Self-assessment as an effective learning strategy in e-learning: Promoting learner contribution

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Abstract

Enhancing learners' performance is a common goal in many academic projects and research papers. The contributing student approach suggests that active immersion in the core of the course improves language learners' performance. Focused on exploiting this concept in assessment, this research argues that promoting self-testing and creating a question bank for the summative tests motivates learners to get more engaged in the course and attain good levels of autonomy and performance. The learners' progress in performance was evaluated according to the scores in the pre-test, which is the average of their formative tests, compared to the post-test, which is a summative test. The course objectivists and orientations of the assessment were clarified to students to know the course demands. The tasks were electronically performed and open to all students, including the saved study questions, the discussion board, the edited group work, and the feedback. The results showed significant improvements in the performance of the students in the post-test. The study concludes that encouraging self-testing and utilizing a contributing student approach in assessment motivated most students to enhance their performance in e-learning courses.

Keywords: contributing student approach; self-testing; backwash; autonomy; e-learning

1. Introduction

Learners' progress in their academic achievement indicates the effectiveness of the approach, methods, materials, techniques, motivation level, and teaching/learning strategies, among many other variables implemented in the course. The concept behind contributing student approach is giving a chance to learners to participate in preparing the materials for their own learning. The participation circle suggested in this study includes the assessment at the end of the course. Self-testing is the promising learning strategy as a tool for the contribution of the students. The positive backwash of testing is empowered by giving constant feedback and reinforcement for good task responses. The engagement of the students in assessment is expected to boost the desire to improve performance and achieve better grades.

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Due to the rapid development of educational technology, many educational institutes encourage the induction of e-learning. This new trend has a good impact on teaching-learning quality and efficiency. Therefore, the trend is towards developing many applications and learning platforms to fulfill the needs of teachers and learners in a practical way. However, motivation in e-learning classes is limited, unlike regular classes where students can participate and get instant feedback and reinforcement from their teachers, mates, and administration. Teachers are bound to the virtual class interface which lessens the opportunities for the participants to contribute to the teaching and learning processes.

Moreover, each student is affected by a different environment that includes various distractors more than those found in the physical classroom. So, observing the learners' progress and the learning process become more challenging and not empowered by direct communication since the physical class activates interactions. A possible solution for motivating students is to engage them in their own learning by being active participants in constructing the course materials and assessing their achievement.

2. Theoretical Framework

2.1. Contributing Student Approach

The key idea of the contributing student approach proposed by Collis and Moonen (2005) is the contribution of the learners by activities stretching over the course period to collect learning materials for learning. They made students start with an empty website on which they gradually built the material using technology to facilitate all aspects of activities. Eventually, it becomes available to their peers and any other group at any time. For them, working autonomously and reflectively is an important attribute of learners that they can produce quality work in their subjects. In addition, students are engaged in self-evaluation as well as peer-evaluation beside writing quiz questions as part of their contributions. To make the idea of this approach practical they invest special tools and recurrent assessments to ensure full coverage of the course (Hamer, 2006).

2.2. Assessment

Assessment mediates between learning and teaching to find the merits and demerits of the process of education in a certain setting. They are at the core of the educational system, especially in EFL settings. Bjork (1975) asserts the importance of testing in educational contexts as being a learning event. Tests can be formative or summative according to their distribution in the course. In its conventional style and procedure, the students' progress and improvement are largely affected by formative assessment (Carless, 2010). Feedback plays a vital role in assessment effectiveness; be it summative or formative, the student can use the assessment feedback while learning (Taras, 2010). Assessment in the form of tests is an academic task affected by students' motivation due to the importance they give to it. (Cho et al., 2020.). In fact, learners' performance can be enhanced when they perceive the role of assessment that encourages autonomous learning (Brown & Hirschfeld, 2007). The positive correlation between the variation in the level of performance and the goals set for that performance is clearly stated in Goal theory (Latham & Locke, 1991). Motivation is an important variable of academic competence as concerned teachers consider its effect on the learner's struggle in school (Zimmerman & Cleary, 2009).

2.3. Backwash

Testing has a noticeable influence on teaching and learning (Alderson & Wall, 1993; Cheng et al., 2004). That influence is the backwash effect on evaluating teaching quality through the evaluation of

learning outcomes (Schiekirka et al., 2013). A wide range approves the backwash effect of studies worldwide (Cheng et al., 2004). The positive effect of backwash prompts positive improvements in language acquisition, student's autonomy and, strategic investment. (Brown & Abeywickrama, 2010). Formative assessment positively affects the learners' autonomy by using assessment formatively (Brown & Hirschfeld, 2007). When students understand the demands of the assessment, they become able to employ related learning strategies (Segers et al., 2006).

2.4. Autonomy in E-Learning

E-learning has become a preferable alternative of traditional class room learning. Invests. Autonomy is regarded as a counterpart of educational technology (Motteram, 1997). Additionally, autonomy is developed in all types of education as an effective catalyst of learning. New learning settings, such as Computer Assisted Language Learning (CALL), requires good ability of using technology which Benson (2001) associates to good levels of autonomy.

The accessibility of the learning sources is one of the advantages of e-learning courses (Alolaywi, 2021). Awareness of the role of technology should be an integrated element in teaching as well as learning processes. Teachers should be aware of the effective technology that best matches pedagogical and content knowledge implemented in the course (Al-Ahdal & Alqasham, 2020).

2.5. Learning strategies

The different definitions of language learning strategies (LLS) collected and presented by Alhaisoni (2012) (e.g., Oxford, 2013; Robin, 1987; O'Malley & Chamot, 1987) have several basic notions in common: they are conscious selections, made by the learners, deliberate actions meant for facilitating and improving learning, and they can help to transfer experience to new situations.

Oxford (2013) emphasized the strong connection between cognitive and metacognitive strategies and mental associations. Macaro (2006) rejected the proposal made by Phakiti (2003), that cognitive strategies are almost the same like metacognitive strategies, because he found it inviting the abstractness criticism. Cognitive and metacognitive strategies have more significant effect than social behavior strategies (Teng & Zhang, 2017). Strategy definition provided by Oxford (2017) is the best available so far (Thomas & Rose, 2018). A learner experiences a transformative process to become a strategic language learner, which can happen with serious involvement of others (Thomas & Rose, 2018). The reference to 'others' can imply teachers who guide students regarding learning strategies. Therefore, guidance can be a sort of limitation of other options to promote learners' selection and their picking up of more appropriate strategies for the context and their abilities.

Different research work which investigated the regularly and frequently preferred learning strategies by students, such as, Al-Refay and Koura (2010), Javid et al., (2013), Al-Ahdal and Almaamari (2015) found that metacognitive and cognitive strategies were placed in the highest frequency, social and compensation strategies were in the middle. Memory was the least in selection exhibiting the least frequency. Moreover, their work highlighted the positive correlation between the adapted learning strategy and proficiency in performance. However, Al-Seghayer (2014), Almigbal (2015), and Alkubaidi (2014) found no significant correlation between the selection of strategy and proficiency. Peacock and Ho (2003) suggested to train strategies indirectly during the course as an alternative to direct training of strategies. Direct strategy instruction motivates new awareness and new avenues for approaching the teaching (Mcmilan, 2009).

However, the positive correlation between using language learning strategies and proficiency is not fully supported by researchers, the available reports give valid evidences of it.

2.6. Self-testing

Self-testing is a self-evaluation method which has a specific frame that can enhance autonomy. Bond and Brew (1995) discussed the different self-evaluation methods and drew lines between self-testing, self-assessment, self-rating, and reflective questioning. Students sometimes choose to test themselves to diagnose their learning rather than to improve learning to pass exams (Kornell & Son, 2009).

Self- regulated learning strategy focuses on the acquisition which is guided by the goals of learning (Zimmerman & Pons, 1986). Personal goals are attained via the planned self-generated thoughts, feelings, and actions (Zimmerman & Schunk, 1994, in Zimmerman & Cleary, 2009). They related goals to self-regulation and the motivational beliefs about attaining those goals.

For Zimmerman (1990), promoting self-regulated learning relies on supporting three component processes: metacognitive, behavioral, and motivational. Emphasizing the necessity of a practical framework in the concept of student engagement altered its definition into the work that can attract student to be engaged in the classroom activities to find satisfaction and psychological investment (Munns & Woodward, 2006).

3. Literature Review

Language learning strategies studied by Mullins (1992) showed variant levels of strategy use; compensation, cognitive, metacognitive come first followed by social, memory, and effective strategies. Also, he found that using strategies like compensation and metacognitive positively correlate to proficiency in the language.

Green and Oxford (1995) found positive relationships between highly proficient students with higher use of strategies. In addition, they observed difference in the frequencies of strategies used. Hence, they proposed that each discipline required a specific training of strategy.

Locke and Lathman (2002) summarized the goal-setting theory over 35 years, and the findings included arguments related to achievement: (a) best levels of performance were the results of highly difficult goals; (b) it is essential to specify the goals to make them achievable; (c) variation in goals difficulty levels lead to different performance levels. In addition, they discussed four mechanisms of goals through which performance is affected including their directive and energizing functions and the how they affect persistence and action.

Kornell and Son (2009) investigated the effectiveness and beliefs underlying learners' decisions to use self-testing while studying. The participants were exposed to two study modes; pair mode and test mode, in an experiment followed by a post-experiment questionnaire. The study results showed mismatching between metacognitive beliefs and study choice and that student could not match the modes they used with their learning. They emphasized the positive impact of formative assessment on learners' motivation and achievement by utilizing feedback.

Encouraging and motivating learners to be autonomous presupposes helping them to select the strategy that best suits their ability and readiness to learn. However, Karpicke (2009) identified the lack of research which examine the effectiveness of the selected strategy in different circumstances. In addition, He suggested that students adapt strategies that vary in effectiveness when they do not receive direct instructions or get little help which give the way to peculiar selections. That conception supported the need for more research that monitors the choice of learning strategies to assist students in finding effective strategies to promote good learning and avoid choices that result in poor performance. He examined the potentiating effect of retrieval and supported the improvement of learning through retrieval processes. His work emphasized the effect of the selected strategies which

learners select during learning. Besides, it gave less importance to the effect of the level of difficulty of the test items. Instead, the vital factor in changing the results of students was how they learnt and retrieved what they had learnt. In fact, the most interesting finding of his work was that self-selected strategies have significant consequence on learning. Choosing to adopt self-testing can be regarded as a natural behavior that students tend to practice to ensure that learning fulfills the required standards (Karpicke, 2009).

Karpicke et al., (2009) attempted to find out students' awareness regarding recall and the encouraging effect of testing on long-term retention. They repeatedly investigated learners' awareness of the testing effect and found that testing effect is not recognized. They surveyed previous research and summarized the findings to cover effectiveness of repeated reading, retrieval student's awareness of the effect of testing. They emphasized the influence of lack of awareness on learners' real-world study behaviors. Consequently, they suggested that instructors should use the results of research work done to encourage students to use strategies that promote learning and long-term retention.

Luxton-Reilly and Denny (2010) presented an innovative pedagogical approach which they called constructive education. They believed that this approach could give the students the opportunity of becoming active producers instead of being consumers of knowledge. The method made the students engaged in forming a bank by writing questions and answers about the course learning outcomes. The bank became open to other students with feedback. The results showed how students got better understanding of the content and self-assessment along with meta-skills.

Hartwig and Dunlosky (2012) observed that studies investigating self-testing used among students adopt questions about understanding materials, but did not correlate the results with course grades statistically. In addition, using self-testing studies had to be frequent within the course not only during the examination period because, generally, the benefit is gained at the end of long time of practice (Roediger & Krpicka, 2006). Moreover, surveys focusing on self-testing (i.e., Karpicke et al., 2009; Kornell & Bjork, 2007; McCabe, 2011) found that students did not realize practicing certain activities like testing or spacing study were likely to enhance learning. The significance of using different degrees of self-testing was shown by the variation in test types and materials. For further research, the authors suggested research investigations about self-testing at different learning stages.

Schiekirka et al., (2013) used self-assessment in pre and post-tests as a comprehensive evaluation tool through which the students assessed their learning outcomes. The performance gain from self-assessment was compared with the performance gain derived from formative examinations. The group level results found similarities between subjective and objective assessments.

McAndrew et al., (2015) examined the learning strategies used by dental students while studying. They used two-question survey about strategy use. The results showed that students are not aware of the benefits and effects of self-testing on learning.

Ardasheva et al., (2017) found in their survey a direct relationship between language learning strategies with second and foreign language proficiency together with performance on self-regulated learning measures. They indicated a need for greater emphasis on self-regulation learning as an underlying mechanism of strategy instruction effectiveness in teacher preparation and professional development programs and strategy instruction curricular materials' (p: 573).

Yu (2018) conducted a study on constructed tests. He analyzed citing behavior of online peer constructed questions and found that students supported and preferred citing their peer's work over 'no citing' which enhanced their academic achievement.

4. Research Objectives and Questions

Self-testing focuses on the assessment of achievement as well as on the knowledge cumulatively acquired during the course. The effect of this strategy can be strengthened by doing the work in groups because group work encourages effective communication as students need to come up with acceptable responses to the assignments by analyzing the course objectives, reading the material critically, clarifying doubtful areas and topics, identifying the main ideas and details. The main focus in this work is to promote the students' engagement in the assessment process to make them participants in the course with the goal of enhancing their performance. The process of building a question bank in groups using the available technology is the basic catalyst in motivating the students.

The questions that the work attempts to answer are:

1. How can students contributing in assessment motivate students to adopt self-testing as a learning strategy?
2. To what extent can self-testing enhance the performance of the students at the college level?
3. What is the effect of applying a student contributing approach and self-testing in e-learning?

5. Method

The courses selected for this study are EFL courses at different levels. The current study uses Blackboard as the electronic educational platform, which is used in Alolaywi (2021) where 59.5% of the participants gave positive responses regarding using it easily in the same setting. Learning objectives, list of topics and assessment tools are clarified and discussed with the students at the first meeting and a copy of the course outline given and posted on the course webpage. As observed by Hameed (2020), peer interaction fosters a healthy attitude, the instructor clarifies to the students that the work will be in groups which initiates serious collaboration and in-depth discussions of the course and a wide range of points of view about the content of the course. Learners' serious contribution and participation were monitored by the instructor and the criteria and rubric for what makes a good subjective question were given. Their work was evaluated constantly to pick up good questions to be included in the collection of an electronic question bank. The assessment was done utilizing four tests: three formative tests within the course and one summative test at the end of the course. The average of the three formative tests was used to represent a pre-test, while the formative test represented the post-test. Further, 5% of the post-test items were selected from the learner's subjective question bank while all the pre-test items were given by the instructor.

Students were guided to adapt a specific learning strategy by careful planning of learning activates and assignment tasks. Exchanging questions and answers, then discussing the appropriate answers generates valid feedback among the students throughout the course. The instructor evaluated this group work, who reinforced the progress they made in the quality of their work and the questions were collected to form a subjective study question bank.

The average of the learners' pre-test scores, which were given before being engaged in the assessment, and the post-test scores, after contributing, were compared to measure the difference in their performance. The comparison results were analyzed to find out the efficiency of the methodology followed in the course.

6. Results

The total number of participants was two hundred and all of them were registered in English major courses. The average of the formative tests scores (pre-test) for each student was compared to their

summative test scores (post-test). The results indicated good progress in the scores, including for those who were below average in the pre-test.

The results are summarized in the following table (1).

Table 1. Compared mean, standard deviation, and a variant of the pre-test and post-test

Variant	Standard Deviation	Mean	Count	Test
142.09	11.92	58.48	200	pre-test
340.64	18.46	64.42	200	post-test

Table (1) shows that the mean (m=64.42) of the post-test is greater than that of the pre-test (m= 58.48). Also, the standard deviation (SD=18.46) and the variant (V=340.64) are greater in the post-test than in the pre-test (SD=11.92) and (V=142.09).
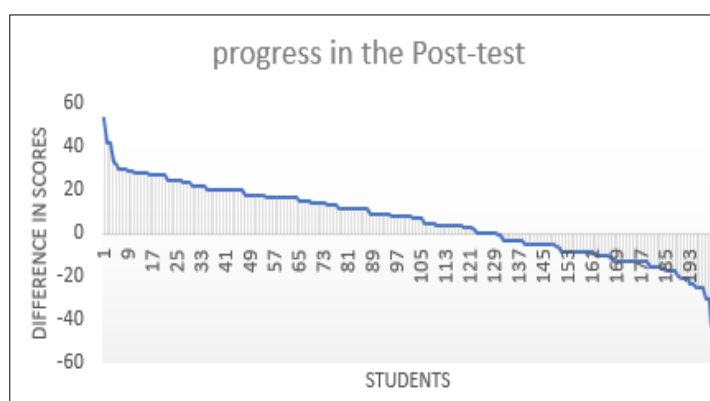

Figure 1. Progress in the performance of the students in the post-test

Figure (1) illustrates the change observed in the post-test scores, showing that the increase is more significant than the stability or decrease in scores. The difference between the learners' pre-test and post-test scores varies from (53) to (-42). The increase in scores is found in (123) post-test results (61.5%) of the total number of participants. The decrease is found in (71) post-test results which are (35.5%) of the students. (6) scores which are (3.0%) of the students retained the same level and show (0) difference. Significantly, the increase outperformed the decrease in (52) scores which makes (26%) of the results.
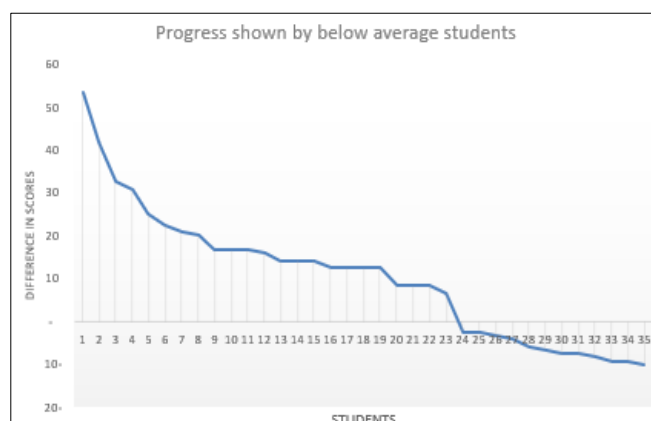

Figure 2. The progress in the below-average learners' performance

Figure (2) illustrates the increase in most of the below-average learners' scores in the post test. The difference in scores between the pre-test and the post-test of the below-average group ranges from (53) to (-10). (34) scores are below average, ranging from (18) to (48) out of (100) in the pre-test which are (17%) of the students. (22) scores which are (64.7%) of the below-average students, show an increase in the post-test scores. (12) scores which are (35.2%) of the below-average students, show a decrease in the post-test scores.

7. Discussion

The post-test had the advantage of showing better results for (61%) of the students, which makes (1.74) times the number of the students who did not show any improvement in the results. The gain exceeded the loss by (26%) of the students, which was a positive indicator of the benefit of the contribution in assessment. Although the content of the course material included in the post-test is more than the pre-test, the students could get better marks. The below-average group showed better improvement in the post-test than the other groups, indicating the positive effect of the learning strategy they adopted during the contribution. The results were not better for all the students, but the progress in the performance after the contribution was satisfactory. Hence, that a positive correlation exists between learners' contribution in assessment and their improvement in academic achievement.

8. Conclusion

The study included a pre-test and a post-test taken by English major students to observe the progress in their performance after being engaged in collecting a subjective question bank as part of their contribution in their own assessment in the course. The argument was that the contribution can motivate the students to become more autonomous and to develop self-testing as an appropriate strategy to enhance their performance. The students were engaged in tasks which promoted self-testing strategy as an effective strategy at college level, especially in e-learning courses. The results showed satisfactory progress in the learners' performance and a significant difference in their achievement after they worked hard to contribute. They activated the self-testing strategy which promoted the positivity in test backwash. Apparently, they were motivated by the implication of self-testing strategy and could manage to use it effectively in their contribution in the assessment process. Self-testing reversed the unpleasant effect of backwash results of tests as it stimulated the students to cope with the process of assessment positively. The noteworthy progress shown by the below average group was a valid indication of the learners' needs for guidance to find an appropriate strategy out of so many distracting strategies. Also, it suggested that they were not endowed with any less abilities, but they lacked identified goals to motivate them positively. In other words, students could enhance their autonomy and learning strategies while aiming at achieving better results in the summative test by using self-testing.

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