

Examining the Role of Digital Tools in Pre-service English Language Teachers' Self-efficacy in Writing

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ABSTRACT

Writing is regarded as one of the most challenging skills for language learners due to its multifaceted nature. Similarly, writing instruction involves a composite skill set varying from teaching structural knowledge to linking ideas logically through using appropriate lexicon and cohesive devices. Like many other EFL learners, most students with intensive English instruction at Turkish universities often report difficulties in their in-class and extracurricular writing tasks, and they do not feel a sense of achievement and self-efficacy in writing in English as a foreign language (L2). Through this study, the researchers provided 35 English preparatory students with 6-week writing instruction integrating digital tools to examine the effectiveness of this intervention in promoting the students' self-efficacy levels and sense of achievement in L2 writing. The study adopted a mixed-methods research model in which the Self-Efficacy Writing Scale (SEWS) created by Bruning et al. (2013) is used as the quantitative data tool, and the interview and minute paper techniques as the qualitative data tools. The study's findings revealed that digital-tool-supported writing instruction had promising impacts on fostering students' self-efficacy in L2 writing, leading to gains in their ideation, use of writing conventions, and self-regulation abilities. The qualitative findings also suggested that digital tools empowered them as writers in L2 and led to improvements in their perceived sense of achievement in writing tasks.

İngilizce Öğretmen Adayı Hazırlık Öğrencilerinin Yazma Öz-yeterlik Algılarında Dijital Araçların Rolünün İncelenmesi

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Yazma, çok yönlü doğası nedeniyle dil öğrenenler için en zorlayıcı becerilerden biri olarak kabul edilmektedir. Benzer şekilde, yazma eğitimi, yapısal bilginin öğretilmesinden, uygun sözcük dağarcığı ve bağlayıcı araçlar kullanılarak fikirleri mantıksal olarak birbirine bağlamaya kadar değişen bileşik bir beceri setini içerir. Diğer pek çok İngilizce öğrenen gibi, Türkiye'deki üniversitelerde yoğun İngilizce eğitimi alan öğrencilerin çoğu da sınıf içi ve ders dışı yazma görevlerinde zorlandıklarını ve yabancı dil olarak İngilizce yazma konusunda başarı ve öz yeterlilik duygusu hissetmediklerini belirtmektedir. Bu çalışmada araştırmacılar, 35 İngilizce hazırlık öğrencisine dijital araçların entegre edildiği 6 haftalık bir yazma eğitimi vererek, bu müdahalenin öğrencilerin İngilizce yazmada öz yeterlilik düzeylerini ve başarı duygularını geliştirmedeki etkinliğini incelemeyi amaçlamıştır. Çalışmada nicel veri aracı olarak Bruning ve diğerleri (2013) tarafından oluşturulan Öz Yeterlik Yazma Ölçeği (SEWS), nitel veri araçları olarak da görüşme ve kısa ders değerlendirme form tekniklerinin kullanıldığı karma yöntemli bir araştırma modeli benimsenmiştir. Çalışmanın bulguları, dijital araç destekli yazma eğitiminin öğrencilerin İngilizce yazma öz yeterliliklerini geliştirmede umut verici etkileri olduğunu ve öğrencilerin fikir üretme, yazma kurallarını kullanma ve öz düzenleme becerilerinde kazanımlara yol açtığını ortaya koymuştur. Nitel bulgular ayrıca dijital araçların öğrencileri bu yabancı dilde yazar olarak güçlendirdiğini ve yazma görevlerinde algılanan başarı duygularında iyileşmelere yol açtığını göstermiştir.

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INTRODUCTION

Acquiring writing as a skill in a foreign language teaching context is challenging for teachers and students. It is considered one of the core skills in the language teaching curriculum, and learning to write proficiently lays the foundations of academic achievement (Badenhorst, 2010; Kaplan, Lichtinger, & Gorodetsky, 2009; Silva & Matsuda, 2010; Wilson & Trainin, 2007). The complex nature of writing and its being considered one of the productive skills bring about the interplay of syntax, vocabulary, grammar, and subskills, namely, recognition of connected speech, fluency, unity, coherence, and cultural factors. The multifarious structure of writing requires special attention and the use of several tools to alleviate the burden of mastering skills and coping with affective factors such as self-efficacy, as writing stretches beyond the mere arrangement of words within sentence boundaries (Bandura, 1997; Bong, 2001; Hayes, 2000). The substantial cognitive demand while teaching writing can also necessitate immediate, regular feedback, reflection, revision, and enhancement of students' metacognitive awareness while writing. As the development of writing is traced over time, there is a need for a close examination of the progress, starting with the objectives of the course, the supplementary tools used, and the affective strategies to be used to raise students' writing self-efficacy. Considering these intricacies in teaching writing in a foreign language context, teachers, test developers, and foreign language curriculum designers have worked on ways to address the difficulties in instructional strategies while teaching writing. Since the current study aims to contribute to students' writing from an affective perspective by providing extracurricular digital tools to empower their learning, the literature review below touches upon writing self-efficacy and incorporating digital tools in foreign language writing.

Regarding affective factors as the basis for writing self-efficacy, the humanistic works of Rogers (e.g., 1961 and 1980) and Maslow (1968) paved the way for the uniqueness of students as individuals. Parallel to considering individuals with the power 'to develop their own potential to maintain and strengthen their organism' (Jinga, 2012), teachers should foster students' 'individual self-worth' (Aloni, 2007; Wang, 2005). In the humanistic tradition, an individual's thoughts, feelings, and emotions play a significant role in human development (Akkaş-Baysal & Ocak, 2020; Bandura & Barab, 1973; Lei, 2007; Sırmacı & Konyalıoğlu, 2021). Therefore, the concept of self-efficacy is defined as "the power to produce an effect" (Merriam-Webster, 2017) and "a person's belief that they can successfully execute a behavior required to produce a desired outcome" (Bandura, 1977, p. 193). An individual's perception that they have mastered a task affects their behaviours. Perceived self-efficacy directly impacts an individual's social behaviours; people tend to fear and avoid "threatening situations they believe exceed their coping skills," while they will otherwise engage in activities or tasks when they judge themselves as capable (p. 194). In the context of university foreign language education, students are enrolled in the system with high levels of academic skills, which are likely to be reflected in their self-efficacy beliefs about their potential task performance (writing tasks in this study) (Hyland, 2000; Lane, Lane, & Kyprianou, 2004; Schunk, 2001). Likewise, writing tasks in higher education contexts require multiple competencies; macro and micro skills for writing and self-efficacy, which lead to the attainment of a writing task, and make students less likely to feel disappointed in the face of failure. Taking self-efficacy as the focus of educational research, a significant number of researchers conducted studies on writing self-efficacy (Bruning, et al., 2013; Harris & Graham, 2017; McCarthy, Meier, & Rinderer, 1985; Ofori & Charlton, 2002; Pajares, 2003; Pajares & Johnson, 1994; Prat-Sala & Redford, 2012; Richardson, 2007; Shell, Colvin, & Bruning, 1995; Zimmerman & Kitsantas, 2002).

The 21st century ushered in an era of digital transformation in education, implementations of which can also be traced to language teaching. The integration of digital tools provides teachers and students with the ease of accessibility to receive assistance from educational tools without the time and place constraints (Çoklar & Çalışkan, 2019; Kaleci & Cihangir, 2019; Ustun, Karaoğlan-Yılmaz & Yılmaz, 2020). Therefore, digital tools form a dynamic and interactive environment to facilitate writing development (Chen & Tsai, 2017; Fernández-Domínguez et al., 2019; Godwin-Jones, 2015; Kessler, 2018; Lan, 2015; Parker, 2015; Reinders & White, 2016). Through writing digital tools, students can access a plethora of writing resources addressing diverse student needs and enhancing skills in writing. They can receive immediate feedback, use creative ways

to foster their text, engage in collaborative writing with their peers and teacher, receive immediate feedback, and make use of writing conventions like paraphrasing and fluent and accurate production. All these digital writing tools align with the specified 21st-century skills, allowing autonomy, metacognitive awareness, and student self-efficacy. To integrate digital writing tools for the overall development of English writing proficiency and augment students' writing self-efficacy, the study set out to address the needs of a group of English Preparatory students from the Department of English Language Teaching (ELT henceforth) enrolled in a state university by seeking answers to the following research questions:

1. How does the integration of digital tools in L2 writing instruction impact students' self-efficacy in writing?
2. What is the effect of the digital tool-based intervention on students' perceived sense of achievement in L2 writing tasks?

METHOD

Research Design

The study adopted a mixed-methods research design. The research design lends itself to both qualitative and quantitative data collection instruments. It was proposed as the most suitable methodology to fulfill the aims of the study after a profound search to investigate the role of digital tools in students' writing self-efficacy. Mixed method research design has 'perceived legitimacy of both qualitative and quantitative research in social and human sciences' (Creswell, 2003, p. 203). Mixing quantitative and qualitative data in a single study necessitates explicit procedures to create meaning out of complex data. Quantitative and qualitative means were utilised in the study to converge on two insights for the research problem being investigated. Both methods are given equal priority in the study because 'the strengths of the two methods will complement each other and offset each method's respective weaknesses' (Fraenkel, Wallen, & Hyun, 2011). Similarly, the study utilised semi-structured interviews and minute papers as the qualitative data collection tools and Self-efficacy for Writing Scale by Bruning, et al. (2013) to validate the data drawn from students from two different sources.

It is also noteworthy to briefly describe the course design implemented as a six-week intervention. It was planned based on the contextual need to address preparatory school students' lack of proficiency in writing skills. The researchers carefully selected a set of digital tools which they found helpful in empowering students' skills of writing (use of conventions and mechanics) and supporting them with the development of self-regulated writing behaviours throughout the different phases of the writing process, such as planning, prewriting, editing, revising and publishing. To name these tools and websites, Google Docs, Quillbot, IXL learning, Padlet, Creately, and Deepl were utilised. Among the main activities and instructional strategies used during the implementation via these tools and websites, brainstorming (both individually and collaboratively), idea mapping, outlining, creation of graphic organizers, collaborative writing, online editing, and peer feedback were integrated into the six-week series of tasks interwoven into the regular syllabus of writing. Please see Appendix A for an overview of a sample lesson plan designed to teach descriptive paragraph writing through a set of digital tools and websites.

Participants

The study participants are 35 students who enrolled in the program of ELT but failed the proficiency exam and had to study at least one term of intensive English in their preparatory year. The researchers of the current study (one from the ELT department and the other from the School of Foreign Languages) designed the intervention and they aimed to conduct joint research for the ELT students in their preparatory year. Starting with the need in the immediate environment, which constituted the rationale behind the study, the ELT students in their preparatory year were selected as the participants.

The sampling procedure is highly significant in mixed method studies as in any other research type. Fraenkel, Wallen, and Hyun (2011) indicate that qualitative research prefers purposive sampling, in which the

participants are selected intentionally, and the intent is to gather a considerable amount of detailed, in-depth information from a small group that a large-size sample would not. Nevertheless, quantitative researchers select a more extensive population so that results can be generalised to that population, and random sampling is frequently preferred. However, 'this is not possible, especially in educational settings'. In mixed research design, Teddlie and Yu claim that (2007, as cited in Fraenkel, Wallen, & Hyun, 2011, p. 565) sampling procedures may include any combination of random and purposive sampling strategies to address the research questions. In this study, the selection of the participants was based on purposive sampling, which suits the researchers' intentions. The researchers agreed upon a necessity and 'built the research methodology by shaping it according to their needs' (Cohen, Manion, & Morrison, 2007). An informative meeting session was organised to inform the students of the researchers' overall purpose, objectives, and provisional schedule. They were distributed consent forms in which the six-week intervention was mentioned in a more detailed way. The ages of the students ranged between 17 and 19. There were 21 female and nine male students. Their English levels did not vary from one another. They all took the centralised national university entrance exam and the English Language School proficiency exam in the research context. They had 30 hours of General English Courses at B1 to B2+ level according to the CEFR, six of which were devoted to writing skills.

Research Instruments and Processes

The study utilised the following quantitative and qualitative data collection tools so that the study's constraints could be reduced, triangulation could be assured, the conclusions generated from such numerous research approaches could be double-checked, and the validity and reliability of the study could be reinforced.

First research instrument

The quantitative data collection tool is the Self-Efficacy for Writing Scale (SEWS) by Bruning et al. (2013). The scale included 16 items, five representing 'idea generation' and another five about 'writing conventions'; the remaining six items are for 'writing self-regulation'. The participants were expected to rate their self-efficacy on each item on a zero to 100 scale, ranging from no confidence to complete confidence. The averages of self-rated scores on the items were calculated and computed for data analysis.

A pre-test/post-test design was implemented to gather quantitative data through the applications of the SEWS before and after the digital-tool-supported writing instruction to examine the impacts of the intervention on the students' perceived writing self-efficacy levels.

Among the scales for self-efficacy present in the research literature, the SEWS has been selected due to its multifactor perspective on writing self-efficacy and its ties to other writing-associated variables such as idea generation and self-regulation. Bruning et al. (2013) specified Ideation, Conventions, and Self-regulation as three factors with high internal consistency ($\approx .90$). Means of self-efficacy were 70.46 (SD=20.49), 79.31 (SD=16.44), and 61.31 (SD=23.26) for the so-called subscales. Each subscale displayed significant ($p < .001$) levels of negative skewness (-0.804 , -1.450 , and -0.513 , respectively; all SEs = 0.093), indicating that student ratings of writing self-efficacy tended towards higher levels of the rating scale and were not normally distributed. The three scales showed significant positive correlations with one other. The correlation between ideation and self-regulation was strong ($r = .718$), while conventions were moderately correlated with both ideation ($r = .526$) and self-regulation ($r = .463$). Reliabilities for each of the factor-related subscales were also high. Alpha for the five items related to the ideation factor was 0.903, for the five convention items 0.847, and for the six self-regulation items 0.884.

Second research instrument

A part of the qualitative data was collected through semi-structured interviews conducted with five students as a rich data source. Holstein and Gubrium (2002) indicate that interviews generate empirical data and provide direct quotes of individuals discussing their perspectives, experiences, ideas, feelings, and knowledge. Also, interviews lend themselves to first-hand, real-time interaction in which non-verbal cues such

as facial expressions, gestures, and tones of voice can be traced. The researchers probed the interview sessions according to the so-called guidelines of semi-structured interviews. The interview included questions about the usefulness of digital tools in students' writing processes and how they contributed to their writing self-efficacy and overall writing abilities.

Third research instrument

As another qualitative data collection tool, minute papers were used to collect the participants' intervention experiences immediately. They are the documents systematically gathered from the participants immediately after each session. The documents inquired students' evaluations of the course content in that session. By responding to weekly minute papers, students can understand the course material and tasks in detail and allow the researchers to gauge student perceptions and learning experiences (Angelo & Cross, 1993).

Data Analysis

The quantitative data was collected through the SEWS (Bruning et al., 2013), which was applied to 35 participants before and after the intervention to determine whether there was a change in the students' levels of self-efficacy in writing in L2. The pre-intervention and post-intervention SEWS results were computed in the SPSS 25 version.

The Kolmogorov-Smirnov test was conducted to determine whether the data were normally distributed. Considering the normality of the data ($\text{sig}=0,075>0,05$), the data were analyzed through the paired samples t-test. This test allowed the researchers to compare the two sets of SEWS results to see any changes in the students' writing self-efficacy perceptions after the intervention of digitally enriched writing instruction.

As for the qualitative data obtained through semi-structured interviews with five students after the intervention and minute papers collected from all the participants after each session, the researchers employed the content analysis method following the steps in Creswell and Creswell (2018, pp.267-272). The researchers transcribed and checked audiotaped interviews for analysis. They read the transcripts and notes multiple times, highlighting relevant segments. They organised the data by outlining keywords and bracketing chunks, identifying recurring topics, and scrutinising them for relatedness and emergent patterns. They categorised these recurring patterns and identified overlapping codes. They determined themes based on these codes and consulted a proficient expert in qualitative educational research to sustain validity and reliability. The researcher visually displayed the findings by drawing a table classifying themes and locating relevant statements or passages.

Ethics

The ethics approval of the study was obtained on 16/04/2021 with the number 2021/255 from Necmettin Erbakan University Ethical Committee of Social and Human Sciences.

FINDINGS

The findings of the study drawn from both quantitative and qualitative data are shared in the order of the data collection tools of the study.

The SEWS Results

A paired-sample t-test was conducted to evaluate the impact of the digital-tool-supported writing instruction on students' self-efficacy levels on the Self-Efficacy for Writing Scale (SEWS). There was a statistically significant increase in their SEWS scores from Pre-intervention ($M = 47.02$, $SD = 9.18$) to Post-Intervention ($M = 71.75$, $SD = 8.11$), $t(34) = 41.86$, $p < .001$ (two-tailed). The mean increase in the SEWS scores was 24.72, with a 95% confidence interval ranging from 23.52 to 25.92.

Further t-tests were also conducted to evaluate the impact of the intervention on the students' perceived performance in idea generation, conventions, and self-regulation, which are the sub-dimensions of the SEWS and considered to be important factors in predicting the students' writing performance.

There was a statistically significant increase in their idea generation scores from Pre-intervention ($M = 44.05$, $SD = 12.15$) to Post-Intervention ($M = 67.42$, $SD = 10.82$), $t(34) = 14.84$, $p < .001$ (two-tailed). The mean increase in the idea generation scores was 23.37, with a 95% confidence interval ranging from 20.17 to 26.57.

Another statistically significant increase was also found in their perceived use of writing conventions from pre-intervention ($M = 53.25$, $SD = 14.13$) to Post-Intervention ($M = 74.40$, $SD = 10.86$), $t(34) = 10.32$, $p < .001$ (two-tailed). The mean increase in the subcategory of conventions scores was 21.14, with a 95% confidence interval ranging from 16.98 to 25.30.

Finally, there was a statistically significant increase in their self-regulation scores from Pre-intervention ($M = 43.76$, $SD = 11.44$) to Post-Intervention ($M = 73.42$, $SD = 11.07$), $t(34) = 11.86$, $p < .001$ (two-tailed). The mean increase in the self-regulation scores was 29.66, with a 95% confidence interval ranging from 24.58 to 34.74.

Semi-structured Interview Results

The researchers expected some confirmatory findings that support the results obtained through the quantitative analyses of the SEWS. Thus, follow-up interviews after the intervention were conducted further to explore participant experiences and perceptions of digital-tool-supported writing instruction. Table 1 below displays the themes and sub-themes drawn from the semi-structured interviews and some excerpts illustrating the findings. To preserve the privacy and anonymity of the respondents, the participants' true names are not given in the report of the data and findings. Instead, the students are denoted by the digits S1, S2, S3, S4, and S5.

Table 1. *The List of Themes, Sub-themes, and Excerpts taken from the Semi-structured Interviews*

Themes	Sub-themes	Excerpts
Ideation	Motivation to brainstorm	<i>"Padlet and Word Cloud increased my motivation to generate ideas" (S2)</i> <i>"My friends' ideas on Padlet pushed me to think further" (S3)</i>
	Ease with novel ideas	<i>"Quillbot fostered new ideas in my mind while writing" (S5)</i>
	Better organization of ideas	<i>"IXL helped me become better organized with my ideas" (S4)</i> <i>"Timelines on Creately taught me how to sequence my ideas" (S2)</i>
	Distinguishing between the relevant and irrelevant	<i>"I started to see related ideas and eliminate unrelated ideas in my writing" (S4)</i>
Conventions	Correct spelling	<i>"I could easily spot my spelling mistakes" (S1)</i> <i>"Sometimes I forget the spelling of some words and they help me remember" (S3)</i>
	Improved sentence construction	<i>"I make grammatically correct sentences" (S3)</i>
	Better Punctuation	<i>"I realized that I was not careful with correct punctuation, now I am" (S4)</i>
	Self-regulation	Knowledgeable about resources
Writing task perseverance		<i>"The tools do not bore me while writing down and I can end up writing longer than usual" (S1)</i>
Getting better planned with graphic organizers		<i>"I did not know about graphic organisers before the instruction. I learned how to use them to make more planning and preparation before starting to write" (S3)</i>
Time management		<i>"I can act more quickly and write in time through feedback provided" (S2)</i>

Minute Paper Results

To draw a better portrayal of the impacts of digitally enriched writing instruction on the students' self-efficacy and perceived achievement in writing and collecting immediate feedback about the students' perceptions of the course in general, writing activities, and their writing experiences, the students were asked to write follow-up evaluations that would last a few minutes. These valuable sources of insights into the impacts of the intervention produced the findings in Table 2 below.

Table 2. *The List of Themes, Sub-themes, and Excerpts taken from the Minute Papers*

Themes	Sub-themes	Excerpts
Increased Self-efficacy in writing	Feeling more prepared to start writing	<i>"Doing pre-planning and preparation through online brainstorming and graphic organizers made me feel ready to start the writing task." (S2)</i>
		<i>"When I pushed myself to write immediately without thinking before, I found it to write hard, but now I felt more relaxed to write by making preparation." (S7)</i>
	Feeling more independent	<i>"While writing I was seeking for help from my peers or teacher, now I can write on my own by referring to tools" (S25)</i>
	Feeling more competent	<i>"Before using these apps when I read my articles, I always felt like I was repeating myself and I had difficulty finding words or phrases to explain what was on my mind. Quillbot was especially helpful in this regard. I feel more competent in my writing now." (S23)</i>
		<i>"In the past, I used to use only translation sites when I was practicing writing, but now I can write better articles by using the applications we see in the lesson." (S18)</i>
Perceived improvement in writing	Contributing to variety and creativity	<i>"Thanks to these online tools, I think that how I should approach the articles enables me to write the article from a completely different perspective and with a different language by using synonyms, adjectives and paraphrases rather than repeating the same words in the articles." (S17)</i>
	Richer vocabulary use	<i>"Before using these apps, I was using only a dictionary, which didn't offer much choice. But with these sites, it has expanded my vocabulary and made my writing more organized and fluent. I also use the phrases I learned here when I speak" (S6)</i>
	Better organization of ideas	
	Cohesive devices	<i>"When I compare the texts I wrote before and the texts I wrote after this application, I see that there is a big difference between them. In a period of 6 weeks, it contributed to my writing skills, especially to my confidence that the text I wrote was appropriate in terms of language, thought and content." (S19)</i>
	Increased grammatical accuracy	<i>"I haven't felt this much knowledgeable about grammar" (S28)</i>
Positive perceptions of the use of digital tools in writing	Finding tools useful	<i>"It was very useful for me, especially when I was writing an essay" (S20)</i>
		<i>"I found these web tools, most of which I have just learned, really beneficial." (S15)</i>
	Task enjoyment	<i>"Padlet created group enjoyment while giving feedback provision, rating each other's work and following peers' shares" (S35)</i>
	Willingness to transfer learning experiences	<i>"It helped me with my homework and exam writing studies in preparation and I will definitely use it in</i>

academic writing courses when I study in my department.” (S26)

“Things I have learnt in writing lessons It have also helped my speaking skills.” (S33)

**Some participants' excerpts fit more than one theme.*

DISCUSSION, CONCLUSION, RECOMMENDATIONS

The findings of the study are discussed in the order of research questions. Utilising a psycho-social perspective, the study first examined how L2 learners' self-efficacy in writing is affected by digital-tool-supported writing instruction. Secondly, it explored how L2 learners perceive their writing abilities.

The increase in the students' self-efficacy levels based on the SEWS results following the intervention provides promising evidence that integrating digital tools into L2 writing instruction positively impacts students' self-efficacy in writing. The student interviews and minute papers, which were used to assess the students' self-efficacy in writing, perceptions, and experiences of the intervention, produced supporting findings through their self-reporting of their increased confidence in their writing abilities. This finding suggests that digital tools and online resources can enhance students' confidence in their writing abilities since they were better equipped to write in the target language as they report. Becoming more equipped with digital tools and knowing how to use those resources effectively will contribute to a more thorough and finished writing output. In this respect, practitioners should consider integrating such tools into their teaching methods to boost students' self-belief in their writing skills since these tools are powerful sources for real-time, immediate feedback and guidance, interactive exercises, and free and immediate access to writing resources.

Yavuz-Erkan and İflazoğlu-Saban's study (2011) revealed that students' attitudes toward the process of writing and their perceived self-efficacy are related. When L2 learners feel more confident in their writing skills, they are more likely to approach writing tasks with a more positive attitude and a greater belief in their capacity to achieve them. This enhanced self-efficacy might have far-reaching effects, as it may encourage students to take on more challenging writing assignments and persist in the face of writing difficulties. The interactive and multimedia elements of digital tools might engage learners more effectively in the writing process. This heightened engagement could lead to a greater sense of self-efficacy as students find writing tasks more enjoyable and manageable.

Additionally, in-depth data collected through semi-structured interviews and minute papers produced positive results regarding students' feeling of independence from the teacher, seeking less assistance with tasks as a result of the systematic training provided on which digital tool to utilize throughout all the processes of writing ranging from idea generation (esp. Padlet, Creately) to edition and revision (through Grammarly and Quillbot). The findings of the current study revealed similar results reported in Demirkol and Demiröz (2022), Jones (2008), William and Takaku (2011), who explored the positive relationship between L2 writing self-efficacy and training the students in idea generation, exploration, organization of ideas and scaffolding students throughout the process of writing. The students first improved their sense of self-efficacy by realizing their weaknesses, exploring sources of help, and acting towards eliminating them through assistance from the teacher and guided instruction on digital tools over time.

The study's findings also suggested that the students developed more self-regulatory writing behaviors during the intervention. Through the digital tools, they were challenged to take more control over their writing processes by getting involved in careful planning, collecting feedback, checking, and revising based on feedback. They adopted more self-regulatory behaviors in writing by taking more autonomous action to do writing in and outside the classroom, which ultimately leads to students' becoming more independent from the teacher and tend to be less help-seeking. This finding implies that the integration of technological tools into writing instruction will encourage learners to become more self-regulated writers, which is also consistent with Han, Zhao, and Ng's study (2021) that revealed the positive impacts of technological tools on the participant students' perceived self-regulated learning strategies in academic writing. As they argue, digital tools can

facilitate self-regulated learning by helping language learners set goals, monitor their progress, and revise their writing product based on feedback. Also, the findings indicated the participants' self-reported improvement in the use of writing conventions and mechanics such as accuracy, vocabulary choice, punctuation, capitalization, and formatting as a result of digital tools, which provide real-time grammar checks (i.e., Grammarly) or interactive exercises (i.e., IXL) that helped students identify and correct grammatical errors in their writing, and vocabulary suggestions (i.e., Quillbot), synonyms, or access to online dictionaries. This improvement might contribute to a heightened sense of achievement in writing tasks.

Another contribution of digital tools to fostering students' writing was their first encounter with collaborative writing experience with their peers on Google Docs. In their minute papers and interviews, they reported that they had the opportunity to seek help from their peers and enjoy the tasks while writing collaboratively. Their engagement in a collaborative writing task might prove more advantageous in making them less dependent on the teacher and enhancing active learning and group work skills (Li, 2023). As well as providing peer feedback and assistance, such collaborative writing platforms as Google Docs help promote learners' social skills. This assumption is also supported by Godwin-Jones (2018) suggesting that as writing is a social activity, collaborative writing tools that offer a shared writing environment are likely to promote learners' social skills.

Despite its limitations due to such context-bound factors as working with only one group of L2 learners and having a time constraint, the study could have significant implications for educators, highlighting the potential benefits of integrating digital tools and online sources into writing instruction in enhancing learners' self-efficacy and sense of achievement. However, it is important to remember that the specific findings would depend on the unique characteristics of the study and the digital tools used. Moreover, the long-term impact of using digital tools on language learners' self-efficacy and writing ability may be explored in further research. This can shed light on whether these advantages endure over time.

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APPENDIX A: Overview of a Sample Lesson Plan

Week	Paragraph Type	Targeted Subskills of Writing	Instructional Activities	Digital tools and websites used to teach	Procedures
1	Descriptive paragraph	Use of vivid details and sensory language	Creating a five-senses graphic organizer	Creately https://describingwords.io/	<ol style="list-style-type: none"> After the students (Ss) were explained what a descriptive paragraph is, they were encouraged to brainstorm about vivid details of the thing they would describe by creating an online graphic organizer through Creately. Those who could not find any or many vivid details were encouraged to use the website https://describingwords.io/ to find descriptive adjectives regarding an object. The Ss were introduced the figures of speech (i.e. similes, metaphors, personification, allusion and so on). They were encouraged to identify those elements in the texts through IXL. The Ss were also tested through tests and quizzes available on Quizlet. After the Ss got ready for writing, they were often encouraged to avoid plagiarism and repetition through the digital tools of Quillbot and Grammarly. They were asked to do some exercises of identifying plagiarism and correcting sentences by restating on IXL website. Finally the Ss were encouraged to display their paragraphs online on Padlet so that their friends could see and provide peer feedback and edit the paragraph collectively.
		Use of figurative language	Identifying and analysing figures of speech in texts	IXL https://www.ixl.com/ela/figurative-language Quizlet	
		Avoiding plagiarism	Checking the text for plagiarism	Grammarly Quillbot https://www.ixl.com/ela/grade-12/identify-plagiarism	
		Paraphrasing	Restating main ideas	https://www.ixl.com/ela/grade-6/identify-and-correct-plagiarism Quillbot	
		Revision & Editing for Mechanics and Grammar	Peer editing Checking the accuracy of the language used in the text	Grammarly Padlet	