



The Role of Reflective Writing in Fostering EFL High School Students Self-Regulation

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Abstract

Self-regulation is a key skill to scholastic achievement and independent and sustainable learning. Unfortunately, not all EFL students display higher self-regulation skills in their learning. To address this problem, a reflective writing strategy was proposed to help these students develop their full potential in self-regulation. Therefore, this study aimed to examine the role of engaging EFL students in reflective learning journals in cultivating their language-learning self-regulation skills. To this end, a mixed design was used. A convenience sample of 28 EFL students enrolled in first-year baccalaureate consented to participate in this study. They were randomly assigned to control and experimental groups. Reflective learning journals were used to collect data about students' self-regulation. Findings demonstrated that after using reflective learning journals, the experimental group had significantly developed self-regulation compared to the control group who used traditional essays. Also, a statistically significant change over time in the experimental group self-regulation skills was observed. Therefore, as it can be inferred, reflective writing is an effective tool which could be used to build students' self-regulation skills. Accordingly, the results of this present study encourage the adoption of a reflective pedagogy to stimulate EFL high school students' self-regulation skills.

1. INTRODUCTION

This present study probed the role of reflective writing in promoting English as a foreign language (EFL) in high school students' self-regulation skills. Self-regulation is one of the critical attributes of expert and successful learners (Ertmer & Newby, 1996). It is an important educational skill that affects academic achievement, learning, and motivation (Schunk & Greene, 2017). For this reason, self-regulation is essential at all education levels (Nuckles et al., 2009). Fostering self-regulated, self-motivated, and autonomous learners and thinkers is a primary objective of education at all levels, from pre-school to higher education (Zimmerman & Paulsen, 1995). Self-regulated learners can be "metacognitively, motivationally, and behaviorally active participants in their learning process" (Zimmerman, 1986, as cited in Zimmerman, 1989b, p. 4). Therefore, they control their behaviour, are actively engaged in the learning process, motivate themselves, and can select adequate strategies to attain the wished-for academic outcomes (Montalvo & Gonzalez-Torres, 2004). To this end, self-regulation is

crucial to academic success (Zimmerman, 2002a; Zimmerman & Paulsen, 1995) and autonomous and lifelong learning (Zimmerman, 2002b). It is proven to have a positive impact on both learning outcomes (Masui & De Corte, 2005; Thiede et al., 2003) and the development of independent lifelong learners (Kriewaldt, 2001). The benefits of self-regulation extend to language learning (Tsuda & Nakata, 2013). In the context of EFL education, teaching is mainly centred on developing learners' abilities in the five basic language skills: listening, speaking, reading, writing, and grammar. The conscious and purposeful use of self-regulatory skills in the aforementioned language skills enable EFL learners to be strategic, develop effective learning habits, optimize their linguistic performance, and effectively learn the English language.

However, though the key role of self-regulatory processes in scholastic success is backed up by written evidence, still not all teachers prepare learners to be responsible for their own learning (Zimmerman, 2002b), initiate them to set learning goals, or explicitly teach them learning strategies (Zimmerman, 2002b). Additionally, learners are seldom provided with enough opportunities to self-assess their effort or appraise their competence regarding new learning activities (Zimmerman, 2002b). Consequently, high school education fails to prepare students to be independent learners, engendering drastic consequences as many students face difficulties in college (Zimmerman & Paulsen, 1995). To Tsuda and Nakata (2013), to be a successful EFL learner, it is essential to take responsibility for learning English beyond classroom boundaries and after high school graduation. To this end, there is a need to improve high school students' potential in self-regulation skills to help them be successful language learners, become autonomous learners and thinkers, optimize their academic and linguistic performance, and ultimately facilitate their effective transition into higher education. It is worth noting that self-regulation is a prerequisite to the different types of learning environments, whether face-to-face or digital (distance learning, e-learning, and online learning). The PISA 2025 (Program for International Student Assessment) views self-regulation as a crucial competency to learn effectively in the digital world (Organization for Economic Cooperation and Development, n.d.).

Previous research has shown that reflective writing strategies can stimulate students' self-regulation skills. For example, Al-Rawahi and Al-Balushi (2015) used reflective science journal writing to develop student self-regulation learning strategies for 10th-grade students. Anderson (2009) enhanced middle school students' self-regulated learning through reflective writing. Aarsal (2010) used diaries to develop pre-service science teachers' self-regulation strategies in another study. Chang et al. (2015) used an e-portfolio for reflective writing to enhance high school students' self-regulated learning. Jensen (2011) investigated the role of e-portfolios in promoting university students' self-regulation and critical reflection. Also, Nuckles et al. (2009) enhanced undergraduates' self-regulated learning through writing learning protocols or learning journals. Van Den Boom et al. (2007) used reflection prompts and tutor feedback to promote students' self-regulated learning skills and learning outcomes. However, despite this interest, there is still a need to better understand the role of reflective writing, specifically reflective learning journals, in promoting EFL high school students' self-regulation skills. In this regard, Nuckles et al. (2009) call for more research to investigate this issue. Accordingly, this study aimed to probe the role of reflective learning journals in promoting EFL high school students' self-regulation in language learning.

2. REVIEW OF LITERATURE

2.1. Self-Regulation

Self-regulation is a concept in psychology which has raised much research interest (Boekaerts et al., 2000). This ability to self-regulate is a critical human quality (Bandura, 1989; Zimmerman, 2005). It is defined as autogenic actions, feelings, and thoughts that are intended and cyclically adjusted to goal achievement (Zimmerman, 2000). Simply put, such a skill enables learners to direct their thinking and systematically regulate their cognition, feeling, and actions to attain learning goals (Kanlapan & Velasco, 2009; Schunk et al., 2008). Self-regulation is, therefore, more than an “academic performance skill” or a “mental ability”; it is a self-governed process whereby students convert their “mental abilities” into learning skills (Zimmerman, 2002b, p. 65).

Pintrich (2000) views self-regulated learning as a constructive and active process by which students plan learning goals and try to govern and direct their behaviour, motivation, and cognition that are orchestrated by both their goals and the environmental context. Pintrich (2000) highlights an important aspect of self-regulated learning: the active role of learners in the learning process. Instead of being passive receivers of knowledge, learners play an active role in their learning and exert control over achieving their learning goals (Schunk & Zimmerman, 2003). Self-regulated learning is, therefore, an overarching process encompassing a set of steps depicting this dynamic and active role of learners in taking responsibility for their own learning. These steps are embodied in independently setting achievable learning goals, using tailored strategies, regulating intrinsic (e.g., cognitive and metacognitive strategies, affects, concentration, behaviour, motivation, thinking, effort, and actions) as well as extrinsic (e.g., selecting an auspicious learning environment and avoiding distractors among others) parameters, and reflecting on the learning outcomes and performance (Zimmerman, 2000, 2002b). The regulation of all these parameters is goal-oriented since it is directed towards successfully achieving the pre-set learning goals through the use of volitional modulation strategies, inter alia, time management, mental focus, stress management, concentration, self-management, self-motivation, self-organization, self-discipline, and attention maintenance, to name a few. Based on the above, the successful achievement of learning goals relies on selecting adequate metacognitive as well as cognitive strategies; using effective motivational strategies to get and stay motivated; adopting positive behaviors to create supportive environment conducive to learning and stay engaged; managing affects; monitoring progress; evaluating the results and performance; and in light of all this, deciding whether extra effort is needed for future tasks or not. From this perspective, “learning is viewed as an activity that students do for them-selves in a proactive way rather than as a covert event that happens to them in reaction to teaching” (Zimmerman, 2002b, p. 65, emphasis in original). As such, self-regulated students are proactive agents, fully engaged in the learning process, self-directive, self-aware, decision makers, initiative takers, strategic, goal-oriented, motivated, metacognitively aware, in control of their learning strategies, reflective, and self-evaluative.

There are various models of self-regulated learning, e.g., Boekaerts (1988), Pintrich (2000), Winne and Hadwin (1998), and Zimmerman (1989b). Pintrich (2000) notes that although these models suggest different mechanisms and constructs, they intersect at four points and therefore share some common ground regarding regulation and learning. First, they perceive learners as proactive agents in their learning process. Second, they consider self-regulation not merely an ability or a skill but a process by which learners self-direct their metacognition, motivation, and behaviour to learn effectively. Third, they hypothesize that learners set a reference value

against which they evaluate their progress and make potential changes when needed. Last, they suppose that students' self-regulatory activities (i.e., self-regulation of behaviour, motivation, and cognition) mediate the connection between three poles, namely environment, person, and goal (Pintrich, 2000).

2.2. Self-Regulation Sub-Processes

Self-regulation is a cyclical process (Zimmerman, 1998). It encompasses three central sub-processes, namely self-observation, self-judgment, and self-reflection (Bandura, 1986). Self-observation of self-awareness has the function of self-diagnosis (Bandura, 1991), self-judgment is self-evaluation of one's performance, and self-reaction is a response to performance outcomes (Bandura, 1986, 1991; Schunk, 1990, 1996; Zimmerman, 1989a) which entails making appraising reactions to judgments made about one's performance, e.g., satisfactory or unsatisfactory, acceptable or unacceptable (Schunk & Zimmerman, 1997). Such sub-processes are interrelated in that self-regulated learners inspect their performances, evaluate them by comparing them against a standard, and respond to these evaluations (Schunk & Zimmerman, 1997). Therefore, these processes enable learners to take control of their learning experiences instead of being victims (Schunk & Zimmerman, 1998).

2.3. Reflection and Reflective Writing

Reflection is a thinking mode (Moon, 1999) and a metacognitive process (Taylor, 2006). Dewey (1933) defines reflection as an "active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it" (p. 9). Such a thinking mode entails a deep and objective consideration of things and the active engagement of learners. To Boud et al. (1985), reflection is an essential human activity entailing looking back on a given experience, considering, pondering, and evaluating it. These working definitions shed light on the main characteristics of reflection: reviewing past experiences through adopting a critical and objective stance, evaluating these experiences, and, in light of the outcomes, taking action plans. Importantly, reflection is a metacognitive process which allows for inward, outward, and forward-thinking. It can occur in various ways, including discussion and writing (Hickson, 2011). Reflective writing is a genre that can be practised through multiple means, including reflective learning journals. Moon (1999) defines learning journals as a collection of reflective records.

2.4. Reflective Writing and Self-Regulation

In reflective writing, writing is a medium of reflection. Since reflection is a mental activity and an invisible process, writing permits putting these reflective thoughts and reasoning processes into words, thereby making them visible and tangible. In addition to this, writing is a self-regulated process per se. Flower and Hayes (1980) note that "a great part of the skill in writing is the ability to monitor and direct one's own composing processes" (p. 39). Accordingly, writing requires more than the basic and elementary mechanical skills (e.g., spelling, grammar, and punctuation); it implies the application of many self-regulatory skills, such as planning, setting a goal, organizing, and revising (Bruning & Horn, 2000; Graham et al., 1998; Graham et al., 2017; Zimmerman & Risemberg, 1997). Zimmerman and Risemberg (1997) shed light on three key components that constitute the writing process, namely planning the content, converting ideas into written words, and reviewing the writing. The writing process, therefore,

is composed of a set of self-regulatory strategies that regulate learners' cognitive abilities to achieve the hoped-for outcome.

Reflective writing consists of two main acts, namely writing and thinking, which are synergistically regulated towards achieving a given goal (i.e., learning, deepening understanding, and thoughtfully considering things, among others). This reflective process permits the examination of experiences, be they actions, thoughts, or feelings, to extract meaning from them either during or after their occurrence (Scott, 2010). It is, then, not merely about recording and describing experiences and insights, inasmuch as it is about putting them under objective and critical scrutiny using advanced reflective reasoning processes to generate learning and better inform future actions. Based on the above, reflection is self-regulated thinking that makes EFL learners with poor regulatory competence develop the required regulatory skills, in that learners engaged in this reflective process constantly and consciously regulate their thinking and direct cognitive abilities to achieve the intended goal; evaluate their performance; and in light of the conclusion reached, make an action plan to improve future learning and achieve better results. For this reason, reflective writing promotes students' self-regulated learning (Cazan, 2012; Schmitz & Wiese, 2006; Suraworachet et al., 2021). Cash (2016) and Kish et al. (1997) note that reflection is essential in enabling learners to develop self-regulated learning. Similarly, Zimmerman (2008) points out that reflection is a necessary process within self-regulated learning that can effectively promote students' self-regulation skills.

To highlight the benefits of reflection on EFL students' learning and metacognitive development—knowledge about and meta-awareness of cognitive processes and meta-control of cognitive functions (Pintrich, 2002; Zimmerman & Paulsen, 1995), Rolheiser et al. (2000) claim that:

Reflection is linked to elements that are fundamental to meaningful learning and cognitive development of metacognition- the capacity for students to improve their ability to think about thinking; the ability to self-evaluate the capacity for students to judge the quality of their work based on evidence and explicit criteria for the purpose of doing better work; the development of critical thinking, problem-solving, and decision-making; and the enhancement of teacher understanding of the learner. (pp. 31-32)

What should be noted from this definition is that reflection plays a key role in the development not only of cognitive knowledge and awareness but also cognitive control or self-regulation. Following this reasoning, reflection raises EFL students' awareness of themselves as learners and makes them use the required self-regulatory strategies to achieve the desired outcomes. As such, they were embarking on reflective writing activities implies EFL learners with poor self-regulatory skills to take active steps and go through a set of regulatory processes embodied in planning a learning goal, regulating their cognitive strategies and motivation to successfully attain the goal, and evaluating the outcomes of their performance. The overall dynamic and specificities of reflective writing make it an overarching instructional means that cultivates and catalyzes EFL students' self-regulation in many respects. First, it permits to focus mental effort on reflecting upon things. Second, it develops the competencies needed to direct thinking, control affects, and orchestrate cognitive and metacognitive abilities to successfully achieve

the desired goal. Third, it enables the regulation of composition strategies. Last, it elicits the systematic engagement in the triadic cyclical process of self-diagnosis, self-appraisal, and self-reflection.

Most importantly, this means encouraging active, proactive, independent, sustainable, and self-directed learning, which are fundamental aspects of self-regulation. In addition, reflective writing and self-regulation share some standard processes, such as self-consciousness, self-observation, self-awareness, self-management, self-monitoring, self-reflection, self-evaluation, and self-judgment. Both of them have this cyclical nature; are future-oriented since the inferences made from past learning serve as a basis to guide future performance; impact academic achievement; are amenable to sustainable and independent learning; are a crucial element in successful learning; and ultimately imply learners' active, reactive, and proactive engagement in the learning process. Furthermore, it is worth mentioning that all self-regulatory models (e.g., Bandura, 1986; Pintrich, 2000; Zimmerman, 1998) include self-reflection as a significant component of self-regulated learning.

2.5. Research Aim and Hypotheses

This experimental study aimed to probe the effect of reflective writing on the promotion of EFL high school students' self-regulation skills in language learning. To achieve this aim, the following objectives were formulated (a) to examine differences between the experimental and the control group and (b) to evaluate the effect of reflective writing on EFL students' self-regulation in language learning over time. Four major hypotheses, including null and alternative hypotheses, were formulated:

Ho1: There are no significant differences in the development of self-regulation skills between EFL high school students who were exposed to reflective writing and those who were not.

Ha1: There are significant differences in the development of self-regulation skills between EFL high school students exposed to reflective writing and those who were not.

Ho2: Reflective writing has no effect on the development of EFL high school students' self-regulation skills over time.

Ha2: There is a significant effect of reflective writing on the development of EFL high school students' self-regulation skills over time.

3. METHODOLOGY

This study aimed to examine the impact of reflective learning journals on the development of EFL high school students' self-regulation skills. A mixed design (within-and-between-subjects design) was adopted to address this aim and test the abovementioned null hypotheses, a mixed design (within-and-between-subjects design) (Edmond & Kennedy, 2017). This design permits comparing differences between the experimental and the control group and assessing changes in their self-regulation over time.

3.1. Subjects and Research Site

The subjects in this study were EFL students enrolled in first-year baccalaureate in a private high school in Rabat city, Morocco. The research site was selected for its convenience. Acknowledging convenience sampling, 28 subjects agreed to participate in this study. They

were attending an English language course ($N = 28$). For ethical reasons, subjects were all voluntary and given sufficient information about the study, namely duration, procedures, and purpose. Furthermore, their anonymity and confidentiality were respected by assigning numerical codes.

3.2.Data Collection Instrument

The research instrument used was a reflective learning journal. This instrument is one of the methods used to evaluate self-regulation (Schmitz & Weise, 2006). A reflective learning journal serves a dual purpose: as a research instrument and tool to help students boost their self-regulation skills. Robinson and Mendelson (2012) point out that an experimental design can be undertaken using exclusively qualitative data.

3.3.Design and Procedure

Subjects who took part in this study ($N= 28$) were randomly assigned to two groups, namely control ($n= 14$) and experimental ($n= 14$). The subjects of the experimental group were exposed to reflective writing treatment. They had concise instruction on reflective writing, its specificities, how to write reflective learning journals, and how writing reflectively can boost self-regulation skills. They were initiated to the Gibbs model (1988) to facilitate the reflective process. First, this model is structured and detailed as it includes six stages along with practical cue questions that guide students thinking at deeper level, thus facilitating the process of reflection (Bassot, 2016) and regulating students' cognitive processes. Second, it focuses on the affective dimension entailing both feelings and emotional responses to experiences (Bassot, 2016). Third, it is explicit and simple. Unlike the experimental group, the control group received no instruction and was asked to write traditional essays. Both groups wrote their writing tasks based on what they have covered in their English content course. They were allotted 30 minutes to complete their paper-based writing tasks which were collected systematically at the end of each session. The purpose of allotting sufficient time was to reduce the negative effects of stress on their productivity. The experiment lasted a three-week period as the subjects studied English twice a week. It is worth mentioning that as a course requirement, students were practicing weekly free-form writing. This method was used by their teacher of English for three purposes, namely to improve students' writing productivity, to encourage them to practice the writing skill, and to build their writing habit.

Given that self-regulation has psychometric properties, a coding scheme was preconceived to measure students' self-regulation present in their writing tasks. To ensure its validity, the codes were developed a priori drawing on the conceptualization of self-regulation of Bandura (1986, 1991), Schunk (1990, 1996), and Zimmerman (1989a, 1989b). Such a strategy is a deductive method of analysis entailing the use of predetermined coding schemes generated in a deductive way from previous research and theory (Boyatzis, 1998). The coding scheme includes three codes: self-observation, self-judgment, and self-reaction. Each one encompasses three items. These codes were developed following Boyatzis's (1998, p. x) description of 'a good code', namely identifying a label, defining the theme, and describing how to recognize when the theme happens. To assess the reliability of these codes, they were pilot tested. Two scorers independently realised this process, namely the researcher and the host teacher. The inter-scorer agreement was good.

Table 1

Self-regulation Analytic Codes

Code 1	Self-observation
Label	Bandura (1986)
Definition	Self-observation refers to “self-recording personal events or self-experimentation to discover the cause of these events” (Zimmerman, 2002b, p. 68).
Description	The student describes their learning experience along with their emotional engagement in the learning activity realized during the course (motivated, anxious, bored, encouraged/discouraged, enthusiastic, or interested/ uninterested). The student describes their behavioral engagement (concentrated, actively engaged in the learning process, participates in the classroom, passive, not engaged, distracted, disrupted, or attentive/inattentive). The student describes their cognitive engagement (deploys efforts to understand, encounters difficulties, easily digests and absorbs information delivered by the teacher, listens attentively, and reflects on things).
Code 2	Self-judgment
Label	Bandura (1986)
Definition	Self-judgment, also referred to as self-evaluation, is comparing one’s performance against a given standard; hence, it offers information regarding one’s progress (Schunk & Zimmerman, 1998).
Description	The student evaluates their understanding of the lesson. The student evaluates their efforts and performance during the lesson via teachers’ feedback (satisfactory/unsatisfactory, good/bad) and comparing their performance with their peers. The student evaluates their own progress (unsatisfactory, slow, gradual, or satisfactory).
Code 3	Self-reaction
Label	Bandura (1986)
Definition	Self-reaction means reacting to the outcomes of the performance. It entails appraising reactions to one’s performance, e.g., acceptable or unacceptable, good or bad (Schunk & Zimmerman, 1998).
Description	The student concludes their own progress (satisfactory/unsatisfactory, acceptable/unacceptable). The student draws conclusions about their success or failure regarding goal achievement (good/bad, successful/unsuccessful). The student mentions what they will ameliorate or change to improve themselves (to increase effort, to be more engaged in the learning process, to concentrate more).

3.4. Methods and Procedures of Data Analysis

Subjects’ writing tasks, including reflective learning journals and traditional essays, were collected for analysis at different time points, that is, during six sessions. The first writing task was the pretest—before the intervention and the last writing task was the posttest. The objective was to compare both groups and track their progress over time. The analytical approach used for qualitative data analysis was thematic analysis. Boyatzis (1998) defines this method as “a process for encoding qualitative information. The encoding requires an explicit “code” (p. 4).

The logic behind using thematic analysis was that such a method permits the conversion of qualitative information into quantitative data (Boyatzis, 1998).

The collected data was analyzed using a priory coding scheme (see table 1). Scoring was carried out using the following 4-point Likert scale (1= *not at all*, 2= *low*, 3= *moderate*, 4= *high*) depending on the content. Therefore, the purpose was to quantize the qualitative data. To Hesse-Biber (2010), “quantizing occurs when qualitative *codes* (labels given to segments of data from texts that have been transcribed from interviews or other narrative sources...) are transformed into quantitative variables” (p. 97, emphasis in original). Quantizing qualitative data permits the use of statistical measures (Hesse-Biber, 2010). Qualitative data were coded manually. The collected data was independently scored by two scorers: the researcher and the host teacher. Using more than one scorer is referred to as “analysts triangulation”, in which two or more coders independently analyze the same qualitative data, and their results are compared (Patton, 2015, p. 963). The logic behind analysts’ triangulation was to minimize the possible bias emanating from having one person collecting data and ensure the direct evaluation of the data consistency (Patton, 2015). Interrater reliability was assessed using kappa statistics. The kappa values for self-observation ($k= 0.905, p = .000$), self-judgment ($k= 0.944, p = .000$), and self-reaction ($k = 0.943, p = .000$) were found excellent. Robson (2002) notes that a Cohen’s kappa value is considered outstanding when above 0.75.

To test the aforementioned hypotheses, non-parametric tests were used. Given that the level of measurement is ordinal (Likert scale) including only four categories, it cannot be considered as a continuous variable which justifies the use of non-parametric tests. As such, Mann-Whitney test was used to examine whether there were significant differences in the development of self-regulation skills between high school students who were exposed to reflective writing compared to those who did not. Sign test was used to evaluate the effect that reflective writing has on the promotion of students’ self-regulation skills over time. Scores were analyzed using SPSS (Statistical Package for the Social Sciences) V25—version 25. It is worth mentioning that the effect sizes for both tests were calculated using Rosenthal (1991, as cited in Field, 2018) formula and interpreted with regard to Cohen’s (1988, as cited in Field, 2018) standard (0.1 = small effect, 0.3 = medium effect, and 0.5 = large effect).

4. RESULTS

4.1. Results of Mann-Whitney U test

Mann-Whitney U test was run to determine whether both groups (experimental and the control) performed differently under two different conditions. Before hypotheses testing, data were examined to ensure test assumptions were met. Weaver et al. (2018) posit that four assumptions have to be met to provide valid results, namely (1) the dependent variable has to be measured at the continuous or ordinal level, (2) the independent variable consists of two independent groups, (3) there should be two equal sample sizes, and (4) the distribution of the groups is essential and has to be checked to decide how to interpret the findings (Weaver et al., 2018). First, the dependent variable was measured on ordinal scale (Likert scale). Second, the independent variable includes two independent groups (experimental and control groups). Third, the two groups have equal sizes. Fourth, to check the assumption of normality, the Shapiro-Wilk test was performed because of the small sample size (Mishra et al., 2019).

Table 2

Shapiro-Wilk Test Results

Variables	Time	Groups	W Statistics	P-value
Self-observation	Pretest	Cont	0.541	<.001
		Exp	0.508	<.001
	Posttest	Cont	0.419	<.001
		Exp	0.736	<.001
Self-evaluation	Pretest	Cont	0.684	<.001
		Exp	0.684	<.001
	Posttest	Cont	0.698	<.001
		Exp	0.784	<.001
Self-reaction	Pretest	Cont	0.608	<.001
		Exp	0.755	<.001
	Posttest	Cont	0.419	<.001
		Exp	0.534	<.001

Note: The level of statistical significance was set at .05.

Table 2 indicates that the groups do not follow a normal distribution because $p < .05$. Therefore, since there are different distributions, the mean ranks are interpreted (Weaver et al., 2018).

Table 3

Results of the Mann-Whitney U Test by Groups

Variables	N	Time	Group	Mean Rank	U	P	r
Self-observation	28	Pretest	Exp	29.64	424	0.487	0.09
			Cont	27.36			
	28	Posttest	Exp	34.25	553	< .001	0.48
			Cont	22.75			
Self-judgment	28	Pretest	Exp	26.50	336	0.299	0.14
			Cont	30.50			
	28	Posttest	Exp	39.93	712	< .001	0.74
			Cont	17.07			
Self-reaction	28	Pretest	Exp	29.64	424	0.431	0.10
			Cont	27.36			
	28	Posttest	Exp	39.29	694	< .001	0.72
			Cont	17.71			

Note: The level of statistical significance was set at .05.

Table 3 showed no significant difference between the control group and the experimental group regarding their levels of self-observation in the pretest ($U = 424, p = 0.487, r = 0.09$). The p value was higher than .05 ($p > .05$). The mean rank for the experimental group is 29.64, and the mean rank for the control group is 27.36. However, in the posttest, there was a significant difference between both groups ($U = 553, p < .001, r = 0.48$). The p value was less than .05 (p

< .05). The experimental group reported significantly higher levels of self-observation (mean rank = 34.25) than the control group (mean rank = 22.75). Second, the findings of the Mann-Whitney U test for self-judgment indicated that there was no significant difference between the control group compared to the experimental group in the pretest ($U = 336, p = 0.299, r = 0.14$). The p -value was higher than .05 ($p > .05$). The mean rank for the experimental group is 26.50, and the mean rank for the control group is 30.50. Conversely, in the posttest, the findings demonstrated a significant difference between the control group and the group receiving reflective writing intervention ($U = 712, p < .001, r = 0.74$). The p -value was less than .05 ($p < .05$). The experimental group reported significantly higher levels of self-judgment (mean rank = 39.93) than the control group (mean rank = 17.07). Finally, the findings of the Mann-Whitney U test for self-reaction demonstrated no significant difference between the control group and the experimental group in the pretest ($U = 424, p = 0.431, r = 0.10$). The p -value was higher than .05 ($p > .05$). The mean rank for the experimental group is 29.64, and the mean rank for the control group is 27.36. Contrariwise, in the posttest, a significant difference between both groups was observed ($U = 694, p < .001, r = 0.72$). The p -value was less than .05 ($p < .05$). The experimental group reported significantly higher levels of self-reaction (mean rank = 39.29) than the control group (mean rank = 17.71). Based on these findings, the null hypothesis is rejected as there is sufficient evidence to conclude that the experimental group exposed to reflective writing intervention demonstrated significant differences in self-regulation skills compared to the control group.

4.2. Results of the Sign test

The sign test was used to determine whether engaging students in reflective learning journals affect the promotion of self-regulation skills over time. Initially, the researcher selected Wilcoxon signed test for hypothesis testing. To Laerd (n.d.), to run the Wilcoxon signed test, three assumptions need to be met, namely (1) the dependent variable has to be continuous or ordinal, (2) the independent variable should consist of two related groups, and (3) the differences between the two related groups should have a symmetrical distribution. First, as mentioned earlier, the dependent variable was measured on an ordinal scale (Likert scale). Second, the independent variable includes two dependent groups, the same group measured twice (pre and post-intervention). Third, skewness was used as a measure of symmetry to check the last assumption. The balance should be about zero. The results showed that differences between the two related groups were asymmetrical in self-observation, with skewness of -0.464 for the control group and .000 for the experimental group; in self-judgment, with skewness of -1.042 for the control group and 0.393 for the experimental group; and in self-reaction, with skewness of -0.920 for the control group and -0.167 for the experimental group. As shown, since the distribution of differences between the two related groups was globally asymmetrical, the Sign test was run instead of the Wilcoxon signed test (Laerd, n.d.). The level of statistical significance was set at .05. The findings are as follows:

The findings of the Sign test demonstrated a statistically significant change in the levels of self-observation among the subjects in the experimental group who were exposed to reflective writing intervention ($z = -4.695, p < .001$), with a medium effect size ($r = 0.63$) and also among the subjects of the control group ($z = -3.881, p < .001$) with a medium effect size ($r = 0.51$). The p -value is less than .05 ($p < .05$). These findings showed that the median pretest score of the experimental group ($Mdn = 2$) was lower than the posttest median score ($Mdn = 3$).

Similarly, these findings indicated that the pretest median score of the control group ($Mdn = 2$) was lower than the posttest ($Mdn = 3$). As for self-evaluation, Sign test showed a statistically significant change among subjects of the experimental group ($z = -4.800, p < .001$), with a medium-size effect ($r = 0.64$). The p -value is less than .05 ($p < .05$). These findings demonstrated that subjects' pretest median score ($Mdn = 2$) was lower than their posttest median score ($Mdn = 3$). On the other hand, there was no significant change between the pretest and the posttest for the control group subjects ($z = -1.109, p = .267$), with a small effect ($r = 0.14$). The p -value is higher than .05 ($p > .05$). These findings showed that subjects' pretest median score ($Mdn = 2$) was the same as their posttest median score ($Mdn = 2$). Last, the findings of the Sign test indicated a statistically significant change in the levels of self-reaction among subjects of the experimental group ($z = -4.695, p < .001$), with a medium effect size ($r = 0.63$). These findings indicated that subjects' post-test median score ($Mdn = 3$) was significantly higher than their post-test median score ($Mdn = 1$). As for the control group subjects, the findings demonstrated a statistically significant change in the level of self-reaction ($z = -3.064, p = .001$), with a small effect size ($r = 0.40$). The p -value is less than .05 ($p < .05$). These findings showed that subjects' post-test median score ($Mdn = 2$) was slightly higher than their median pretest score ($Mdn = 1$). Based on these findings, the null hypothesis can be rejected since the findings of the Sign test provide statistical evidence to conclude that reflective writing has an effect on the promotion of students' self-regulation over time.

5. DISCUSSION

Guided by the discussion in the literature review, it was assumed that reflective writing is a reliable tool that can be used to help EFL high school students develop their self-regulation skills in language learning. Findings of the Mann-Whitney U test revealed that the control and experimental groups differed in the subprocesses of self-regulation, notably self-observation, self-judgment and self-reaction. It was found that the experimental group who was exposed to reflective writing treatment displayed higher levels of self-regulation skills compared to the control group. The subjects of the experimental group exhibited their engagement in the cyclical self-regulatory processes reflecting their ability of self-awareness and delving more profound into a self-regulated way to direct their thinking to evaluate and reflect on their language learning. The results of this study are consistent with those of Al-Rawahi and Al-Balushi (2015), who found that the reflective journal writing group outperformed the control group regarding the improvement of self-regulation strategies. Therefore, the findings consolidate evidence and provide additional insights into the influential role of engaging EFL students in reflective learning journal activity in developing their self-regulation skills.

The results of the Sign test concerning self-regulatory skills, namely self-observation, self-judgment, and self-reaction, demonstrated that reflective learning journal significantly affects the development of the experimental group's self-regulation skills over time. These findings match those mentioned in earlier studies (e.g., van den Boom et al., 2007; Chang et al., 2015), inferring that reflective writing effectively enhances students' self-observation, self-judgment, and self-reaction. As it can be concluded, this instructional tool offers the subjects of the experimental group boosting opportunities that facilitate conscious and purposeful engagement in the cyclical process of self-regulation. Hofer et al. (1998) affirm that formal interventions raise learners' awareness of the developmental process of self-regulation and enable them to improve their regulatory potential. Even though the control group subjects showed a change in

the level of self-observation and self-reaction, they failed to engage in the cyclical process of self-regulation since self-judgment is an important component in this process. As discussed earlier, self-regulation comprises three subprocesses, namely self-observation, self-judgment, and self-reaction, which operate in a “cyclical feedback loop” (Bandura, 1986). These subprocesses are interdependent as the feedback generated from one phase serves as a basis for the other one and so forth. The potential contamination effects can explain these findings. Essentially, contamination occurs when aspects of the treatment are diffused because of the interaction between subjects randomly assigned to treatment and control groups (Rhoads, 2011).

To sum up, reflective writing intervention enabled EFL students to purposefully and intentionally engage in the cyclical self-regulatory process and develop self-regulation skills, notable self-awareness by becoming aware of themselves as learners, self-judgment by having this ability to self-evaluate their performance and efforts, and self-reaction by reflecting upon the outcomes of their performance.

6. CONCLUSION, IMPLICATIONS, AND RECOMMENDATIONS

This study aimed to examine the role of reflective writing, specifically reflective learning journals, in stimulating EFL high school students’ self-regulation skills in language learning. Such a skill is one of the 21st -century learning skills sine qua non to sustainable, autonomous, and strategic learning as well as academic excellence. Also, it is a core skill in learning in the digital world. Overall, the findings of the between and within subjects’ factors showed significant differences in the level of self-regulation skills between the experimental group compared to the control group and demonstrated the increasing progress of the experimental group in the three regulatory subprocesses over time. Therefore, they provide broader support for the influential role of reflective writing in boosting self-regulation and building self-regulatory habits. It could be inferred that reflective writing is a promising means facilitating EFL students’ involvement in the cyclical self-regulatory process of self-observation, self-judgment, and self-reaction.

To this effect, it is recommended to adopt a reflective pedagogy and incorporate reflective activities to help EFL students develop their potential in self-regulation. However, despite these encouraging findings, there are some limitations. First, the small sample size limited the generalization of the study findings. Therefore, further research is needed with a larger sample. Second, given that the reflective learning journal was the only data collection instrument, the use of other instruments (e.g., questionnaire and interviews, to name a few) is required to have more reliable data. As such, additional studies are required to use and triangulate different sources of data.

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The Role of Reflective Writing in Fostering EFL High School Students Self-Regulation

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