

# An Exploratory Study on Effects of WeChat-Assisted Self-Regulated English Writing Instruction on EFL Learners' Motivation

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**Abstract:** Scholars suggested using social networking to assist second language and foreign language learning. Researchers in the present study designed and developed a Mini Program on the WeChat platform to assist university EFL learners in improving self-regulated English writing. This exploratory study aims to investigate the effects of WeChat-assisted Self-Regulated English Writing Instruction on university EFL learners' motivation in English writing. A quasi-experimental design with forty-five second-school-year university students was conducted for two weeks. Participants were randomly divided into the control group, the traditional group and the WeChat-assisted group. They took a pre- and post-questionnaire survey on English writing motivation before and after the intervention. Descriptive statistic analysis was used to show the status quo of the participants' motivation, paired sample *t*-test was used to analyze the differences in motivation within each group before and after the intervention, and ANOVA analysis was used to compare differences in motivation between groups after the intervention. Both the traditional approach and the WeChat approach generated positive impacts on students' overall motivation, self-efficacy and interest. Students using the traditional approach outperformed those using the WeChat-assisted approach but the results did not reach a significant level. Implications for future studies are suggested.

**Keywords:** self-regulated language learning; motivation; foreign language learning; technology-enhanced language learning

## 1. Introduction

The significance of Self-Regulated Learning (SRL) is increasing with the technological tools advance. In the domain of English as a second language and foreign language learning

(ESL and EFL), previous researchers have conducted much research on investigating the application of different technological tools in assisting SRL, such as digital games (e.g., Qiao et al., 2022) and mobile apps (e.g., Yang & Song, 2022). According to scholars' review papers in technology-enhanced language learning, they emphasized the using of social networks as a promising educational technology research trend in ESL and EFL (Chen et al., 2020; Zhang & Zou, 2022). However, WeChat, as a social networking application with over one billion monthly active users worldwide (Tencent, 2023), has not received much attention from researchers. In addition, English writing is one of the most complex and challenging skills for EFL learners (Graham et al., 2018). Therefore, the present study designed and developed a WeChat Mini Program to assist university EFL learners in improving self-regulated English writing.

## **2. Literature Review**

### *2.1 Self-Regulated Learning in English Writing*

The Self-Regulated Learning (SRL) has become a significant characteristic in the 21<sup>st</sup> century (Li et al., 2022). As for self-regulated learning in writing, Zimmerman and Risemberg (1997) laid the theoretical foundation by analyzing the writing process from an SRL perspective. Harris and Graham (2017) suggested that teachers should conduct the explicit instruction on self-regulated strategies for students. Graham et al. (2018) concluded the importance of self-regulated language learning (SRLL) strategies on writing and writing development across different writing contexts. Many researchers have confirmed the SRLL strategy's positive impacts on second or foreign language writing with empirical evidence (e.g., Teng et al., 2022). However, these researchers targeted young learners to investigate the impacts of SRLL strategies on English writing. Both Bai et al. (2020) and Teng (2020) highlighted the advantages of SRLL for young learners' English writing. Though many existing studies on the SRLL strategy use were on university students, they were from over a decade ago (Chang, 2005; Chien, 2012).

Therefore, more studies are desperately needed to use an intervention to investigate university students' SRLL in EFL writing contexts. Researchers and teachers need to learn about the status quo of university EFL learners' SRLL. More importantly, continuous pedagogical interventions for lifelong learning can become possible.

### *2.2 Motivation in English Writing*

Motivation is generally conceptualized as the psychological incentives to generate actions (Barak et al., 2016). Dörnyei (2005) stressed the significance of motivation for students to achieve success in EFL. Studies on motivation in ESL/EFL drew much attention from researchers but studies specifically focused on motivation in English writing were relatively scant (Lee et al., 2018). Later, Guo and Bai (2019) suggested that self-efficacy and interest are crucial elements to EFL learners in self-regulated English writing, especially for young learners. However, not enough attention is paid to university EFL learners who transmitted from traditional middle school to a new and different EFL learning context at the university. Therefore, this exploratory study planned to investigate the effects of the

WeChat-assisted Self-Regulated English Writing Instruction (SREWI) on these variables.

Regarding self-efficacy in motivation, extensive research has shown that students with high motivation performed better in English writing (Bai et al., 2021; Bai et al., 2022). As for SRL, researchers also found the positive impacts of students' self-efficacy on self-regulated English strategy use. Regarding interest in motivation, Dörnyei and Ushioda (2013) conceptualized interest in the learning context as the level of a learner's engagement and participation driven by curiosity and challenges. Bai and Guo (2019) found a low level of interest in English writing among young learners. They called for more attention to research on interest in English writing. Bai et al. (2022) investigated effects of self-regulated English writing instruction by an e-learning approach on young learners' overall motivation, self-efficacy, and interest. Their study found a significant increase in interest after the e-learning intervention for young learners. Therefore, this exploratory study will involve university students to explore their motivation in English writing. The present study implemented the SREWI through a traditional approach and a WeChat-assisted learning approach. Two experimental groups of students received these two different intervention respectively. The primary research questions for the exploratory study included:

1. What is the status quo of university EFL learners' English writing motivation before the intervention?
2. Is there any difference in English writing motivation for students before and after the intervention in each condition?
3. Is there any difference in English writing motivation for students after the intervention between different conditions?

### **3. Research Methods**

#### **3.1 Participants**

Convenience sampling was adopted for this exploratory study. Forty-five second-school-year university EFL learners aged from 19 to 24, majoring in civil aviation at a comprehensive university in mainland China, took part in the study voluntarily. The prerequisite for the students to start the professional training at the aviation academy is to meet the English language proficiency criteria. Therefore, it is of great necessity to improve their self-regulated English learning. This exploratory study investigated the effects of the SREWI on EFL learners' motivation in English writing.

#### **3.2 Design of the WeChat-Assisted Self-Regulated Writing Instruction Mini Program**

Researchers designed a WeChat Mini Program on the SREWI based on the "Cyclical Phase Model" (Cleary & Zimmerman, 2012) and the "Self-Regulated Strategy Development Theory" (Harris & Graham, 2017). The major purpose of the program was to help students learn SRL strategies for English argumentative writing. There were five lessons to teach students SRL strategies for pre-writing, while-writing, and post-writing stages. As shown in Figure 1, this WeChat Mini program supported five main functions for learners, namely previewing the lesson by watching a short video clip, investigating learners' previous experience on SRL by doing a survey, learning SRL strategies by reading materials and

completing tasks, self assessing the study by taking a quiz, and monitoring self-study by visiting personal profile and leaderboard.

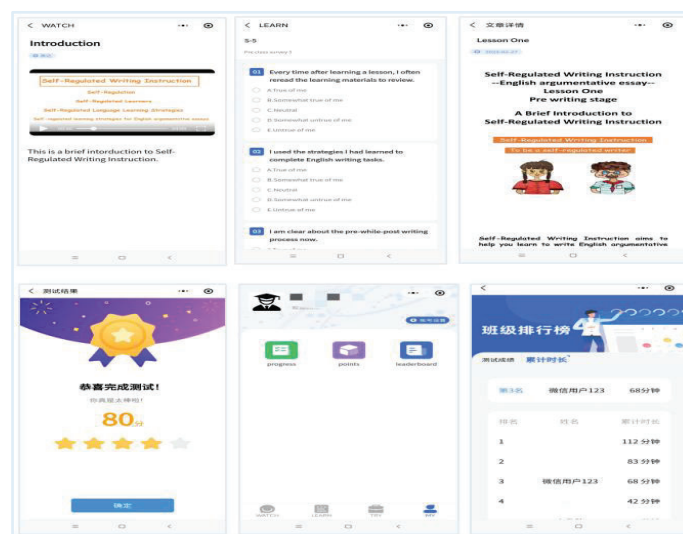


Figure1. Functions of WeChat Mini Program

### 3.3 Procedures

The study adopted a quasi-experimental design. All the participants took a pre- and post-questionnaire survey on motivation before and after the experiment. Before the experiment, the researcher sent consent forms to fifty-five students from the same class, their College English teacher and the dean of the department to introduce the study's purposes and procedures, and explained that any participant could withdraw the experiment at any time of the study. Forty-five students signed the consent form and took part in the experiment. All forty-five students were divided into three groups randomly: a control group, a traditional group and a WeChat-Assisted group. All the control group, the traditional group and the WeChat-Assisted group had the regular College English course and took part in the pre- and post-survey. Both of the traditional group and the WeChat-Assisted group received the treatment of the SREWI after class for two weeks. However, the traditional group took the treatment by reading paper materials and the WeChat-Assisted group by using the WeChat SREWI Mini Program designed by the researchers.

The experiment began on June 2, 2023 and lasted for two weeks. The participants in the traditional group and those in the WeChat-assisted group could arrange their own study in an autonomous learning environment. As an exploratory study, the researchers did not set the requirement on learning time but requested the teacher to remind participants in the experimental groups to learn every two days. The post-survey was conducted on June 17, 2023. The teacher collected the questionnaires immediately after students completed them. Because one participant in the WeChat-assisted experimental group did not complete the post-survey, data from the other fourteen participants in this group, fifteen in the control group and fifteen in the traditional experimental group, was analyzed.

### 3.4 The instrument for measuring students' motivation

This study used the motivation questionnaire adopted by Bai et al.'s (2022) research. Their study reported the high internal consistency of the questionnaire items. The questionnaire is a 5-point Likert scale and contains nine items in two subcategories: self-efficacy and interest. Participants rate each item from "1" ("completely disagree") to "5" ("completely agree"). In order to assess the reliability of the questionnaire, the data from the pre-survey was analyzed and the Cronbach's alpha was 0.90. The result indicated that the reliability of the questionnaire was high and could be used for further analysis.

## 4. Results

Descriptive statistic analysis was adopted to describe EFL learners' motivation status quo. Paired sample *t*-test was used to analyze the differences in EFL learners' motivation within the group before and after the intervention. ANOVA was used to compare EFL learners' motivation differences between different groups after the intervention.

### 4.1 The Status quo of participants' English writing motivation before the intervention

Oxford (1990) classified self-reported data for a 5-Likert scale questionnaire into three levels: a high level for a mean in the range of 3.5-5.0, a medium level for 2.5-3.4, and a low level for 1.0-2.4. Table 1 shows that participants' overall motivation score was at a medium level, slightly over 3.00 ( $M=3.28$ ,  $SD=.67$ ). For the two subcategories, the writing self-efficacy score ( $M=3.53$ ,  $SD=.70$ ) was higher than the writing interest score ( $M=2.90$ ,  $SD=.81$ ).

Table 1. Results of participants' motivation in English writing in the pre-survey

		Min	Max	Mean	SD	N
Pre survey	Motivation	1.78	5.00	3.28	.67	44
	Writing self-efficacy	1.60	5.00	3.53	.70	44
	Writing interest	1.00	5.00	2.90	.81	44

### 4.2 English writing motivation before and after the experiment within each group

Table 2 illustrates the pre- and post-survey scores of participants' motivation in the control group. Participants' self-efficacy was at a lower high level ( $M=3.52$ ,  $SD=.75$ ) before the experiment and increased slightly ( $M=3.68$ ,  $SD=.73$ ) after the experiment, even though they did not receive any additional intervention. The increase in writing self-efficacy was not significant ( $t=-1.38$ ,  $df=14$ ,  $P=.19 > .05$ ). Students' writing interest was at a medium level ( $M=2.87$ ,  $SD=.88$ ) before the experiment and increased ( $M=3.27$ ,  $SD=.84$ ) after the experiment. The writing interest score did not increase significantly ( $t=-1.99$ ,  $df=14$ ,  $P=.07 > .05$ ). Participants' overall motivation was at a medium level ( $M=3.23$ ,  $SD=.73$ ) before the experiment and increased to a high level ( $M=3.50$ ,  $SD=.71$ ) after the experiment. However, the overall motivation increase was not significant ( $t=-2.08$ ,  $df=14$ ,  $P=.06 > .05$ ).

Table 3 illustrates the pre- and post-survey scores of participants' motivation in the traditional experimental group. Participants' writing self-efficacy was at a high level before the intervention and increased after the intervention. The self-efficacy score increase was significant ( $t=-2.45$ ,  $df=14$ ,  $p<.05$ ). Participants' writing interest was at a medium level

( $M=2.98$ ,  $SD=.94$ ) before the intervention and increased ( $M=3.47$ ,  $SD=1.05$ ) after the intervention. The writing interest score improved significantly ( $t=-2.53$ ,  $df=14$ ,  $P<.05$ ). As for the overall motivation, the change reached a significant level ( $t=-2.84$ ,  $df=14$ ,  $P<.05$ ), increasing from a medium level ( $M=3.33$ ,  $SD=.72$ ) before the intervention to a high level ( $M=3.77$ ,  $SD=.67$ ) after the intervention.

Table 4 shows the pre- and post-survey scores of participants' motivation in the WeChat-assisted experimental group. Before the intervention, participants' self-efficacy in English writing was at a medium level ( $M=3.46$ ,  $SD=.71$ ) and increased to a lower high level ( $M=3.56$ ,  $SD=.58$ ) after the WeChat-assisted intervention. But the change was not significant ( $t=-.76$ ,  $df=13$ ,  $P=.46 > .05$ ). Their writing interest was at a medium level ( $M=2.86$ ,  $SD=.63$ ) before the intervention and increased ( $M=3.36$ ,  $SD=.74$ ) after the WeChat-assisted intervention. The interest in English writing increased significantly ( $t=-2.76$ ,  $df=13$ ,  $P<.05$ ). As for the overall motivation in English writing, the change was not significant ( $t=-.65$ ,  $df=13$ ,  $P=.53 > .05$ ).

Table 2. *EFL learners' motivation before and after the experiment in the control group*

		Mean	SD	SE Mean	Paired <i>t</i> test		
					<i>t</i> value	df	Sig (two-tailed)
writing self-efficacy	pre	3.52	.75	.19	-1.38	14	.19
	post	3.68	.73	.19			
writing interest	pre	2.87	.88	.23	-1.99	14	.07
	post	3.27	.84	.22			
Motivation	pre	3.23	.73	.22	-2.08	14	.06
	post	3.50	.71	.19			

Table 3. *Motivation before and after the intervention in the traditional experimental group*

		Mean	SD	SE Mean	Paired <i>t</i> test		
					<i>t</i> value	df	Sig (two-tailed)
writing self-efficacy	pre	3.60	.69	.18	-2.45	14	.03
	post	4.01	.58	.15			
writing interest	pre	2.98	.94	.24	-2.53	14	.02
	post	3.47	1.05	.27			
Motivation	pre	3.33	.72	.19	-2.84	14	.01
	post	3.77	.67	.17			

Table 4. *Motivation before and after the intervention in the WeChat-Assisted group*

		Mean	SD	SE Mean	Paired <i>t</i> test		
					<i>t</i> value	df	Sig (two-tailed)
writing self-efficacy	pre	3.46	.71	.19	-.76	13	.46
	post	3.56	.58	.16			
writing interest	pre	2.86	.63	.17	-2.76	13	.02
	post	3.36	.74	.20			
Motivation	pre	3.29	.59	.16	-.65	13	.53
	post	3.37	.47	.12			



### 4.3 English Writing Motivation before and after the intervention between groups

One-way ANOVA was adopted to assess the homogeneity of variance before starting data analysis between groups. Data from the pre-survey was used to test the homogeneity of variance. The results in Table 5 show that there is no significant difference ( $F(2, 41)=.075$ ,  $P=.928>.05$ ) between groups in participants' motivation before the intervention. Therefore, the results demonstrated that the motivation data from the control and experimental groups before the experiment was homogeneous. As there were multiple variables in the study, MANOVA was used to generate adjusted means to compare differences in motivation in post-survey between groups.

Table 5. Results of ANOVA test on pre-survey data

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.071	2	.035	.075	.928
Within Groups	19.344	41	.472		
Total	19.415	43			

#### 4.3.1 Differences in EFL learners' motivation in post-survey between the control group and the traditional experimental group

Adjusted means were used to compare the differences in EFL learners' motivation after the experiment in order to reduce the misinterpretation of the data with multiple variables. As it is shown in Table 6, the adjusted mean of the control group is 3.52 and 3.75 of the traditional experimental group. However, there was no significant difference ( $F(1,28)=1.57$ ,  $P=.22 >.05$ ) between the two groups. For the two subcategories of motivation, the control group's adjusted mean of self-efficacy is 3.69 and 4.00 for the traditional experimental group. But the difference in self-efficacy was not significant ( $F(1, 28)=3.38$ ,  $P=.08 >.05$ ). The adjusted mean of interest for the control group was 3.30 and 3.43 for the control group. However, the result shows no significant difference in interest between the two groups. Even though the traditional experimental group's adjusted means of overall motivation, self-efficacy, and interest in the post-survey were higher than those in the control group, none of the results reached a significant level.

Table 6. Differences in motivation in the post-survey between the control group and the traditional experimental group

Variable	Group	N	Mean	S.D.	Adjusted mean	F	Sig.
Motivation	Control Group	15	3.50	.71	3.52	1.5	.22
	Traditional Group	15	3.77	.67	3.75	7	
Self-efficacy	Control Group	15	3.68	.73	3.69	3.3	.08
	Traditional Group	15	4.01	.58	4.00	8	
Interest	Control Group	15	3.27	.84	3.30	.21	.65
	Traditional Group	15	3.47	1.05	3.43		

#### 4.3.2 Differences in EFL learners' motivation in the post-survey between the traditional experimental group and the WeChat-Assisted experimental group

As it is shown in Table 7, the adjusted mean of motivation for the traditional experimental group is 3.71 and 3.44 for the WeChat-assisted group. However, there is no significant difference in EFL learners' motivation ( $F(1, 27)=2.12$ ,  $P=.16 > .05$ ) in English writing between the traditional experimental group and the WeChat experimental group. For the two subcategories of motivation, the traditional group's adjusted mean of self-efficacy is 3.97 and 3.60 for the WeChat-assisted group. But the difference is not significant ( $F(1, 27)=3.70$ ,  $P=.07 > .05$ ). The traditional experimental group's adjusted mean of interest is 3.49 and 3.34 for the WeChat-assisted group. However, the result did not show any significant difference between the two experimental groups ( $F(1,27)=.28$ ,  $P=.60 > .05$ ). According to the analysis, the adjusted means of overall motivation, self-efficacy, and interest of the traditional group were higher than those in the WeChat-assisted experimental group in the post-survey. However, the results were not significant.

Table 7. *Differences in motivation in the post-survey of the two experimental groups*

Variable	Group	N	Mean	S.D.	Adjusted mean	F	Sig.
Motivation	Traditional Group	15	3.77	.67	3.71	2.12	.16
	WeChat Group	14	3.37	.47	3.44		
Self-efficacy	Traditional Group	15	4.01	.58	3.97	3.70	.07
	WeChat Group	14	3.56	.58	3.60		
Interest	Traditional Group	15	3.47	1.05	3.49	.28	.60
	WeChat Group	14	3.36	.74	3.34		

## 5. Discussion and Conclusion

Regarding the status quo of participants' motivation in English writing before the intervention, the overall motivation was at a medium level. It should be noted that the small sample size and the participants' major may influence the results in the status quo of motivation in our exploratory study. For our exploratory study, the students' self-efficacy in English writing was at a lower high level. This finding was consistent with Bai et al.'s study (2022) with young EFL learners. They found that young EFL learners' self-efficacy was already at a lower high level before the intervention. It showed that both young and university-level students reported a lower high level of self-efficacy in English writing. Besides, the writing interest for university EFL learners was at a medium level before the intervention. However, this finding differs from Bai and Guo's study (2019). They found that EFL learners' interest was at a low level. There might be two probable reasons for this difference. The major reason might be the occupational feature of the participants in our study, because the expectation of becoming a civil aviation pilot may stimulate a student's interest in English. Additionally, age might be an influential factor, because the participants in our study were university level students but those in Bai and Guo's study (2019) were primary students. Considering the results in self-efficacy and interest, it indicated that age may generate a more substantial influence on EFL learners' interest rather than self-efficacy.

Regarding the motivation in English writing before and after the experiment within each group, both an traditional approach and a WeChat-assised approach generated positive impacts on participants' overall motivation, self-efficacy, and interest. However, the increase generated by the traditional learning approach reached a significant level, which implied the



effectiveness of the SREWI on facilitating students' motivation. The WeChat-assisted approach improved students' interest in English writing significantly. This finding is consistent with previous research. For example, EFL learners' interest increased significantly after the intervention of a technology-enhanced SRL English writing instruction (Bai et al., 2022).

Regarding the motivation in English writing in the post-survey between groups, the SREWI could positively impact participants' motivation but the improvement was not statistically significant. Students who learned the SREWI in a traditional approach outperformed those who did not take the intervention. This finding implied the positive effects of the SREWI on students' English writing motivation. However, students who learned the SREWI in a WeChat-assisted approach did not perform better than those who took a traditional learning approach. As the final examinations were approaching when the study was to start, the researchers did not conduct an individual orientation session to explain the use of this WeChat Program in detail. Additionally, the small sample size and the short experiment period might attribute to the results.

Therefore, the present exploratory study found the positive effects of WeChat-assisted SREWI on EFL learners' motivation, self-efficacy, and interest in English writing. Students who used a traditional learning approach to learn the instruction performed better than others in motivation. The WeChat-assisted approach increased students' interest significantly. The findings implied that language teachers could use the applications in the market to design appropriate learning tasks and instructions to assist in teaching and facilitate students' motivation in learning (Bai et al., 2022).

Limitations of the present study and suggestions for future research will be suggested. First, the present exploratory study was lack of immediate and effective teacher support during the intervention. The implementation of a new technology learning tool requires effective teacher support (Zhang & Zou, 2022). Second, the small sample size and the short experiment period were limitations of this study. Due to these two factors, the findings of this exploratory study cannot be generalized to students in other learning contexts. So, future studies are suggested to experiment with a large sample size during a long learning period. Third, the design of the WeChat Mini Program impacted the results in the WeChat-assisted group. In order to improve the design and quality of this Mini Program, researchers collected data on students' using experience after the experiment and made improvements for the program. In future studies, researchers will further improve the program, investigate the effects of WeChat-assisted Self-regulated English Writing on other learning outcomes, and explore effective approaches for EFL learners to improve their English writing with the help of advanced technologies.

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