The Impact of Formative Assessment on Self-Regulation of EFL Learners in Academic Writing

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Abstract

Teachers require an effective and efficient channel to direct students’ self-regulation and to create optimal conditions for its development. It is essential to imprint the instrumentality nature of self-regulation and its enormous privilege in all macro-skills and particularly in writing skill, and fruitfulness of formative assessment upon the mind of students. To study the effect of formative assessment on self-regulation, thirty university students majoring in teaching English as a foreign language at master’s level assigned to two experimental and control groups were available sample. Providing experimental group subjects with formative assessment techniques for writing tasks throughout one semester and then measuring their self-regulation again through the same Academic Self-Regulated Learning Scale, they showed a significant difference in their posttest self-regulation scores compared with their pre-test and with post-test scores of subjects in control group. Students who received treatment achieved higher scores in all various aspects of self-regulation, except for environmental structuring, and in self-regulation in total. The findings of this study can give teachers assurance about using formative assessment as a productive channel towards developing students’ self-regulation and can assure students of usefulness of formative assessment and self-regulation in promoting their language learning in all macro-skills especially in writing skill.

Keywords: Formative assessment, self-regulation, writing skill, self-assessment, self-regulated learning.
1. Introduction

Age of information and explosion of knowledge necessitate lifelong learning which demands students’ accountability for their own learning (Zimmerman, et al., 2002) which is raison d'être of education (Zimmerman, 1990). Zimmerman, et al. (2002) asserted that developing life-long self-regulatory skills is an effective way to make students accountable for their own learning and to become educated that is the primary role of a teacher in contributing to self-regulated learning (SRL). Re-interpretation of formative assessment (FA) and feedback shows that FA and feedback assist students on the way of becoming self-regulated learners (Nicol & Macfarlane-Dick, 2006). FA to borrow Restrepo’s (2013) term is a springboard for students to take control of their own learning and for teachers to adjust their instruction in line with students’ needs. Yorke (2003) believed that FA helps students to value and respect expected standards and fosters self-regulation (SR). Writing as a means to convey one’s thoughts and ideas through text (Graham, et al., 2011) makes thinking plain; it can be used to check students understanding and learning and it can be used as an assessment tool (Fisher & Frey, 2007).

Stemmed from Bandura’s social cognitive theory, self-regulated academic learning embodies many social learning constructs and assumptions. According to the very same theories, SRL is determined not only by personal or self-efficacy perceptions but also environment and behaviour can influence the process in a triadic reciprocality relationship and they are all interdependent (Zimmerman, 1989).

SR ability is important for students regardless of their level, but because college students are presented with a heavy load of materials within a short time, SR seems to be of more value and use for them and they should equip themselves with this weapon (Cohen, 2012). Self-regulated students are active participants in their own learning process metacognitively and motivationally as well as behaviourally. These learners rely on themselves in their learning and equip themselves with some special strategies base on self-efficacy in order to realise academic goals (Zimmerman, 1989).

Self-Regulation System and Definition

SR system includes a complicated multifold set of functions at the seam of several fields of psychological research embracing research on cognition, problem solving, decision making, metacognition, conceptual change, motivation, and volition. Because each of these research fields follows their own paradigms and each sees SR from their own window with emphasis on a particular aspect of it, there is not a simple definition on this phenomenon and SR enjoys various models. However, all models consensus on the active participation of self-regulated learners, the influence of thoughts, feelings, and actions on learners’ learning and motivation, and positive or negative interference of biological, developmental, contextual, and individual difference with efforts to regulate. All theorists admit the students’ capability in using standards to direct their learning and to set their own goals and they acknowledge the mediating role of self-regulatory activities to reach the goals; however, they repudiate any relationship between personal or contextual characteristics and achievement (Boekaerts & Corno, 2005).
Metacognition and self-monitoring are two constructs which closely relate to SR. Metacognition is awareness of interdependency of learning, memory, and attention. Self-monitoring is meta-awareness of knowledge and strategies especially during college years and it closely related to metacognition; it is productive for its power to discover students’ weakness and to show them more fruitful methods to reap more products (Cohen, 2012).

Regulation means control with regulatory flavor, and SR is exercising control over oneself to drive in line of standards. SR is a two-sided phenomenon encompasses applied and theoretical sides. Practical side is realization of its effects and theoretically, SR is pivotal in self theory and in understanding various aspects of psychological functioning to the extent that without an understanding of how self maintains control over itself and how it makes adjustment with its social and physical environment no explanation of self would be complete (Vohs & Baumeister, 2004).

Self-regulatory action is “a heavy consumer of cognitive resources” (p. 165) and SR can be active as well as automatic in which both conscious and nonconscious set goals have the power to control thoughts, feelings, and behaviours of learners (Fitzsimons & Bargh, 2004), and it is a dynamic and ongoing process (Boekaerts and Corno, 2005).


In language learning context, SR refers to students’ freedom to manage their own learning; all students much or less possess this ability and they are not passive sponges of linguistic input. According to Bandura students’ power to self-regulate their learning falls under the influence of personal, social, and their linguistic competence (Shirkhani & Ghaemi, 2011).

SR is a multifaceted phenomenon that functions through a number of subordinate cognitive processes or psychological subfunctions encompassing self-monitoring, standard setting, evaluative judgment, self-appraisal, and affective self-reaction which are necessary for self-directed change; in addition, SR is of paramount importance in students’ motivation to function (Bandura, 1991).

Models of Self-Regulated Learning

SRL is a self-directive process embracing self-beliefs in their own capability to transform their mental abilities into academic performance skills. This process is impersonal and proactive not reactive and throughout this process students initiate, persevere, and adapt skills to overcome academic goals (Zimmerman, 2008).

Two models of SRL based on social cognitive theory were proposed by Zimmerman and Pintrich, and two models were advanced based on Boekaerts’s volitional theory.
Zimmerman’s model involves personal, behavioural, and environmental SR; all these three processes have been applied reactively and proactively (Cohen, 2012). Personal SR includes monitoring and accommodating cognitive and affective dimensions; behavioral SR embraces self-observations and accommodates performance processes; and finally, environmental SR concerns itself with observing and adjusting environment to bear intended products (Zimmerman, 1990).

Zimmerman hypothesized that personal, mental, and environmental sides regulate behavioural side which terminates in a complete triangle of SR. In this triangle three cyclical phases act: forethought, volitional or performance control, and self-reflection. Forethought, which occurs before the action, involves setting an appropriate learning goal and planning procedures and strategies to perform the action. The main step in learning process is volitional or performance control in which students maintain their concentration, attention, and motivation to learn and to blossom the initially set goals and to reach this destination they go through self-control and self-observation processes as two self-regulatory processes. Engaging in learning activities, students enter the third phase which is self-reflection step including self-judgment and self-reaction. An exemplar of self-reflection is self-evaluation against some standards and causal attribution has been subsumed under self-reflection rubric. Self-reaction itself is in the form of self-satisfaction or adaptive and defensive responses. Each of these phases affects the next stage through facilitating SR process.

Emanating from social cognitive and self-determination theories, Pintrich’s model of SR resembles to Zimmerman’s model but it scrutinizes SRL processes in four phases: forethought, planning, and activation; monitoring; control; reaction and reflection with occurring SR in each phase in four areas: cognition, motivation and affect, behavior, and context.

Advancing different theoretical basis is to discover how and why learners vote for some particular processes or strategies and vote against others. Bandura (1997, as cited in Onoda, 2012) by referring to social cognitive theory adopted learning outcome expectations and self-efficacy degree as two criteria in this election that motivate students in their selection. Motivations can be external—rewards and punishments—or rise from a global sense of self-esteem or self-actualisation and between these poles motives as self-efficacy, achievement success, and cognitive equilibrium sit; whatsoever the motivation is, SRL process and motivation are interdependent (Zimmerman, 1990).

But, advocates of volitional theory notwithstanding the importance of motivation in SR process look at it from another window and put volitional control or will power at the core of the process (Onoda, 2012). Different models of SR imparting some information on this process involve other variables, the process itself, and interrelatedness of its different components (Magno, 2010). Self-regulatory instructional models have been directed at students’ use of specific processes to motivate and guide their learning (Zimmerman, et al., 2002).
Self-Regulated Learners

SR ability is important for students regardless of their level, but because college students are presented with a heavy load of materials within a short time, SR seems to be of more value and use for them and they should equip themselves with this weapon. Students need to comprehend and recall presented materials in classroom and self-regulated learners have this ability through possessing vital knowledge and strategies and enacting them before, whilst, and after classroom tasks (Cohen, 2012). Integrating SR in skills development makes students aware of their improvements in academic achievement that reinforces the sense of self-efficacy (Zimmerman, et al., 2002).

Self-regulated learners “approach educational tasks with confidence, diligence, and resourcefulness” (Zimmerman, 1990, p. 4); they are proactively in quest of needed information and its mastery. These learners have the ability to conquer difficult and complicated situations and see acquisition as a systematic and controllable process in which they are responsible for achievement.

All students employ regulatory processes but self-regulated students see the relations between regulatory processes and learning outcomes and they are aware of applicability of used strategies; in fact, they completely absorb the sense of instrumentality and acknowledge its effectiveness in achieving academic goals. Self-regulated students monitor the effectiveness of their learning strategies and react to them covertly or overtly by altering their perceptions of self or changing their behavior respectively in a self-oriented feedback loop (Zimmerman, 1990).

Self-regulated students are active participants in their own learning process metacognitively and motivationally as well as behaviourally. These learners rely on themselves in their learning and equip themselves with some special strategies based on self-efficacy in order to realise academic goals. Students’ SRL strategies, self-efficacy, and adherence to academic goals are three important elements in this definition. SRL strategies are actions and processes aimed at acquiring information or skill that necessitates students’ agency, purpose, and instrumentality perceptions; self-efficacy is students’ perception in their own capability to execute actions in a given performance of skill for a particular task and it will be strengthened through learning strategies and self-monitoring; academic goals regarding their nature and attainment time are different (Zimmerman, 1989).

Metacognitively, self-regulated students in the process of acquisition plan, organise, self-instruct, and self-evaluate their learning at all phases; as active motivational self-regulated learners, students perceive themselves self-efficacious, autonomous, and intrinsically motivated learners; and as behaviourally active participants, they give birth to social and physical environments that optimize acquisition. The product of this view is effective learners’ awareness of functional relations among their patterns of thought and strategies and social and environmental outcomes (Zimmerman & Martinez-Pons, 1988).

Advancing towards proficiency in basic self-regulatory process such as self-monitoring, setting goals, and adapting learning strategies, self-regulated learners who need some teacher
assistance at the beginning of their germination grow; later they should be able to manage and to feel self-efficacious as to their own learning. Self-regulated students evaluate their entering study skills, set an appropriate goal, imitate experts’ strategies to meet that goal, self-monitor their own daily practices, try to maintain their efforts, and most importantly they initiate the process of learning. Students must know and accept that learning is something that shall be done by them not for them, and academic learning like all other forms of learning is a personal and not a vicarious experience (Zimmerman, et al., 2002).

Assisting students to self-monitor themselves and boosting students’ self-reflection skill both are effective ways to fortify SR; integrating different phases of self-regulatory cycle, too, fertilizes the process (Cohen, 2012).

Formative Assessment and Self-Assessment

The FA kernel is two actions: student’s perception of existed gap in their knowledge and take action to close this gap (Ramaprasad, 1983; Sadler, 1989, as cited in Black & Wiliam, 1998). Doing the first action demands self-assessment—it has to be seen as essential—or another person assistance, notably the teacher, to diagnose and interpret the gap appropriately to take actions to close it (Black & Wiliam, 1998).

Brown (2004) asserted theoretical justification of self-assessment stems from a number of well-established principles of second language acquisition as autonomy that is setting one’s own goals within and beyond the structure of a classroom curriculum to achieve set goals which are motivated either extrinsically or intrinsically. He classified self-assessment into four types:

1. Assessment of a specific performance immediately or very soon after the performance
2. Indirect assessment of general competence to distinct competence from performance
3. Metacognitive assessment for setting goals with a strategic nature
4. Socioeffective assessment to examine affective factors in learning

To administer self-assessment effectively, Brown (2004) offered some guidelines:

- Telling students the purpose of the assessment
- Defining the tasks clearly
- Encouraging impartial evaluation of performance or ability
- Ensuring beneficial washback through follow-up tasks (Restrepo, 2013).

Formative Assessment and Self-Regulation

Learning is not a passive reception of knowledge but it is an active process in which students build their own understanding; learning cannot be done for students but it should be done by them through teachers’ scaffolding and training students to take accountability for their learning (Black, et al., 2003).

Boekaerts and Corno (2005) asserted the effect of classroom assessment and intervention on the improvement of students’ SR capacity. SR is a complex process in the need of systematic practice (Janeiro & González, 2015); and as Cheng (2011, as cited in Janeiro & González, 2015) asserted students lack and require guidance as to goal setting, learning strategies, motivation, monitoring, and self-assessment.
Students’ SR can be enhanced or even inhibited under the influence of existent circumstances in which they attend; and socially influenced students’ SR of learning can be guided by others that is co-regulation of learning supported by deploying classroom discourse, supportive materials, procedural facilitators, and other interventions like these (Butler, 2002).

Assessment for learning will fit in best with FA that puts students in a safer position to take risks and to discover (Irons, 2008). FA is in line with researches on learning; it organizes teaching in such a way that it revolves around learning and helps teachers to organize students’ learning more productively (Black, et al., 2003). Wiliam (2014, as cited in Lysaght, 2015) stated precisely that the degree of regulating learning is determinant of formative functions of assessment.

Assessment of students’ SR is of import for first, decision making and classroom interventions which are based on results of achievement, aptitude, and diagnostic tests which are based on students’ ability; second, a copious amount of learning is focused on the outcome not the process of arriving given outcome; third, a huge amount of the assessment is focused on ability as a construct not on certain cognitive and strategic processes of students thinking. SR is assessed both as an outcome and as a process by using different tools or different techniques whilst instruction such as thinking aloud (Lysaght, 2015).

In higher education, FA and feedback should enable learners to self-regulate their learning. To transmit the responsibility of learning to students, they should be able to self-regulate their learning processes which are in the need of self-monitoring and self-evaluation and this conveys this fact that students should be provided with more opportunities to assess themselves formatively that is assessment for learning (Nicol & Macfarlane-Dick, 2006).

Brown (2004) believed that assessment without granting feedback which helps students to regulate their learning and directs teachers’ practice is defective. Feedback can smooth the development of students’ capacity to reflect, self-regulate, and evaluate their performance. Teachers should provide students with sufficient scaffolding through feedback in order to help them to develop their autonomy (Hyland, 2010).

Re-interpretation of FA and feedback shows that FA and feedback assist students on the way of becoming self-regulated learners. This reformulation puts FA and feedback within a model of SR which is in the need of identification of seven principles of good feedback practice that support SR. These principles are:

1. Helping students to clarify what good performance is (goals, criteria, and expected standards).
3. Imparting high quality information to students about their learning.
4. Encouraging teacher and peer dialogue around learning.
5. Encouraging positive motivational beliefs and self-esteem in students.
6. Providing opportunities for students to close the gap between current and desired performance.
7. Providing teachers with information which assists them in shaping their teaching (Nicol & Macfarlane-Dick, 2006).

FA is done when teachers facilitate students’ understanding of their own learning in such a planned way which makes them capable of learning better and planning their own learning by doing something with received comprehensible information through assessment. FA to borrow Restrepo’s (2013) term is a springboard for students to take control of their own learning and for teachers to adjust their instruction in line with students’ needs. FA helps students to value and respect expected standards and fosters SR (Yorke, 2003).

FA is not just for assessment and formative feedback is not just for giving feedback but they are also about teaching practice encouraging dialogue between teachers and students, and between students. Teachers should be clear on the why of using FA activities in their classes; all objectives of using these activities are to increase learning student experience free from any pressure, and using them can have a positive effect on students’ self-esteem and their beliefs in their abilities (Irons, 2008).

FA can take on different form such as self- and peer-assessment, portfolio, and students generated tests; self-assessment is fundamental in raising students’ awareness that is of high import in SR process (Restrepo, 2013).

However, students especially in higher education may be resistant to FA activities due to other demands and time pressure and this is a challenge that teachers encounter, but they should endeavour to encourage students to participate in these types of activities which demand self-assessment that its development implicitly needs taking the responsibility of their own learning that is the aim of SR, so FA and SR both seek the enhancement of learning and shift the responsibility of learning (Irons, 2008).

Writing as a means to convey one’s thoughts and ideas through text (Graham, et al., 2011) makes thinking plain; it can be used to check students understanding and learning and it can be used as an assessment tool (Fisher & Frey, 2007).

Assessment and Writing

Writing has been considered as a difficult skill for native speakers as well as non-native speakers because writers should balance multiple issues simultaneously: content, organization, purpose, audience, vocabulary, punctuation, spelling, and mechanics. Writing prompts thinking and learning, motivates communication, and makes thought accessible for reflection (Hashemian & Heidari, 2013). According to Scarcella and Oxford (1992, as cited in Hashemian & Heidari, 2013) writing in second/foreign language is useful in the improvement process of learners’ grammatical, strategic, sociolinguistic, and discourse competences; so it sounds logical to attach import to this skill and to seek better ways to its assessment and its improvement.

There are several assessment categories in writing:
1. Formative and summative
2. Objective and subjective
3. Referencing (criterion-referenced, norm-referenced, and ipsative)
4. Informal and formal

Summative assessment is done at the end of a course to grade students; FA or educative assessment is diagnostic and carried out during the instruction to boost learning, it can be done by teachers, peers, or students themselves and it does not necessitate grading.

Both formative and summative assessment can be categorized as objective or subjective assessment. Subjective assessment is questioning with more than one correct answer whilst objective assessment embraces questions that have just one correct answer.

Criterion-referenced assessment is measuring students against some defined criteria, and norm-referenced or grading on the curve assessment lacks such criteria. “Ipsative assessment is self comparison either in the same domain over time or comparative to other domains within the same student” (Klimova, 2011, p. 2605).

Formal assessment is systematic one directed at obtaining information about students’ achievement in predetermined times (Klimova, 2011); according to Brown (2004) informal assessment is unplanned comments and feedbacks.

In writing classes formative and summative assessment are used, however because the main purpose of writing assessment is to provide feedback to students, FA should be used (Klimova, 2011).

To improve writing instruction, accurate and practiced assessment is a common suggestion. Formative writing assessment enhances students’ writing by supplying them feedback from teacher and peers, teaching them how to assess their own writing—self-assessment and self-evaluation—and ongoing teacher’s monitor of students’ writing.

Formative writing assessments have some advantages: they allow teachers the calculation of the effectiveness of their instructional practices, modification of their instruction whenever it is needed, and provision of feedback to students on writing strengths and areas in the need of further work and development. To make formative writing assessment valid and fair and in order to gain its advantages, FA must be based on best practices including:

1. “Allow students to use the mode of writing in which they are most proficient when completing a writing assessment—pencil and paper or word processing.
2. Minimize the extent to which presentation forms such as handwriting legibility or computer printing bias judgements of writing quality.
3. Mask the writer’s identity when scoring papers.
4. Randomly order students’ paper before scoring them.
5. Collect multiple samples of students’ writing.
6. Ensure that classroom writing assessments are reliably scored” and rescoring does not change the students’ scores (Graham, et al., 2011, pp. 16, 17)—and ensure objective assessment use rather than subjective and in the case of latter reliability measures such as holistic and analytic writing scales must be established.

FA implementation faces some challenges: scoring, teacher preparation, and its implementation in conjunction with best practices. As to first challenge, scoring should be selective and less extensive; teacher training in FA application concerning teacher preparation should be exercised; and as to last challenge, best practices should be realized through for example asking students to put their name on the back of their paper to reduce the chance of knowing the author, randomly ordering papers before grading them to reduce context scoring effects, and using rubrics to score papers to improve scoring consistency. All in all, FA and best
practices in writing assessment promise to make students skilled and confident writers (Graham, et al., 2011).

The overriding objectives of this study are: to offer teachers a practical and effective channel to direct students' SR in an appropriate course to develop it, and to inculcate in students the invaluable merit of SR and its instrumentality nature, and productivity of FA.

2. Materials and methods

2.1 Participants

The participants of current study were thirty MA students, 15 assigned to experimental group and 15 to control group, majoring in teaching English as a foreign language (TEFL) in Azad University of Sanandaj. Aging from 22 to 42, they were both females and males, and their selection was non-random that is accidental or availability sampling—they were selected from among 40 MA TEFL students after administrating placement test.

2.2 Instrumentation

Before starting the process of the project, Oxford Quick Placement Test provided by Oxford University press and Cambridge local examination syndicate (2001) had been used to satisfy homogenization of the subjects. To measure students’ SR the Academic Self-regulated Learning Scale (A-SRL-S) derived by Magno (2010) was utilized. A-SRL-S consists of 54 items and 7 subtests including: Memory strategy, Goal setting, Planning and organizing, Self-evaluation, Learning responsibility, Seeking assistance, and Environmental structuring. Each item has 4 options: strongly agree, agree, disagree, and strongly disagree. The reliability of this questionnaire through Cronbach’s alpha method and its validity through the exploratory and confirmatory factor analysis had been attested (Pour, 2015). To administer FA six writing tasks in accordance with six techniques of FA, in light of short available time, getting from tools for FA compiled by Lambert, OCPS Curriculum Services (2012) were utilized. Applied techniques in this study were:

1. Summary writing: Writing is a tool for checking for understanding which is a systematic approach to formative assessment, and summary writing is a useful tool in this respect. Summarising new knowledge is conducive to abstract what students have just learned and to gain higher level of understanding. The exemplar of summary writing is précis bearing the main idea of a topic. In précis, diction is very important due to accurate conveyance of concepts along the consideration of economy; in fact, word choice mirror students’ level of understanding (Fisher & Frey, 2007).

2. One minute paper: The most used formative assessment classroom technique (FACT) by more college teachers is minute paper—one-minute paper or half-sheet response—to glean written feedback on students’ learning. In this technique, teacher asks students to write on index card or half-sheets paper the most important thing that they learned and they did not learn during the class. This simple technique is a manageable and economic one to get some information on students’ learning and to examine students’ recalling ability which requires self-assessment on the degree of understanding of just studied or heard materials (Angelo & Cross, 1993).
3. One sentence summary: Amalgamating the answers to the questions “who, dose what to whom, when where, how, and why” into a grammatical long informative sentence yields one-sentence summary which enables students to encapsulate information for easier process and recall and provide teachers with some knowledge about their students summarizing ability—One-sentence summary is a valuable formative assessment technique (Angelo & Cross, 1993).

4. Directed paraphrasing: To render some specialized information into language which is comprehensible for a specific audience and purpose is called directed paraphrasing. For being directed—due to aiming at a particular audience and purpose—this formative assessment technique is a demanding but more useful task than simple paraphrasing; it reflects students’ degree of understanding (Angelo & Cross, 1993).

5. Quick write: Quick write as a FACT is a “brief, timed writing activity” in which students summarise their learning on an index card, sticky note, or half-sheet paper at the end of the class or in midway of what they have studied in that class in two or three minutes. Teachers should prompt students by “posing a question, asking for a summary of the content, require a list of steps, ask for an analysis of the work, or request the use of specific content-area vocabulary” in a round-up of the topic under study to get better and more fruitful results. Few students will share their reflection with the class or all students’ Quick Writes can be collected as Exit Cards at the end of the class (Dodge, 2009).

6. Take and pass: Pass the question, take and pass, with an interactive nature is a collaborative activity which affords students to activate their own ideas and to examine other students’ perspective. Through this FACT, teacher poses a question that demands a rich explanatory response in line with students’ prior knowledge or recently learned concepts in instructional unit. Arranging students in pairs, teacher gives the pairs two or three minutes to respond the given question; after passing given time, pairs swap their partial completed response with another pair whom can complete the response, or modify it in accordance with their thinking; then, both pairs share their completed responses with each other, defend their ideas, give feedback on each other’s thinking, and examine the convergence or divergence of their ideas. In addition, pairs can be provided with feedback from teacher or the rest of the class. This FACT informs teachers about the nature and depth of students’ understanding and about the need for different instructional methods because of individual differences among students (Keeley, 2008).

To supply texts which were needed to implement some of the employed techniques of FA, some texts of Collins—English for exams, Get ready for IELTS, Reading—book matched with subjects’ proficiency level based on their placement test scores were used.

2.3 Procedure

2.3.1 Pre-test phase

After administering placement test and assigning students to experimental and control group in two writing classes, all subjects in both groups filled in the SR questionnaire to determine their primary level of their SR capacity.

2.3.2 Treatment phase

In this phase, students in experimental group were provided with the treatment that was six FA feedback techniques during six sessions—each session took 30 minutes. Each session researcher, first, provided students with some explanation on the technique concerning the
concept itself and its realization. Then, when researcher became assure that all students completely understand the concept and know how to apply it, supplied students with the planned task which demanded the operation of that given technique in that given session through utilizing writing skill. Students were provided with formative feedback on their writing next session and if any student had some question on their provided feedback, researcher was present to offer appropriate answers in line with being formative. It is worth mentioning that in light of the nature of some techniques and given circumstances, some tasks were designed by researcher but its implementation demanded the natural procedure of the experimental class, which except for the aforementioned 30 minutes ran by researcher, ran by teacher of the class as instructor. Used formative techniques were: summary writing, minute paper, one-sentence summary, directed paraphrasing, quick write, plus take and pass. Coming to control group, students in this group receive no treatment but placebo, they were taught by another teacher as instructor whom followed their writing class traditionally without supplying any formative feedback on students’ writing.

2.3.3 Post-test phase

Time was ripe for post-test phase. In this stage both experimental and control group completed the same SR questionnaire to examine any probable changes in their SR capacity.

2.4 Design

The employed method of present study was quantitative and quasi-experimental because of non-randomization of the sample. The study involved pre-test, treatment, and post-test to collect required data.

2.5 Data analysis

In order to analyse the data and to investigate whether developed hypotheses—two positive directional hypotheses—will be confirmed or not, one-way Analysis of Covariance (ANCOVA) and Multivariate Analysis of Covariance (MANCOVA) were used. To test the first assumption and answering its related question, one-way ANCOVA was applied. MANCOVA was applied to investigate the second question and probing the trueness of second assumption. For analyzing and computing the obtained data in this study Statistical Package for Social Sciences (SPSS) was used.

3. Results

3.1 Statistical data analysis

Descriptive indices of dependent variable, SR, and its different aspects are displayed in table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Index</th>
<th>Group</th>
<th>Pre-test(N=15)</th>
<th>Post-test(N=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mean</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>Memory strategy</td>
<td>Experimental</td>
<td>44.67</td>
<td>6.7</td>
<td>43.87</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>40.73</td>
<td>3.03</td>
<td>37.87</td>
</tr>
<tr>
<td>Setting goal</td>
<td>Experimental</td>
<td>14.2</td>
<td>3.17</td>
<td>15.46</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>13.4</td>
<td>2.89</td>
<td>12.6</td>
</tr>
</tbody>
</table>
As it is evident from table 1, the mean of SR in total and in all its different aspects showed a significant increase in post-test of subjects in experimental group, while there was not such a significant difference in post-test of subjects in control group. For, the mean of post-test scores of subjects in experimental group was more than that in control group (179.13 and 154.33 respectively) it could be argued that FA could enhance SR capacity of subjects significantly.

3.2 Restatement of research questions
3.2.1 Research question 1
Does formative assessment have a significant effect upon self-regulation capacity of EFL students?

To investigate the first question, one-way ANCOVA was used; but, before conducting this parametric analysis testing its pre-assumptions was required. One of the assumptions of one-way ANCOVA is homogeneity of regression slopes. The results of homogeneity of regression slopes related to SR are displayed in table 2.

Table 2: The results of homogeneity of regression slopes assumption related to SR

<table>
<thead>
<tr>
<th>Variable</th>
<th>Aspects</th>
<th>Sources of variability</th>
<th>Sum of squares (SS)</th>
<th>Degree of freedom (df)</th>
<th>Mean of squares (ms)</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-regulation</td>
<td>Total</td>
<td>Group*Pre</td>
<td>55.105</td>
<td>1</td>
<td>55.105</td>
<td>0.757</td>
<td>0.392</td>
</tr>
</tbody>
</table>

The obtained data in table 2 indicated the insignificant level of the interaction term (Sig=0.392, shown as Group*Pre in table 2) as to SR variable; therefore, this data supported
homogeneity of regression slopes assumption and it is confirmed. Analysis of covariance of homogeneity of variances is another assumption of one-way ANCOVA. To examine this assumption Leven’s test was used and obtained statistical data are shown in table 3.

**Table 3:** The results of Leven’s test related to SR

<table>
<thead>
<tr>
<th>Variable</th>
<th>Aspects</th>
<th>F test</th>
<th>Degree of freedom 1</th>
<th>Degree of freedom 2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-regulation</td>
<td>Total</td>
<td>0.079</td>
<td>1</td>
<td>28</td>
<td>0.781</td>
</tr>
</tbody>
</table>

Obtained data in table 3 showed that SR enjoys homogeneity of variance, thereupon this assumption was confirmed and the use of one-way ANCOVA for measuring the first question of this research was acceptable. Conducting one-way ANCOVA, the mean of pre-test of experimental group scores was compared with those of control group and post-test scores was applied as assistant variable.

The results showed that the effect of independent variable that is FA upon SR capacity of subjects (F=37.718, Sig=0.001) statistically was significant (see table 4). Meanwhile, adjusted means of SR variable, that its value for experimental group (176.653, see table 5) was significantly more than that for control group (156.813, see table 5). According to obtained data in table 5 the answer to first question was positive and the related hypothesis, FA increases SR capacity of EFL students, was supported.

**Table 4:** The results of one-way ANCOVA for examining the significant differences between experimental and control groups’ capacity in SR

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sources of variability</th>
<th>Sum of squares (SS)</th>
<th>Degree of freedom (df)</th>
<th>Mean of squares (Ms)</th>
<th>F</th>
<th>Sig</th>
<th>Coefficient of Eta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total self-regulation</td>
<td>Pre-test</td>
<td>3221.905</td>
<td>1</td>
<td>3221.905</td>
<td>44.676</td>
<td>0.001</td>
<td>0.623</td>
</tr>
<tr>
<td></td>
<td>Group</td>
<td>2792.194</td>
<td>1</td>
<td>2792.194</td>
<td>37.718</td>
<td>0.001</td>
<td>0.589</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>1947.161</td>
<td>27</td>
<td>72.117</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 5:** The results of adjusted means for SR

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Mean</th>
<th>Standard error</th>
<th>Confidence interval 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>minimum</td>
</tr>
<tr>
<td>Total self-regulation</td>
<td>Experimental</td>
<td>176.653</td>
<td>2.224</td>
<td>172.09</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>156.813</td>
<td>2.224</td>
<td>152.251</td>
</tr>
</tbody>
</table>

3.2.2 Research question 2
Does formative assessment have a significant effect upon different aspects of self-regulation capacity of EFL students?

http://www.ijhcs.com/index.php/ijhcs/index
Does formative assessment have a significant effect upon different aspects of self-regulation capacity of EFL students?

MANCOVA was utilized to investigate the second question proposed through this study. However, testing the assumptions of MANCOVA before its use was a prerequisite. Obtained data from examination of assumptions is shown in tables 6, 7, & 8.

**Table 6: The results of confirming tests to conduct MANCOVA**

<table>
<thead>
<tr>
<th>Test name</th>
<th>Value</th>
<th>F</th>
<th>Df assumption</th>
<th>Df error</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilla’s trace Wilks’</td>
<td>0.671</td>
<td>4.38</td>
<td>7</td>
<td>15</td>
<td>0.008</td>
</tr>
<tr>
<td>Lambda</td>
<td>0.329</td>
<td>4.38</td>
<td>7</td>
<td>15</td>
<td>0.008</td>
</tr>
<tr>
<td>Hotelling’s trace</td>
<td>2.044</td>
<td>4.38</td>
<td>7</td>
<td>15</td>
<td>0.008</td>
</tr>
<tr>
<td>Roy’s largest root</td>
<td>2.044</td>
<td>4.38</td>
<td>7</td>
<td>15</td>
<td>0.008</td>
</tr>
</tbody>
</table>

**Table 7: The results of Box’s M test**

<table>
<thead>
<tr>
<th>Box’s M</th>
<th>F</th>
<th>Df1</th>
<th>Df2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>51.836</td>
<td>1.345</td>
<td>28</td>
<td>2731.906</td>
<td>0.107</td>
</tr>
</tbody>
</table>

**Table 8: Leven’s index test**

<table>
<thead>
<tr>
<th>Variable</th>
<th>F</th>
<th>Df1</th>
<th>Df2</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory strategy</td>
<td>0.131</td>
<td>1</td>
<td>28</td>
<td>0.720</td>
</tr>
<tr>
<td>Setting goal</td>
<td>0.187</td>
<td>1</td>
<td>28</td>
<td>0.669</td>
</tr>
<tr>
<td>Planning and organizing</td>
<td>0.142</td>
<td>1</td>
<td>28</td>
<td>0.709</td>
</tr>
<tr>
<td>Self-evaluation</td>
<td>0.191</td>
<td>1</td>
<td>28</td>
<td>0.665</td>
</tr>
<tr>
<td>Learning responsibility</td>
<td>0.30</td>
<td>1</td>
<td>28</td>
<td>0.588</td>
</tr>
<tr>
<td>Seeking assistance</td>
<td>1.631</td>
<td>1</td>
<td>28</td>
<td>0.212</td>
</tr>
<tr>
<td>Environmental structuring</td>
<td>0.118</td>
<td>1</td>
<td>28</td>
<td>0.734</td>
</tr>
</tbody>
</table>

Data in table 6 indicated that obtained values for F at 0.01 were significant; therefore, there was at least significant difference between two means that justifies the use of MANCOVA.
To check homogeneity of variance-covariance matrices assumption, Box’s M test was used and its results can be seen in table 7. According to obtained data in table 7 homogeneity of variance-covariance matrices assumption has been observed. Finally, to investigate homogeneity of variance assumption, Leven’s test was carried out, that its results are presented in table 8. Based on obtained data, all variables had homogeneity of variance; in consequence, the use of MANCOVA was acceptable to investigate the second question.

Based on the acquired data in table 9, computed values of F for group variable in all aspects of SR, except in environmental structuring, (F=12.795, 11.9, 5.516, 5.497, 11.677, & 4.825) were significant at P≤0.05. In another words, in all aspects of SR excluding environmental structuring there was a significant difference between subjects in experimental and those in control group. Significance in group variable signified that the mean of post-test scores in SR aspects of subjects in experimental group was higher in comparison with subjects in control group. So, the second research question got a positive answer and its related hypothesis, FA enhances EFL students’ capacity in all aspects of SR, was confirmed.

**Table 9:** The summary of data of MANCOVA in SR

<table>
<thead>
<tr>
<th>Source of variability</th>
<th>Scale</th>
<th>Sum of squares (SS)</th>
<th>Degree of freedom (df)</th>
<th>Mean of squares (Ms)</th>
<th>F test</th>
<th>Sig</th>
<th>Eta square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (self-regulation)</td>
<td>Memory strategy</td>
<td>233.145</td>
<td>1</td>
<td>233.145</td>
<td>12.795</td>
<td>0.002</td>
<td>0.379</td>
</tr>
<tr>
<td></td>
<td>Setting goal</td>
<td>34.9</td>
<td>1</td>
<td>34.9</td>
<td>11.9</td>
<td>0.002</td>
<td>0.362</td>
</tr>
<tr>
<td></td>
<td>Planning and organizing</td>
<td>8.02</td>
<td>1</td>
<td>8.02</td>
<td>5.516</td>
<td>0.029</td>
<td>0.208</td>
</tr>
<tr>
<td></td>
<td>Self-evaluation</td>
<td>64.493</td>
<td>1</td>
<td>64.493</td>
<td>5.497</td>
<td>0.029</td>
<td>0.207</td>
</tr>
<tr>
<td></td>
<td>Learning responsibility</td>
<td>15.064</td>
<td>1</td>
<td>15.064</td>
<td>11.677</td>
<td>0.003</td>
<td>0.357</td>
</tr>
<tr>
<td></td>
<td>Seeking assistance</td>
<td>20.024</td>
<td>1</td>
<td>20.024</td>
<td>4.825</td>
<td>0.039</td>
<td>0.187</td>
</tr>
<tr>
<td></td>
<td>Environmental structuring</td>
<td>3.5</td>
<td>1</td>
<td>3.5</td>
<td>1.552</td>
<td>0.227</td>
<td>0.069</td>
</tr>
<tr>
<td>Error</td>
<td>Memory strategy</td>
<td>382.658</td>
<td>21</td>
<td>18.222</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Setting goal</td>
<td>61.586</td>
<td>21</td>
<td>2.933</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning and organizing</td>
<td>30.53</td>
<td>21</td>
<td>1.454</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>-------</td>
<td>----</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-evaluation</td>
<td>246.384</td>
<td>21</td>
<td>11.733</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning responsibility</td>
<td>27.092</td>
<td>21</td>
<td>1.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeking assistance</td>
<td>87.157</td>
<td>21</td>
<td>4.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental structuring</td>
<td>47.351</td>
<td>21</td>
<td>2.255</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory strategy</td>
<td>51390.00</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting goal</td>
<td>6075.00</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning and organizing</td>
<td>12548.00</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Discussion

Through developing SR and reinforcing its different aspects, students will be able to involve in classroom tasks cognitively, metacognitively, and motivationally (Meyer & Turner, 2002). To achieve this aim, teachers by providing students with FA including self-, peer-, and teacher-assessment can smooth the road for students (Liu, 2013). However, teachers need a map to surface the road and students need safety to drive on this road. Therefore, some documented evidences are required to satisfy the requirements.

The findings of this study indicated that students who were provided with FA on their writing tasks display higher level of SR (M=179.13, SD=16.28) in comparison with those
students who were deprived of this assessment (M=154.33, SD=10.2); thus, FA effect on students’ SR capacity is considerable.

The observed results bear out Boekaerts and Corno’s (2005) assertion regarding the effectiveness of classroom assessment and interventions upon SR capacity, and Butler’s (2002) statement as to the guidance of SR by others. Nicol & Macfarlane-Dick (2006) stated that FA should empower learners to self-regulate their learning; they put FA and feedback within a model of SR with seven principles of good feedback practice that support SR. Restrepo (2013) introduced FA as a springboard for students on the way of taking the responsibility of their own learning. What has been gleaned from this study is a corroboration of theoretical perspectives as to positive effect of FA on the extension of SR capacity. The comprehensive results of current study corroborated the productive effect of FA on SR in total and on its different aspects.

The comparison of post-test scores attained by both experimental and control group students and of pre-test and post-test scores obtained by experimental group students for their level of SR assessed by A-SRL-S after receiving the treatment, several techniques to give FA, by experimental group revealed the efficiency of FA upon SR. while the pre-test and post-test of control group students, who did not receive the treatment, did not show considerable difference in their SR scores. Analyzing the first question bore out the significant effect of FA on advancing SR capacity of students.

As to second question, the results show that post-test scores of students in experimental group compared with their pre-test and with students post-test in control group in all aspects of SR, with the exclusive of environmental structuring, and in SR in total increased. There was a significant difference between students’ scores in experimental and control groups with considerable low scores in post-test for control group students. Thus, students in light of FA could boost their ability in self-regulating their learning through reinforcing different aspects of SR.

Getting from Bandura’s social cognitive theory, the individual themselves, the others, and the environment all can exert some influences on SR; Bandura (1991) declared that SR functions through some subfunctions such as self-monitoring and standard setting; Cohen (2012) asserted that metacognition and self-monitoring are in close association with SR; and, Zimmerman’s model of SR embraces personal, behavioural, and environmental SR, all these theoretical positions justifies why aspects as memory strategy, setting goal, planning and organizing, self-evaluation, learning responsibility, seeking assistance, and environmental structuring could and had some effect on SR.

The development of self-regulatory skills blossoms (Zimmerman, et al., 2002) the ideal goal of education that is to persuade students to take accountability for their own learning (Zimmerman, 1990), and reaching this destination according to Zimmerman, et al. (2002), should be at the top of teachers’ agenda. FA can second students to become self-regulated agents (Nicol & Macfarlane-Dick, 2006).

The present study yielded results that support the effectiveness and fruitfulness of FA techniques upon SR and increasing its different components. Therefore, it strengthens teachers’ confidence and develops their trust in applying different techniques of FA to build up and multiply students’ SR. Furthermore, because the utilized techniques to perform FA in this study (see Appendices A-F) involved students in getting feedback from teacher, peer, and self-monitoring in order to handle proposed tasks students by reliance upon findings of this study and
other similar studies can become assure that different ways of assessment whether it would be teacher assessment, peer-assessment, or self-assessment bear fruits for them and they assist them in coping with proposed tasks and in enhancing their learning; students become aware of the power of SR skills in learning world.

5. Suggestions for Further Research

Proficiency level of students influences the classroom assessment (Katz, 2006). Onoda (2012) found that there is significant relationship between high and low proficiency groups and between high and middle proficiency groups for effort regulation strategies, that is one of three SRL strategies. In the present study, proficiency level of participants was not considered as a variable, although participants had been selected based on the scores that they obtained from a standard placement test. Therefore, it is suggested that researchers who desire to carry out some studies in this respect involve proficiency level of participants as an operative force.

In order to generalize the findings of a study, it is necessary to work with to some extent a large sample and make a random distribution of participants into groups instead of working with small size of samples and intact classes which were the case of this study. For this reason and in order to obviate these problems to make the results of a study generalizable, it is recommended that in future studies these factors are taken into account by researchers.
References


