Exploring the Utility of ChatGPT for Self-Directed Online Language Learning

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Abstract

As generative AI tools are increasingly popular in today's teaching and learning process, challenges and opportunities occur at the same time. Self-directed learning has been regarded as a powerful learning ability that supports learners in informal learning contexts and its importance rises in salience when incorporating AI into learning. This study employed a mixed-method design to understand how people self-direct their online language learning through the utilization of ChatGPT. Analyzing survey data from 276 survey respondents and 11 one-to-one interviews with language learners in the United States, we found that learners are motivated to use generative AI for its high flexibility and personalization which enables learners to access learning materials that align with their knowledge levels, personal interests, and learning goals. We also found self-monitoring skills that are inherent to learners help them to use ChatGPT more effectively and achieve their learning goals efficiently. This study contributes to the emerging field of AI in education and explores possibilities to use ChatGPT to foster self-directed language learning and provide educators, instructional designers, and researchers with insights to design learning integrated with AI to best fulfill learners' diverse needs and expand learning opportunities to more people.

Keywords: Self-directed learning, language learning, artificial intelligence in education, generative AI, ChatGPT

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The integration of artificial intelligence (AI) tools in teaching and learning has demonstrated its effectiveness in alleviating learner anxiety while elevating their confidence and fostering increased motivation for communication (Bao, 2019; Tai & Chen, 2020). In recent years, generative AI (GenAI) technology has significantly grown, particularly in educational settings (Baidoo-Anu & Ansah, 2023; Chan & Hu, 2023). GenAI features utilizing machine learning technologies to analyze patterns of existing data to generate new human-like content in formats including but not limited to text, visuals, and audio (Brynjolfsson et al., 2023).

ChatGPT is currently one of the most known and used GenAI platforms with its remarkable capacity to complete complex tasks and wide implementation in education (Adeshola & Adepoju, 2023; Baidoo-Anu & Ansah, 2023; Rahman & Watanobe, 2023; Yu & Guo, 2023). Recent research indicates that GenAI tools and platforms, such as ChatGPT, confer advantages to language learning through the generation of coherent and fluent text, the creation of authentic language materials, and the facilitation of personalized learning (Baskara, 2023a). However, despite these advancements, there is limited empirical research concerning the role of AI in self-directed language learning (SDLL), particularly in informal learning settings (Jeon, 2022). To close the knowledge gap, this research attempts to understand how adult learners self-direct their online language learning through the utilization of GenAI platforms such as ChatGPT.

Literature Review

Generative AI-Supported Self-Directed Learning

Self-directed learning (SDL) is a central element of adult learning and has been regarded as a powerful learning ability that strongly supports learners in informal learning contexts (Li & Bonk, 2023; Brookfield, 2009; Morrison & McCutheon, 2019). SDL emphasizes learning autonomy, personal responsibility, and self-growth (Gibbons, 2002; Wilcox, 1996). It is often investigated through the perspectives of being a personal attribute, a process, or a context of the learning environment (Song & Hill, 2007). One of the most influential SDL frameworks was designed by Garrison (1997) over two decades ago. It recognizes SDL through the lens of (1) motivation, (2) self-management, and (3) self-monitoring. Garrison (1997) claimed that motivation is the internal desire or need that leads individuals to engage in SDL, which includes both entering motivation and task motivation. The focus of self-management is self-control towards what and how to learn, including the use of resources, control of the learning context toward the goal, and strategies to manage the learning schedule. Self-monitoring is the responsibility for the process of learning, including being reflective and thinking critically.

Research has proven that incorporating GenAI into SDL has a positive impact on learning (Preiksaitis & Rose, 2023). Lin (2023) suggested that ChatGPT particularly has great potential to address the challenges faced by adult learners, such as the difficulty of locating resources and the lack of a supportive learning environment. In addition, ChatGPT can support learners in establishing learning objectives, identifying accessible resources, creating personalized learning plans, tracking learning progress, reflecting on learning experiences, and ultimately achieving successful forms of SDL, though instructor support may still be needed in

this process. Furthermore, Baidoo-Anu and Ansah (2023) proposed that ChatGPT fosters personalized and interactive learning, thereby promoting SDL. They emphasized that ChatGPT encourages students to independently explore learning topics by inputting keywords or questions to access relevant information and resources (Firat, 2023; Rasul et al., 2023). While scholars have argued that ChatGPT provides personalized learning support, Chan and Hu (2023) noted that concerns about accuracy, privacy, and other ethical and social issues were raised by their survey participants.

Generative AI for Language Learning

GenAI platforms have become prominent for language learning and teaching (Anggoro & Pratiwi, 2023). Research suggests that ChatGPT could support language learning by providing scaffolding and feedback, developing necessary language skills, and recommending activities for language practice (Bin-Hady et al., 2023). Liu and Ma (2023) conducted a survey involving 405 Chinese undergraduate and graduate English learners to investigate their perceptions and acceptance of using ChatGPT in supporting their English learning. Their findings show that the ease of using ChatGPT influenced participants' perceived usefulness of the tool, which significantly impacted the students' utilization of ChatGPT in informal language learning settings. Liu and Ma (2023) suggested that ChatGPT provides easy access and increased opportunities to engage in SDLL among language learners.

Liu (2023) also examined English learners' attitudes towards ChatGPT and the effectiveness of using ChatGPT to facilitate language learning. This study sampled 109 Chinese students at the undergraduate level, including nearly 37% of participants currently enrolled in colleges in Mainland China, around 3% from Hong Kong, Macao, or Taiwan, and the remaining 60% of students studying overseas. Adapted from a questionnaire by Hasan (2019), five-point Likert scale questions were designed to measure perceptions of ChatGPT, attitudes towards actual practice with ChatGPT, perceptions of the advantages of ChatGPT, and the perceptions of disadvantages of ChatGPT. Hasan's (2019) findings suggested that participants have a slightly stronger tendency to use ChatGPT to improve reading and writing skills over communication skills, and they demonstrated generally positive attitudes toward ChatGPT's potential to boost their learning abilities. Interestingly, this study indicated that there is a relationship between students' geographic location and their acceptance of ChatGPT. Those who study in Mainland China displayed lower levels of motivation and a less positive attitude towards using ChatGPT for English learning than students who were studying overseas. Thus, when considering how learners use ChatGPT for SDLL, it seems likely that the learning context and social elements such as institutional policy and sociocultural norms significantly impact their learning experiences (Li et al., 2024). Liu and Ma (2023) and Liu (2023) shared some common research designs such as employing quantitative surveys among Chinese students in higher education settings. However, such quantitative approaches are not sufficient to measure learner attitudes and perceptions.

In addition, current research on GenAI for language learning has predominately focused on learning English as a second language in classroom settings as well as investigating

perceptions instead of practice. For instance, Lee et al. (2024) investigated the perceptions of 80 English language learners (ELLs) from a Korean university. They reported that 30% of the participants felt uncertain about the efficacy of these tools in facilitating English learning. Lee et al. (2024) suggested a need to investigate the possible integration of AI tools into English language teaching for adult learners worldwide. However, apart from these perception-based and classroom-focused language learning research studies, individual learners' self-directed language learning practices remain largely unexplored. Given that language learning technologies (e.g., Duolingo, Rosetta Stone) have been long and widely used in SDL (Li & Bonk, 2023), research should strive to understand how new generative AI technologies can impact self-directed language learning.

In this study, we investigated the SDL practices facilitated by GenAI tools like ChatGPT following Garrison's (1997) SDL framework. Aligning with each dimension of Garrison's framework, namely, motivation, self-management, and self-monitoring, we examined the following research questions accordingly:

1. What motivates learners to utilize self-directed learning with ChatGPT?
2. How do language learners select and apply self-management strategies when utilizing ChatGPT in their language learning routines?
3. How do language learners employ self-monitoring strategies when using ChatGPT for language learning?

Methods

This study aims to fill a prominent gap in the literature by investigating how language learners incorporate ChatGPT into their SDLL through an explanatory mixed-method approach (Creswell & Plano Clark, 2007). Drawing on Garrison's (1997) self-directed learning (SDL) model, the present study developed survey and interview instruments to measure SDL across three dimensions: (1) motivation, (2) self-management, and (3) self-monitoring.

Data Collection

Survey. The survey consisted of three demographic questions, five inquiries on general ChatGPT usage, and a set of three Likert scale questions with 23 items tailored to assess learners' SDL in utilizing ChatGPT for language learning. The survey items were adapted from instruments by Fisher and King (2010), Williamson (2007), and the Zhu and Bonk (2019), which are based on Garrison's (1997) SDL framework. As we developed the survey instrument, we had one SDL expert to check on items and a language learner to pilot this survey. We made changes accordingly after we gathered feedback. Example survey questions can be found in Table 1.

Table 1

Examples of Survey Questions and Aligning SDL Principles

Items	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

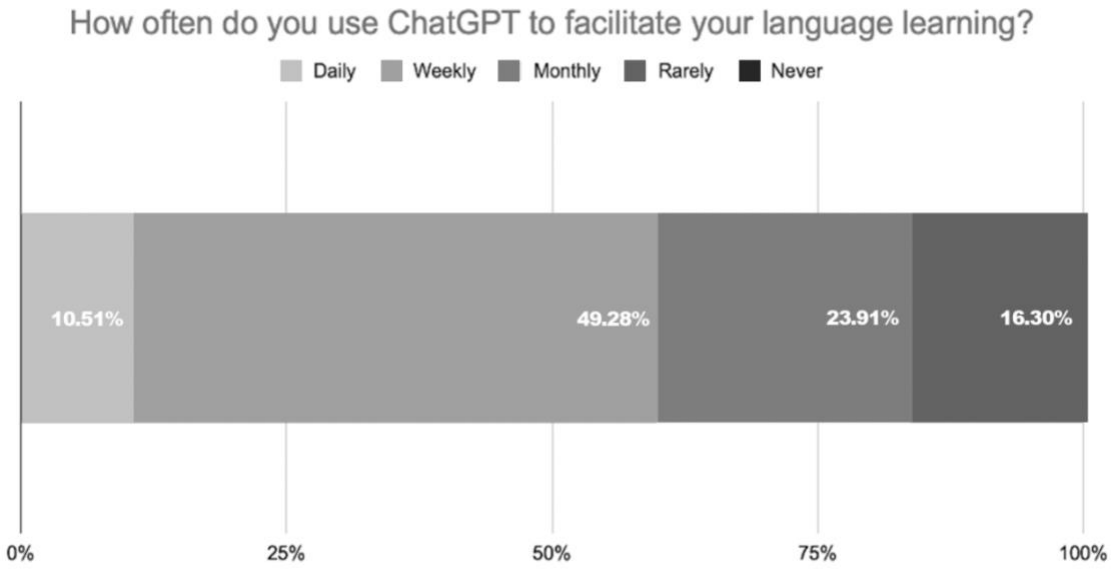
Motivation (Note: this title is not included in the actual survey)					
I have motivation to learn a language with ChatGPT.					
I enjoy learning new information related to language through ChatGPT.					
Self-management					
I seek assistance when facing problems learning a language online.					
I manage my time well while using ChatGPT to learn a language online.					
Self-monitoring					
I can direct my own language learning progress while learning with ChatGPT.					
I have high learning standards when I learn a language with ChatGPT.					

A survey distribution platform, Prolific, was utilized for participant recruitment, targeting individuals who met the following specific criteria: at least 18 years old, residing in the United States, currently enrolled as a student, and having engaged with ChatGPT for second language learning purposes.

A total of 276 completed survey responses were collected. Among all the survey participants, 33.45% identified themselves as female, 64.36% as male, and 2.18% as other (e.g., non-binary). In terms of educational levels, 24.73% of participants have their highest degree from high schools, 49.09% have bachelor's degrees, 13.82% have master's degrees, 1.45% have doctoral degrees, and 10.91% have other types of highest degrees (e.g., associate degrees, technical degrees). As Figure 1 indicated, 136 (49.28%) of the survey respondents reported that they used ChatGPT to facilitate their language learning weekly, followed by 66 (23.91%) on a monthly basis, 45 (16.30%) rarely, and 29 (10.51%) daily.

Figure 1

Frequency Of Using ChatGPT To Facilitate Language Learning.



Interviews. At the end of the survey, participants were asked if they were willing to participate in a one-time 40-minute interview through a Zoom meeting room of the researchers. If so, the respondents would provide their contact email address via the survey form. After collecting their email addresses (N=125), we used random sampling to select interview participants. Those selected would receive an interview invitation through email with an information sheet about the study. Those willing to engage in the interview would reply to the email invitation and confirm their participation. We contacted all 125 participants who left their contact information, and, eventually, 11 individuals agreed and participated in interviews. Their demographic information is included in Table 2.

Table 2

Demographic Information Of Participants

Participant pseudonym	Age	Gender	Current education level	Target language	Frequency of using ChatGPT for language learning
Amelia	31	Female	Graduate degree	Spanish	Weekly
Bennett	31	Male	Graduate degree	Spanish	Daily
Chandler	41	Male	Graduate degree	Spanish	Weekly

Danielle	29	Female	Undergraduate	Hebrew	Weekly
Elliott	35	Male	Graduate degree	Spanish	Weekly
Fallon	40	Female	Undergraduate	Spanish	Weekly
Giovanni	45	Male	Undergraduate	Spanish	Daily
Howard	24	Male	Undergraduate	French	Weekly
Ivan	41	Male	Graduate degree	Brazilian Portuguese	Weekly
Kai	23	Male	Undergraduate	Spanish, Italian, Turkish, French	Weekly
Lydia	48	Female	Graduate degree	Tamil	Daily

Artifacts. We either asked them to share their screens during the interview to walk us through their typical use of ChatGPT for language learning or send screenshots of previous language learning related interactions with ChatGPT.

Data Analysis

The analysis employed descriptive statistics for survey data (Mishra et al., 2019). Researchers used various graphical representations to summarize and indicate the distribution, central tendency, and variability among responses.

To systematically analyze data and identify recurring patterns, we used thematic analysis for interview data analysis (Braun & Clarke, 2022). We started with familiarizing ourselves with interview data and preparing them for analysis by transcribing all the audio recordings automatically and then re-listening to make corrections manually. During the first stage, we created initial codes to represent meanings and patterns that were observed across the data. In NVivo 14, we highlighted the excerpts and assigned appropriate codes to them, followed by reading through all excerpts within each code to adjust and revise codes as needed. Then, we grouped codes into themes that have nuanced and meaningful information about the research questions.

During the coding process, to reduce individual biases and increase the validity and reliability of the coding process, two researchers conducted a pilot test where each of them coded two interviews before coding the entire dataset. Then, when conducting individual coding, these researchers used a blind coding scheme where they were not informed of each other's coding

decisions until the end, which minimizes the potential biases. Next, they compared coding results and openly discussed any discrepancies to refine coding guidelines to ensure agreement between coders. They also had regular meetings to discuss if any challenges or discrepancies occurred. Table 3 delineates the coding themes, codes, and examples of excerpts.

Table 3

Coding Themes, Codes, And Examples of Excerpts

Themes	Codes	Examples of excerpts
Motivation	Initially motivated by people who used ChatGPT in the surrounding environment	"I talked to a friend who uses AI in place of actually speaking to a person one-on-one when learning a language. And she was talking about how her experiences are really positive, and she's learned a lot from it. And so I decided to kind of explore that and like, see how it goes."
	Motivated by ChatGPT's convenience for supporting independent learning	"But if I have a question where I'm stuck, I can ask ChatGPT. I don't have to rely on a study partner who may or may not know the answer."
	ChatGPT makes learning efficient by offering contextualized and point-to-point answers	"It's more contextual, like you can tell him, 'Hey I have a friend. We're not too close. I want to say this, how do I say it?' Like, it's the context behind it."
	Motivated by ChatGPT's rich linguistic affordances	"I can always ask how this grammar was structured, or why is this and not that, or why is this word instead of that word?"
Self-management	Set habitual learning routines	"I usually use it in the morning before I start working. And I'll usually use it for like 10 or 15 min or so [to] have a short conversation before I work."
	Prompt questions to align with learning goals	"I have found that the more detailed your question is, the better your answer and your

		outcome is."
	Validate information with other resources throughout the learning process	"I actually have a dictionary to consult if the word is correct… I tend to even consult outside experts, I tend to use those two, [or] three things the most."
Self-monitoring	Know what aspects of language learning need to be improved	"So what I do with it mostly is try to validate some of what I have… the way I'll use ChatGPT is to look for better ways to write something."
	Compare the learning outcome with past learning experiences	"If I walk away from it feeling like I learned something… that's a bit of a victory that I'm doing well, and I'm learning something."
	Integrate multiple resources or tools for assessment	"I'll just start talking [to family members who speak Spanish] and they'll respond. So that shows me where I'm at at that point."

Researchers applied document analysis for artifacts—participants' chat history—to analyze the language use, interaction dynamics, and patterns with ChatGPT (Bowen, 2009). This analysis of participants' interactions with ChatGPT was used to triangulate with our survey and interview data.

Findings

Motivation

As shown in Table 4, the highly-ranked motivation from survey respondents is the enjoyment of learning new information through ChatGPT. The highest-ranked statement, "I enjoy learning new information related to language through ChatGPT," has a mean of 4.21 and a standard deviation of 0.78. The least voted motivation from the survey is "I like to share my ChatGPT language learning experiences with others" (M= 3.37, SD = 1.17).

Table 4

Descriptive Statistics on Motivation Items

Statement item	**Mean**	**SD**	**Variance**

I enjoy learning new information related to language through ChatGPT.	4.21	0.78	0.61
I have motivation to learn a language with ChatGPT.	4.01	0.93	0.86
I want to learn new ideas related to language learning brought up by ChatGPT.	3.94	0.99	0.98
I have a need to learn a language with ChatGPT.	3.43	1.22	1.49
I need to know the deeper reasons for the language feedback by ChatGPT.	3.43	1.13	1.28
I like to share my ChatGPT language learning experiences with others.	3.37	1.17	1.37

Interestingly, even though this motivation is not significant from survey results, interviews found that many participants' entering motivation to use ChatGPT for language learning derived from the positive learning experiences indicated by people in their surrounding environments (e.g., friends, professors, social media users, etc.). For example, Amelia's friend shared her language learning experience with AI platforms which inspired Amelia to try ChatGPT. She mentioned that,

> I talked to a friend who uses AI in place of actually speaking to a person one-on-one when learning a language. And she was talking about how her experiences are really positive, and she's learned a lot from it. And so I decided to kind of explore that and like, see how it goes… and it's gone really well, I feel like I've learned a good amount and that coupled with my language learning apps that I use and have been using for a couple of years. I feel like it helps a good amount.

Danielle also started to use ChatGPT for language learning after she perceived its benefits in a class where her professor suggested learning with ChatGPT and even provided guidance on how to use it effectively. Notably, social discussions on ChatGPT's potential in facilitating learning also influenced people's motivation to use it for language learning. For instance, Elliott indicated that the reputation of AI tools motivated him to try ChatGPT for language learning.

The most mentioned motivation by interviewees was that ChatGPT supports convenient and independent learning in various ways. Ivan, a graduate student who is learning Portuguese with ChatGPT, suggested that he preferred self-study at his own pace and ChatGPT facilitated this style of learning so that his learning was not dependent on other people. As he explained,

> I typically don't like to do group study sessions or like a lot of one-on-one learning sessions. I like to study by myself and just work and study at my own pace. Like ChatGPT, AI tools are very well suited for me because I can do that. But if I have a question where I'm stuck, I can ask ChatGPT. I don't have to rely on a study partner who may or may not know the answer. For me, in that regard, I feel like the AI tools work very well for my approach to studying.

Similarly, Danielle said, "one of the positives to me is that I know it's not a person, and so I'm not bothering someone." She further conveyed feeling embarrassed when not presenting herself effectively to other humans. However, interacting with a chatbot that does not have personal opinions provided her with a safe learning space where she could error without fear. For some other people, ChatGPT could be the one-to-one tutor at no cost to provide personalized learning experiences. For instance, Amelia commented that because she did not have a friend who could coach her language learning, "ChatGPT is kind of a stand-in for a person or a tutor that knows the language natively." Therefore, generative AI like ChatGPT enabled learners to be more independent in the learning process with easy access.

A very significant motivation for people to use ChatGPT for language learning is that it is capable of providing contextualized and point-to-point answers. Elliott commented that he had Spanish-speaking friends so sometimes he needed to figure out what his friend was saying. One strategy he used was to copy and paste random texts from chats to obtain translations. Elliott explained,

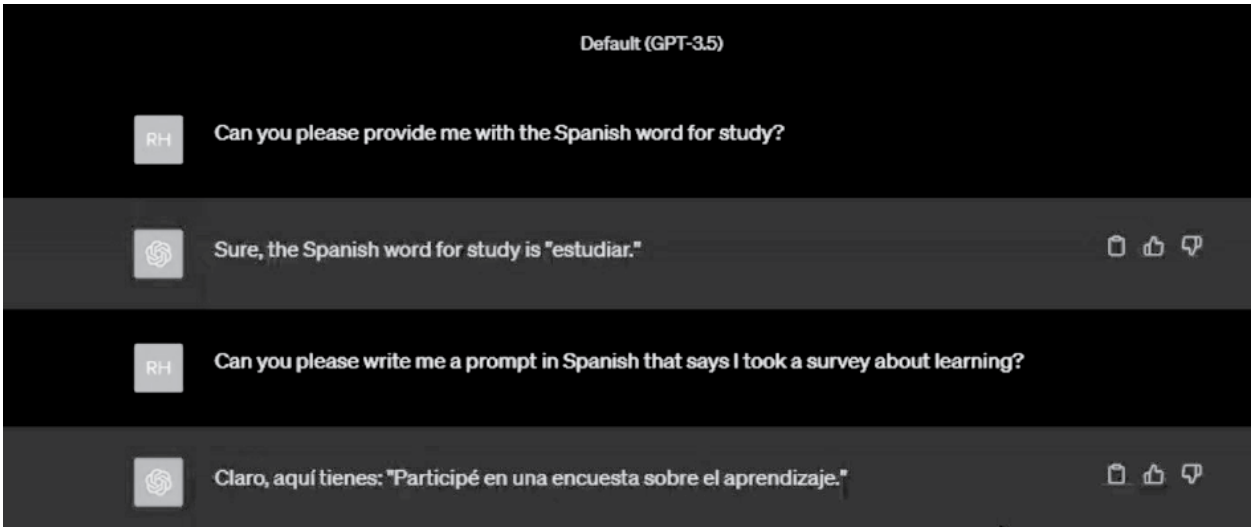
> I copy it from here, paste it there, see what it says, what does this mean? I can do that on Google as well. But it doesn't give me the proper context. Or I kind of trust [ChatGPT] more, because it [is] to the point.

He further suggested that ChatGPT enabled him to ask follow-up questions, thus making his learning more efficient. He claimed, "I can always ask how this grammar was structured, or why is this and not that, or why is this word instead of that word? I can ask [anything], it can further elaborate the questions I have. With Google, it's totally different."

As shown in Figure 2, Chandler, a Spanish language learner, demonstrated his interaction with ChatGPT on the screen. The screenshot provided a glimpse of how he phrased his questions and the kind of tasks he frequently asked ChatGPT for. As Chandler indicated, he asked ChatGPT to translate words or structure sentences, which was specific to his need at that moment.

Figure 2

A Screenshot of the Participant's Demonstration of His Interaction with ChatGPT

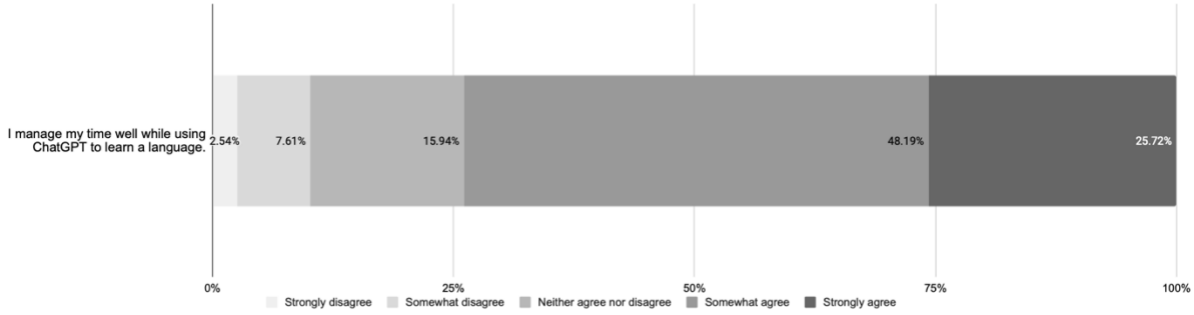


Self-Management

Our survey data indicated that time management has been considered in participants' learning process. Regarding the statement, "I manage my time well while using ChatGPT," nearly half of the participants (48.91%) reported that they somewhat agreed. This was followed by 25.72% who strongly agreed, 15.94% who neither agreed nor disagreed, 7.61% who somewhat disagreed, and a mere 2.54% who strongly disagreed. The mean value is 3.87, with a standard deviation of 0.98.

Figure 3

Learners' Responses to the Statement on Time Management Percentages of



Interview data reinforced that the flexibility of accessing ChatGPT anytime and anywhere motivates individuals to establish habitual learning routines, thereby supporting effective time management. For example, Bennett who used ChatGPT on a daily basis to study Spanish stated

that he enjoyed practicing conversations at the beginning of the day. He detailed his approach as follows:

> I usually use it in the morning before I start working. and I'll usually use it for like 10 or 15 min or so [to] have a short conversation before I work. If I have more time or I feel like I want to go back in there and have another conversation. I'll hop back in. But it's usually at a minimum like 10 or 15 min a day at the beginning of the day.

Giovanni who has also used ChatGPT for Spanish learning also shared his learning schedule, stating that, "I try to study at least 30 min up to 60. And then, when I'm having a conversation, it's usually like, maybe recently, last week, I tried maybe 4 times out of that week. So, either by voice or text." He further emphasized the importance of time management, while challenges exist, particularly in staying on track with learning tasks with a busy life schedule. He noted,

> One of the things I'm lacking is the time management aspect. Because I think if I had a specific time or schedule that I have set up to do these things. So I don't start slipping and just putting it off. Because I do work a lot, so that gets in the way. So I think that would be the major barrier. But that's something that ChatGPT can help you with really.

Furthermore, many interviewees indicated that an effective strategy they used to learn language with ChatGPT was prompting good questions. Chandler, who is learning Spanish on a weekly basis, discovered that "I have found that the more detailed your question is, the better your answer and your outcome is." He emphasized the importance of having the ability to promote good questions and validate information provided by ChatGPT. As Chandler shared, "I will sometimes try phrasing my question in a number of different ways to see what the responses are, and it's such a trick that I use with ChatGPT in general." Danielle has been learning Hebrew with ChatGPT; similarly, she recommended developing pre-prompt skills throughout the learning process with ChatGPT. She suggested including some contextual information to inquire for more accurate answers.

As our participants indicated that they recognized inaccurate or even false information related to language learning provided by ChatGPT, they often utilized various resources to assist their learning and validate the information. For instance, Fallon shared her experience as follows:

> I've asked the same question [to ChatGPT], like maybe two or three times and it came back with a different answer. So sometimes I'll hit I'll put it into like the Google Translator. I don't have any other translator on my phone. So I just have been using that and seeing what that comes back. Most of the time. It's like, oh, it's alright. And if it doesn't, it'll tell me what the accurate one is. And then I'll go back in and I'll correct it.

In fact, most of our interviewees reported that they had used various resources or tools, both digital (e.g., phone applications for language learning) and non-digital (e.g., books), to support their information validation through language learning with ChatGPT. Howard suggested, "I actually have a dictionary to consult if the word is correct. I also use Duolingo as well. And as I

was saying earlier, I tend to even consult outside experts, I tend to use those two, three things the most."

Self-Monitoring

Using various resources is not only a complementary learning strategy for self-management, but it also supports self-evaluation with diverse parameters. One interviewee, Giovanni, used fluency in communication with family members as an indicator of his learning improvement. He elaborated,

> I've been sending those messages like I said, sometimes over the phone when I'm talking to a family member. All of them start talking to them out of nowhere, and just try to use some words and try to communicate, and I'll see where I failed there, and just stop. I won't warn them ahead of time. I'll just start talking [to family members who speak Spanish] and they'll respond. So that shows me where I'm at at that point.

Apparently, Giovanni would justify his language learning with ChatGPT approach if he has improved his Spanish language skills based on how far the conversation in Spanish with his family lasted and also cognitively identified where further improvement is possible. While it is an example of how people use native speakers to examine learning progress and facilitate self-monitoring when learning a language with ChatGPT, many other participants self-evaluate their learning by using other strategies and tools. Among the other language learning tools people use for self-monitoring, Duolingo, has been the most mentioned.

However, compared with other tools, participants indicated that ChatGPT has a unique advantage for language learning due to its high-level flexibility and personalization. For example, Elliott compared his experience with other language learning tools with ChatGPT as follows:

> Duolingo is too repetitive. It does a good job if you're trying to learn something, but for quick things or the purposes that I have, I don't want to learn it like conversational kind of and I'm not at that point yet. So [my learning goal] is more like, okay, what do you call this in Spanish, or what do you call that in Spanish?

He explained that because his goal is to simply understand what a Spanish-speaking friend is saying, he just wanted to get quick answers by copying text and translating. He noted, "copy it from here, paste it there, and see what it says. What does this mean? I can do that on Google as well. But it doesn't give me the proper context." This indicates that participants think of learning by outlining what aspects of language learning need to be improved and then match the most effective resource or tool with it.

In addition, another interviewee pointed out that tools like Duolingo are too basic for his level, whereas ChatGPT has been a good choice because it can meet him at the level he is and provide learning materials that match his needs. However, interestingly, some interviewees

indicated that using other tools can complement language learning with ChatGPT because it is harder to self-monitor their language learning processes with ChatGPT. For instance, Ivan used a combination of Duolingo and ChatGPT for learning Portuguese. He acknowledged,

> I think a ChatGPT is more of a supplement, I guess, rather than a primary language learning tool. It's good you have you use it, double check it, use Google Translate, and also a native speaker… I can just monitor my own progress and I just know then just this is kind of where Duolingo comes in. But when I'm taking tests or quizzes within Duolingo, just like monitoring my performance, kind of in that as well.

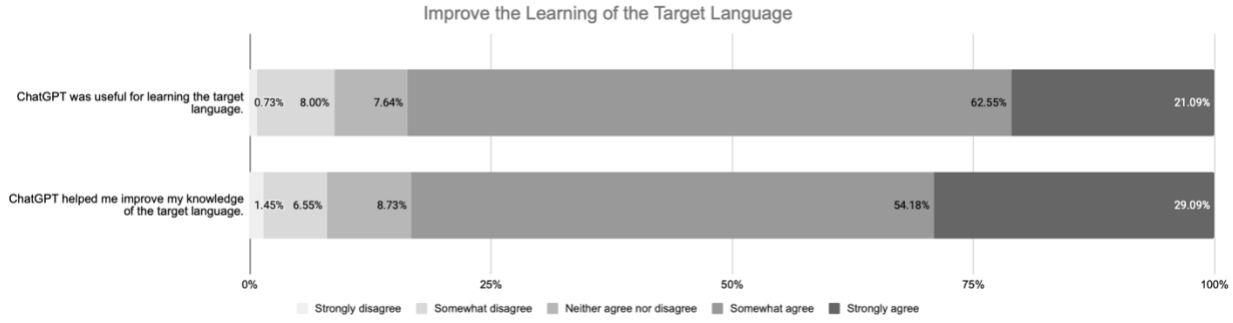
Similarly, another participant indicated that ChatGPT could not facilitate a self-monitoring process because it did not provide metrics, so she implemented other external tools to track her learning. As she shared,

> No, I don't really use it that way [to measure my learning process]. I usually check my progress with the other apps. I kind of have built in quizzes or with workbooks. Like if I can complete those exercises more easily, that's sort of my metric, and I don't really know which thing necessarily made it better because I use them all in tandem, but all of it helps, and it helps more to have it than not have it.

Though it seems that ChatGPT is not effective in supporting self-monitoring, learners reported very positive results in terms of how ChatGPT improved their learning. As indicated in Figure 4, related to the statement that "ChatGPT helped me improve my knowledge of the target language," 80 of 276 (28.99%) survey respondents indicated that they "strongly agree," while 150 participants (54.35%) reported "somewhat agree." More specifically, strong agreement was indicated from the perspective of having a higher awareness of vocabulary usage. Therefore, ChatGPT proves particularly effective in enhancing learners' awareness of vocabulary usage and how vocabulary and grammar are combined to form coherent and consistent texts.

Figure 4

Percentages of Learners' Responses to Statements on the Improvement of Target Language Learning



Furthermore, learners actually demonstrated a high level of self-control through the survey. The statement, "I carry out my own study plan while using ChatGPT for learning a

language" has received 30% of "strongly agree" and 49% of "somewhat agree." The statement, "I direct my own language learning progress while learning with ChatGPT," also received a high agreement, with 35% indicating "strongly agree" and "54%" signaling "somewhat agree." In effect, the survey data, along with interview data, suggested that self-monitoring is an inherent ability of the learners, instead of relying on ChatGPT to monitor their learning. In other words, the survey results indicate that learners exhibit a high level of responsibility towards their own learning.

Figure 5

Percentages of Learners' Responses to the Statement on the Study Plan

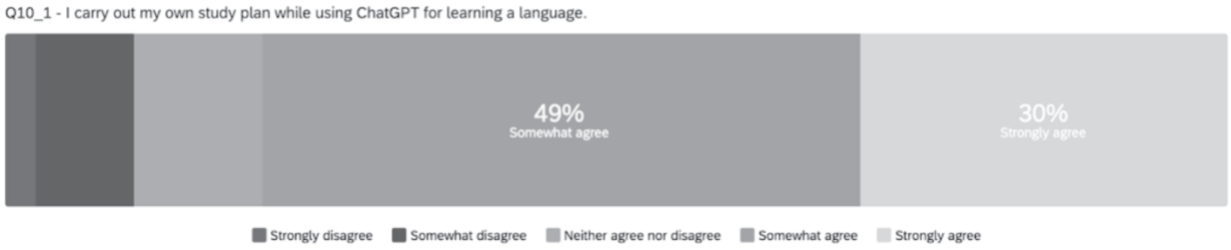
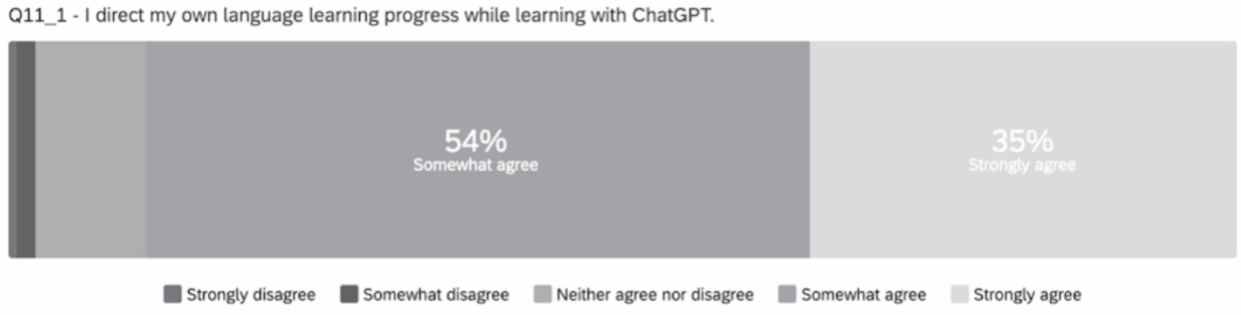


Figure 6

Percentages of Learners' Responses to the Statement on Self-Directing Language Learning Progress



Discussion

Existing empirical studies on ChatGPT for language learning have certain limitations regarding the methodological approach, research scope, homogeneity of samples, language-specific focus, and learning context. For instance, a number of existing studies have been designed based on quantitative survey methods (e.g., Liu, 2023; Liu & Ma, 2023) to investigate Chinese learners' perceptions and attitudes towards using ChatGPT for learning English as a second language. However, such an approach neglects the diversity of language learners as well as their needs and practices in other geographical, cultural, and linguistic contexts. It is particularly problematic when comparing language learning in formal higher education settings with adult learning in more informal learning contexts which tend to have vastly different learner motivation variables and learning strategies (Li & Bonk, 2023; Botero et al., 2019).

Accordingly, this study aims to expand our understanding of SDLL of adult learners that occurs outside of classroom learning where learners take initiative and responsibility for their

own learning. Importantly, with the emergence of GenAI in education, exploring different possibilities and strategies for incorporating ChatGPT to foster SDLL will benefit millions of adult learners who are learning languages for diverse life needs as well as leisurely pursuits and hobbies (Baskara, 2023b; Lin, 2023; Niyozov et al., 2023). As such, the present study revealed the role of motivation, self-management, and self-monitoring of language learners when using ChatGPT to facilitate their SDLL.

Motivation plays a crucial role in engaging learners with ChatGPT for language learning. The study found that learners are motivated by the flexibility and personalization that ChatGPT offers, allowing them to access learning materials that align with their individual needs and goals when they are deemed necessary. The findings suggest that ChatGPT can cater to the diverse needs of learners, offering a tailored learning experience that other digital and non-digital learning resources cannot provide (Li et al., 2024; Mogavi et al., 2024). Furthermore, the influence of socially shared positive experiences among peers and other social interactions or discussion, demonstrates the importance of community and social validation in adopting new technologies, especially controversial tools like generative AI (Hwang & Chen, 2023), for learning.

In terms of self-management, learners who effectively manage their learning schedules, set learning routines, and strategically pose questions to ChatGPT can enhance their learning efficiency. The finding indicates the need for learners to possess and develop strong self-management skills to maximize the benefits of ChatGPT in language learning. The use of ChatGPT enables learners to practice language skills flexibly, but the effectiveness of this practice is significantly influenced by the learner's ability to self-manage their learning process (Lin, 2023). Additionally, self-monitoring strategies are essential for learners to evaluate their progress and adapt their language learning strategies accordingly. The self-directed language learners in this study used ChatGPT alongside various other resources and tools for validation and assessment, indicating that while ChatGPT is a valuable resource for language learning, it is part of a broader ecosystem of learning tools (Li et al., 2024). This highlights the importance of integrating ChatGPT with other learning resources and tools to provide a comprehensive learning experience that addresses different aspects of language learning (Al-khresheh, 2024), such as vocabulary acquisition, grammatical understanding, translation, and conversation.

It is apparent from this study that the experience of using other language learning resources to complement learning with ChatGPT plays an important role across the three dimensions of SDL. Most interview participants indicated that they have previously used other tools for language learning which enabled them to see the unique advantages of ChatGPT. For instance, many participants compared ChatGPT with Duolingo and Google Translate, suggesting that learners who use these tools often struggled to find features that provided hands-on practice, timely, individualized support and sufficient learning context (Li and Bonk, 2023; Jumabekovna, 2024). By contrast, ChatGPT fosters more self-directed and independent learning as well as contextualized point-to-point answers. Those unique benefits of ChatGPT helped form a strong motivation for people to learn languages with it. This finding confirmed that ChatGPT can support learners' independent exploration and information-gathering in a personalized manner

through goal-driven inquiry and self-selected questioning (Baidoo-Anu & Ansah, 2023; Firat, 2023; Rasul et al., 2023).

While prior research suggests that ChatGPT fosters SDL by identifying accessible resources and providing personalized learning plans (Lin, 2023), our findings present novel insight which reveals that utilizing ChatGPT solely is not sufficient in terms of self-management and self-monitoring. In fact, we found that language learners often self-manage multiple learning resources to complement the use of ChatGPT, as well as combine various learning resources to evaluate their learning with ChatGPT and validate information provided by ChatGPT. As this study reveals, ChatGPT is one of the tools through which learners can practice and adjust their SDL strategies to facilitate effective language learning. In other words, ChatGPT can be a useful technology tool for SDL, but it is often not the sole factor in effective SDL, particularly in terms of self-management and self-monitoring. Learners naturally select and apply a wide range of strategies and resources to enhance their SDLL experience where ChatGPT is one component of the entire SDL approach. Such findings imply that language learners often require resource integration, and the role of ChatGPT is as a facilitator instead of a substitute for SDL. These results suggest it is beneficial to integrate generative AI with other language learning platforms as a means to provide personalized and adaptive learning experiences.

Limitations and Future Research

Though we emailed all 125 participants multiple times who expressed interest in being interviewed and provided their contact information, only 11 actually participated in the study interviews. As a result, the sample size is small. We wish to expand this sample size in future studies to reach data saturation. Additionally, given that our participants were mostly Spanish learners, future investigations should compare and contrast the needs of learners of different target learning languages to understand the important nuances that might be embedded in different cases. In addition, as we collected the interview data, we discovered that the volunteer participants were predominantly non-traditional learners who continued or even returned to their education at a later stage of their lives.

Future research might consider the types of backgrounds and life experiences (Knowles, 1968) that contribute to adult learning and engagement with AI-supported tools and resources. Researchers might examine the role of previous language learning experience, technology competency, cultural background, and educational level in the process of using ChatGPT for language learning. By investigating the unique and diverse needs of adult learners, instructional designers and generative AI developers may build a more tailored, innovative, and effective learning experience with generative AI. Additionally, further research is needed to explore how ChatGPT can be effectively combined or supplemented with other educational technologies and pedagogical approaches to support language learning in diverse contexts. This approach will not only benefit learners in self-study environments but also provide valuable learning strategies and resources to those in classroom settings or language labs. By researching the integration of ChatGPT with other language learning tools, we can uncover the language learning outcomes across various educational settings.

Conclusion

This mixed-method research directly addresses several prevailing multiple research gaps marked by a scarcity of empirical studies on generative AI impact on SDLL in informal settings. It also reveals key opportunities as well as challenges in the self-directed language learning process, providing crucial resources for educational institutions, policymakers, and curriculum developers to make well-informed decisions when considering integrating different generative AI technologies into language education. The present study suggests that while ChatGPT offers many advantages for SDLL, the successful integration of such generative AI tools for supporting language learning practices depends on how the learners leverage their motivation, self-management, and self-monitoring. As generative AI is increasingly integrated into people's daily lives, learners, educators, and researchers should seek ways to maximize the potential of generative AI tools to cultivate learner autonomy, agency, and engagement in a variety of manners.

Statement on Ethics

The study was approved by Indiana University Institutional Review Board with ID: 20611. Informed consent was obtained from all participants, and their privacy rights were strictly observed. The participants were protected by hiding their personal information during the research process.

Declaration of Competing Interest

The authors declare no conflicts of interest.

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