

A Case Study of EFL Learners' Experiences of Using Interactive Fiction with ChatGPT: A Sociocultural Perspective

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Abstract

This study explored how ChatGPT mediated the development of English as a foreign language (EFL) students' speaking and writing skills through Interactive fiction (IF) tasks, and how the interaction between learners and ChatGPT with IF tasks changed over time. Sociocultural theory (SCT) framed the analysis and interpretation in this study. The research examined three EFL learners (two aged 20 and one aged 14) who completed IF-designed tasks with ChatGPT. The study lasted four weeks and was conducted within a one-on-one private tutoring context. Data collection tools were ChatGPT logs, semi-structured interviews, class audio recordings, and teacher notes. The data were analyzed inductively through the lens of the SCT theoretical concepts. The study revealed that initial interactional patterns were not aligned with SCT principles. After several iterations, adjusted prompts gradually created learning experiences approximating those considered optimal within SCT. IF tasks also mediated the learning, creating an immersive context for practicing the language. Therefore, the IF tasks with ChatGPT can support the development of EFL learners' speaking and writing skills, fostering engagement, self-regulation, and reflection, revealing that ChatGPT can act as a dialogic partner and a mediator within students' Zone of proximal development (ZPD), when the prompt is well-designed. The study also discusses practical pedagogical and methodological implications.

Keywords: Sociocultural theory (SCT), Interactive fiction (IF), ChatGPT-assisted language learning, English as a foreign language (EFL)

1. Introduction

From a sociocultural theory (SCT) perspective, language learning is effective when learners are engaged in meaningful social interactions and use language as a tool for communication, rather than as an isolated skill to be developed [1]. Research suggests IF tasks create a meaningful context for practicing speaking and writing skills. However, to gain fruitful results, learners must be digitally literate, and the task design must be well-structured [2], [3]. Similarly, ChatGPT acts as an IF platform, which, until now, has been realized through specialized websites and apps such as Twine and Inklewriter. Learners make choices, solve problems, and co-construct stories, which enhances engagement and creativity [2], [3]. From the SCT perspective, IF acts as a mediating tool creating a meaningful context for interaction, encouraging authentic language usage [2].

Unlike these IF tools, ChatGPT is a more flexible system that allows learners to have real-time interactions and mediates the learning process. Nevertheless, it can cause cognitive load, overreliance, and ethical concerns [4], [5]. ChatGPT acts as a mediating tool and a More Knowledgeable Other (MKO), providing feedback and prompts to move learners along their ZPD. While interactive tasks and ChatGPT are promising tools for language learning, a key pedagogical challenge remains unresolved: EFL learners still lack engaging and structured activities to develop speaking and writing skills, and teachers need guidance on how to design technology-mediated tasks that promote meaningful language use without excessive cognitive load. The literature is promising yet scarce and inconclusive, and there are no studies combining IF with ChatGPT to enhance EFL learners' speaking and writing skills.

2. Methodology

Research Design

The methodology was based on the SCT, which was the lens through which the research was conducted. SCT outlined the use of IF-designed tasks with ChatGPT, promoting meaningful language

practice, interaction, and mediating language learning within students' ZPD. Therefore, SCT addressed "how" ChatGPT, with IF-designed tasks, mediated and scaffolded the language learning process and acted as an MKO within students' ZPD, addressing the following research question: How does ChatGPT mediate the development of EFL students' speaking and writing skills with IF tasks within their ZPD? The theoretical framework and research question required in-depth analysis and explanation of processes, mediation, and meaning-making [6], [7]. A Case study design within the online tutoring context and with a small number of participants allowed the researcher to gather deep insights into how the students interacted with IF and ChatGPT-designed tasks [8]. Examining three cases gave a profound understanding of the question that the researcher aimed to address.

Research Participants

The classes were conducted in an online private tutoring context. The teacher-researcher held one-on-one English classes and designed ChatGPT prompts tailored to the students' levels and needs. The lessons took place twice per week via Google Meet and lasted 20-50 minutes. Three EFL learners participated in the study: Sue (20, B1), Alex (20, B2), and Ani (14, B1). The participants were selected with a maximum variation sampling. Their profiles differed in age, gender, nationality, and language proficiency. Pseudonyms were chosen for the participants. To start the research, the teacher-researcher obtained oral assent. The data were kept confidential following ethical considerations. Only the researcher and supervisor had access to the data, and it was destroyed one month after graduation.

ChatGPT-based IF Tasks

The research aimed to design ChatGPT prompts to create learning experiences for EFL students that approximate the pedagogical principles of SCT to mediate within their ZPD, help them move through other- to self-regulation using ChatGPT as an MKO. Initially, students had three classes with a template that was not in line with SCT. After this probation period, updated templates were created. They had multiple sections, including the topic, the role for ChatGPT, and the student; six system rules for designing the interactive fiction story; task integration and progression; feedback rules; vocabulary rules; and pedagogical requirements. ChatGPT acted as an EFL instructor and an IF story generator through the lens of SCT. The task progressed from shared to independent performance. The language difficulty of the narrative was based on the participant's language proficiency. Moreover, the student's gender and age were also mentioned to generate relevant texts. The branching narrative had two story paths, and the tasks alternated between speaking and writing tasks. The feedback was also changed throughout the classes from explicit to implicit.

Data Collection and Analysis

The second round for data collection lasted four-week periods. Participants completed four classes with an updated ChatGPT template. From the initial number of participants, these three individuals were selected based on certain criteria such as age and gender. Classes lasted 20-50 minutes and included post-task semi-structured interviews. Moreover, tasks were audio-recorded for later analysis and redesigned for each participant. The data was collected from ChatGPT logs, semi-structured interviews, teacher notes, and class audio recordings.

3. Results

What follows below are the findings presented as themes that emerged throughout the study.

3.1 Designing Mediation

First, all classes had the same structure, and ChatGPT guided students by introducing six scenes, A/B story paths, task instructions, and two reflective questions. Throughout the classes, the predictable task structure alternated between speaking and writing tasks, helping students reduce cognitive load and focus on story creation rather than the structure of the tasks. This did not happen after the first class. All three participants needed time to internalize the structure. After the preparation period, the teacher's notes confirm that students took control of the tasks, even ignoring reading the instructions, completing



the tasks quickly, and automatically alternating between speaking and writing tasks. This type of task design structure and instructions align with SCT viewing them as mediating tools that promote goal setting, language learning, and thinking. Moreover, students' behavior became self-regulated over time, showing that the mediating tools were internalized [7]. Second, another type of regulatory mediation was the type of feedback that guided and controlled the learning. The feedback was changed throughout the classes for all three participants.

Class 1

The feedback was designed to provide graduated feedback after each scene. However, ChatGPT corrected mistakes explicitly. With this prompt, ChatGPT was not natural at providing SCT-informed feedback and mediation, and students heavily relied on other-regulation. For example:

Sue: I always did my tasks on on the right time.

ChatGPT: I always did my tasks on time" is more natural than "on on the right time [21].

Class

2

For the second class, the prompt was adjusted to remove feedback after each scene. The students received final feedback, which identified 4-5 priority areas of improvement, and encouraged them to reflect. For example, Alex confused "fun and funny, satisfied and satisfying" in class 2. After completing all the scenes, ChatGPT corrected the student's mistakes explicitly and, for enhancing vocabulary, suggested, "You sometimes use adjectives in unnatural combinations (e.g., funny and satisfied trip → better: fun and satisfying trip) [21].

Providing feedback at the end of the task allowed students to perform without interruption, revealing students' ZPD, what they could do alone, and what help they needed. Although the feedback was delayed and it was provided when the students completed all the scenes, the chatbot provided correct answers, instead of supporting the student in co-constructing knowledge, which was not consistent with SCT. Thus, ChatGPT was still unable to provide gradual and contingent mediation in error correction.

Classes 3-4

ChatGPT gave final feedback after scene 6. The chatbot gave implicit error correction, asked guiding questions to explore, notice mistakes, and self-correct. For example:

Sue: 1- reached, saw

ChatGPT: Verb Forms: You wrote: "reached, saw" These look like the correct forms, but think about how they fit into your full sentence: "When I finally reached..., and saw..." The pair looks good — just check: Do both verbs follow the same pattern in that sentence? Does anything feel missing before "saw"? Take a quick look at your sentence and see if you want to adjust anything.

Sue: When i finally reached the spectacular viewpoint, i saw that illustration infront of me i felt like i own the city.

Aligning with SCT principles, ChatGPT acted as the MKO and asked questions within ZPD to help them find out the correct answer themselves, notice, rethink, internalize forms, and move from other- to self-regulation [7], [9]. Here, the feedback mediated thinking rather than providing correct answers, and ChatGPT guided the students to fix mistakes. Therefore, the teacher was able to redesign the prompt so that the mediation came proximate to SCT expectations. This approach for feedback supports the graduated and contingent mediation suggested by [9], where the support is adjusted and removed according to the students' language development and autonomy. ChatGPT's error correction improved, but it tended to be verbose, which could disempower students and leave less room for autonomous exploration. For example, teacher notes confirmed that Alex's behaviour sometimes revealed that he did not want to read the feedback because he scrolled up and down to see the length of the feedback, and said, "I think it's end?" However, he did not stop the class and continued interacting with the chatbot to fix errors, after the teacher's instruction, "Let's correct the mistakes." The other students also shared their opinions about the feedback during the interview. They said that the guiding questions were more useful because they helped think, explore correct forms, and remember better. In addition, Ani reflected that the feedback at the end of the tasks did not distract from thinking of the story creation. There were cases when students did not know how to correct mistakes. They fixed errors through the teacher's mediation. For instance, Ani, during Class 3, was able to understand her mistake, "a good advice" only after the teacher's guiding questions, "Is advice an uncountable or countable noun?", "Should you use article "a" with uncountable nouns?"

These findings also revealed that prompt design shaped the quality of mediation, promoting SCT-aligned learning experiences, mediating the development of the students' speaking and writing skills, regulating the interaction, and structuring students' activity [7]. ChatGPT acted as a regulatory mediator whose

support guided students in the early stages, and later it was internalized by the students [7], [9]. This suggests that for the prompt to function effectively for ChatGPT, careful, SCT theory-driven prompt engineering is necessary to advance noticing, reflection, and help students go through other- to self-regulation. Therefore, the teacher's role remains central in designing and testing the prompt to ensure the chatbot provides developmentally appropriate mediation within students' ZPD.

3.2.1 Lexical Mediation

ChatGPT used the target vocabulary mentioned in the template in the story scenes and paths. This promoted noticing and internalization of vocabulary. Moreover, ChatGPT recycled the words throughout the scenes, which gave students a chance to reuse the words in various contexts and recycle the vocabulary. These results demonstrated that ChatGPT mediated vocabulary development, providing the vocabulary in the story scenarios and paths, encouraging the students to use the same words in different situations. According to [10], this promotes noticing, retrieving, and developing lexis. Additionally, this supports SCT principles, highlighting that recycling of vocabulary shows how mediation works in the ZPD [7], [11]. Moreover, this finding aligns with previous research [2], [3], suggesting that well-designed digital stories create meaningful environments and individual experiences to practice and develop vocabulary. However, students did not fully master the target vocabulary. For example, Participant 2 confused "fun and funny, satisfied and satisfying" in class 2. Participant 1 did not use "commitment, and getting things done" in class 2. Participant 3 did not use "embarrassed, exhausted, annoyed, annoying, relaxing, satisfied, satisfying" in class 1. The results demonstrated participants' lexical strengths and weaknesses, and this is consistent with the principles of dynamic assessment, showing what the learners can do and where they need more assistance [9]. Therefore, ChatGPT mediated students' vocabulary development within their ZPD, integrating what the students already know and pushing them to expand their word stock. This aligns with SCT principles of viewing the language as a tool for thinking and an object for learning new vocabulary [11].

3.2.2 Grammatical mediation

The analysis of four classes revealed inconsistent findings on grammar development. However, students benefited from different types of corrective feedback and demonstrated micro-level self-regulation and internalization. ChatGPT's error correction evolved from explicit to delayed and implicit feedback. Aligning with SCT principles, ChatGPT did not initially provide graduated feedback supporting students in moving from other- to self-regulation. Providing delayed feedback at the end of the task allowed students to perform independently. The students came up with longer and more complex ideas, showing developmental patterns in grammar. This type of error correction revealed what forms are internalized, and what areas need improvement [12]. When the prompt was adjusted to change from explicit to implicit feedback, ChatGPT acted as the MKO and asked questions within the students' ZPD to help them find correct answers, rethink, internalize the forms, and move from other- to self-regulation. Nevertheless, teacher-researcher notes also stated that when the participants did not know the correct form, they did not know how to correct the mistakes. They relied on the teacher's or the chatbot's help, so the teacher or ChatGPT continued explaining and guiding the students to fix the mistakes. This aligns with the principle of graduated assistance that the less explicit error correction is effective when the students are ready and independent enough to take control of it [9]. To sum up, although the findings were not consistent, there were cases of micro-level self-correction through ChatGPT's mediation. Moreover, the teacher also mediated during implicit error corrections, helping the students understand and fix errors. Therefore, ChatGPT mediated cognitive-linguistic skills such as micro-level self-correction, reflection, and reasoning despite uneven grammar development.

3.3 Metacognitive Mediation

Findings revealed metacognitive mediation through reflective questions, guiding students to rethink their choices, expand their speaking and writing, and show more awareness of their decisions. The template of the task involved two reflective questions after scenes 2 and 4. These questions align with SCT's conceptualization of metacognitive mediation, which guided the participants to explore "why" in their choices, promoting deeper thinking, reflection, and evaluation. This mirrors one of the ideas of SCT that advanced thinking is firstly mediated by others, then it slowly becomes self-regulated [7], [11], [13], [14]. Sue and Ani's responses demonstrated that ChatGPT can be used as a digital environment for metacognitive reflection to expand spoken and written replies. These results also support recent studies

that AI functions as a mediation tool, promoting higher-order thinking and learner autonomy [15], [16], [17]. For Alex, reflection questions in classes 3 and 4 were embedded with the story instructions, and he overlooked them. However, he justified the answers, showing awareness of his choices. This shows that the task was not well designed to make the questions visible. These findings are in line with the research on Interactive fiction and AI tools, stating that the students want to reflect and have analytical talk when the questions function well, they are clearly separated from other tasks, and when they are noticeable [18], [2], [19].

3.4 Interactive Fiction as a Mediator: Affective and Motivational Dimensions

Another type of mediation that was revealed by analyzing the results is affective mediation. ChatGPT interacted with a friendly tone, which reduced anxiety and stress, making students feel comfortable and motivated to produce the language. The praise words in the feedback helped students be more confident about their answers. However, in some cases, students ignored reading the praise words to focus more on continuing and creating the story. Moreover, Interactive Fiction stories themselves mediated the learning, creating an engaging context for students to speak or write about their own paths. Interviews and teacher notes indicate that participants were emotionally immersed, imagining that they were experiencing those moments in real life. According to SCT, symbolic and cultural artifacts, such as narratives, also mediate language learning, showing how the learners feel, think, and use the language [7], [14]. In this study, Interactive fiction tasks created a meaningful context that helped the participants to be immersed in the story creation process, to imagine the scenes, experience various emotions, and show problem-solving, risk-taking, reflecting, reasoning, and management skills. All of this contributed to the willingness to produce the language and enhance their speaking and writing skills within their ZPD. Students did not use the language mechanically. Additionally, story paths made the story creation more personalized. Students made decisions, gave reasons, examples, and reflected, which promoted higher-order thinking and more extended responses. In addition, they internalized the task design by skipping reading the instructions and choosing to read or to listen to the chatbot's input independently. These findings align with previous research, indicating that IF tasks foster engagement, autonomy, and create an environment for purposeful language use [18], [2]. In conclusion, affective mediation was shaped by Interactive fiction stories, ChatGPT's friendly tone, personalized, and choice-driven responses. These elements reduced stress and encouraged students to participate in the tasks and produce language within the ZPD. However, students sometimes skipped reading ChatGPT's praise words, showing that the chatbot's affective mediation sometimes had a secondary role.

3.5. From Dependent to Independent Task Performance

The results show how participants went through other- to self-regulation, becoming more independent, confident, and using complex sentences. These findings line up with Vygotsky's ZPD and the principles of graduated and contingent mediation explaining how this transition happened. Earlier: All participants relied heavily on ChatGPT's prompts during the first preparation class. They were not confident and read everything carefully. Moreover, students kept asking questions to make sure they were doing everything correctly. Class recordings revealed these questions, for instance, "Should I read the task?, Should I say now or record first? Should I read now?, How should I start it?, Should I listen or read?"

Later: Over time, they became more engaged and confident, producing longer and more complex sentences without asking questions about the task structure, and feeling more independent. Students did not read the instructions and completed them quickly. Teacher-researcher's notes show participants skipped instructions during the last two classes and immediately produced their answers. Therefore, these findings demonstrate how students went through other- to self-regulation by internalizing the structure of the tasks [11].

3.6 Summary of the Findings

The study addressed the following research question: How does ChatGPT mediate the development of EFL students' speaking and writing skills with IF tasks within their ZPD? ChatGPT failed to provide mediation independently. The teacher redesigned the prompt for ChatGPT to function according to SCT-like principles. Consequently, ChatGPT functioned as the MKO that mediated the learning process with minimal teacher intervention. Interactive Fiction tasks also mediated the learning, creating a meaningful context for the participants to practice the language. From an SCT perspective, these findings

demonstrated that IF and ChatGPT's mediation shaped the development of students' speaking and writing skills.

The language, ChatGPT, and IF stories were cultural and symbolic tools that students used to process and express ideas, plan, and evaluate. In line with Vygotsky's view of language as the main tool for thinking, ChatGPT acted like a dialogic partner engaging the students in meaningful conversations, promoted noticing, and encouraged them to reformulate responses and elaborate on them [7], [14], [11]. In this regard, the development of students' speaking and writing skills can be seen as the growth within their ZPD. Tasks were appropriate for the students' language proficiency. The students gradually demonstrated internalization, self-regulation, confident production, and application of more complex structures without hints. Aligning this with previous SCT research, it comes to light that first, higher-order mental and language skills are developed from interaction with tools or people, and later these skills are internalized by an individual over time [13], [15]. Therefore, the findings demonstrate that when properly designed, ChatGPT prompts integrated with IF can facilitate the development of speaking and writing skills according to SCT principles.

Over time, the students started answering with more detailed and complicated sentences, although they made mistakes in their replies. This shows that the students were working within their ZPD, stretching their skills with the help of IF and ChatGPT's mediation to take risks and use complex sentences [20]. The shift from explicit to implicit error correction is in line with graduated and contingent mediation that the support should be changed according to the students' needs and removed when they show progress [9]. Thus, the interactional changes show internalization of language and task structure, which is aligned with SCT principles that development happens when the students repeatedly do mediated and meaningful tasks until they can handle them alone.

To sum up, the findings demonstrated that ChatGPT with IF tasks and SCT lens supported the development of EFL learners' speaking and writing skills, and promoted engagement, self-regulation, and reflection. Moreover, if the prompt is well-designed, ChatGPT can act as a dialogic partner and a mediator within students' ZPD. As a result, this study supports the integration of AI in language learning to enhance EFL learners' language development, technology literacy, autonomy, and engagement.

3.7 Pedagogical Implications

The findings suggest implications for EFL teachers, curriculum designers, educational institutions, and other practitioners to integrate IF tasks with ChatGPT into language teaching. First, storylines with branching plots (A/B options) encourage decision-making and reasoning. Then, ChatGPT's mediation was contingent on how the prompt was designed to function as an MKO and mediate learning within the students' ZPD. The prompt included the following sections: ChatGPT's role, Interactive Fiction structure, task design and progression, language focus, feedback principles, and mediation rules. Therefore, the prompt design should be viewed not only as providing technical instructions to the chatbot, but also as part of the pedagogical process, similar to how teachers sequence tasks and scaffold the learning. This study suggests an SCT-aligned prompt design to practice speaking and writing skills while completing IF tasks with ChatGPT. Next, the students benefited from graduated feedback. Provide an example of the format you expect for implicit feedback in a prompt. In this study, ChatGPT frequently misinterpreted the concepts of "implicit/explicit" feedback when an example was not provided. Practitioners may apply this type of feedback because it helps students go through other- to self-regulation and promotes internalization of the forms. Moreover, teachers, curriculum designers, and educational institutions can adjust the prompt to make the reflective questions more visible. This allows the students to rethink their choices, feelings, and elaborate their responses, showing reasoning and deep awareness of their choices. Then, teachers and curriculum designers can intentionally add recycling of the target vocabulary throughout one class. This supports noticing, internalization, and retention of the vocabulary. Each task should include a lexical or grammatical component, avoiding excessive demands and instructions that cause cognitive load, and adjusting the language difficulty according to the students' proficiency. Next, students benefited from a fixed task structure and design. Teachers can follow the same approach because this reduces cognitive load, anxiety, and stress, helping students to be focused on producing the language and creating meaning. Moreover, storytelling can include visual cues to promote engagement and comprehension. Additionally, in larger classes, interactive reading can be assigned as shared homework in ChatGPT, for students to create groups in the bot and collaborate on storytelling and reporting. Finally, the interaction between students and ChatGPT will be successful when the participants are aware of ChatGPT's features. The teacher-researcher conducted an introductory session on IF and ChatGPT, which fostered the students' literacy in the topic and the tool. Practitioners can follow the same approach to ensure students have basic knowledge of the topic.

3.8 Limitations

One major limitation is that ChatGPT did not mediate learning independently. The effectiveness was contingent on human pedagogical input and revised prompts. As a result, ChatGPT cannot be considered an independent MKO, since the effective mediation was co-constructed through teacher intervention. The study also tracked how learners gradually shifted from other- to self-regulation over four weeks of completing IF tasks with ChatGPT, allowing the observation of developmental changes at a micro-level. However, as the study lasted for a limited period, it restricts insights into longer-term processes of internalization. Although Interactive Fiction acted as a mediating cultural artifact, fostering engagement and meaning-making, its narrative format also imposed limitations. In some cases, complex storylines, overly detailed feedback, or embedded reflective questions increased cognitive load, distracted students from focusing, because learners had to think about too many things at once. This finding underscores the story's dual function as a mediator that can both facilitate and constrain learning, a distinction that was not explored in this study. While affective mediation could be identified based on learners' interaction with the chatbot, engagement, interview answers, and behavioral indicators, ChatGPT could not perceive non-verbal cues such as hesitation, silence, confusion, or facial expressions. In several cases, when ChatGPT failed to recognize emotional states, learners required the teacher's mediation. As a result, AI-mediated interaction alone cannot fully represent or manage affective regulation and emotional dimensions of the ZPD.

3.9 Recommendations for Future Research

Based on the study's findings and limitations, this section recommends future research to focus on the amount and timing of feedback, which may cause cognitive load and weaken the mediation effect. Moreover, delayed or immediate feedback may have a significant influence on how students notice and internalize feedback. Other theories may shed more light on these issues, such as Cognitive Load Theory (CLT) or Multimedia Learning Theory (MMLT), which provide more explicit accounts of how the amount and timing of feedback impacts learning outcomes in digital contexts and students' cognitive processing. Finally, future research should also focus on the use of affective mediation. Praise emerged in the data, but there was limited scope to explore it in more depth within the focus and SCT framework. As praise was often ignored, this indicates that affective support should be studied in terms of its impact on learners and learning, rather than its presence.

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