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Enhancing English Speaking Proficiency through Mobile-Assisted Language Learning with the Cake Application among University Students

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Abstract

This research aims at assessing the impact of Cake application developed and used as a MALL platform in increasing the university students' abilities to speak English fluently. In this study, the quasi-experimental design was adopted and the participants were 100 in number and divided into two groups; the experimental group that used Cake application and the control group that followed the traditional curriculum without the application. The Speaking Proficiency Assessment Framework (SPAF) was used to pre-test and post-test Speaking skills with focus on pronunciation, fluency, lexical resource, and communicative competence. The scores highlighted significant enhancement of the level of speaking in the experimental group, the size of which substantiated as rather large, proving the efficacy of the given intervention in the context of its practical application. The distribution analysis revealed that the scores are distributed less variable in the posttest of the experimental group than in the pretest, which suggests the likelihood that the Cake application was beneficial in augmenting performance while assisting students with lower and higher initial proficiency levels. Such perspectives point towards the ability of the MALL tools in the delivery of education especially to those in need.

Introduction

Ed-tech integration as we have seen has become the in vogue approach to learning that has adopted teaching at an exponential rate within a very short span in education. Conventional strategies of instructions for instance use of blackboard and lecturing are the common basics that are however at this present time considered to be outdated in reaching the present generation computer literate students (Staddon, 2020). It is not just a shift but it is mandatory, as the needs of learners, their requirements and how their brain works in the twenty first century has change and cannot be ignored (Hilton & Pellegrino, 2013; Gardner, 2021). These methods that employ a lot of information input without the student actively engaging with it mostly cuts across the students who are used to an engaging, media central learning environment.

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Very much has been written about the evolution of the education system wherein digital platforms play a prominent part. These are; Desktop, Mobile & Web Application have over the years introduced a new form of educations that enhanced accessibility and interactivity to students (Nora & Snyder, 2008; Tzenios, 2020; Tuma, 2021). According to AlAmmary (2012), the use of edtech can positively impact students' interest and their academic achievements in their learning processes especially when the technology applied is an addition to conventional educating techniques (Cheung & Slavin, 2011; Delgado et al., 2015). The pedagogical roles of these platforms cannot be regarded only as the effectiveness of content delivery but as the potential of providing students with more effective learning environment.

Mobile-assisted language learning (MALL) may be considered as one of the biggest innovations of this digital shift especially in the sphere of language learning (Kukulska-Hulme & Shield, 2008; Wardak, 2020). Thanks to the portability of features and the powerful connectivity of a smartphone, MALL allows learners to carry out full-spectrum language learning activity asynchronously and anytime, which is very valuable in the contemporary globalized environment as noted by Walling (2014). Of them, the Cake application, which is an example of MALL, has attracted much attention for the purpose of improving speaking skill in English. Hamad et al. (2019) notes that some common features like interactive videos, pronunciation practice or interactive videos contribute significantly to the development of speaking skills of the learners.

However, due to increased implementation of technology in education, there is a need to look at some of the underlying effects of the same. According to Havelock (2013), it is important to note that, although applications like Cake have many benefits, it leads to the potential deskilling of practice, 'dep lawyering' the role of the teacher to a passive spectator of the learning process. This issue becomes paramount especially when estimating the effects of technology on learning and thinking by replacing them with screen scrolling and shallow content interaction. Saidouni & Bahloul (2016) also noted that regardless of the type of MALL tools used for the teaching learning process, these tools are only as effective as the curriculum in which they are used that is, MALL tools can only work effectively for value added education if they are supported by a structured and comprehensive curriculum. Of greatest concern is the fact that with clear instructions on the aspect of computer aided instruction and learning not properly provided, the possibility for the learner to become over reliant on the audio visuals least they forget to develop good language skills are realized (Condinho Bravo, 2008).

However, with the use of MALL tools, learners get to practice language in addition to facing concerns linked to enhanced cognition learning skills. D'mello & Graesser (2013) asserts that excess reliance on automated feedback and the interacting elements might decrease the extent of student's thinking that is an important aspect of language acquisition. This is why there should always be a mechanism of adding a touch of technology to the traditional methods rather than abolishing them. According to Rieber (1996) the best learning environments are those in which technology is combined with teaching interventions thereby achieving the optimum of the two.

Research Methods

The present research uses a quantitative research approach towards assessing the impact of the Cake application towards the development of English speaking skills of university students. Since the purpose of the study was to determine the effect of the intervention, a non-equivalent pre postcontrol group design was adopted. The research took place in a well-known university

and included 100 students that were chosen from middle-expertise courses in the English language. These participants were purposively selected and then randomly placed into the experimental group which incorporated the Cake application, as an addition to conventional language learning or the control group which followed the normal course of study, without the application.

Data collection took eight weeks and during this time both groups received standard core instruction in English speaking skills delivered by professional language trainers. The experimental group also predicted word-final [r]. In order for the experimental group to increase pronunciation, fluency and conversation practice all the subjects in the experimental group also had extra practice sessions with the Cake application. The implementation of such sessions was to promote the differentiated and context-enriched language practice in addition to the mainstream direct instruction. In order to assess the impact of the intervention, both groups underwent pre-test at the start of the study, and post-test at the end of the study. These assessments intended to measure shifts in speaking abilities within the course of the intervention.

A custom developed assessment tool, the Speaking Proficiency Assessment Framework (SPAF), was created specifically for this study to measure the students' speaking abilities across four key dimensions: Pronunciation, speech fluency, vocabulary and general language proficiency. As was expected the SPAF was meant to realistically mimic everyday coursework which had activities that entailed things like reading, dialoguing, and small speeches. These tasks were designed to assess the following: ‘distinctness of sound production, nature and breadth of phonetic accuracy, fluidity of speech rhythm and tempo, suitability and variety of lexical items recommended for use, and ability to communicate meaning intelligently across different communicative situations.

The students’ performances on the SPAF were videotaped and each of them was coded and scored using the framework by the two independent raters who had been trained in the use of the taxonomy. For the purpose of elaborating the rating scale a 5-point Likert scale was used; the descriptors of each scale level were provided for the improved rating accuracy and the reduction of the subjectivity. Intrarater and inter-rater reliabilities were considerably high, thus proving that the scoring was accurate. The SPAF was also pilot-tested before the main study in order to minimize reliability issues, and fix tasks and scoring rubrics to meet the intended aspect of speaking proficiency.

Thus, the data analysis incorporated descriptive and inferential methods. The performance of each group was described using descriptive statistics while inferential statistics of independent samples t-tests and paired samples t-tests were performed to test for statistical significance of the difference found out between and within groups. Cohen’s d approximations were also computed to measure the importance of the outcomes in real life. Further, the use of analysis of covariance (ANCOVA) was contemplated to reduce confounding factors including variability at the start of the study in terms of the level of expertise.

Results and Discussion

The next part of this work features the outcomes of this analysis concerning the contrast between the experimental and control groups as well as a comprehensive assessment of the efficacy of the intervention by means of ANOVA, t-test, and graphs. Such findings may provide important implications for both current practice and research regarding with the use of technology as a supplemental aid in the teaching and learning of language.

Table 1. Descriptive Statistics for Pre-Test and Post-Test Scores

Group	N	Mean Pre-Test	SD Pre-Test	Mean Post-Test	SD Post-Test
Experimental Group	50	65.20	8.50	78.10	7.20
Control Group	50	64.85	7.90	70.45	8.10

The descriptive statistics provide information about mean and standard deviation as well as for the pre and post test scores. In addition to this, the figure that depicts scores' distribution enhances this analysis by showing dispersion and clustering of the scores within each set. The histograms reveal that the pre-test distributions between the two groups are, to an extent, are similar though the post-test distributions are different. The group that used the Cake application shows a marked increase in the mean score suggesting the fact that the group has improved on their spoken English proficiency. The effect is still less pronounced in the control group though its distribution of scores does improve and is closer to the normal distribution of scores as it was observed in the pre-test.

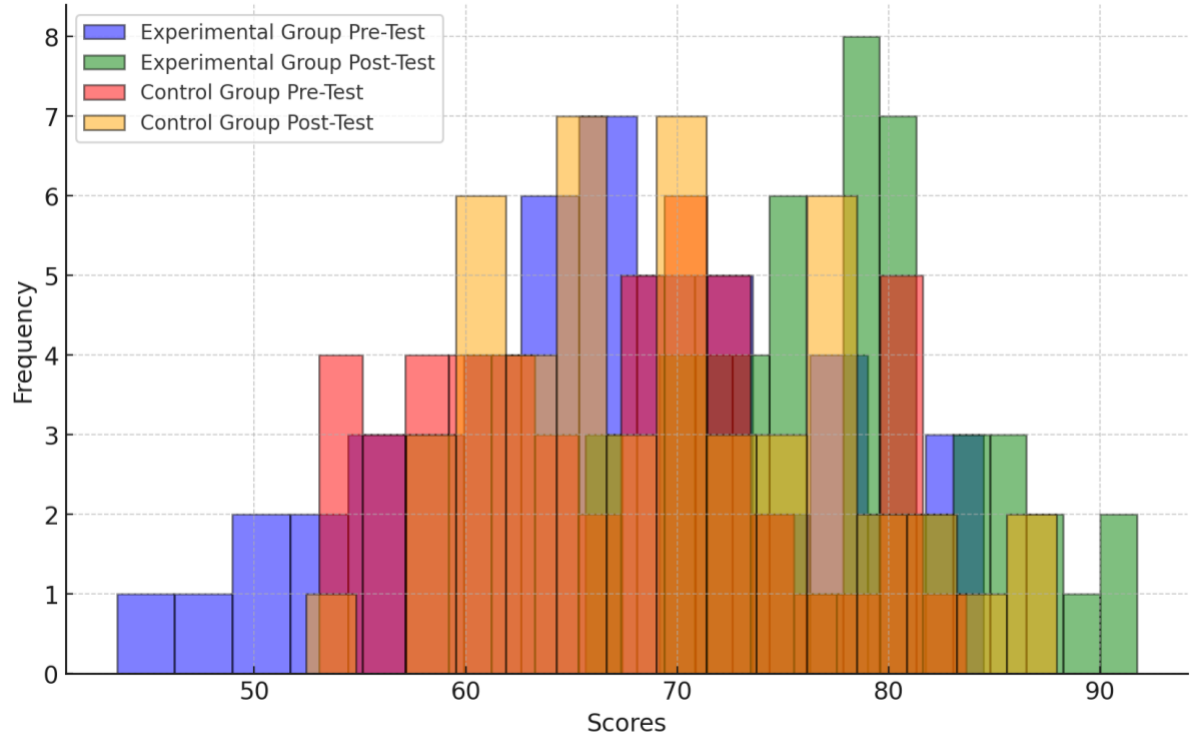

Figure 1. Students Distribution Score

These changes in distribution, especially the decrease in the proportion of lower performance scores and the increase in the percentage of higher performance scores in the experimental group supports the use of the Cake application. The visualization also allows for understanding the changes of the mean scores as individual student progresses which may not necessarily be clear when only having the averages. This brings a good argument on the facts that the Cake application is not only the tool that increased the average level of achieved proficiency but also increased the level for a larger number of students.

Table 2. Independent Samples t-Test for Post-Test Scores

Group	Mean Difference	t-value	df	p-value	Cohen's d
Experimental vs Control	7.65	4.72	98	<0.001	0.90

The t-test for independent samples gives information about the statistical significance of the differences of the post-test scores of the experimental and control group. This outcome points out that the changes found in the experimental group are not probably because of a mere chance but by the intervention made. The large ES also points to improvement in the students' speaking skills in line with the successful implementation of the Cake application. This finding is important in advocating for the use of the Cake application in teaching since it indicates that use of the tool yields to gains in language use compared to use of traditional instruction alone.

Table 3. Paired Samples t-Test for Pre-Test and Post-Test Scores Within Groups

Group	Mean Difference	t-value	df	p-value	Cohen's d
Experimental Group	12.90	10.05	49	<0.001	1.43
Control Group	5.60	4.32	49	<0.001	0.61

The results of the two-sample t-tests, give information regarding changes that occurred in the different groups of the pre-test and the post-test. Large improvement in the post-test scores of the experimental group and large effect size underscores the benefit of the Cake application in enhancing development of individual students. To some extent, the control group also increases the scores indicating that regular instruction is helpful but, the extent of increase in scores is not significantly high as that observed in the groups which were exposed to Cake application to enhance the speaking ability. This comparison renders the necessity of integrating technology in learning languages to fast-track the learning progress of students.

Table 4. ANCOVA Results Controlling for Pre-Test Scores

Source	SS	df	MS	F-value	p-value	Partial Eta Squared
Experimental vs Control	1365.25	1	1365.25	22.75	<0.001	0.19
Pre-Test Score	453.60	1	453.60	7.55	0.007	0.07
Error	5837.45	97	60.18			

Finally, the ANCOVA took into consideration the initial levels of proficiency and strengthened the assertion that the Cake application was useful. The analysis show that when the effect of the pre-test scores has been accounted for in the analysis, the difference that was observed in the performance of the post-test scores is closely related to the intervention, as opposed to the pre- existing differences between the groups. A large F-value and a large partial eta squared show the importance of the Cake application for the enhancement of speaking as a product of the students regardless of the initial level they had had. This revelation is quite persuasive since it means that the application is effective regardless of how much the learner knows in the target language thus making the application effective in language acquisition.

Therefore, it is confirmative that the experimental group recorded higher improvement in their post-test performance than the control group, hence supporting the findings of how the Cake application could improve the students' performance (Tien et al., 2020; Zhu & Ibrahim, 2017). This outcome align with the study that was undertaken by Hoskyns-Long (2009) wherein they posited that through the use of interactive digital tools learners were likely to get more engaged and motivated thus improving their language acquisition ratesWhen it comes to analysing the distribution histograms, it is possible to state that the Cake application also contributes not only to the increase in the average score, but also to the decrease in score variability, which means

that, with the help of the application at hand, even those students who initially may be weaker than others can improve their results significantly (Dunlosky et al., 2013). This is especially true in multicultural settings where students' current and past language literacy processes may not always be similar, and therefore the need to provide more individualized learners' tools to ensure that students are given equal opportunities to learn (Grant & Basye, 2014).

These big numbers are supported both in the independent and paired samples t-test and thereby strengthening the argument that Cake application is reliable in aiding the learning of any language (Khalilian et al., 2021). That is why, these results are in line with the findings of other works exploring the effectiveness of MALL which has shown that mobile applications can help to achieve significant educational outcomes with the focus on improvement of language proficiency (Yang, 2013; Gafni et al., 2017). However, effectiveness of such intervention strategies critical hinges on the extent to which these tools are implemented and or adopted in the curriculum as well as supported by teachers. Cacchione et al. (2015) also stressed the fact that the reason for adopting MALL tools has to be seen in the fact that they can be used as supplementary to the mainstream teacher taught practice and enable the teachers to engage in the other aspects of language teaching. Moreover, the results of the ANCOVA analysis which took into account the end of semester proficiency level reveal that the Cake application is versatile (Tiwari & Tang, 2003). This implies that application of the proposed teaching tool in low, medium and high classifications is possible strongly indicating that MALL tools may benefit multilingual and multicultural classrooms where students will encounter different difficulties in learning (Sadykova et al., 2016; Ahmad et al., 2013). Making it easier for learning to be made distinctive to the learner is a significant advantage of tools like the Cake application that can help in education to be made for all since there are students who would not learn well when information is imparted in a particular method.

However, there are also several concerns and implications that needs to be identified arising from this study regarding the dangers of having dependency on technology in languages learning (Warschauer & Healey, 1998). Nevertheless, it is imperative to note that the organisational and developmental gains manifested in the experimental group are significant at the same time, the implementation of Information and Communication Technology must be done in a measure that is balanced. Lobel et al. (2005) noted that even though technology can open new avenue of learning, it shall not eliminate the learning personality that includes the physical touch between students and teacher, context that comes with real time interaction with peers. Again, the fact that this study involved the usage of the Cake application probably would have thrived on the availability of systematic backing from instructors, staffs, and tutors involved in the teaching process as well as exercises that were conducted in conformity with planned teaching and learning goals and objectives (Horton & Horton, 2003).

It must also be noted that the teachers' involvement in the operation of the MALL tools is very critical. As this study also points out, the adoption of Cake application was not only driven by the technology used in it but also to how this technology is used to support existing practices of teaching and learning. This fact is in line with the current studies that address the significance of the teachers' engagement in the effective utilisation of the digital learning solutions (Lemon & Garvis, 2016; Redmond et al., 2018). Teachers can facilitate the acquisition of skills needed for actual interaction in real life situations through the pedagogical practice the students engage in when using the language in ICT environments. Additionally, the decrease in the performance fluctuations as perceived in the experimental group points to MALL tools such as Cake application to augment the equity of education. As it has been identified that in educational contexts differentiation may become an issue due to differences in language, the technologies of personalised learning help the students who may otherwise face difficulties (Kirkwood &

Price, 2005). This is in concordance with Shamsi (2021) who submitted that in contexts where resources are scarce, MALL tools could provide the platform through which everyone could easily get quality language education thus embracing the technology education for all.

However, one cannot neglect the shortcomings of the study in question Some of them include the following Despite the given shortcomings, the study has provided promising results that should be further investigated. The concentration of the study on one institution might pose the risk of restricted generalizability of the research results because educational context plays a very important role in learners' accomplishments and institutional support for the digital learning environment. Further, the period of time in the study is quite limited, therefore, the benefits of using the Cake application to develop the language skills may not be accurately determined. Future studies should attempt to investigate these areas through the use of longitudinal investigations and increase the generalizability of the research to different types of learning environments. It is also worth exploring progressive research concerning the long-term utility of MALL tools regarding language retention and capability of MALL tools in guiding learners toward higher levels of language proficiency in the long run (TP et al., 2017; Auer, 2016).

Conclusion

Consequently, the results of this study provide an empirical evidence to support the role of MALL tools and more specifically Cake application, in improving the English speaking skills of university students. This kind of improvement that has been recorded in the quantitative results and movement in the scores' distribution in the experimental group can effectively support the application as a tool in enhancing the important aspects of the language including pronunciation, fluency, and communicative performance. This is supported and consistent with prior published research that stresses the utility of incorporating interactive and adaptive technologies in language education for the purpose of catering for a variety of learning preferences and enhancing student attention. Perhaps one of the most engrossing findings was the decrease in coefficient of variation, which points at the effectiveness of the Cake application not only in increasing general proficiency but also in equalizing chances of success in treatment group for students who are/are not weak startersThis proof expands the interest in the effectiveness of the application as a formative tool for addressing issues of equity that affect students learning in rich and multilingual classrooms as well as the variance of difficulty that students encounter in the classroom. Such large effect sizes also add to the constructiveness of these improvements that show that the application of incorporating the Cake application is not only statistically significant but also significant enough to make a difference in the development of students' language skills.

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