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The Effect of Self-assessment on the Development of EFL Writing Self-Efficacy: A Case of Algerian Higher Education

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Abstract
Using self-assessment as part of writing courses is key to improving strategic and affective self-regulation skills. The aim of this study is to investigate how self-assessment develops EFL students' writing self-efficacy. To conduct this research, an embedded mixed-methods design was implemented with a sample of sixty control and experimental participants. This involved a post-scale of writing self-efficacy to collect quantitative data, and an interview administered to twenty participants after the experiment to explore their perceptions of their writing ability. Data were analysed using descriptive statistics and an independent-samples t-test at α=0.05. Analysis of the data revealed that the mean score of the experimental group was higher than that of the control group on the self-efficacy scale, and the difference between the two groups was statistically significant on the same variable. Data from the interview indicated that the majority of the participants voiced high perceptions of paragraph writing ability. Based on these findings, it can be assumed that self-assessment is a learning strategy, which can enhance learners' knowledge of criteria of good work and thus, can improve positive perceptions of their writing ability. This means that self-assessment can maximize their self-efficacy beliefs. Based on these findings, the study suggests recommendations for teachers to include self-assessment in their writing courses.

Keywords: EFL (English as a Foreign Language); self-assessment; self-regulation; writing skill; self-efficacy

Introduction
This study focuses on students' self-assessment of academic writing. It is believed that this activity can foster self-efficacy for writing, because it is a self-regulation skill, which can develop students' ability to apply metacognitive strategies and build affective strategies throughout the writing process. This is grounded in the fact that it is a process that enhances the application of meta-cognitive monitoring and metacognitive control in writing (Panadero, Jonsson, & Botella, 2017; Winne, 2011) which help the writer enter the writing task with a goal-setting orientation.

From a socio-cognitive perspective, metacognitive monitoring and metacognitive control are intertwined and are directly related to motivation factors such as writing self-efficacy (Usher, 2012). Therefore, implementing self-assessment activities, which are tailored to the different phases of the writing process, can develop students' knowledge of the different criteria, which

define this skill. This can result in improving their confidence in their writing ability (Panadero, Jonsson, & Botella, 2017). Due to the fact that writing in a foreign language is a complex skill which necessitates deployment of linguistic, strategic, and affective elements (Manchon, 2011; Cummings, 2012); there is a need to find effective evaluation tools such as self-assessment to address the different demands of EFL writing. Furthermore, with the rise of new Information and Communication Technologies ICTs, learning necessitates the adoption of new assessment approaches that move beyond assessment of knowledge reproduction and which promote problem-solving skills and authentic learning.

Self-assessment research is a rapidly growing area in EFL education. In the last few years, much research has been carried out around the world. This interest in implementing self-assessment in EFL classes was sparked by the theoretical foundations, which highlight the role of self-assessment in developing writing skills. In Algeria, the implementation of the new education reform and the rise of learner-centred curricula have begun to give an impetus to further development in foreign language self-assessment research.

Despite the abundance of self-assessment research in Algeria, many areas still remain open to further investigation. While some studies investigated the effect of self-assessment on writing ability and writing strategies, other aspects of writing such as writing self-efficacy were not investigated. Motivated by such body of empirical research, this study was conducted to obtain data to see how self-assessment can affect first year EFL university students' writing self-efficacy.

The study sheds light on student self-assessment of writing in an EFL context. It aims to investigate the impact of self-assessment on writing self-efficacy and to explore students' perceptions of their writing ability after the use of self-assessment. To reach these aims, two research questions have been formulated.

Research Question 1: What is the impact of self-assessment on students' writing self-efficacy?

Research Question 2: What are students' perceptions of their writing ability after using self-assessment?

Literature review

Self-assessment is a metacognitive strategy (Oxford, 2017) which involves the learner in a reflective thinking through the application of metacognitive processes (Haukas, 2018; Winne, 2011). This results in performing diagnostic operations, which are generated using criteria and standards, which define the characteristics of good work. Self-assessment criteria that model specific writing strategies raise learners' awareness of different aspects of writing and enhance their competence (Hinkel, 2011). Ultimately, learners develop self-constructed feedback that enables them to obtain information, which directs their self-regulation skills both strategic such as the use of writing strategies, and affective in terms of building self-efficacy beliefs (Teng & Zhang, 2016).

Self-assessment is a self-regulation skill, which relies on the activation of problem solving (Raaijmakers, Baars, Pass, et al., 2019). Problem solving is maintained through the activation of a set of problem schemas, which are metacognitive representations of a problem and its solution. They are utilised to analyse task difficulty or similarity to other previous tasks (Heine, 2010). In an endeavour to solve task difficulty, learners who use self-assessment can build a set of problem schemas, which can be used as a guide to analyse task difficulty and obtain possible solutions (ibid.). Throughout the problem solving process, reflective thinking can occur. Consequently, self-assessment acts as a mediating tool. In this manner, it makes learners mediate past learning

experiences gained from previous self-assessment activities with new learning experiences; and can therefore, help them enter into metacognitive experiences. Through metacognitive experiences, self-regulation skills such as metacognitive strategies for planning writing, reviewing, and evaluating communicative goals can be processed. Ultimately, metacognitive knowledge develops, and affective factors such as self-efficacy for writing improve (Zhang, 2010).

Self-regulation processes involved in self-assessment of writing

As discussed earlier in this paper, using self-assessment as a strategy can involve learners in metacognitive experiences, which lead to activation of self-regulation skills and the development of metacognitive knowledge. When applied to writing, self-regulation refers to a set of actions consciously initiated by the writer to reach communicative goals in writing (Knospe, 2018). Through self-assessment, learners can process these self-regulation skills more automatically. The processes are metacognitive monitoring and metacognitive control (ibid.). Metacognitive monitoring and control are used to ensure conformance between the meaning produced and author's goals (Ruan, 2014). Action between metacognitive control and metacognitive monitoring is coordinated through the monitor, which facilitates the flow of cognitive processes in writing, and makes them manageable and recursive (ibid.). The 'monitor' is a self-regulation component responsible for the functioning of different writing operations such as revising, reviewing, and translating or coordinating action between writing self-regulation processes such as planning, revising, and evaluating.

To illustrate, meta-cognitive monitoring encompasses monitoring strategies; namely, reading, re-reading, reflecting, and reviewing. These strategies are used to monitor the writing process and the quality of written production. Meta-cognitive control encompasses editing, drafting, idea generation, word production, translation, and revision. These are responsible for the actual production of meaning (Knospe, 2018). Meta-cognitive control and monitoring function continuously during the writing process, and rely for their success on the information generated through the monitor.

In addition, processing of metacognitive monitoring and control can be influenced positively or negatively by metacognitive experiences, which occur during the writing process in response to the state of progress. Most importantly, metacognitive experiences can engender affective states that writers develop in response to processing self-regulation skills (De Silva & Graham, 2015). This relationship can be better understood with reference to socio-cognitive models of writing process which categorise self-regulation processes as both strategic and affective (e.g. Zimmerman, 2013).

Accordingly, it is suggested that positive affective factors are self-regulation components, because they can be used to improve the use of other self-regulation skills; i.e., metacognitive writing strategies. Similarly, success in applying metacognitive strategies can enhance positive affective factors. Thus, these models advance two types of self-regulation processes prerequisite to enhance the writing process: strategic such as goal setting, monitoring, and evaluating; and affective such as self-efficacy beliefs.

The relationship between these two types of self-regulation is understood relying on a model composed of with three cyclical phases: a forethought phase, a performance phase, and a self-reflection phase (Zimmerman, 2013). Applied to writing, the forethought phase encompasses different sources of motivation that can be used to select and process writing strategies (Panadero, 2017). It is composed of two categories: task analysis processes and sources of self-motivation. Task analysis involves ability to analyse the writing process and identify the necessary strategies

for each phase of writing. It includes the use of strategies such as goal setting and planning. Sources of motivation at this stage include self-efficacy perceptions, outcome expectancies, task interest, and goal-orientation (Zimmerman & Schunk, 2011). In the forethought phase, learners can draw upon different sources of motivation that can be helpful in orchestrating strategy use. When these sources of motivation are used, strategic self-regulation skills can reach optimum results.

The second phase is 'Task performance' phase. At this phase, writers can draw upon sources that may increase their motivation, and ultimately that can lead to effective monitoring. Task-performance has two categories: self-control and self-observation. It draws heavily on metacognitive monitoring. Reciprocally, writers' success in tailoring strategies to meet their communicative goals in writing can positively affect perceptions of their ability as writers (Teng & Zhang, 2017).

The third phase is self-reflection phase. It is composed of two categories: self-judgements and self-reactions. Self-judgement includes self-evaluation and causal attributions. Self-evaluation is a process of comparing ones' performance against criteria (Zimmerman & Schunk, 2011). The criteria are self-evaluative standards that are related to writers' self-expectancy beliefs (Panadero & Alonso-Tapia, 2014). Causal attributions are criteria writers use to set the potential external sources which contributed to their success or failure in reaching communicative goals in writing, and even in processing monitoring and control strategies. Self-reaction phase is composed of two forms: self-satisfaction and adaptive/defensive decisions (ibid.). Self-satisfaction refers to writer's reaction to his/her judgments (Zimmerman & Schunk, 2011). It can lead to positive or negative reactions. In this way, it results in building either adaptive or defensive decisions. Adaptive decisions revolve around self-efficacy beliefs, while defensive decisions encompass writing apprehension.

Self-efficacy reactions depend on the type of judgements the writer applies to his self-regulation skills or to the success of strategies implemented. They also depend on the writer's self-evaluative standards (ibid.). Positive and negative reactions depend on self-judgment. When task performance is evaluated as successful, adaptive decisions occur. On the other hand, when it is evaluated as inaccurate or unsuccessful defensive decisions occur. Ultimately, the decisions formed whether positive or negative can have an impact on future cycles of writing, and precisely on the forethought phase of future tasks (Zimmerman, 2013). In other words, learners form a set of beliefs about the task and their capability to do it, which can influence the way they handle similar tasks.

Writing self-efficacy

From a socio-cognitive perspective, self-efficacy is an affective self-regulation process, which can be used in the same way metacognitive strategies are used to regulate the writing process. The construct self-efficacy in writing is related to the potential of the writer to sequence writing strategies and to apply linguistic resources to reach communicative goals (Teng & Zhang, 2017; Zhang, 2010). Self-efficacy can thus determine the load of metacognitive processing which the writer exerts to handle the writing process.

Self-efficacy beliefs can be developed in response to information gained throughout a feedback loop (Zimmerman & Schunk, 2011; Bruning et al., 2013). The latter refers to metacognitive experiences the writer engages in throughout the composing process. Feedback loop is a cyclical process in which writers are continuously monitoring the strategies they use. Monitoring results in building self-efficacy beliefs in case of success in processing metacognitive

resources, or writing apprehension in case of failure. This suggests that through feedback loops writers obtain both cognitive and affective feedback.

The type of affective states writers develop depends on the type of self-evaluative standards they form (Schunk & Pajares, 2010). Self-evaluative standards are the criteria writers use to assess their ability as writers. These standards help writers to monitor and measure the extent to which they are capable of reaching their communicative goals and applying strategies successfully. In other words, when writers meet their self-evaluative standards as good writers, they can improve their self-efficacy beliefs. Notably, self-evaluative standards describe the quality of strategy processing throughout the writing process. Moreover, perceptions of ability depend on writers' ability to achieve their goals (Locke & Johnston, 2016).

To explain, writers construct feedback on the quality of their performance throughout a feedback loop, which determines their affective reactions to their ability including the level of their confidence in their ability (Kim et al., 2015). Through the feedback loop, writers continue to implement strategic self-regulation as long as it increases their perceptions of self-efficacy. In the same way, they seek to build positive perceptions of their ability as writers as long as they know how to implement strategic self-regulation or metacognitive strategies. This means that success in applying metacognitive strategies is predictive of writers' self-efficacy beliefs, and even writing apprehension. To illustrate, writers who hold self-efficacy beliefs and who are less apprehensive, are able to process strategies successfully, something which has consequences on the written product.

Another source of writing self-efficacy beliefs is outcome expectations (Teng et al., 2017). Outcome expectations refer to estimates writers attribute to the success of their writing (ibid.). This means that writers who are aware of the results of applying self-regulation processes, can build self-efficacy beliefs. To conclude, self-efficacy is an important affective variable for writing, because it predicts students' ability to set goals, monitor, process strategies, and to compose. It even predicts writers' development of defensive states such as writing apprehension.

Different studies have been carried out in EFL contexts to examine the effect of self-assessment on writing self-efficacy. For instance, Fathi, Afzali, & Parsa (2021) conducted an experiment by implementing self-assessment checklists in a sample of 17 intermediate EFL experimental group participants. After the intervention, the researchers administered the writing self-efficacy scale in order to measure their writing self-efficacy. Analysis of covariance and a paired-samples t-test indicated that the participants' writing self-efficacy improved.

Luxin, Yang, & Chen (2012) conducted another study to test the effect of implementing self-evaluation on the writing self-efficacy of fifty intermediate students. The treatment was implemented over one semester. To collect data, pre and post self-efficacy scales were administered. Moreover, qualitative data were collected using follow-up interviews. The analysis of the data revealed that the participants developed confidence in their writing ability.

Research method

To gain insights into the impact of self-assessment on writing self-efficacy, an embedded mixed-methods design was implemented. First, a quasi-experiment was conducted with two groups, control and experimental in order to measure the effect of self-assessment on writing self-efficacy. Afterwards, a qualitative study was conducted with 20 experimental participants to explore their perceptions of their writing ability.

Two first year groups (n=60) were selected as the sample of the study. The sampling strategy used was convenient sampling. To that end, only available and accessible samples were

selected from a population of first year students enrolled in the English Department, University of Algiers 2, Algeria for the academic year 2020/2021. The sample was composed of 45 females and 15 male participants. The level of their English ability varied. The participants have the same socio-cultural background.

The experimental design used was the post-test control and experimental group design. This design was conducted by implementing the intervention in the experimental group, and administering the post-test after a specific period of time (Cresswell, 2014). The treatment consisted in administering two self-assessment activities as part of paragraph writing courses for a period of four weeks. The first activity was a self-assessment of writing strategies. It was used to assess the first drafts. It was composed of a set of criteria related to writing strategies; namely, planning writing, setting goals, making outlines, brainstorming ideas, reading, re-reading, modifying ideas, and editing. The participants had to tick 'yes' or 'no' depending on their strategy use, and they could write their comments and reflections. A second section was provided for them to write goal statements. This activity was used in order to train participants in planning, goal setting, monitoring, and reviewing their writing.

The second self-assessment activity was a paragraph writing checklist which was used to assess the final draft. It is composed of criteria, which the participants could use to revise and edit their paragraphs. It is composed of the following scales, content and development of ideas, organisation, grammar, vocabulary and style, punctuation, and mechanics. Each scale covers a set of criteria.

After a four-week period, the post-scale was administered to analyse the difference between the two groups on the writing self-efficacy scale after the use of self-assessment. The writing self-efficacy scale was adapted from Teng et al. (2017). It is composed of 13 items with a 5-point Likert-scale ranging from "not at all true of me" to "very true of me". The items are arranged in two categories, judgements of one's ability to use writing strategies and judgements of one's linguistic/rhetorical competence.

The qualitative study was conducted with 20 participants from the experimental group using an interview on participants' perceptions of their writing ability. The interview was adapted from Teng et al. (2017). It is composed of six questions.

The data gathered from the post-scale were a set of scores. Each score is the result of adding up a set of sub-scores representing the participants' response on a given item. This method is generally used in order to analyse data from a Likert-scale. The sub score was given based on the type of response selected. Statements were scored 5 for 'very true of me' and 'a little bit true of me', 3 points for 'don't know', and 1 point for 'not really true of me' and 'very untrue of me' (Tavakoli, 2012). This means that the score of any participant would fall between 13 and 65. If it happens to be above 39 (a neutral response), it indicates that the participant has high writing self-efficacy. If it falls below 39, it would indicate that the participant has low writing self-efficacy.

The Data obtained from the post-scale were subject to descriptive and inferential statistical analysis. Frequencies and the mean were calculated for both groups. In addition, inferential statistics were calculated to test the null hypothesis at $a=0.05$ with a two-tailed test. Content analysis was used to analyse the interview data. To proceed with this technique, the most frequent words, phrases, verbs, and sentences were highlighted. Then, they were given specific codes, and grouped into their respective categories. The categories were arranged into a theme. The themes generated from the interview data were compared and linked together to see if they are related. This allowed the researcher to draw conclusions on participants' writing self-efficacy beliefs.

Results

From the post-scale, a set of scores that represented participants' writing self-efficacy were obtained. Scores above 39 indicate high self-efficacy. Scores that equal 39 indicate a neutral response. Scores less than 39 signify low self-efficacy. For descriptive statistical analysis, the scores were used to calculate the frequency and the mean. The scores obtained from the control group post-scale scores are presented in the following table:

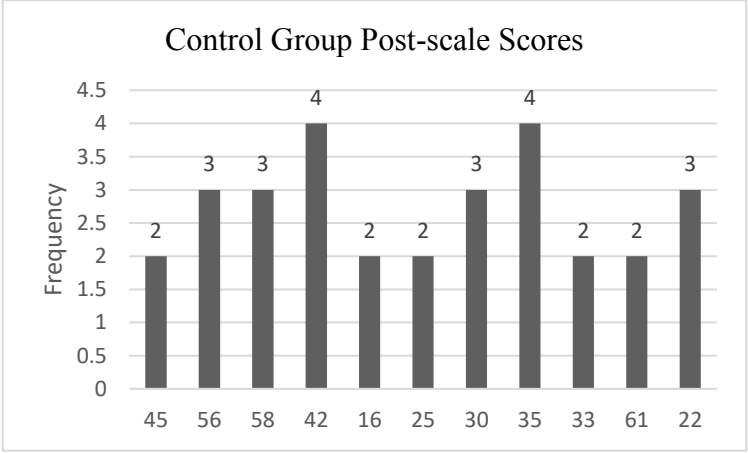

Figure 1: Control group post-scale scores on the writing self-efficacy scale

From the data in figure 1, we can observe that the number of scores above 39 is 12, while the number of score below 39 is 27. The mean (M=38.87) is below 39. This seems to indicate that the majority of the control group participants have low self-efficacy.

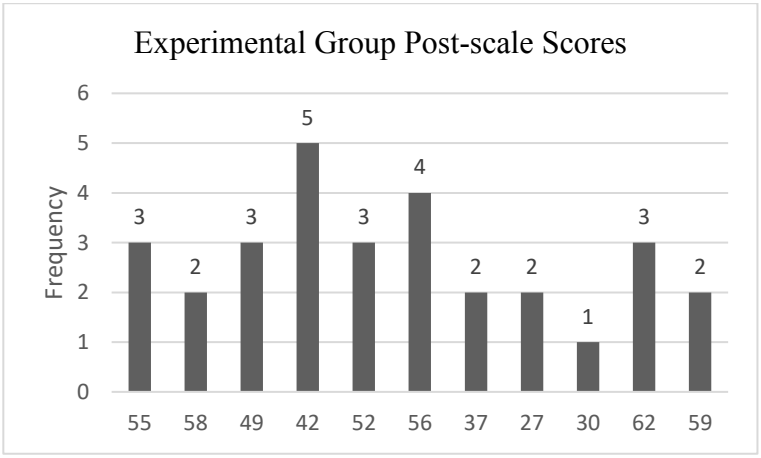

Figure 2. Experimental group post-scale scores on the writing self-efficacy scale

By looking at the frequencies, it appears that the number of scores above 39 is 20, while the number of scores below 39 is 10. Moreover, the mean (M=49.33) is above 39. This seems to indicate that the experimental group participants developed high writing self-efficacy beliefs. We can also observe that the mean of the experimental group (M= 49.33) is higher than the mean of the control group (M=38.87). To determine if the difference is statistically significant, an

independent samples t-test was calculated to test the null hypothesis, which stated that there is no statistically significant difference between the means of the experimental and the control groups. Second, SPSS was used and the following values were obtained:

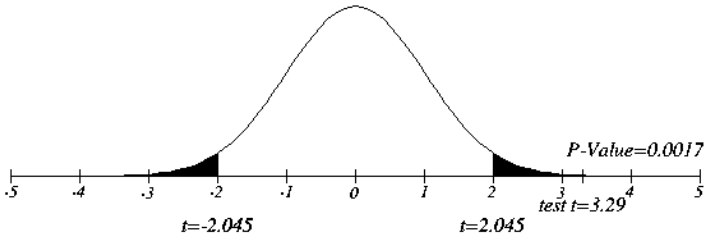

Figure 3: Independent Sample T-test Statistics

The mean score of the experimental group on the variable 'writing self-efficacy' (M= 49.33, SD= 10.26) is statistically significantly higher (t=-3.29, D*f*= 29, two-tailed "p= .001683) than that of the control group (M=38.87, SD= 14.04). Therefore, the null hypothesis is rejected; i.e.; the difference between the experimental group and the control group is statistically significant. This can indicate that the experimental group participants developed high writing self-efficacy beliefs after the use of self-assessment of writing strategies and self-assessment of written composition.

From qualitative data analysis, the following themes with their corresponding categories were generated:

a. Confidence in using metacognitive strategies:
   Perceived ability to plan writing,
   Perceived ability to set goals before writing, and
   Perceived ability to use monitoring strategies.
b. Linguistic self-efficacy:
   Perceived ability to organise ideas in paragraphs, and
   Perceived ability to use the right vocabulary.
c. Outcome-expectations:
   Knowledge of paragraph writing standards and what is expected.

Content analysis revealed that the participants voiced high perceptions of their writing ability. These were conceptualised as self-efficacy beliefs because they portray different aspects of self-efficacy; namely, outcome expectancy, linguistic self-efficacy, and self-regulation efficacy. The themes were formulated based on participants' perceived ability or what they judged themselves as capable of. Accordingly, the participants perceived themselves as capable of planning, setting goals, monitoring, using linguistic elements such as vocabulary, and applying paragraph organisation patterns. In addition, they expressed their knowledge of what is expected, and the intended standards of the writing process and product.

Discussion

Based on the research findings, it can be argued that giving the students opportunities to self-assess their writing processes and products can maximize their writing self-efficacy beliefs. In line with the findings, the experimental group participants had higher scores on the writing self-efficacy scale than the control group after the use of self-assessment. Furthermore, they voiced high perceptions of their writing ability. Therefore, it can be suggested that the use of self-assessment helped the students to acquire knowledge of criteria of writing, including knowledge

of writing strategies and knowledge of linguistic and organisational elements relative to paragraph writing. This has led to increasing knowledge of the required outcome and ability to apply metacognitive strategies. As a result, they built self-efficacy beliefs. Most importantly, metacognitive experiences the students processed throughout self-assessment engendered affective states, which developed in response to the use of self-regulation skills. This relationship can be better understood with reference to socio-cognitive models of writing process which categorise self-regulation processes as both strategic and affective (Teng & Zhang, 2016; Panadero, 2017).

Similarly, success in applying criteria developed their knowledge and use of metacognitive strategies relative to writing, and thus the students were able to generate positive affective factors in response to this success. In line with this, Teng & Zhang (2016) argue that ability to apply metacognitive strategies is linked to improvement of positive affective factors such as self-efficacy, because self-efficacy in writing is related to the potential of the writer to sequence writing strategies and to apply linguistic resources to reach communicative goals.

In addition, it can be argued that the students developed adaptive reactions as a form of self-satisfaction. Self-satisfactions was a result of building high self-judgements which were the result of attributing their success to knowledge of writing strategies and linguistic elements related to paragraph writing. This knowledge was used to set evaluative standards that students used to appraise their performance as writers and give an estimation of their ability as writers. This knowledge helped the students to attribute their success to use of strategies, and therefore they developed positive reactions. Accordingly, Panadero & Alonso-Tapia (2013) maintained that self-efficacy beliefs develop in response to the accuracy of self-evaluative standards and to the type of reactions to self-judgements.

Applying self-assessment standards enhanced students' knowledge of writing strategies and linguistic elements necessary for paragraph writing. This has resulted in raising their awareness of the different aspects of the writing process and product and what is expected after applying these standards. It can be argued that this type of knowledge of what is expected of them as writers developed their writing self-efficacy beliefs. In this vein, Zimmerman & Schunk (2011) maintained that self-efficacy can increase as the result of building outcome expectations.

Moreover, it can be claimed that the students developed writing self-efficacy in response to their ability to process goals. To explain, self-assessment engaged the students in feedback loops, which helped them to assess the attainment of goals. Throughout this process, students were able to refer to the criteria they internalised using self-assessment to assess the efficiency of the goals they set. This means that the criteria were used as milestones to guide the feedback process. Therefore, they were able to assess the attainment of goals and to obtain feedback, which was used to build affective feedback or self-efficacy beliefs. Similarly, Locke & Johnston (2016) linked writing self-efficacy to ability to process goals.

The study's findings support theoretical frameworks on self-regulation and self-efficacy (e.g. Zimmerman, 2013; Panadero, 2017; Teng & Zhang, 2016). The findings can also be justified relying on previous research findings (e.g. Fathi et al., 2021; Luxin et al., 2012). Therefore, we can refer to the role of self-assessment in enhancing writing self-efficacy due to its nature as a self-regulation process.

Conclusion

The study dealt with self-assessment of writing in an EFL university context. Self-assessment has been studied since it is believed that it is essential to the development of positive

affective factors towards writing skill, namely, self-efficacy. Knowing that writing involves to a great extent metacognitive processing as well as affective dimensions, it can be helpful to support it with tools such as self-assessment which highlight its self-regulatory aspects both strategic and affective. In response to this, the study was designed in order to investigate how self-assessment improves writing self-efficacy. The findings of this study suggest that self-assessment can enhance writing self-efficacy. The use of self-assessment to assess writing processes and products can develop writer's knowledge of criteria of the writing process or writing strategies as well as linguistic patterns. Therefore, they can develop self-evaluative standards that they can constantly refer to as a means to assess their ability as writers. This implies that they can have positive self-judgments, which result in building positive and adaptive reactions such as high self-efficacy beliefs. It can be argued that the use of self-assessment can familiarise the students with the criteria of writing process and product and can give them opportunities to form estimations of the required outcome and reflect on it.

The study is significant because it highlights the role of self-assessment, which is a lifelong learning skill that needs to be acquired by university students. Based on the findings, it is suggested that teachers implement self-assessment as part of writing courses. Aside from the feedback teachers provide as part of traditional assessment, the impact of personal feedback learners obtain through self-assessment can be explained in terms of growing their metacognitive potential and enhancing facilitative affective factors such as writing self-efficacy. Therefore, the study suggests integrating self-assessment of writing strategies and self-assessment of written paragraphs as part of writing courses to enhance students' self-efficacy. The demand for implementing strategic learning tools such as self-assessment is also fundamental for mitigating the negative affective impact of traditional assessment mainly writing apprehension. Furthermore, the study recommends formulating self-assessment criteria, which reflect course aims. Nevertheless, the study is limited by the lack of a random sample, which can guarantee population representativeness. Finally, further research is needed to investigate the effect of self-assessment on writing apprehension and general attitudes towards EFL writing.

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