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Channeling Assessments in English Language Learning via Interactive Online Platforms

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Abstract

Technology adoption in classrooms has impacted the way educational practitioners conduct assessments. Online quizzes are preferred compared to paper-pencil based tests. However, very few information that explains the contribution of online assessment towards holistic attainment of students in English. The present study aimed at examining the effects of online assessments on students' performance. This research employed a quasi-experimental study to evaluate the role of interactive online assessments toward students' performance in English. Eighty-six undergraduate students in TESL participated in this study; 53 were randomly assigned to the online group while 33 were assigned to the control group. The research computed t-tests to compare the performance of both groups on five different assessments. The results revealed that the online assessment group performed better on four assessments tested—listening and reading skills. The control group performed significantly higher on the assessment that involved presentation (evaluated speaking skill). These findings indicate that online assessments enhance students' mastery of listening, reading, and writing skill but rather not so much

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influence on verbal skills. This research implies that educational practitioners should not entirely rely on interactive online platforms. To incorporate the blended-learning approach, classroom activities must consist of a combination of online and offline strategies.

Keywords: eLearning, online assessment, formative assessment, summative assessment, language assessment, educational technology.

1. INTRODUCTION

The adoption of technology in classrooms has impacted the way assessments are conducted. Online quizzes are now more encouraged than conventional paper-pencil based tests. Online assessments are more preferred as compared to printed submissions of assignments (Johnston, 2004). In most higher education institutions, there is a requirement to utilize e-learning platform in the teaching and learning process. The utilization of the online platform is not only intended for summative assessments but also formative assessment. Research has well-documented on the role of technology in facilitating classroom instructions and engagement (e.g. Baleni, 2015; Ebrahimzadeh & Alavi, 2017; Johnston, 2004) but not as much focus has been put on the influence of technology in mediating test and assessment results. This study evaluated students' performance on both summative and formative assessments.

The preference for utilizing online learning is popular in higher education classes (Silviyanti, 2014). Online learning has the potential to deliver high-quality instruction at reduced costs. Besides, this method of learning also allows the instructors to diversify the teaching techniques (e.g., videotaped lectures, lecture notes, interactive assignments). The implementation of online learning in higher education is also supported by the availability of online materials which seem to be the common delivery format in today's world. Despite the apparent potential of online learning, there is still very little evidence on students' performance, especially on the learning outcomes assessed through assessments.

Embedding technology in teaching and learning activities are common practices among educators. Assessing students' performance via technological platforms may not be as frequently utilized in classrooms, especially language classrooms. This study, therefore, inquired on the effects of using an online platform to administer assessments on students' performance on that particular assessment as well as their overall attainment. Specifically, we questioned if the adoption of technology for assessments can enhance students' scores; and whether this adoption is beneficial for both summative and formative assessments.

2. LITERATURE REVIEW

Among the main concepts invested in this study are assessments and online platforms. Specifically, this study anchored on two types of assessments; formative and summative assessments. Research on summative assessments conducted online has documented various and rich findings, such as learners' preferences (Marriot, 2009), ease and aide instructional workload (Stevens, 2018), and enhance educator

effectiveness (Donelli-Sallee, 2018). A lesser focus has been emphasized on formative assessments. Formative assessments are essential to students' overall attainment as they both evaluate students' progress and inform educators on the area for improvement. Hence, the utilization of online platforms to facilitate these assessments is expected to gain improvement in performance. The literature review revolves around the role assessments and platform facilitation in students' performance.

Administering assessments via an online platform is not very popular among educators due to connectivity issues. For example, Baleni (2015) assessed the participants who used Blackboard to conduct assessments involving two lecturers and 220 first-year undergraduate students from the education and science background and found that the lecturers perceived e-assessment as a helpful tool for students to learn better and easier. This study also documented negative responses among student and lecturers indicating negative preferences for online assessments due to connectivity issues and technical computer problems which can happen unexpectedly.

Literature has also documented the role of online formative assessments on the final exam—summative assessment. According to Yeo et al. (2014) who investigated 80 second-year college students in an Australian higher education institution revealed a significant connection between formative online assessment and students' performance. Specifically, Yeo et al. (2014) found that the usage of online platform positively influenced the students' performance on formative assessment. Nevertheless, the study did not trace the benefit of the formative online assessment toward the final exam scores. Another study found a similar trend (Casidy & Gridly, 2005): online formative assessment indicated a minor benefit prior to graded course exams, but online test practices significantly contributed to final exam scores. The argument about the weak contribution of online formative assessment towards summative test scores needs to be readdressed considering the fact that formative assessment is intended to help students with their overall attainment in learning.

2.1 Formative Assessment

Assessment is central because it has a strong impact on learning. This type of assessment is usually formative. Formative assessments administered in classrooms are sources of continuous feedback with the goal to improve teaching and learning. Another purpose of formative assessment is to support learning as it happens during the course of instruction. The activities of formative assessments are embedded within instructions with the aim to monitor learning and assess learners' understanding of the topic. This assessment is intended to help modify instructions if deemed necessary. Besides, the results of formative assessments can also inform further learning through continuous and timely feedback until the desired level of knowledge is achieved.

According to Black and Wiliam (1998), formative assessment can be defined as the process that provides both instructors and students with continuous feedback on the teaching and learning with an aim to improve students' learning and attainment of the instructional objectives. Besides, formative assessment is renowned as an essential tool to enhance students' performance in the classroom (Bell & Cowie, 2001). Furthermore, Zakrzewski and Bull (1998) suggest three benefits of formative assessments embedded in an online learning environment. First, the flexibility of time allows students to take the assessment at any time convenient to them, as long as the students meet the deadline appointed in advanced. Second, students can have several

attempts to respond to the assessments until they achieve the desired minimum grade. Third, online formative assessment provides students with prompt feedback needed to assess their learning and remedy weaknesses in instruction and their learning. Additionally, online formative assessment can help reduce the level of anxiety among students before sitting for the summative assessment (Cassady & Gridley, 2005). Vonderwell et al. (2007) further noted that instructors can employ online formative assessment to enhance interactivity between students and other students and between students and instructors.

2.2 Summative Assessment

Summative assessments are cumulative assessments intending to capture students' knowledge or the learning quality to evaluate the performance against a benchmark (Atkin et al., 2001). The purpose of a summative assessment is normally to quantify how much learning has taken place (i.e., how much a student knows; (Gardner, 2010). Summative assessments are usually graded and taken place at the end of the learning, more often in the format of tests and final exams than others. In addition, summative assessments play a vital role in determining the students' level of success or proficiency at a particular point in time in learning (Dixson & Worrell, 2016). Despite the differences between formative and summative assessment, Dixson and Worrell (2016) suggest these assessments should complement each other for the similar purposes intended. Formative assessment should be administered during the teaching and learning with feedback given throughout the process. Meanwhile, the summative assessment can be used at the end of a unit, lesson, or semester.

Mohamadi (2018) has postulated the effect of online summative and formative assessments on 130 Iranian English as foreign language university students' writing skill. He conducted three assessment interventions in writing performances of participants in using the pretest/posttest time-series design. The results prove that employing technology and techniques along with suitable assessment strategies is an effective way to have great learning.

2.3 Online Platform

The term 'online' is variably used with other terms such as 'e-learning' and 'blended learning'. These terms are used to refer to the adoption of applications of digital technologies in education. E-learning is the most commonly used online learning platform in higher education. More recently, various applications exist that facilitate online learning, especially the ones that allow instructors to conduct assessments interactively.

Numerous educational applications embed gamification in their system. A game-based learning context helps to shape a higher level of motivation of an individual (Ebrahimzadeh & Alavi, 2017). The adoption and application of games in learning have been associated with increased student motivation and creating an interesting learning experience (Icard, 2014). Currently, there is a new trend to reducing assessment and test anxiety by utilizing game-based tools to conduct assessments test. One of the most used applications is Kahoot.

Kahoot is highly favored by instructors and teachers for assessments, quizzes, and tests. Kahoot is an Internet-based application in which quizzes can be developed

and presented in a game-show format. Points are awarded for correct answers and participants can immediately see the results of their responses. Iwamoto et al. (2017) suggested that Kahoot is an online gamification tool that supports the testing effect. The testing effect is a robust and reliable phenomenon demonstrating that taking an initial test improves performance on subsequent tests. Interestingly, Thomas (2014) claimed that with Kahoot, an otherwise sleepy, insipid class can turn into an active highly charged groups of students eager to absorb and excel.

Another application is called PollEverywhere. This technological tool transforms one-sided classroom teaching into two-way interactive conversations with the students. Hence, this web-based response system allows the teacher to create an interactive assessment to be administered in class. JHSPH (no date) suggests that Poll Everywhere is suitable for the following teaching and learning purposes: to collect data, to take classroom temperature, to instantaneously assess understanding of concepts, to challenge perceptions or misconceptions, and to conduct live classroom quizzes and tests.

Utilizing the above platform to administer assessments can function as an innovative pedagogical strategy through facilitating opportunities in formative and immediate feedback, engagement with critical learning processes, and promoting equitable education. The adoption of technology may be a common practice in general strand content areas, most studies reviewed do not specifically evaluate the language learning aspect.

3. METHODS

This study employs an experimental design. Undergraduate students enrolled in Teaching English as a Second Language (TESL) program were randomly assigned into two groups (i.e., the experimental group and the control group). The purpose of the experimental study is to evaluate the effect of using an online platform for assessments on the students' performance on the particular test/assessment as well as overall classroom performance.

3.1 Participants

Eighty-six (86) undergraduate students participated in this study. The participants of the study were students of Teaching English as a Second Language. The students were from two private higher education institutions in Malaysia. All students who participated were those enrolled in the TESL assessment course. The course uniformity was controlled to ensure a similar level of assessment difficulty between the groups of participants. The study first recruited the course instructors and then asking their respective students to participate in this study. Utilizing the experimental design, the study divided the students into one experimental group (53 participants) and one control group (36 participants). The students' proficiency and attainment level are comparable between the two groups (see descriptive results for the participants' profile). A majority of the participants were female students for the nature of TESL classes are dominated by female students.

To participate in this study, students were selected using purposive sampling. Purposive sampling is a non-probability sampling technique which involves

identifying and selecting the individuals or group of individuals that are experienced with the research interest (Palinkas et al., 2016). In this study specifically, we first identified the instructors who had used online platforms for assessments. All students enrolled in the selected classes were included in the study.

3.2 Materials

A total of four types of formative assessments were conducted on both the experimental and control groups. Two of the assessments emphasized on the lower thinking level of bloom's taxonomy (i.e., knowledge, comprehension, and application) while the other two assessments evaluated students' knowledge on analyzing and evaluating. Besides the assessments, both groups were also examined on the presentation skills. The presentation was the last assessment conducted in the research, making sure that all students have completed the four assessments. Both groups presented the assessments face-to-face, no online platform was used for the assessments. The presentation evaluation was intended to compare the verbal skills of the two studied groups.

3.3 Analysis

This experimental design study employed SPSS 22 to analyze the data. First, we analyzed the normality of the data to fulfill the assumptions needed for further inferential statistical tests. To check for the normality of the data, the study employed the graphical method (i.e., box plot). The box plot presents the minimum, distribution of the data within the three quartiles, and the maximum as well as display the outliers (Marmolejo-Ramos & Tian, 2010). In our data, no significant outliers were detected, and the data shaped was normal. Descriptive and correlation analyses were computed to evaluate the data and presumed preliminary relationship between the assessments. Finally, we computed comparative statistical tests (i.e., multiple regression and t-test) to compare the experimental group and the control group.

4. RESULTS

From the 86 participants of the study—all undergraduate students majoring Teaching of English as a Second Language who took language assessment classes, we performed a series of analyses, from descriptive statistics aimed to explain the nature of the students' scores on the assessments and t-test targeted to compare between the control group and the experimental group. All analyses were intended to explain the roles of interactive online assessments in the students' overall performance.

4.1 Descriptive Statistics

Table 1 below shows the overall students' performance on each of the assessments measured for the study.

Table 1. Descriptive statistics.

	N	Min	Max	Mean	Std. Deviation
Test 1	86	0	14	10.260	2.715
Test 2	86	0	15	9.630	2.808
Quiz 1	86	0	4	2.919	.664
Quiz 2	86	0	5	4.340	1.001
Presentation	86	3	10	7.020	1.645
Final Exam	86	8.4	35	24.179	6.879
Overall Score	86	31	85	66.302	10.914

On all assessments, students' average scores are located on the midpoint. The range and the standard deviations indicated that the data are quite varied. The variability in the data also indicates its normality. Once the normality is assumed, further analyses can be performed.

4.2 Correlations among the Assessments and Test

To evaluate the bivariate relationships between the tests and assessments, we computed Pearson correlation (*r)* to measure the strength of the association between two variables at a time. The results of preliminary analysis serve as a baseline to presume associations between the tests and assessments. Hence, the decision to proceed with further analyses is supported.

Table 2. The Pearson Correlation results.

	1	2	3	4	5	6
1. Test 1						
2. Test 2	.312**					
3. Quiz 1	.048	.156				
4. Quiz 2	.366**	.459**	.148			
5. Presentation	.175	-.123	-.006	-.305**		
6. Final	.363**	.511**	-.014	.493**	-.138	
7. Total	.644**	.704**	.119	.596**	.063	.888**

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 above shows that most of the tests and assessments are significantly correlated ($p < .05$). The most important correlations to be analyzed are the relationships between the formative assessments (i.e., Test 1, Test 2, Quiz 1, Quiz 2, and Presentation) and the final scores (i.e., Final). Test 1, Test 2, and Quiz 2 were significantly correlated with the students' final score (the Person correlation coefficients were .363, .511, and .493, respectively). Quiz 3 and Presentation did not have a significant correlation with the final scores.

4.3 Predicting Final Exam Scores

Using the formative assessments, we predicted the summative assessment (i.e., the final exam) performance of the students. The multiple regression results showed that the formative assessments accounted for 38.1% variance in the final exam score. Specifically, the multiple regression coefficient tables below reports that only Test 2 and Quiz 2 were significantly linked with the final exam (see Table 3 for details). This result is a piece of evidence that the formative assessments evaluate or target to measure students' performance on various skills, not just one particular skill.

Table 3. Multiple Regression Coefficient table.

	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
	B	Std. Error	Beta		
(Constant)	8.163	5.002		1.632	.107
Test 1	.423	.257	.167	1.643	.104
Test 2	.843	.248	.344	3.398	.001
Quiz 1	-1.208	.927	-.117	-1.303	.196
Quiz 2	1.912	.761	.278	2.511	.014
Present	-.171	.409	-.041	-.418	.677

4.4 Group Comparisons

The next step of the analysis was to compare the experimental group and the control group on each of the tests/assessments. The comparison was intended to reveal for the effect of tests conducted via the interactive online platform on the students' performance on the tests.

Table 4. Descriptive Statistics for the group.

	Mean		Std. Deviation		*t*	*p*
Group	Control	Experimental	Control	Experimental		
Test 1	9.42	10.77	2.948	2.447	2.297	.024
Test 2	8.55	10.30	3.163	2.350	2.752	.008
Quiz 1	2.909	2.925	.997	.331	.086	.932
Quiz 2	3.48	4.87	1.034	.482	7.209	.000
Final	19.891	26.849	6.281	5.842	5.218	.000
Total	59.848	70.321	11.250	8.597	4.872	.000
Present	7.85	6.51	1.326	1.625	3.979	.000

We evaluated the students' performance on Test 1, the *t-test* result indicated that there was a statistically significant difference between the experimental group and the control group ($t = 2.297$, $p = .024$). The experimental group scored significantly higher than the control group, refer to Table 4 for the mean and standard deviation values. In Test 2, the experimental group also scored significantly higher than the control group ($t = 2.752$, $p = .008$). A similar result was also seen on students' scores in Quiz 2 ($t = 7.209$, $p < .001$).

It is important to note, but to no surprise, that the experimental group scored statistically significantly higher than the control group on the final exam ($t = 5.218$, $p < .001$) as well as the overall assessment ($t = 4.872$, $p < .001$). The final exam was administered conventionally (i.e., paper-pencil based test) while the total score was accumulated from all the assessments for the course. The shocking result was revealed in the significant difference between the groups on their presentation performance. The control group performed significantly higher than the experimental group ($t = 3.979$, $p < .001$).

5. DISCUSSION AND CONCLUSION

All components of education are influenced by the rapid advancement of technology, and assessments are not immune. Educators are demanded to not only be able to utilize digital resources for assessment preparation, but students should be able to take assessments using the technology that makes them most comfortable with.

Changing the delivery format of tests is an intimidating proposition for many policymakers as well as administrators in the education sector, and the change comes with a substantial financial implication. With the additional significant reluctance in the voices of educators who are doubtful of the technology role in transforming classrooms, it is not difficult to see why there is so much hand-wringing when it comes to updating the way that assessments are delivered. Nevertheless, it is important to find a meet in utilizing technology for the purpose of learning improvement and educational attainment.

Integrating technology in assessments can have two positive results. The first is that they can reinforce the use of technology among students by asking them to implement it to take the actual tests. The second is that assessments are more interactive than the traditional paper-pencil based test which will make classroom learning more meaningful and interesting. Research has documented that students who take tests on computers or tablets are more comfortable with the material at hand and it will feel like they are participating in more of an integrated process. Therefore, in order to keep abreast with the fast pace of technology, educators need to insist that technology be part of not only the teaching process but also of assessment policy.

In this study, we found that students' scores on interactive online assessments were significantly higher as compared to their peer taking the assessment conventionally. This suggests the positive effect of technological platform adoption on students' performance. This finding is consistent with previous research documenting on the positive effect of the technological tool in teaching (Iwamoto et al., 2017; Ogange et al., 2018; Yeo et al., 2014). Interestingly, our result suggests that formative assessments such as classroom presentation are not significantly influenced by the interactive online technology adoption. The students' performance was not influenced by the absence of technology, in which our control group performed significantly better than the online group. This finding also indicates that verbal skills (as shown in the presentation assessment) do not necessarily improve through the mediation of technology.

The conclusion we draw from this study anchors on the important role and effects of the interactive online platform in the assessment. Supporting the body of the current literature, we support the use of technology in the classroom, particularly in assessment administrations. Besides, based on the result generated by our formative assessment, we also highlighted on the importance of building the students' verbal skills as the technology may not be able to enhance the students' pragmatic skills. Therefore, we suggest future research to focus only on formative assessments. We expect that the focus could reveal further surprising and positive results to help educators as well as students in the teaching and learning process.

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