Smartphone Use for Language Receptive Skills: A Guided Approach

Nur Ain Abdul Malek, Nor Syamimi Iliani Che Hassan and Nor Hairunnisa Mohammad Nor

ABSTRACT

It is not uncommon to find smartphones being used in classrooms throughout the world. However, despite the prevalent usage, the extent to which this technological gizmo has contributed to academic achievement particularly language performance is still inconclusive. The study seeks to contribute to the debate with the objectives of identifying the correlation between guided smartphone use and students' English language performance and determining the impact of guided smartphone use on students' receptive language skills. The study adopted a quantitative method and employed an experimental research design. Pre and post reading and listening tests were administered and tabulated according to categories. To measure reading and listening competence, the scores collected from the pre- and post-test were computed using SPSS to compare inter- and intra-group differences. The inter-group comparisons were analysed by Independent Samples Test and the intra-group comparisons by Paired Samples Statistics. The findings of this research revealed that guided approach of smartphone use did not give significant impact on students' language performance. However, intra-group analysis found there were significant positive changes in post-test scores for reading skill although not for listening skill post-test scores.

Nur Ain Abdul Malek (✉).
Academy of Language Studies,
Universiti Teknologi MARA Cawangan Kelantan,
Machang, Kelantan, MALAYSIA
E-mail: nurain630@kelantan.uitm.edu.my

INTRODUCTION

Smartphone is currently one of the most ubiquitous tools in life and there is no denying that this technological marvel is now a necessity in modern living. It is not surprising that educators have considered using mobile devices like smartphones in education due to its affordable, popular and practical functions (Ismail, Bokhare, Azizan & Azman, 2013; Pullen, Swabey, Abadooz & Sing,

2015). A lot of research has also been done to investigate students' preparedness to incorporate learning with mobile devices some of which are Malaysian-based by Abas, Peng and Mansor (2009), Hussin, Manap, Amir and Krish (2012) and Hamat, Embi and Hassan (2013). Positively, the respondents in their studies welcomed the integration of learning with mobile gadgets. The appeal factor in learning through smartphones and particularly the smartphone apps would be the ease and flexibility offered. It minimizes the barriers provided by traditional methods or activities that used to be carried out in schools and universities (Valk, Rashid & Elder, 2010). Hence, it is now known that readiness is there when it comes to use of smartphone in the teaching and learning process. The question now remains whether there is any impact or result in using this ubiquitous technology?

Findings by Norries, Hossain and Soloway (2011) suggest that students' achievement will increase significantly when students use mobile learning devices or smartphones during learning time. Similar findings are also shared by Wu (2014) and Shahbaz and Khan (2017) in their research reports showing that participants performed considerably better in posttests scores. Nevertheless, researchers like Woodcock, Middleton and Nortcliffe (2012) found that students always use their phones more with playing games and other leisure activities than with learning. White and Mills (2012) also found that students were increasingly adopting smartphones with the focus on personal use rather than education purposes. These observations are then supported by Sung, Chang and Liu (2016) in their meta-analysis and research synthesis of 110 experimental and quasi-experimental journal articles on the effects of mobile-integrated education. Based on the report, it is found that there was only ".. a moderate mean effect size of 0.523 for the application of mobile devices to education". Other studies specifically Lai (2016) in his study on vocabulary scores also showed no significant difference between means of his mobile (smartphone) and controlled groups while Anzai, Funada, and Akahori (2013) found no significant difference in short term vocabulary retention.

It seems that despite the prevalent usage of smartphone, the extent to which it has contributed to academic achievement is still inconclusive. Since smartphone use seems inevitable throughout the world, it is futile to contravene its usage in education. Instead, measures should be identified and implemented to assist and ensure the success. Interestingly, Barrs (2011) claims that students demonstrate greater interest to continue self-directed learning using mobile devices when they are provided detailed guidance and explanation on how to use smartphone appropriately in classroom settings. The use of technology like mobile apps in language classroom must be supported with sound pedagogy and it must be adopted for a specific reason and not just simply following a trend (Higgins, Xiao & Katsipataki, 2012). Furthermore, Kukulska-Hulme, Norris and Donohue (2015) state that while mobile devices can support self-directed learning and language learner autonomy, the role of teachers is equally important. This study thus proposed a guided approach towards the use of smartphone in language teaching and investigated if there is any correlation with specific language receptive skills. The two research questions central to the study were:

1. To identify the correlation between guided smartphone app use and diploma level students' English language performance.
2. To determine the impact of guided smartphone app use on diploma level students' receptive language skills.

METHOD

The study which employed an experimental research design adopted the quantitative method. Three groups of students (N=54) were placed in the experimental group and three other groups comprising the same number of students (N=54) were placed in the control group. All the students were in their second semester and enrolled in the second English language course which was compulsory for all UiTM diploma students. The students were from various study programmes: Accountancy, Business Management, Computer Science and Art & Design and possessed different levels of English language proficiency ranging from low to high-intermediate proficiency.

The study was conducted in a period of ten weeks whereby prior to the implementation of smartphone-assisted language teaching and learning, a listening pre-test and reading pre-test were administered. Students in the experimental group underwent ten weeks of language classes which utilized two mobile applications: LEB English for listening skills and NST Mobile for reading skills. They received guidance from lecturers in using the two applications for specific listening skills and reading skills. Meanwhile, students in the control group used the same applications for their language class but were not provided with guidance from their lecturers. They were required to explore and use the applications on their own initiatives. Five podcasts from LEB English and five news articles from NST mobile were selected from the researches to achieve learning objectives based on the course syllabus. Implementation of the teaching strategy using mobile applications for language learning is summarized in Table 1.

Table 1
Weekly Schedule of Mobile Application Use in Language Class

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Pre-Test	Listening	Reading	Listening	Reading	Listening	Reading	Listening	Reading	Listening	Reading	Post-Test

RESULTS

The scores of pre-tests and post-tests were computed using SPSS to measure inter- and intra-group differences. For inter-group comparison, analysis was carried out using Independent Samples Test and intra-group comparison was carried out using Paired Samples Statistics. T-test results were used for analysis of linguistic competence.

Table 2
Mean Scores of Listening and Reading Tests

Test	Group	N	Mean	Std. Deviation	Std. Error Mean
Pre-Test (Listening)	Experimental	54	9.3333	1.55102	.21107
	Control	54	10.4722	2.19437	.29862
Post-Test (Listening)	Experimental	54	9.6574	1.65923	.22579
	Control	54	10.5648	2.29035	.31168
Pre-Test (Reading)	Experimental	54	21.5278	4.54061	.61790
	Control	54	22.5278	6.06678	.82558
Post-Test (Reading)	Experimental	54	26.0556	3.66352	.49854
	Control	54	27.3148	4.91752	.66919

Table 2 shows the mean scores of listening pre-test and post-test and reading pre-test and post-test of experimental and control groups. For both skills, the mean scores of post-tests were higher than that of pre-tests.

Table 3
Independent Sample T-test Result

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Std. Error Difference
Pre-Test (Listening)	Equal variances assumed	6.551	.012	-3.114	106	.002	.36568
	Equal variances not assumed			-3.114	95.379	.002	.36568
Post-Test (Listening)	Equal variances assumed	5.966	.016	-2.358	106	.020	.38487
	Equal variances not assumed			-2.358	96.617	.020	.38487

Pre-Test (Reading)	Equal variances assumed	4.886	.029	-.970	106	.334	1.03121
	Equal variances not assumed			-.970	98.196	.335	1.03121
Post-Test (Reading)	Equal variances assumed	3.691	.057	-1.509	106	.134	.83448
	Equal variances not assumed			-1.509	97.977	.135	.83448

Based on Table 3, it shows a significant difference of listening pre-test between experimental and control groups (p-value = .012). Since the p-value of listening post-test is .016, there was a significant difference between the two groups. Similarly, there was a significant difference in the scores of reading pre-test because the p-value is .029. However, the p-value of reading post-test is .057 which is higher than α (0.05). Hence, the difference between the scores of experimental and control groups was not significant.

Table 4
Intra-group Paired T-test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Experimental Group Post-test (Listening)	9.6574	54	1.65923	.22579
	Experimental Group Pre-Test (Listening)	9.3333	54	1.55102	.21107
Pair 2	Control Group Post-Test (Listening)	10.5648	54	2.29035	.31168
	Control Group Pre-Test (Listening)	10.4722	54	2.19437	.29862
Pair 3	Experimental Group Post-Test (Reading)	26.0556	54	3.66352	.49854
	Experimental Group Pre-Test (Reading)	21.5278	54	4.54061	.61790
Pair 4	Control Group Post-Test (Reading)	27.3148	54	4.91752	.66919
	Control Group Pre-Test (Reading)	22.5278	54	6.06678	.82558

Table 4 shows the mean scores between listening and reading pre-test and post-test of experimental and control groups. The mean difference of listening pre-test and post-test of experimental and control groups was 0.32407 and 0.09259 respectively. Meanwhile the mean difference of reading pre-test and post-test of the two groups was 4.52778 and 4.78704 respectively.

Table 5
Paired T-Test Result

	Paired Samples Test							
		Paired Differences					t	df	**Sig. (2-tailed)**
	Mean	**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				
				Lower	**Upper**			
Pair 1 Experimental Post-Test (Listening) – Experimental Pre-Test (Listening)	.32407	2.20239	.29971	-.27706	.92521	1.081	53	.284
Pair 2 Control Post-Test (Listening) – Control Pre-Test (Listening)	.09259	2.13257	.29021	-.48949	.67467	.319	53	.751
Pair 3 Experimental Post-Test (Reading) – Experimental Pre-Test (Reading)	4.52778	3.96853	.54005	3.44458	5.61098	8.384	53	.000

Pair 4 Control Post-Test (Reading) – Control Pre-Test (Reading)	4.78704	4.38221	.59634	3.59092	5.98315	8.027 53	.000

In Table 5, it shows that the p-value is .284, t = 1.081 for the scores of listening pre- and post-tests of experimental group. This means that there was no significant difference between the scores. For the control group, the p-value is .751, t = .319. Hence, there difference between the scores of pre- and post-tests were not significant. As for reading pre- and post-tests of both experimental and control group, the p-value is .000, t = 8.384 and .000, t = 8.027 respectively. Thus, there was a significant difference of the scores between reading pre- and post-test of both groups.

DISCUSSION AND CONCLUSION

From the findings of this study, it can be concluded that offering a guided approach of app use does not give any impact to students' academic performance. In fact, the controlled groups which were introduced to the apps without guidance offered, scored higher in both pre and post tests for both receptive skills.

The first reason that could be identified to explain this situation is the two apps chosen are not meant for skills teaching. A lot of readily available language apps sold in the stores are not suitable for formal learning as they are built specifically for smartphones which are used as personal devices by humankind (Heyoung & Yeonhee, 2012). Hence, this will definitely affect their effectiveness if used in the formal language setting.

Secondly, motivational factor of the students in the experimental groups should also be taken into consideration. The students might be using the apps only to fulfil guided approach requirements by the researchers rather than using them as supplementary materials to enhance their learning. This finding is somehow parallel to Woodcock et al. (2012) where it was found that students would prefer to use their smartphones more for leisure activities rather than for learning.

The third possible explanation for this situation is language proficiency of the students under controlled groups is higher than the students in the experimental groups. Not only their language proficiency but students' learning preferences would also directly affect the findings of this study because the two focused skills in this study are only listening and reading.

Finally, poor internet connection at the campus might also impede students' accessibility to the apps which ultimately impact the findings of this study. It is always claimed that the benefit of learning through mobile apps would be the ease and flexibility offered by mobile learning (Ng, Nor Syamimi Iliani, Nor Hairunnisa & Nur Ain, 2017). This however can never be proven when the Internet connection is still on our way, limiting accessibility to the apps that we have chosen for this study.

Our recommendation for future studies in the field of incorporating mobile apps in language teaching and learning is the adoption of different strategies of guidance offered to students. This is to ensure that mobile apps use will help to improve students' academic performance and not only just because of trying to follow the latest trend. Apart from that the choice of mobile apps to be used in classroom teaching and learning should also go through more stringent usability and reliability procedure. By doing so, future studies could identify the probable causes which may have affected the outcome of this study. Not only that future studies can also develop a suitable procedure in choosing apps to be used in skill based language learning as to help the educators who have interest in using mobile apps in education.

In short, it is true that incorporating mobile apps in language class can dramatically increase the level of students' interest (Robert, 2011) nevertheless in terms of its effectiveness in language achievement; this study is leading us to a different twist where we found that there is no impact of mobile apps use to students' academic performance.

ACKNOWLEDGEMENTS

REFERENCES

Abas, Z. W., Peng, C. L., &Mansor, N. (2009).A study on learner readiness for mobile learning. Paper presented at *IADIS International Conference Mobile Learning 2009, Open University Malaysia*. Retrieved from http://libguides.murdoch.edu.au/c.php?g=246190&p=1640644.

Anzai, Y., Funada, M., &Akahori, K. (2013).Immediate effects of mobile photo note-taking in English vocabulary learning. In T. Bastiaens& G. Marks (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher*

Education 2013 (pp. 550-556). Chesapeake, VA: AACE. Retrieved from http://www.editlib.org/p/114891.

Barrs, K. (2011). Mobility in learning: The feasibility of encouraging language learning on smartphones. *Studies in Self-access Learning Journal, 2*(3), 228-233.

Bárcena, E. et al. (2015). State of the art of language learning design using mobile technology: sample apps and some critical reflection. In F. Helm, L. Bradley, M. Guarda, & S. Thouësny (Eds), Critical CALL – *Proceedings of the 2015 EUROCALL Conference*, Padova, Italy (pp. 36-43). Dublin: Researchpublishing.net. http://dx.doi.org/10.14705/rpnet.2015.000307.

Hamat, A., Embi, M.A. & Hassan, H.A. (2013).Preparing for mobile learning: A readiness study at Universiti Kebangsaan Malaysia.In M. A. Embi.& N. M. Nordin (Eds.), *Mobile learning: Malaysian initiatives and research findings* (pp. 19-25). Selangor: Pusat Pembangunan Akademik UKM. Retrieved from http://library.oum.edu.my/oumlib/sites/default/files/file_attachments/odlresources/795559/mobilelearningihl-my-130416010600-phpapp01.pdf.

Heyoung, K. & Yeonhee, K. (2012). Exploring smartphone applications for effective mobile-assisted language learning. *Multimedia-assisted Language Learning, 15*(1), 31-57.

Higgins, S., Xiao, Z., &Katsipataki, M. (2012). The impact of digital technology on learning: A summary for the education endowment foundation. *Durham, UK: Education Endowment Foundation and Durham University*.

Hussin, S., Manap, M. R., Amir, Z., &Krish, P. (2012). Mobile learning readiness among Malaysian students at higher learning institutes. *Asian Social Science, 8*(12), 276-283.

Ismail, I., Bokhare, S. F., Azizan, S. N., &Azman, N. (2013). Teaching via mobile phone: A case study on Malaysian teachers' technology acceptance and readiness. *Journal of Educators Online, 2*(1). Retrieved from
 http://www.thejeo.com/Archives/Volume10Number1/Ismail.pdf.

Kukulska-Hulme, A., Norris, L., & Donohue, J. (2015). *Mobile pedagogy for English language teaching: a guide for teachers.*

Lai, A. (2016). Mobile immersion: an experiment using mobile instant messenger to support second-language learning. *Interactive Learning Environments*, *24*(2), 277-290.

Ng, S. F., Nor Syamimi Ilani, C. H., Nor Hairunnisa, M. N. & Nur Ain, A. M. (2017). The relationship between smartphone use and academic performance: A case of students in a Malaysian tertiary institution. *Malaysian Online Journal of Educational Technology, 5*(4), 58-70.

Norries, C., Hossain, A., &Soloway, E. (2011). Using smartphones as essential tools for learning: A call to place schools on the right side of the 21st century. *Educational Technology, 51*(3), 18-25.

Pullen, D., J-F J-F, Swabey, K., Abadooz, M., & Sing, T. (2015).Malaysian university students' use of mobile phones for study. *Australian Educational Computing, 30*(1).Retrieved from http://journal.acce.edu.au/index.php/AEC/article/view/55.

Robert, G. (2011). Emerging technologies mobile apps for language learning. *Language Learning & Technology,* 15(2), 2-11.

Shahbaz, M., & Khan, R. M. I. (2017).Use of mobile immersion in foreign language teaching to enhance target language vocabulary learning. *MIER Journal of Educational Studies, Trends and Practices*, *7*(1).

Sung, Y. T., Chang, K. E., & Liu, T. C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers & Education*, *94*, 252-275.

Valk, J., Rashid, A., & Elder, L. (2010).*Using mobile phones to improve educational outcomes: An analysis of evidence from Asia. The International Review of Research in Open and Distributed Learning, 11*(1), 117-140. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/794/1507.

White, J., & Mills, D. J. (2014).Examining attitudes towards and usage of smartphone technology among Japanese university students studying EFL. *CALL-EJ*, *15*(2), 1-15.

Woodcock, B., Middleton, A., &Nortcliffe, A. (2012).Considering the smartphone learner: an investigation into student interest in the use of personal technology to enhance their learning. *Student Engagement and Experience Journal, 1*(1), 1-15.

Wu, Q. (2014). Learning ESL vocabulary with smartphones. *Procedia-Social and Behavioral Sciences*, *143*, 302-307.

About the Authors

Nur Ain Abdul Malek, Nor Syamimi Iliani Che Hassan and **Nor Hairunnisa Mohammad Nor** are English lecturers attached to Academy of Language Studies, Universiti Teknologi MARA Kelantan Branch.