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The Implementation of Orai as Artificial Intelligence for Digital Native Students in English Speaking Learning

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Abstract

The rapid advances of technology in recent decades have been effecting changes in many fields including education. Instead of neglecting technology from education, educators must adjust with the current condition based on the students' needs, lacks and necessities as well to embrace the use of technology in the teaching learning process. Hence, the use of Orai as one of AI should be developed and introduced in enhancing the students' speaking skill in the class. The research was quasi-experimental with randomized pretest-posttest control group design. The results of the study showed the effectiveness of implementation Orai as artificial intelligence for digital native students in English speaking learning that leading them to have better speaking ability. The participant of this study was the student of English Department of University of Mercu Buana Yogyakarta attending Speaking in General Communication. The study was conducted in 6 meeting of treatments using Orai focusing on the public speaking in which Orai provide feedback on key communication metric like pace, conciseness, confidence, filler words, facial expression and pausing for experiment class, and no Orai for control class, and also there were significant difference after conducting treatments. It could be proved from the testing criteria of t-test that the null hypothesis (H0) is rejected and Ha is accepted if the value of p (probability) is lower than alpha 5% (0,05). The findings revealed the great impact of Orai, however it is probably not significant if it is used in the other setting with the different background of the students.

***Keywords**: Orai, artificial intelligence, English speaking learning*

Introduction

The integration of technology in education must be applied. Technology is on the rise; the students were born on the 21-century must be faced by technological changes that have challenged teacher educators to re-evaluate their teaching and to reconstruct their teaching methods (Forkosh-Baruch, 2018). They have also enforced them to adapt training programs to the requirements of the information era, in terms of teachers' changing roles, understanding how students learn in a technology and information saturated environment, and implementing new pedagogical models and modelling best practices by means of clinical preparation to name a few (Darling-Hammond, 2006, 2014; Howe, 2014;). The arrival of advanced and complex communication and information technologies has changed the skills needed of students in the 21st century (Dede, 2010). Constantly evolving technologies have required people to learn a variety of new skills to complete tasks and solve problems in digital environments (Eshet-Alkalai, 2004). and educational institutions must adapt to help students operate successfully in a future networked society where digital technologies are widespread and deeply embedded (Beetham et al, 2009).

Therefore, artificial intelligence is one of the solutions to adjust the current situation covering the students' needs particularly digital native students who wondering to learn something by

using new technologies. Micheal J. Timms (2016) proposes that the field of AI is now mature enough to break away from being delivered mainly through computers and pads so that it can engage with students in new ways and help teachers to teach more effectively. That is why AI can initiate the cognitive functions of a human mind such as learning, communicating and problem solving. AI in education simplifies classroom management and improves the productivity of teaching. Orai is one of AI that are able to help students or everybody who willing to have strong communication skills open the doors in all aspects of life, whether at work, in your community, or with family and friends to make a world full of confident communicators. (Dhamani, 2017). Furthermore, speaking has been absent from testing because of the problem in assessing it objectively and the time it takes to carry out speaking tests (Leong, 2017). Some factors influence speaking learning seen from the psychology aspect such as motivation, anxiety, shy, fear, and lack of confidence (Helmie, 2018). Its factors could be minimized by implementing Orai. Therefore, this study analyses the effectiveness of using AI, particularly Orai in English speaking learning and addresses the following questions: Are there any significant differences between implementation of Orai and without Orai in English speaking learning?

Theoretical Framework

The necessity of using AI in education and a key motivation for using AI techniques in the development of Technology Enhanced Learning are to support the development of systems that help teachers and learners to do the right things to maximize learning. This involves understanding and modeling learners, teachers, effective pedagogies and learners' contexts. (Underwood and Luckin, 2011). Artificial Intelligence is concerned with: creating computational models of human faculties (e.g. speaking, learning, walking, and playing), enabling systems to replicate common-sense tasks (e.g. understanding language, recognizing visual scenes, summarizing text) and otherwise reproducing intelligent behavior (Russell and Norvig, 1995). Considering AI as the way to accommodate teaching learning process particularly English teaching learning.

Speaking is very important in second language learning. Despite its importance, speaking has been overlooked in schools and universities due to different reasons like emphasis on grammar and unfavorable teacher-student proportions. Speaking has been absent from testing because of the problem in assessing it objectively and the time it takes to carry out speaking tests (Leong, 2017). Leong suggested that speaking is a skill which is worthy of attention in both first and second language. Learning the speaking skill is the most important aspect of learning a second or foreign language and success is measured based on the ability to perform a conversation in the language. There is Orai being able to help teaching learning process more objective for assessing the improvement of students' speaking skill.

Orai is the AI application that promises to make anyone become a better public speaker through artificial intelligence. It can recite the speech into the app, and it sends the recorded data to the cloud, where the AI analyzes it. Developed by Danish Dhamami to serve as people speech coach (Takahashi,2017). Orai is designed to help people become a better speaker. Orai gives people the confidence and skills to speak powerfully when on stage, in front of a room, or in everyday life. Orai uses artificial intelligence and deep learning to offer instant insights on the speech so that being able to practice daily and become an effective communicator. (Chang, 2017). The Orai app uses AI and deep learning to improve the speech making abilities. It checks a common problem like the pace, clarity of tone and vocal energy, counts the number of "uums", "eers" and other filler words; and even generates a shareable transcript of the speech. (Chang, 2017). Furthermore, Takahashi (2017) said that this app is

simply equivalent to speaking into a mirror. It tells the speaker how clearly speaker is enunciating words and counts the number of words that the speaker says in a minute, monitoring the pace of her/his speech. Orai also measures the "energy" of speaker speech, like whether she/he speaks in a monotone that will put people to sleep or whether she/he emphasizes certain words.

Method

This study was quasi-experimental research by involving two variables, the independent variable is Orai and dependent variable is English speaking learning. It was used to find out the effectiveness of Orai and without Orai in English speaking learning. Furthermore, to find out which was more effective for English speaking learning. The study was in Mercu Buana Yogyakarta University. There were 60 students (male –female) of first semester in Speaking in General Communication subject. Their age varied from 17-19 years old. It was divided into two groups consist of one experimental groups and one control group. Each groups were provided pretest and posttest, experimental groups were provided some treatments, and control group was no treatments. For considering the groups, it used simple random sampling. The data must be tested using the test of analysis requirements, normality (Kolmorgorov-Smirnov Z) and homogeneity of variance test. The data was analyzed by T-Test independent to figure out the significant differences between implementation of Orai and without Orai in English speaking learning.

Finding and Discussion

Analysis requirements tests showed the normality test and homogeneity of variance test followed by T-test for pretest could be shown in table 1, 2 and 3. The complete test results was in the appendix.

Table 1
The result of the normality test of the pre-test of speaking skill.

Class	Kolmorgorov Smirnov Z	Asymp. Sig. tailed)
Experimental (*Orai*)	0,097	0,03
Control	0,099	0,191

Based on the test of analysis requirements, it was concluded that the data of the pre-test of experimental and control class were on the normal distribution, where p is higher than $\alpha = 0.05$ ($p > 0.05$).

The homogeneity of variance test used in this study was levene statistic with SPSS 25.0. The result of the homogeneity of variance test was presented in the following table 2 and the complete test result was on the appendix.

Table 2
The result of the Homogeneity Pretest of speaking skill

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
PreTest	Based on Mean	1.579	1	58	.214
	Based on Median	1.193	1	58	.279
	Based on Median and with adjusted df	1.193	1	56.761	.279
	Based on trimmed mean	1.630	1	58	.207

Table 2 showed that the value of p (probability) on *levene* test was 1,579, significance was 0.214 higher than α = 0.05 (0.214 > 0.05). It meant that there was no difference in the value of variance of all the variables.

Table 3
The result of *T-test* Independent Pretest

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post Test	Equal variances assumed	1.579	.214	-.783	58	.437	-2.71667	3.47077	-9.66416	4.23083
	Equal variances not assumed			-.783	56.674	.437	-2.71667	3.47077	-9.66763	4.23429

Table 3 explained the result of the equal pretest using T-test independent showed T was 0,763 and probability (p) > 0,05 was 0,437, it showed there was no significant difference between experimental and control class. Therefore, it was implied that experimental and control class was having equal condition before giving the treatment.

After having equal condition for each class by conducting normality and homogeneity tests before giving the treatment. Experimental class was given some treatments using Orai in speaking skill particularly public speaking in assessing the students' speaking skill for avoiding the subjectivity in assessment. and control class was no give any treatments. Then, after giving some treatments, students were provided posttest about some topic in public speaking.

Posttest was analyzed by using T-Test independent group to analyze the significant between two classes and followed by T-Test paired group to analyze the significant experiment class after conducting pre and post test. However, before conducting posttest, must be conducted the test of analysis requirements which is normality test and The homogeneity of variance test among three groups. The normality test used *Kolmorgorov-Smirnov.* It could be shown in the table 6

Table 4
The Result of the Normality Test of *Posttest*

Class	Kolmorgorov-Smirnov Z	Asymp. Sig. (2-tailed)
Experimental (*Orai*)	0,200	0,395
Control	0,093	0,143

It could be concluded in table 4, all the classes were on the normal distribution, where p is higher than α = 0.05 (p > 0.05). The homogeneity of variance test between two groups was concluded in the table 5.

Table 5
The Result of homogeneity pre test of speaking skill

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
PostTest	Based on Mean	6.128	1	58	.060
	Based on Median	5.623	1	58	.021
	Based on Median and with adjusted df	5.623	1	50.208	.022
	Based on trimmed mean	5.769	1	58	.020

The result of table 5 showed that the value of p (probability) on *levene* test was 1,579. Higher than $\alpha = 0.05$ (0.60. > 0.05), it meant that Ho was rejected. It could be concluded that there was no difference in the value of variance of all the variables.

Table 6
The result of *T-test* Paired Experiment Class

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	PostTestExperimentClass - PreTestExperimentClass	8.51667	9.66038	1.76374	4.90942	12.12391	4.829	29	.000

The result of table 6 was experiment class before and after treatments by using T-test paired that showed t was 4.829 and probability (p) < 0,05 was 0,000, it showed there was significant difference result of experiment class before and after treatments. Therefore, it could answer the hypothesis that there was significant difference between implementation Orai and no Orai in English speaking learning by the null hypothesis (H0) was rejected and Ha was accepted.

Table 7
The result of *T-test* Independent Posttest

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
Post Test	Equal variances assumed	6.128	.016	1.830	58	.002	4.79167	2.61852	-.44987	10.03321
	Equal variances not assumed			1.830	48.525	.003	4.79167	2.61852	-.47175	10.05508

The result of the equal posttest using T-test independent in table 7 showed t was 1,830 and probability (p) < 0,05 was 0,016, it showed there was significant difference between experimental and control class. Therefore, it could answer the hypothesis that there were significant difference between implementation Orai and no Orai in English speaking learning by the null hypothesis (H0) was rejected and Ha was accepted. It also could be concluded that Orai was having an effective way in English speaking learning and also avoiding the subjectivity in assessing the students' speaking skill.

Discussion

The findings showed that Orai could be of assistance to Mercu Buana Yogyakarta University English Education students in improving their English-speaking learning by assessing their speaking skill objectively through kind of application. Furthermore, the results indicated that the students having the preparation before they speak, they knew what they should do, how to control their pace, conciseness, confidence, filler words, facial expression and also their pausing. Regarding the results obtained from the study, it could be stated that rubric scoring not giving the objective results in speaking assessing. Its findings were also in agreement with the study of Leong, he said that speaking has been absent from testing because of the problem in assessing it objectively and the time it takes to carry out speaking tests (Leong, 2017). Leong suggested that speaking is a skill which is worthy of attention in both first and second language. Learning the speaking skill is the most important aspect of learning a second or foreign language and success is measured based on the ability to perform a conversation in the language. Therefore, implementation of Orai helps teaching learning process more objective for assessing the improvement of students' speaking skill.

The study showed that the more time the students spent practicing in speaking by using Orai, the better gradual progress they made in the improvement of their speaking English. Through these activities, students get involved actively in the learning process by themselves, they could speak whatever they wanted to speak without any embarrassment in front of their cellphone, they could hear what they said after they performance, so they knew their progress or their lack, then they could fix it. Students learnt a lot about communication key, making positive effects on their speaking skill. Teacher was assisted Orai by assessing their students' speaking skill without checking the students one by one. Orai also guided every step, record the assessment and the students' work, so the students ensure their self about their capability and solved their weaknesses. Orai also helped building the students' confidence to speak in public. It could be said that through Orai, students learnt how to speak fluently while performing, how to prepare the material in public speaking, and how to being confident while performing. The statistically significant differences between the result of T test in pre- and post- test scores suggested that students benefited from Orai simulation activities. Additionally, the participants' positive attitudes towards English speaking learning through Orai simulation activities gave further support to the effectiveness of these activities. For this reason, Orai simulation activities may be considered to highly helpful in EFL learning contexts, especially in Speaking in general communication classrooms with the aim to enhance students' speaking skill.

Conclusion

The fundamental objective of Orai is to assist the students improving their speaking skill. This study investigated the effects of Orai in English speaking learning. According to the findings of this research, implementing Orai leading to have better English speaking learning. The result proved that students understand the items posttest of public speaking in

communication key metric of Orai after 6 meeting of treatments using Orai. And also there were significant difference after conducting treatments. However, the impact of Orai, probably it is not significant if it is used in the other setting with the different background of the students. Due to certain limitations, some issues were not examined in this study. The following recommendations for further studies in this topic should be given. Firstly, as the number of participants in this study was rather small, the findings must not be overgeneralized. A study should be conducted with a larger sample size with different education levels to increase the generalizability of the findings. For further research, digital native students could be investigated deeply particularly in English teaching learning. Secondly, Orai was not covering all assessment such as, grammatical errors and pronunciation, pronunciation should be investigated in the future research, for the grammatical errors was minimalized by supervising their topic before their performance by their teacher. Lastly, the present study was carried out within a part semester. It would be worth conducting a longitudinal study to observe students' speaking performance over a longer period.

References

Beetham, H. L., McGill, L., & Littlejohn, A. (2009). Thriving in the 21st century: Learning literacies for the digital age (LLiDA project): *Excecutive summary, conclusions and recommendations. UK Joint Information Systems Committees (JISC).* Retrieved from http://www.academy.gcal.ac.uk/ llida/outputs.html

Chang, M. (2017). Interview with Danish Dhamani, Co-Founder of Orai. Retrieved from https://aiartisan.wordpress.com/2017/11/27/interview-with-danish-dhamani-co-founder-of-orai/

Darling-Hammond, L. (2006). Constructing 21st-century teacher education. Journal of Teacher Education, 57(3), 300-314. Retrieved from https://doi.org/10.1177/0022487105285962

Darling-Hammond, L. (2014). Strengthening clinical preparation: *The holy grail of teacher education*. *Peabody Journal of Education*, 89(4), 547-561. Retrieved from https://doi.org/10.1080/0161956X.2014.939009

Dede, C. (2010). Comparing frameworks for 21st century skills. In J. Bellanca & R. Brandt (Eds.), 21st century skills (pp. 51-76). Bloomington, IN: Solution Tree Press.

Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93-106.

Forkosh-Baruch, A. (2018). Preparing pre-service teachers to transform education with Information and Communication Technologies (ICT). In J. Voogt, G. Knezek, R. Christensen, & K. W. Lai (Eds.), *Handbook of information technology in primary and secondary education* (2th ed., pp. 415-432). Switzerland: Springer Cham.

Helmie, J, Halimah & Susilawati, N. (2018). Orai Application to promote autonomous learning to English learner at senior high school. *Indonesia Journal of English Teaching*. 7(2). 110-117.

Leong, M. & Ahamadi, M,S. (2107). An Analysis of Factors Influencing Learners' English Speaking Skill. *International Journal of Research in English Education*. 2 (1), 34-41

Michael, J., T., (2016). Letting Artificial Intelligence in Education Out of the Box: *Educational Cobots and Smart Classrooms. International Journal of Artificial Intelligence Education*. 26:701–712. Retrieved from DOI 10.1007/s40593-016-0095-yhttps://link.springer.com/content/pdf/10.1007%2Fs40593-016-0095- y.pdf

Russell, S., & Norvig, P. (1995). Artificial Intelligence: A Modern Approach. Prentice-Hall, Saddle River, NJ.

Takahashi, D. (2019). Orai app uses AI to help you become a better public speaker. Retrieved

from https://venturebeat.com/2017/05/06/orai-app-uses-ai-to-help-you-become-a-better-public-speaker/

Underwood, J., Luckin, R., (2011). What is AIED and why does Education need it?. Retrieved from https://www.researchgate.net/publication/241698223_What_is_AIED_and_why_does_Education_need_it