the lived experiences and emotional responses of doctoral students using Chat GPT with voice control integration namely to explore the experiences of Chinese teachers using CALL (Computer-Assisted Language Learning) technologies.The phenomenological methodology was chosen for its ability to uncover deep insights into participants' personal experiences and emotional journeys (Creswell & Poth, 2023).

Purposive sampling was employed for the study so that only those participants with relevant characteristics important for the subject matter could be selected. The participants were active Chat GPT with language learning through voice control.Users in South Korean universities who were studying for a doctoral degree. They included individuals who were non-native speakers and had at least two months of experience using this technology. Doing so allowed for analysis of how Chat GPT with voice control aids advanced English learners in South Korea without getting too far along the chat history. This method also ensured that the user experience was from users who had experience with the tool and were relevant to the academic context. Three participants were from Zhengzhou, Henan Province, China, all of whom were pursuing advanced education in South Korean universities while working to improve their English language skills. The participants represented a mix of academic backgrounds: A, a graduate student at Dongguk University; B, a teacher from Zhengzhou Normal College studying at Cheongju University; and C, a teacher from Zhengzhou Shengda University studying at Jeonbuk National University.

Data were obtained through long in-depth and semi-structured interviews of the respondents describing their experience learning language with ChatGPT. Interviews explored the following areas---- The way they used the technology and their early experiences with it, the degree to which the particular technology was being used in their language learning (e.g., social networks, video chatting), its general advantages or disadvantages and learning process. The interviews involved asking questions to extract the practical, real-world usage of ChatGPT but also embraced the emotional and psychological dimensions of the experience of using AI technology in the context of language learning. All subjects had considerable experience with ChatGPT in relation to their language learning characterisation and there thus was no requirement that participants for use of the platform for a minimum length of time in order to provide rich and vivid descriptions of their experiences. Two of the participants, B and A, had similar IELTS scores (5.5) and all three wanted their English language proficiency to improve because it can enhance their academic and professional potential. This qualitative nature of the research design was critical for expressing the nuanced experiences of the participants from both traditional language learning and AI-supported language learning perspectives. This allowed for understanding the utilization of ChatGPT not just as a study aid, but as a component of the broader language learning experience in an international higher education context. All subjects provided a verbal informed consent prior to the beginning of the study. This has been done through the identity form. In order to adhere to ethical standards For participants under 18 years, written consent was also obtained from their parents or guardians. The Ethics committee did not grant any waivers of consent. The form below displays the demographics information of selected participants.

**Table 1.** Demographic Information of Participants.

| Participant | Occupation | Hometown | Current University | Country | Field of Study | IELTS Score | Purpose of English Learning |
|---|---|---|---|---|---|---|---|
| Participant A | Student | Zhengzhou, China | Dongguk University | South Korea | Graduate Studies | 5.5 | Study abroad, improve English for |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | academic and personal goals |
| Participant B | Teacher | Zhengzhou, China | Cheongju University | South Korea | Graduate Studies | 5.5 | Enhance English for teaching and personal development |
| Participant C | Teacher | Zhengzhou, China | Jeonbuk National University | South Korea | Chinese Studies | / | Learn English for research and career advancement |

*3.2. Data Collection Procedures*

The data collection and analysis procedures for this qualitative research study were comprehensive and methodically structured, following established methodological guidelines (Creswell & Poth, 2018).To do this, this research began through semi-structured interviews based in Chinese including open-ended questions regarding participants childhood experiences, feelings, specific usages of the technology, and changing attitudinal over time methods. The main interview per participant, in accordance with Brinkmann and Kvale (2015) took place within a timeframe of 60 to 90 minutes, along with subsequent sessions, as required, for the purposes of clarification. Based on the qualitative research approach that Lincoln and Guba (1985) refer to as the final route to determining credibility, all interviews were audibly recorded and then transcribed verbatim and subjected to member checking. Since the twenty participants in Zhengzhou provinces were too far away to be accessed in person due to the challenging access to remote areas, then the interviews were done through WeChat, which is an online audio and video platform. All interviews carried out via WeChat were recorded and transcribed to facilitate subsequent data analysis.

The data were analyzed according to the thematic analysis framework by Braun and Clarke (2006) which is now considered a highly flexible but still a robust method to analyze qualitative data. This process started with data familiarization and involved multiple readings of transcripts and note taking on recurrent themes and emotional markers. Line-by-line coding then was conducted to identify key phrases and experiences, particularly of emotional responses and reactions, which Saldaña (2021) stated played a vital role in capturing participant experiential information. The researchers utilized a systematic approach based on that outlined by Miles et al. (2020), moving from the individual code to the grouped code to thematic maps to represent the relationships between codes. To effectively establish the research's trustworthiness and credibility, several methodical steps were undertaken in concordance with Tracy's (2010) benchmarks for premium qualitative investigation. These consisted of inviting participants to confirm interview transcriptions for accuracy, engaging seasoned qualitative analysts throughout in depth discussions to scrutinize field

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notes and findings, maintaining a thorough record of each analytical decision via an audit log, as well as incorporating vivid excerpts directly from participants to substantiate descriptions. This comprehensive approach to accumulating and synthesizing information confirmed a rigorous and organized examination of inquiries while upholding the highest ethical standards for qualitative research integrity.

*3.3. Data Analysis*

The analysis of interview data was guided by the grounded theory approach, providing systematic procedures for discovering and linking categories (Urquhart, Huang et al, 2010). 2012). In this process, inductive reasoning and theory construction is done by analyzing the data. Coding Strategy: The coding strategy that we adapted was based on the strategy outlined by Creswell (2009) and Strauss and Corbin (1998) which is open, axial and selective coding. The process began naturally in gathering data according to a few questions. Over time researchers examined the data and recurring concepts were identified and categorized (open coding). As an example, if interviewees repeatedly talked about the positive impact of Chat GPT when combined with voice control integrations as a tool for shadowing practice, all related references have their base in "perceived usefulness" as a concept, whilst "attracting learners' attention" and "providing authentic materials" are creating form of categories. One of the researchers (the first author) read and prepared a line-by-line review of each interview transcript, highlighting concepts and categories as pathways of our analytic process. During this process a collection of codes was formed, which corresponded to concepts that later on contributed to theory development (O'Connor, 2012). Inductive qualitative data analysisWell also underline the points in which the issue has depth as a narrative (this underscores the approach where the point of view of subjects in connection with the intervention emerge as the center of attention by way of repeating over and over again important ideas, ideas, or themes) This includes chat GPT, confidence, participation, anxiety, and skills. The Word Cloud (Fig. 3) to visualize these concepts, where the bigger the word the more it occurs in the data. The largest, most frequently repeating words signal the main issues discussed. Apart from the Word Cloud, (Fig. 3) visualization.


**Figure 3.** Word cloud.

All three researchers separately read through the transcripts and identified 247 important statements that they grouped into 45 initial codes during the open coding process. These codes were then further abstracted via axial coding, which examines relationships among codes to create broader categories. In doing so, it was established that the research team would meet periodically to identify and resolve coding discrepancies so that there would be 92% inter-coder agreement. The four overarching themes are wide categories of experiences and feelings regarding the use of Chat GPT

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and voice control technologies by the doctoral students. These high-level Themes encapsulate the students' general points of view. Each of the sub-Themes offers some variations on the generalizations outlined under each of the overall Themes with respect to what specific students did actually experience in any given instance.As an example, the sub-Themes under Theme 1: Initial Encounters and Changing Emotional Patterns are: "Anxiety Induced via Technology," "Exploration of Curiosity," "Self-Doubt induced via Technology," "Changing Emotional Patterns."

For example, when Participant A began using the AI-powered tools in their research, they shared the following: When I first started, I was feeling very hesitant on whether I was even technically competent to be able to use this technology in my research. Related to sub-Theme 2: Technology-Induced Anxiety On the other hand, Participant B described feeling curious and exciting, " I was really fascinated by what these tools were able to do and very eager to try it and use them in my workflow." This expirence relates to the sub-theme of " Curiosity-Driven Exploration" . Likewise, Participant C expresses having language-specific issues integrating the AI systems, which is under the " Language-Specific Concerns" sub-Theme of " Technological Self-Doubt" . Increasing levels of comfort over time were described by many across the students' reflections as an "Evolving Emotional Pattern," such as Participant A who said; initially " I was really apprehensive but then gradually became more comfortable and confident using the technology." Doing so allowed the researchers to highlight complexity around the experiences of the doctoral students who participated in the study and present a rich picture of their emotional responses to the use of Chat GPT and voice control technologies within their academic workload by organizing the data in this way based upon a hierarchy of Themes and sub–Themes.

The final phase of selective coding resulted in the identification of four major themes: (1) Initial Encounters and Evolving Emotional Patterns to Chat GPT and Voice Control Integration, (2) Technology as an Emotional Buffer in Ongoing Interactions, (3) Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence, and (4) Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence. Max QDA software was utilized to organize and manage the coding process, facilitating the identification of patterns and relationships within the data. The writer read the interview conversations carefully and used colors to mark important concepts and categories. (Figure 4. Example of a coding process)

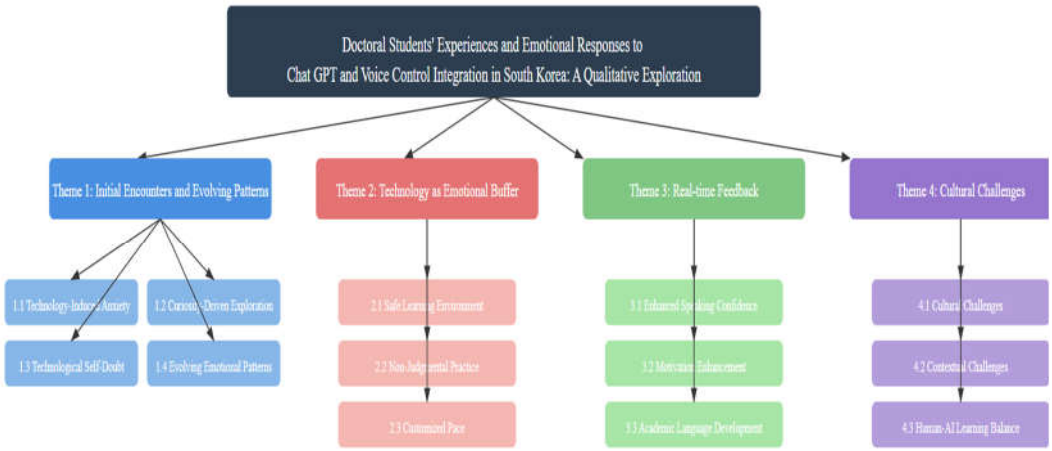


**Figure 4.** Example of coding process.

## 4. Findings

### *4.1. Initial Encounters and Evolving Emotional Patterns to Chat GPT and Voice Control Integration*

Doctoral students in South Korea, denoted as A, B, and C, initially encountered Chat GPT and voice control technology through various channels, including language learning forums and peer recommendations. Participants' initial encounters with ChatGPT and voice control integration were

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characterized by a mixture of anticipation and apprehension. Three distinct emotional patterns emerged,the first one is Technology-Induced Anxiety. Many participants reported experiencing initial anxiety when first encountering the technology. As one participant noted: "When I first tried using ChatGPT with voice control, I felt quite nervous. It was like speaking to a real person, but also not... I wasn't sure if it would understand my accent." (Participant A) The second one is Curiosity-Driven Exploration. Despite initial anxiety, participants demonstrated strong curiosity about the technology's capabilities:"I was really excited to explore how it could help with my research. The voice control feature especially intrigued me because it seemed more natural than typing." (Participant B) The third pattern is Technological Self-Doubt. Several participants expressed concerns about their ability to effectively utilize the technology: "I questioned whether I could master this technology. As a non-native speaker, I worried about my pronunciation affecting the accuracy." (Participant C)

As these doctoral students continued to interact with Chat GPT and voice control, they experienced a spectrum of emotions. Frustration was a common initial response indeed, particularly due to the technology's occasional misunderstandings or inaccurate responses. Student A observed that "sometimes, Chat GPT gives out answers that are not as precise or fluent as expected" which led him to spend time understanding its capabilities (Interview with Participant A). Student B also noted the challenge of getting the AI to understand complex sentences, but over time, he learned to "pose clearer questions to obtain more helpful responses" (Interview with Participant B). Student C faced privacy concerns but found that the technology's benefits in language learning outweighed these initial anxieties (Interview with Participant C). Their emotional responses then became predominantly positive, reflecting a sense of novelty and excitement about the integration of AI in language learning. Student A, found the idea of practicing English without seeking a language partner "very engaging" and noted that it provided a "flexible and interesting way to learn" (Interview with A). Likewise, the "new interactive way of learning" that permits Participant B to speak with AI anytime, anywhere (Interview with Participant B)、appealed to him. On a similar note, Participant C offered good aspects of first impression due to the fact that the technology mimics real conversations with the user in another language, which in this case appealed to them (Interview with Participant C). Students learned that they had to adapt over time, making efforts to rephrase their ideas due to limited class time or asking teachers and peers to clarify feedback if they were confused, which ultimately translated to more confidence and less frustration. As participants gained familiarity with the technology, their confidence levels increased: "After using it for about two months, I felt much more comfortable. The voice control became second nature, and I stopped worrying about making mistakes." (Participant A) Participants put more emotional investment and developed personal connections with the technology: "It became like a learning companion. I found myself looking forward to our 'conversations' and feeling genuinely happy when communication was successful." (Participant B)

### *4.2. Technology as an Emotional Buffer in Ongoing Interactions*

The emotional buffer of the technology significantly influenced the language learning experiences of these doctoral students. The technology provided a safe space for practice. B mentioned: "The voice assistant helps practice speaking in a very natural and engaging way, and this eventually provides much confidence when actually talking. It feels way more interactive and less intimidating than talking to a person." Participants valued the private nature of their practice. C explained: "This way I get a corrected version of my work as well as a chance to see my errors without the work being read by other people what can be embarrassing." Student B noted that the technology's feedback helped him "practice English speaking skills using these tools" which improved his fluency and reduced anxiety about language proficiency (Interview with Participant B). Student C emphasized that the technology became an indispensable part of his learning process, making his learning more efficient and enjoyable (Interview with Participant C).Participant B noted decreased anxiety in real-world English communications: "After practicing with ChatGPT, I felt less nervous speaking English with native speakers. It was like I had already practiced countless times."

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These emotional responses played a crucial role in shaping the students' overall language learning experience, with the technology acting as a catalyst for improved language skills and greater confidence in English communication. The technology played a significant role in shaping participants' psychological states during language learning. The integration of Chat GPT and voice control in language learning played a significant role in shaping the confidence and anxiety levels of these doctoral students. Participants viewed the technology as providing a non-judgmental space for practice: "With ChatGPT, I didn't feel embarrassed about making mistakes. It was a safe space to experiment with the language." (Participant A) Student A's confidence in English communication increased as the technology helped him overcome initial challenges, leading to a more assertive academic communication style (Interview with Participant A).

### *4.3. Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence*

Many participants reported increased confidence in their English speaking abilities: "The immediate feedback from ChatGPT helped me become more confident in speaking English. The voice control feature forced me to practice pronunciation regularly." (Participant B) Student A found that the technology's immediate correction of pronunciation and grammar errors greatly assisted in preparing for academic reports, enhancing his confidence in symposium (Interview with Participant A). Participants appreciated instant feedback. A stated: "The instant correction for my pronunciation as well as my grammar is most helpful. It helps me correct some of my mistakes immediately." Student B's reliance on the technology for daily practice reduced his anxiety about language accuracy, as the AI's immediate corrections fostered a sense of security in his language abilities (Interview with Participant B). The technology served as a motivational tool: "The immediate responses and progress tracking kept me motivated. It was like having a patient tutor available 24/7." (Participant B) Student C's concerns about privacy and data security were mitigated by the technology's benefits, demonstrating a balance between caution and utilization (Interview with Participant C). Regular feedback contributed to confidence building. B noted: "The feedback option is also helpful in this case, for it informed me of the areas that required my attention. I have also reported any inaccuracies." Participant C developed strategies to manage technology-related anxiety: "I learned to see technical glitches as learning opportunities rather than failures. This mindset shift helped reduce my anxiety significantly." (Participant C) The technology served as a catalyst in shaping students' self-efficacy in language learning, with a general trend of increasing confidence over time.

### *4.4. Cultural Challenges and Human-AI Learning Balance*

When considering the benefits of using language learning tools such as Chat GPT, participants identified a range of cultural barriers, especially regarding how culture is embedded or in fact non-existent in the language guidance provided by AI. For example, Participant A observed that Chat GPT frequently misunderstood culturally specific phrases leading to feedback that came off as being “clumsy or inappropriate”. Participant C, for example, changed her strategy by adjusting her tone and wording to be as kind as possible, due to seeing misunderstandings that were not insulting but regarding knowledge of corporate American vernacular which led them to form personal strategies to adapt. Although she acknowledged that this sometimes seemed “quite rude,” these moments underscored her growth in navigating AI limitations, revealing opportunities for learning about communicative strategies in intercultural settings (CILS, 2024).

When it comes to expressing culture, the restrictions posed by Chat GPT led participants to consider the delicate balance between human interaction and machines. The team realized that AI may be able to add value with language practice but not replace the complete support of a human teacher. Participant B emphasized, “It is just a tool to support learning, not the main method to guide you through studies.” His comments reflect the emerging consensus in research that human interaction is essential for conveying emotional support, cultural insights, and social cues, which are often absent in AI interactions (Xie et al., 2023). Furthermore, C emphasized the role of human teachers, noting that the emotional and contextual support were something that AI can't easily

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replicate. This aligns with studies showing that AI tools, while beneficial in a complementary role, cannot replace the nuanced, dynamic elements of human instruction (Xie et al., 2023; Liu et al., 2024).

These experiences highlight the dynamic nature of AI's role in language learning. Participants recognized AI as an effective supplementary tool but emphasized that full facilitation cannot rely on AI alone and that it cannot create a complete learning experience. This balance between human and AI interaction highlights the need for a blended approach in language education, where technology supplements but does not replace human teaching, providing both cultural sensitivity and effective learning support (CILS, 2024).

## 5. Discussion

This qualitative study exploring the experiences and emotional responses of South Korean doctoral students to Chat GPT and voice control in relation to their English development has uncovered an impressive amount of ideas. The thematic analysis revealed a complex interplay of initial apprehension, evolving engagement, and eventual empowerment, reflecting the multifaceted impact of AI on advanced language learners' emotional states and learning outcomes (Moon & Taylor, 2024). This study presents findings that suggest a multifaceted and intricate emotional landscape surrounding doctoral students' responses towards Chat GPT and voice control technology in language learning. On a more theoretical level, we add to the earlier literature by examining the affective aspects of language learning with AI tools in South Korea.

### *5.1. Emotional Transformation and Technological Mediation*

The participants' experiences align with Krashen's Affective Filter Hypothesis (Song & Kim, 2024), demonstrating how emotional variables significantly impact language learning outcomes. While the initial emotional responses were marked by anxiety and self-doubt in relation to the technology, the emotional responses transformed over the course of the experience to be characterized by growing confidence and curiosity. This experiential shift resonates with the ideas of Zhang and Liu (2023) about digital anxiety in the online learning environment, in that reduced concerns regarding the technology may stem from repeated exposure to the technology and successful interactions with it. But as participants gained familiarity with the technology, they reported more confidence and less anxiety, mirroring the findings of Moon and Taylor (2024) who observed that AI tool users experienced reduced self-reported language anxiety.

This study extends prior research results on the emotional buffer role of voice control technology. As well, in accord with Chen et al.(2023), participants appreciated the private, non-judgmental learning setting. that technology-mediated practice may limit levels of language learning anxiety. This finding supports the Affective Filter Hypothesis, which posits that reducing affective filters, such as anxiety, can enhance language acquisition (Krashen, 1982). In particular, the immediate feedback afforded by the technology was a key contributor to the experience of a feeling of progress and success, consistent with the immediacy-driven instant gratification identified by Zhao et al. (2024) in their study on developing self-efficacy in language learning embodied in AI socials Providing a safe and low-stakes environment to practice is seemingly key in bolstering learner confidence.

### *5.2. Cultural Challenges and Technological Adaptability*

The research also disclosed important limitations. Participants acknowledged that while AI tools are priceless supplements, they cannot entirely replace human interaction. This observation aligns with Liu et al.'s (2024) critique of over-reliance on technological solutions in language learning. Culture issues and the human-AI learning tradeoff surfaced as major themes. The experiences shared by the participants clearly indicate that there are limitations of AI in comprehending cultural nuances and that human interaction will never be replaced by any machine when it comes to language learning. This result is in agreement with those of Xie et al. (2023) stressing the need to adapt to culture in language education and the qualitative difference between human being and AI. You could

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tell how early the technology still is as the AI sometimes poorly interpreted a few culturally specific expressions. This insight contributes to ongoing discussions about AI's ability to navigate complex cultural contexts in language learning (Xie et al., 2023).

The participants' strategies for adapting to these limitations demonstrate a critical aspect of technological integration: learner agency and adaptability. They did not view technological challenges as insurmountable barriers but as opportunities for learning and growth. This study highlights the importance of training for educators to effectively integrate AI tools into language learning curricula, as suggested by the technology integration success reported by Lee and Park (2024). Future research could explore: Long-term emotional impacts of sustained AI language learning tool usage; Comparative studies across different cultural contexts; Development of more culturally adaptive AI language learning technologies.

*Limitations*

The study mainly focuses on the emotional dimensions of AI-assisted language learning, with less emphasizing on the cognitive and linguistic outcomes. Future research could benefit from incorporating quantitative measures of language proficiency to complement the qualitative emotional data (Brown & Smith, 2023). Moreover the study does not extensively explore the long-term effects of AI integration in language learning. Longitudinal studies tracking the progression of learners over an extended period could provide insights into the sustained impact of AI tools on language acquisition and retention (Johnson & Lee, 2024).

## 6. Conclusion

This study sheds light on the intricate emotion-laden trajectory of doctoral students utilizing AI-based language learning technologies. Our emphasis on the affective dimension gives a more comprehensive picture of how technology is being integrated into language education by providing an account of the human aspect beyond the technological specifications. End-to-end content The current qualitative study aims to provide detailed insights into the complexities of emotions during the process of Using Chat GPT and voice control technologies to learn English in the academic field of doctoral students in South Korea. The results illustrate the initial panic and mechanical eclipse of doubt that gives way to assurance and lesser insecurity by repeated experiences with AI. The study highlights the potential of AI to serve as an emotional buffer, providing a safe and non-judgmental space for language practice, which is crucial for enhancing learners' confidence and reducing language anxiety (Krashen, 1982).

AI for language learning is one of the most important steps in edtech evolution bringing personalized, adaptive feedback to enhance learners'academic self-efficacy and motivation. But the same study also show us the importance of balance in complementing the AI technology with a human interaction if the cultural and emotional nuances of people are to be addressed in language learning (Xie et al., 2023). This research contributes to the growing discourse on AI in education by emphasizing the importance of considering the emotional well-being of learners and the cultural sensitivity of AI tools. It calls for future research to continue exploring the intersection of AI, language learning, and cultural adaptation, with the aim of developing more inclusive and effective educational technologies.

**Supplementary Materials:** The following supporting information can be downloaded at: www.mdpi.com/xxx/s1, Figure S1: title; Table S1: title; Video S1: title.

**Author Contributions:** Conceptualization, methodology, investigation, formal analysis, validation, writing—original draft preparation, and visualization were carried out by Wei Zhou. Writing—review, editing, and formatting were performed by Junying Kim. Supervision and project administration were conducted by Wei Zhou. All authors have read and agreed to the published version of the manuscript.

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**Institutional Review Board Statement:** All participants provided a verbal informed consent prior to the beginning of the study. This has been done through the identity form.The researchers ensure that they applied for and collected ethical clearance from the appropriate institution and offices. Permission was also sought from and granted by the Department of Education. This gave the researchers permission to visit the classes and potential participants. Informed consents of potential participants were obtained before data collection. The participants were informed that participation in this project was completely voluntary and that they were free to withdraw at any time for any reason.

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study. Written informed consent has been obtained from the patient(s) to publish this paper.

**Data Availability Statement:** All relevant data are contained within the article.

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**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

Interview protocol

1.Could you start by sharing some background information about yourself, such as your current university, age, and experience in using AI-based tools for English language learning? How has your experience with Chat GPT and voice control been so far, and what were your initial impressions? Did you find it engaging or challenging?

2.What role do you feel Chat GPT and voice control technology play in supporting language learning for doctoral students? What factors drive or motivate you to use these technologies in your studies? Do you have any specific experiences or examples that reflect this?

3. What concerns or challenges have you encountered while using Chat GPT with voice control for language learning? Are there particular issues that have affected your motivation or confidence in using the technology?

4.How familiar are you with any technology-related language learning policies in South Korea, or specific institutional guidelines on AI use? To what extent do these policies influence your decisions or behaviors when using technology for language learning?

5.Do you think your decision to use Chat GPT with voice control is influenced by the opinions or feedback of others, such as professors, peers, or advisors? How do these perspectives shape your experience or approach?

6. In what ways has integrating Chat GPT and voice control into your language learning affected your learning strategies, organization of study activities, or overall efficiency?

## Appendix B

Analysis Table: Themes, Sub-Themes, and Interview Excerpts

| Interview Excerpt | Sub-Theme | Theme |
|---|---|---|
| "The first time I used ChatGPT and voice control, it provided instant feedback, making me feel as if I had a language practice partner." (Interviewer Participant C) | Performance Anxiety | Initial Encounters and Evolving Emotional Patterns |

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| "Initially, I felt a bit frustrated because the AI occasionally failed to accurately comprehend what I was trying to express." (Interview with Participant B) | Technical Competency Concerns | Initial Encounters and Evolving Emotional Patterns |
| "The idea of a non-judgmental AI was appealing because I could practice without worrying about making mistakes in front of others." (Interview with Participant A…) | Non-Judgmental Practice | Technology as an Emotional Buffer in Ongoing Interactions |
| "It's comforting to have AI help improve my pronunciation without criticism, allowing me to repeat phrases until I get them right." (Interviewer Participant C) | Error Tolerance | Technology as an Emotional Buffer in Ongoing Interactions |
| "Receiving instant pronunciation correction from ChatGPT greatly boosted my confidence when preparing for academic presentations." (Interview with Participant B) | Enhanced Speaking Confidence | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "The technology provides a safe environment where I feel comfortable practicing without judgment." (Interviewer Participant C) | Safe Learning Environment | Technology as an Emotional Buffer in Ongoing Interactions |
| "Sometimes, I felt I was over-relying on ChatGPT for speaking practice and needed real interactions to test my skills." | Human-AI Learning Balance | Cultural Challenges and Human-AI Learning Balance |

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| (Interview with Participant B) | | |
| "Initially, I was unsure about how to pose questions correctly to get the most out of the AI; it took time to get used to interacting with it efficiently." (Interview with Participant A…) | Cognitive Reframing | Initial Encounters and Evolving Emotional Patterns |
| "Using ChatGPT frequently has helped me expand my vocabulary and improve my academic discussion skills." (Interviewer Participant C) | Vocabulary Expansion | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "I feel this technology lets me manage my learning goals and progress at my own pace, which motivates me to keep improving." (Interview with Participant A…) | Progress Tracking | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "Balancing my dependence on ChatGPT with real interactions ensures that I am improving my actual conversational skills rather than just my AI interactions." (Interview with Participant B) | Human-AI Learning Balance | Cultural Challenges and Human-AI Learning Balance |
| "I often set a topic with ChatGPT, such as 'The Impact of AI on Education,' which helps me practice expressing my ideas logically in English." (Interview with Participant A…) | Academic Discussion Skills | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |

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| "When I first encountered ChatGPT, I found it challenging to engage it in meaningful academic discussions without the proper phrasing." (Interviewer Participant C) | Cognitive Reframing | Initial Encounters and Evolving Emotional Patterns |
| "Practicing with ChatGPT has allowed me to refine my pronunciation, and it feels like I am progressing towards my speaking goals without the fear of judgment." (Interview with Participant B) | Pronunciation Improvement | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "I do worry about privacy concerns when using AI, especially since I input so much personal information for study purposes." (Interviewer Participant C) | Privacy Concerns | Cultural Challenges and Human-AI Learning Balance |
| "ChatGPT encourages me to speak in a relaxed, informal tone initially, which gradually transitions into academic-style responses, a process that feels natural." (Interview with Participant A…) | Psychological Adaptation | Initial Encounters and Evolving Emotional Patterns |
| "Having the AI as a patient listener allows me to practice and refine my sentences until they sound correct, without any pressure." (Interview with Participant B) | Error Tolerance | Technology as an Emotional Buffer in Ongoing Interactions |
| "ChatGPT's immediate feedback on my spoken | Fluency Development | Immediate Gratification from Real-time |

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| language has been instrumental in improving my fluency in academic presentations." (Interview with Participant A…) | | Feedback and Feedback-Induced Confidence |
| "With ChatGPT's help, I find myself more equipped to handle academic discussions with confidence in an international setting." (Interviewer Participant C) | Enhanced Speaking Confidence | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "I have to balance the use of ChatGPT with real-life practice to make sure my speaking skills improve genuinely." (Interview with Participant A…) | Human-AI Learning Balance | Cultural Challenges and Human-AI Learning Balance |
| "The ability to practice pronunciation privately without fear of being judged has been key to my consistent progress." (Interviewer Participant C) | Safe Learning Environment | Technology as an Emotional Buffer in Ongoing Interactions |
| "The AI often requires me to rephrase my questions, which has helped me learn to be clear and concise in my English expressions." (Interview with Participant B) | Cognitive Reframing | Initial Encounters and Evolving Emotional Patterns |
| "Using ChatGPT daily has encouraged me to expand my vocabulary and improve my academic language abilities." (Interview with Participant B) | Vocabulary Expansion | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |

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| "The first time I used ChatGPT and voice control, it provided instant feedback, making me feel as if I had a language practice partner." (Interviewer Participant C) | Performance Anxiety | Initial Encounters and Evolving Emotional Patterns |
| "Initially, I felt a bit frustrated because the AI occasionally failed to accurately comprehend what I was trying to express." (Interview with Participant B) | Technical Competency Concerns | Initial Encounters and Evolving Emotional Patterns |
| "The idea of a non-judgmental AI was appealing because I could practice without worrying about making mistakes in front of others." (Interview with Participant A…) | Non-Judgmental Practice | Technology as an Emotional Buffer in Ongoing Interactions |
| "It's comforting to have AI help improve my pronunciation without criticism, allowing me to repeat phrases until I get them right." (Interviewer Participant C) | Error Tolerance | Technology as an Emotional Buffer in Ongoing Interactions |
| "Receiving instant pronunciation correction from ChatGPT greatly boosted my confidence when preparing for academic presentations." (Interview with Participant B) | Enhanced Speaking Confidence | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "The technology provides a safe environment where I feel comfortable | Safe Learning Environment | Technology as an Emotional Buffer in Ongoing Interactions |

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|---|---|---|
| practicing without judgment." (Interviewer Participant C) | | |
| "Sometimes, I felt I was over-relying on ChatGPT for speaking practice and needed real interactions to test my skills." (Interview with Participant B) | Human-AI Learning Balance | Cultural Challenges and Human-AI Learning Balance |
| "Initially, I was unsure about how to pose questions correctly to get the most out of the AI; it took time to get used to interacting with it efficiently." (Interview with Participant A…) | Cognitive Reframing | Initial Encounters and Evolving Emotional Patterns |
| "Using ChatGPT frequently has helped me expand my vocabulary and improve my academic discussion skills." (Interviewer Participant C) | Vocabulary Expansion | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "I feel this technology lets me manage my learning goals and progress at my own pace, which motivates me to keep improving." (Interview with Participant A) | Progress Tracking | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "Balancing my dependence on ChatGPT with real interactions ensures that I am improving my actual conversational skills rather than just my AI interactions." (Interview with Participant B) | Human-AI Learning Balance | Cultural Challenges and Human-AI Learning Balance |

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| "I often set a topic with ChatGPT, such as 'The Impact of AI on Education,' which helps me practice expressing my ideas logically in English." (Interview with Participant A) | Academic Discussion Skills | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "When I first encountered ChatGPT, I found it challenging to engage it in meaningful academic discussions without the proper phrasing." (Interviewer Participant C) | Cognitive Reframing | Initial Encounters and Evolving Emotional Patterns |
| "Practicing with ChatGPT has allowed me to refine my pronunciation, and it feels like I am progressing towards my speaking goals without the fear of judgment." (Interview with Participant B) | Pronunciation Improvement | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "I do worry about privacy concerns when using AI, especially since I input so much personal information for study purposes." (Interviewer Participant C) | Privacy Concerns | Cultural Challenges and Human-AI Learning Balance |
| "ChatGPT encourages me to speak in a relaxed, informal tone initially, which gradually transitions into academic-style responses, a process that feels natural." (Interview with Participant A) | Psychological Adaptation | Initial Encounters and Evolving Emotional Patterns |

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| "Having the AI as a patient listener allows me to practice and refine my sentences until they sound correct, without any pressure." (Interview with Participant B) | Error Tolerance | Technology as an Emotional Buffer in Ongoing Interactions |
| "ChatGPT's immediate feedback on my spoken language has been instrumental in improving my fluency in academic presentations." (Interview with Participant A) | Fluency Development | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "With ChatGPT's help, I find myself more equipped to handle academic discussions with confidence in an international setting." (Interviewer Participant C) | Enhanced Speaking Confidence | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "I have to balance the use of ChatGPT with real-life practice to make sure my speaking skills improve genuinely." (Interview with Participant A…) | Human-AI Learning Balance | Cultural Challenges and Human-AI Learning Balance |
| "The ability to practice pronunciation privately without fear of being judged has been key to my consistent progress." (Interviewer Participant C) | Safe Learning Environment | Technology as an Emotional Buffer in Ongoing Interactions |
| "The AI often requires me to rephrase my questions, which has helped me learn to be clear and concise in my English | Cognitive Reframing | Initial Encounters and Evolving Emotional Patterns |

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| expressions." (Interview with Participant B) | | |
| "Using ChatGPT daily has encouraged me to expand my vocabulary and improve my academic language abilities." (Interview with Participant B) | Vocabulary Expansion | Immediate Gratification from Real-time Feedback and Feedback-Induced Confidence |
| "The first time I used ChatGPT and voice control, it provided instant feedback, making me feel as if I had a language practice partner." (Interviewer Participant C) | Performance Anxiety | Initial Encounters and Evolving Emotional Patterns |
| "Initially, I felt a bit frustrated because the AI occasionally failed to accurately comprehend what I was trying to express." (Interview with Participant B) | Technical Competency Concerns | Initial Encounters and Evolving Emotional Patterns |
| "The idea of a non-judgmental AI was appealing because I could practice without worrying about making mistakes in front of others." (Interview with Participant A…) | Non-Judgmental Practice | Technology as an Emotional Buffer in Ongoing Interactions |
| "It's comforting to have AI help improve my pronunciation without criticism, allowing me to repeat phrases until I get them right." (Interviewer Participant C) | Error Tolerance | Technology as an Emotional Buffer in Ongoing Interactions |
| "Receiving instant pronunciation correction | Enhanced Speaking Confidence | Immediate Gratification from Real-time |

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| from ChatGPT greatly boosted my confidence when preparing for academic presentations." (Interview with Participant B) | | Feedback and Feedback-Induced Confidence |
| "The technology provides a safe environment where I feel comfortable practicing without judgment." (Interviewer Participant C) | Safe Learning Environment | Technology as an Emotional Buffer in Ongoing Interactions |

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