Synthesizing Effective Strategies for IT-Mediated Writing: A Meta-Ethnographic Study

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Abstract:

This meta-ethnographic study aims to synthesize effective strategies for IT-mediated writing learning by examining the existing literature on the topic. The study adopts a systematic search and selection process, which results in the inclusion of 20 studies that met the pre-determined inclusion criteria. The findings reveal six overarching themes that represent effective strategies for IT-mediated writing learning, which include (1) collaborative learning, (2) scaffolding, (3) feedback, (4) learner autonomy, (5) multimodal approaches, and (6) contextualization. These themes offer insights into how IT can be used effectively to enhance writing learning in educational settings, particularly in the context of EFL learning. The study concludes by discussing the implications of these findings for both research and practice and highlighting the need for further research in this area.

Keywords*: IT-mediated writing, effective strategies, meta-ethnography, collaborative learning, scaffolding, feedback, learner autonomy*

1. INTRODUCTION

The use of information technology (IT) in second language (L2) writing instruction has become an increasingly popular topic of research in recent years. IT-mediated strategies can provide L2 learners with opportunities to engage in authentic language use, receive feedback, and improve their writing skills in a collaborative and supportive environment.

The use of IT-mediated strategies, such as online peer feedback, multimodal digital feedback, and computer-mediated communication tools, has been found to be effective in enhancing L2 writing skills. This has led to numerous studies exploring the effectiveness of various IT-mediated strategies for improving L2 writing skills. The table provides an overview of some of these studies, including the author, publication year, research method, and key findings. Overall, the studies offer valuable insights into the use of IT-mediated strategies for improving writing skills among L2 learners (Hu, 2013; Liu, 2019; Nagata, 2019; Kang & Kim, 2020; Li & Zhu, 2021; Chen & Hsieh, 2014; Choi & Lee, 2018; Liao & Hsieh, 2017; Warschauer & Liaw, 2011 and Yang & Wang, 2016).

Several studies have explored the use of information technology (IT) in improving second language (L2) writing skills. Hu (2013) found that microblogging-supported peer feedback in a Chinese as a foreign language writing classroom can enhance students' writing skills. Liu (2019) found that technology-mediated task-based language teaching is an effective approach to L2 writing. Nagata (2019) found that learners perceive automated writing evaluation programs as a useful tool for providing feedback. Kang and Kim (2020) found that automated feedback on writing can improve writing quality. Lee (2013) found that synchronous voice-based computer-mediated communication can enhance learners' communication abilities. Li and Zhu (2021) conducted a meta-analysis and found that online peer feedback has a positive effect on EFL learners' writing skills. These studies suggest that utilizing IT in L2 writing instruction can be an effective way to enhance writing skills and improve student engagement.

Other various studies have also explored the effects of information technology (IT) on second language (L2) learning. Chen and Hsieh (2014) found that a teacher-as-guide role in computer-mediated communication can enhance ESL students' willingness to communicate and satisfaction with feedback. Choi and Lee (2018) found that text chat can be an effective mode of communication for improving oral proficiency and willingness to communicate in Korean EFL learners. Liao and Hsieh (2017) found that incorporating mobile instant messaging into English writing instruction can improve students' attitudes towards writing and their engagement in peer feedback.

Polio and Shi (2014) found that task type can affect feedback usage and writing revision frequency in L2 revision. Warschauer and Liaw's (2011) chapter provides a comprehensive overview of the potential benefits and challenges of using technology in language learning. Yang and Chen (2015) found that online feedback and revision can lead to different revision behaviors and text quality. Yang and Wang (2016) and Zhang and Barber (2019) conducted meta-analyses and found that web-based technologies and online feedback can have a positive impact on language learning outcomes and writing quality, respectively. These studies demonstrate the potential benefits of incorporating IT into L2 learning and suggest the need for further research in this area.

The use of IT-mediated writing learning in the last decade has been extensively studied. Cheng et al. (2019) conducted a meta-analysis and found that direct corrective feedback was the most effective in improving writing among EFL learners. Harasim's (2017) book emphasizes the importance of understanding learning theory when designing effective online learning environments. Kessler et al. (2012) found that collaborative writing can improve writing skills and promote cross-cultural communication. Magno's (2018) study found that technology-mediated writing instruction can be effective in improving student's writing skills. Mawad and Hassan's (2018) case study found that wiki-based collaborative writing can be effective in improving student's writing skills and promoting positive attitudes toward writing.

In addition, cloud computing has been shown to be effective in promoting collaborative learning and providing flexible access to learning resources, according to Rahimi et al.'s (2017) review. Rashid and Asghar's (2016) study found that multimedia-based instruction can improve learning outcomes in chemistry. Finally, Son and Park's (2018) study found that computer-mediated communication (CMC) can be effective in improving students' writing skills and promoting their motivation to learn English.

Overall, the selected references provide a diverse range of studies on IT-mediated writing learning, highlighting the importance of various factors such as corrective feedback, collaborative writing, multimodal digital feedback, and cloud computing. These studies offer valuable insights for educators and researchers interested in developing effective strategies for IT-mediated writing learning.

2. LITERATURE REVIEW

In recent years, there has been growing interest in using technology to enhance language learning, particularly in the area of writing skills. Several studies have explored different approaches to incorporating technology into L2 writing pedagogy, with the goal of improving students' writing abilities and engagement (Bista & Liu, 2018; Chen & Hsieh, 2014; Choi & Lee, 2018; Coker, 2016; Hauck & Stickler 2015)

A literature review was conducted by Hauck & Stickler (2015) examining the effectiveness of synchronous and asynchronous communication in online language learning. They found that both modes of communication can be effective in promoting language learning, but that the choice of mode should depend on the specific learning goals and context. In line with them, Bista & Liu (2018) conducted a systematic review of studies on online peer feedback and its impact on writing skills. They found that online peer feedback can enhance students' writing quality by providing collaborative and supportive feedback from their peers.

A quantitative study conducted by Chen & Hsieh (2014) examining the impact of the teacher-as-guide role on students' willingness to communicate and satisfaction with feedback. They found that when teachers act as guides rather than evaluators, students

are more likely to participate in discussions and engage in peer feedback, which can lead to improved writing skills. Hwang & Choi (2017) also conducted a quantitative study that compared the effectiveness of teacher-written feedback, self-correction, and peer feedback. They found that teacher-written feedback was more effective than the other two approaches in improving students' writing skills.

A mixed-methods used to potray this issue conducted by Coker (2016) and Choi & Lee (2018) and Lee (2019). Coker (2016) investigating the impact of wikis on writing achievement and motivation. She found that wikis can have a positive effect on both writing performance and motivation, particularly when used in a collaborative writing project. Choi & Lee (2018) explored the use of text chat as a mode of communication for language learners. They found that text chat can be an effective way for students to practice and improve their language skills, particularly in terms of fluency and accuracy. While Lee (2019) examined the effectiveness of multimodal digital feedback in improving the quality of writing. She found that multimodal feedback, which includes both written and audio feedback, can be effective in improving the quality of students' writing, particularly in terms of organization and coherence.

With the approach of the qualitative study, Hu (2013), Kang and Kim (2020), Kessler, Bikowski, & Boggs (2012) and Lee (2013). investigated this issue. Hu (2013) conducted a qualitative study that explored the use of microblogging-supported peer feedback in writing instruction. She found that this approach can enhance students' writing skills by providing them with opportunities to practice and receive feedback in a collaborative and interactive way.

While Kang & Kim (2020) conducted a qualitative study that investigated the use of automated feedback in improving writing quality. They found that automated feedback can be a useful tool for improving writing skills, particularly in terms of accuracy and language use. Kessler, Bikowski, & Boggs (2012) that explored the use of collaborative writing in promoting writing skills and cross-cultural communication. They found that collaborative writing projects can be effective in promoting students' engagement and improving their writing skills, particularly when the projects involve cross-cultural communication.

Lee (2013) also conducted a qualitative study that investigated the use of synchronous voice-based computer-mediated communication in language learning. She found that this approach can enhance students' communication abilities by providing them with opportunities to practice and receive feedback in a real-time, interactive way.

Table 1 summarizes various studies that investigate how technology can be used to enhance second-language writing instruction. The studies use different methods and technologies such as learner corpus research, online peer feedback, wikis, text chat, and multimodal digital feedback. The results indicate that incorporating technology can effectively improve students' writing skills and engagement in language learning.

Table 1. Approaches and Findings in Incorporating Technology in L2 Writing Pedagogy: A Review of Studies

Study	Approach	Method	Findings
Hauck & Stickler (2015)	Examining the effectiveness of synchronous and asynchronous communication in online language learning	Literature review	Both modes of communication can be effective in promoting language learning, but the choice of mode should depend on the specific learning goals and context.
Bista & Liu (2018)	Systematic review of studies on online peer feedback	Literature review	Online peer feedback is a promising approach that can help students improve the quality of their writing by providing them with feedback from their peers in a collaborative and supportive environment.
Chen & Hsieh (2014)	Examining the impact of the teacher-as-guide role	Quantitative study	When teachers act as guides rather than evaluators, students are more likely to participate in discussions and engage in peer feedback, which can lead to improved writing skills.
Coker (2016)	Investigating the impact of wikis on writing achievement and motivation	Mixed-methods study	Wikis can have a positive effect on both writing performance and motivation, particularly when used in a collaborative writing project.
Choi & Lee (2018)	Exploring the use of text chat as a mode of communication for language learners	Mixed-methods study	Text chat can be an effective way for students to practice and improve their language skills, particularly in terms of fluency and accuracy.
Lee (2019)	Examining the effectiveness of multimodal digital feedback in improving the quality of writing	Mixed-methods study	Multimodal feedback, which includes both written and audio feedback, can be effective in improving the quality of students' writing, particularly in terms of organization and coherence.
Hu (2013)	Exploring the use of microblogging-supported peer feedback in writing instruction	Qualitative study	This approach can enhance students' writing skills by providing them with opportunities to practice and receive feedback in a collaborative and interactive way.
Kang & Kim (2020)	Investigating the use of automated feedback in improving writing quality	Qualitative study	Automated feedback can be a useful tool for improving writing skills, particularly in terms of accuracy and language use.
Kessler, Bikowski, & Boggs (2012)	Exploring the use of collaborative writing in promoting writing skills and cross-cultural communication	Qualitative study	Collaborative writing projects can be effective in promoting students' engagement and improving their writing skills, particularly when the projects involve cross-cultural communication.
Lee (2013)	Investigating the use of synchronous voice-based computer-mediated communication in language learning	Qualitative study	This approach can enhance students' communication abilities by providing them with opportunities to practice and receive feedback in a real-time, interactive way.

3. RESEARCH METHODOLOGY

The research methodology employed in Synthesizing Effective Strategies for IT-Mediated Writing is meta-ethnography. The process involves several steps, as outlined by Noblit and Hare (1988) and Malpass et al. (2016).

Firstly, the researchers define the research question and scope of the study. In this case, the study aimed to identify effective strategies for IT-mediated writing learning in EFL contexts. Secondly, a systematic literature search is conducted to identify all relevant studies on the topic of interest. This involves searching electronic databases, reference lists, and other sources. Thirdly, the studies collected in the previous step are screened and evaluated for their relevance and quality. Studies that meet the pre-determined inclusion criteria are selected for inclusion in the analysis. Fourthly, data is extracted from the selected studies using a pre-determined set of criteria, which may include information on the study design, participants, and key findings. Fifthly, the data extracted from the selected studies is analyzed using a process called reciprocal translation. This involves comparing the findings of each study and identifying common themes and patterns across the studies. Sixthly, the common themes and patterns identified in the previous step are synthesized into a set of overarching themes or concepts that provide a comprehensive understanding of the topic of interest. Finally, the findings are interpreted and discussed for their implications for theory, practice, and future research.

4. FINDINGS AND DISCUSSION

This part presents the results of the study to answer the two research questions in the earlier section. Besides, the discussion of the results is also elaborated in this part.

4.1 Findings

The findings of the study are presented in the following sections:

4.1.1 Studies on IT-Mediated Writing Strategies

Table 2 provides an overview of studies focused on improving EFL writing skills, using various research methods including literature and systematic reviews, quantitative, qualitative, and mixed-methods approaches. The studies suggest that incorporating technology can effectively enhance EFL writing skills through strategies such as learner corpus research, online peer feedback, and multimodal digital feedback.

Additionally, collaborative writing projects, automated feedback, and computer-mediated communication tools have also been shown to be effective in improving EFL writing skills. Overall, the table emphasizes the importance of using technology-mediated writing feedback in EFL contexts to enhance writing skills and increase student engagement.

Table 2. Research Studies on Strategies for Improving Writing Skills through IT

Author	Publication Year	Research Method	Key Findings
Bista & Liu	2018	Systematic review	Online peer feedback is a promising approach for improving writing skills
Chen & Hsieh	2014	Quantitative	Teacher-as-guide role improves students' willingness to communicate and satisfaction with feedback
Choi & Lee	2018	Mixed-methods	Text chat can be an effective mode of communication for language learners
Coker	2016	Mixed-methods	Wikis can have a positive impact on writing achievement and motivation
Hauck & Stickler	2015	Literature review	Synchronous and asynchronous communication can be effective in online language learning
Hu	2013	Qualitative	Microblogging-supported peer feedback can enhance students' writing skills
Kang & Kim	2020	Qualitative	Automated feedback can be a useful tool for improving writing quality
Kessler, Bikowski, & Boggs	2012	Qualitative	Collaborative writing can be effective in improving writing skills and promoting cross-cultural communication
Lee	2013	Qualitative	Synchronous voice-based computer-mediated communication can enhance communication abilities
Lee	2019	Mixed-methods	Multimodal digital feedback can be effective in improving the quality of writing
Li	2018	Literature review	Multimodal features of writing-to-learn tasks can be used to design effective online writing tasks
Li & Zhu	2021	Meta-analysis	Online peer feedback has a positive effect on writing skills
Liao & Hsieh	2017	Mixed-methods	Mobile instant messaging can improve students' attitudes towards writing and engagement in peer feedback
Liu	2019	Qualitative	Technology-mediated task-based language teaching can be an effective approach
Lu & Liu	2013	Qualitative	Collaborative wiki-based writing projects can be effective in promoting

			students' engagement and writing skills
Magno	2018	Qualitative	Writing prompts and feedback in technology-mediated EFL writing class can improve writing skills
Mawad & Hassan	2018	Mixed-methods	Wiki-based collaborative writing can improve writing performance and attitudes
Nagata	2019	Qualitative	Automated writing evaluation programs can be useful tools for providing feedback
Polio & Shi	2014	Quantitative	Task type affects the type of feedback students use and the frequency of revision
Rahimi, Zhang, & Liang	2017	Literature review	Cloud computing can be effectively used in e-learning
Rashid & Asghar	2016	Quantitative	Multimedia-based instruction can improve learning outcomes
Son & Park	2018	Quantitative	Computer-mediated communication tools can improve writing performance and motivation

4.1.2 Effective Strategies for IT-Mediated Writing in EFL Contexts

This meta-ethnographic study synthesizes the existing literature on effective strategies for IT-mediated writing learning. The study finds that collaborative learning, scaffolding, feedback, learner autonomy, multimodal approaches, and contextualization are effective strategies for enhancing writing learning in EFL contexts. The study emphasizes the importance of considering these strategies when designing IT-mediated writing learning environments.

Collaborative learning is found to be an effective strategy for promoting peer interaction and support. Studies show that collaborative writing projects can enhance writing skills and promote cross-cultural communication. Scaffolding is also found to be effective in providing support for learners, particularly in the form of teacher-guided feedback and task design. Feedback is another important strategy for IT-mediated writing learning. Studies suggest that teacher-written feedback can be more effective than self-correction or peer feedback. Additionally, multimodal digital feedback, such as audio or video feedback, can improve the quality of writing.

Learner autonomy is highlighted as an important aspect of IT-mediated writing learning. Giving learners control over their learning process, including their choice of topics and feedback, can promote motivation and engagement.

Multimodal approaches, which incorporate different modes of communication and media, are found to be effective in promoting writing skills. Studies suggest that multimodal writing tasks, such as wiki-based projects, can enhance students' engagement and writing skills.

Finally, contextualization is an important aspect of IT-mediated writing learning. Studies suggest that contextualizing writing tasks in real-world scenarios, such as through using authentic materials, can enhance motivation and engagement.

Table 3 presents the themes of effective strategies for IT-mediated writing learning in EFL contexts, identified through a meta-ethnographic study. The table highlights six overarching themes that emerged from the analysis of 20 studies: collaborative learning, scaffolding, feedback, learner autonomy, multimodal approaches, and contextualization. These themes provide insights into how technology can be used to enhance writing learning in educational settings, particularly in the context of EFL learning. The table provides a summary of each theme, describing its key characteristics and the effective strategies associated with it. Understanding these themes can inform the design of effective IT-mediated writing learning interventions and improve EFL learners' writing skills.

Table 3. Themes of Effective Strategies for IT-Mediated Writing Learning in EFL Contexts

Theme	Description
Collaborative Learning	Collaborative writing projects can enhance writing skills and promote cross-cultural communication.
Scaffolding	Providing support for learners, particularly in the form of teacher-guided feedback and task design.
Feedback	Teacher-written feedback can be more effective than self-correction or peer feedback.
Learner Autonomy	Giving learners control over their learning process can promote motivation and engagement.
Multimodal Approaches	Incorporating different modes of communication and media, such as wiki-based projects, can enhance writing skills.
Contextualization	Contextualizing writing tasks in real-world scenarios, such as through using authentic materials, can enhance motivation and engagement.

These themes offer insights into how IT can be used effectively to enhance writing learning in educational settings, particularly in the context of EFL learning. The study concludes by discussing the implications of these findings for both research and practice, and highlighting the need for further research in this area.

4.2 Discussion

The study concludes by emphasizing the need for further research in this area and the importance of considering these effective strategies when designing IT-mediated writing learning environments. The findings have important implications for both

research and practice and can inform the development of effective IT-mediated writing learning interventions in EFL contexts.

The findings of this meta-ethnographic study are consistent with previous research on effective strategies for writing learning in EFL contexts. For example, Belz and Vyatkina (2015) suggest that learner corpus research can be incorporated into L2 writing pedagogy to improve writing skills. Similarly, Lee (2013) found that synchronous voice-based computer-mediated communication can enhance communication abilities, which is consistent with the collaborative learning theme identified in this study.

The importance of feedback and scaffolding in writing learning has also been emphasized by other experts. Hwang and Choi (2017) found that teacher-written feedback is more effective than self-correction or peer feedback, which is consistent with the findings of this study. Similarly, Polio and Shi (2014) found that task type affects the type of feedback students use and the frequency of revision.

The importance of learner autonomy has also been highlighted by other researchers. Benson and Reinders (2011) suggest that learner autonomy is essential for effective language learning, and can promote motivation and engagement. This is consistent with the learner autonomy theme identified in this study.

Multimodal approaches to writing learning have also been emphasized by other experts. Li (2018) suggests that multimodal features of writing-to-learn tasks can be used to design effective online writing tasks. Additionally, Rashid and Asghar (2016) found that multimedia-based instruction can improve learning outcomes, which is consistent with the multimodal approaches theme identified in this study.

Finally, the importance of contextualization in writing learning has been emphasized by previous research. Hyland (2018) suggests that authentic materials and real-world scenarios can enhance motivation and engagement in writing tasks, which is consistent with the contextualization theme identified in this study.

Overall, the findings of this study align with and build upon previous research on effective strategies for writing learning in EFL contexts, highlighting the importance of collaborative learning, scaffolding, feedback, learner autonomy, multimodal approaches, and contextualization.

5. CONCLUSION

The meta-ethnographic study on effective strategies for IT-mediated writing in EFL contexts has provided insights into how technology can be used to enhance writing learning. The study identified six overarching themes, including collaborative learning, scaffolding, feedback, learner autonomy, multimodal approaches, and contextualization. These themes offer practical guidance for educators and curriculum designers in developing effective IT-mediated writing learning interventions.

Furthermore, the study highlights the importance of meta-ethnography as a research methodology for synthesizing multiple qualitative studies on a particular topic. By systematically identifying, selecting, and synthesizing relevant studies, meta-ethnography allows for a comprehensive understanding of a phenomenon of interest.

The study also acknowledges its limitations, such as the potential for publication bias and the lack of studies from non-English speaking contexts. Therefore, the study calls for further research to be conducted to expand and validate the findings in different contexts and languages.

Overall, this study contributes to the existing literature on effective strategies for IT-mediated writing learning in EFL contexts and provides practical implications for educators and researchers in this field.

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