

ANDROID-BASED MOBILE LEARNING MEDIA IN TEACHING READING OF REPORT TEXTS

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Abstract

Mobile phones can be well integrated into English Instruction as the creativity and innovation of teaching media increase students' interest and motivation. This research aims to reveal the validity, effectiveness, and practicality of utilizing Android-based Mobile Learning Media for teaching reading report texts. The present research employed the research and development design. The research instruments were questionnaires, tests, and learning media in Application Package Files (APK). The collected data were analyzed by employing descriptive statistics and inferential statistics with a t-test. This research's subject was an experimental class and a control class in Senior High School of Muhammadiyah 2 of Purbalingga. The expert validation results were categorized into relevant and feasible learning media to teach report texts. The pre-test and post-test mean scores in the experimental class showed a highly significant difference because the class outperformed the control class. It means that Android-based MLM was effective for enhancing students' reading comprehension of report texts. Meanwhile, the result of students' perception obtained a good category. The data reveal that 70.4% of the students agreed to use Android-based MLM in the learning process. This research concludes that the final product meets the criteria of teaching media evaluation.

Kata Kunci: Android-Based Mobile Learning Media, Reading, Report Texts

INTRODUCTION

The technological development in the learning process, especially for internet access to explore students' knowledge and participation in educational resources, is familiar in education to create an effective and efficient learning process. One of the benefits of technologies in education is to expand the use of learning media in the teaching process. Using technology-based learning media is very important to support the students' learning process because it can help them understand the material and reduce their boredom (Mulyadi, Wijayatingsih, Budiastuti, Ifadah, & Aimah, 2020). Thus, the primary function of learning media is to help students comprehend the learning materials.

Furthermore, the use of media technology in the teaching process aims to transfer knowledge, share the material, and deliver learning objectives to the students. When teachers use appropriate and exciting media in the learning process, they will positively impact students' learning achievement (Ocepek, Bosnić, Nančovska Šerbec, & Rugelj, 2013)

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(Ocepek et al., 2013) (Ocepek et al., 2013) (Ocepek et al., 2013). As one of the technological devices, an Android application can increase students' motivation and strengthen mobile technology in the learning process (Elfiona, Zaim, & Refnaldi, 2019). The above description implies that learning media's primary function is to help students comprehend their teachers' material. Furthermore, when teachers use appropriate and interesting media in the learning process, they will positively impact students' learning engagement (Klimova & Polakova, 2020). They can focus more on the materials because learning media can influence the learning atmosphere, reduce students' boredom, and motivate them to participate in the classroom. Trimurtini et al. (2018) asserted that since mobile technological devices can increase students' motivation, it is positively appropriate to strengthen mobile technology in the learning process.

The use of smartphones (Android) as a learning media has become common at education levels because Android is exceptionally available and affordable for the learning process. This condition agrees with the development of technology. Moreover, more applications on smartphones (Android) are integrated into classroom teaching and can support the students' learning process through mobile learning (Rahim, Kamarudin, Sheha, Aziz, & Karim, 2019).

The pre-observation conducted at SMA Muhammadiyah 02 Purbalingga indicated that the students had difficulty understanding English subject materials in the teaching process. The first problem was related to the media teachers utilized. In the learning process, teachers only employed textbooks and, sometimes, PowerPoint. This learning model did not attract students to learn English. The second problem dealt with the students' lack of motivation to learn English. During the teaching process, some students felt bored with teacher-centred learning. Besides, they had inadequate English reading ability. Therefore, this research developed learning media using mobile phone technology to learn English in practical and interactive ways to respond to these problems in order to investigate the validity, effectiveness, and practicality of Android-based mobile learning media (MLM).

RESEARCH METHOD

Research Participants

This research's participants were 32 students of class X MIA 1, as the experimental group, and 32 students of class X MIA 2 as the control group. The experimental class employed Android-based MLM as learning instruction. Meanwhile, the control class employed textbooks as learning instruction.

Research Design

This research employed the research and development (R&D) method to develop Android-based MLM for teaching English reading comprehension of report texts. Furthermore, this research had two stages: learning media development and learning media tests.

In the development stage, Android-based MLM was designed, developed, validated, and revised. Android-based MLM was initially designed and developed to teach reading comprehension of report texts. Afterward, the developed Android-based MLM was validated by two experts, a content expert and a media expert, with construct validity. The content expert evaluated the learning materials while the media expert validated the mobile learning media's displays and practicality. Furthermore, the validation results elucidated some suggestions for improving MLM and its feasibility level to create effective learning media in teaching reading comprehension of report texts. The application was continually revised before applying it in the testing stage.

At the testing stage, this research applied a pre-test and a post-test of a control group design. This stage compared the experimental group with the control group, and the two groups were not selected randomly but purposively since there were only two classes that could be included in this study. They were identical groups with a similar average score of English courses before receiving the treatments. The pre-test and post-test were administered to determine the effectiveness of MLM to teach reading comprehension of report texts. Meanwhile, the pre-test was administered to the experimental and control classes. Henceforth, Android-based MLM was applied to the experimental class for six meetings of learning process, while conventional textbooks were applied to the control class. At the last meeting, the students in both experimental and control classes conducted a post-test. After the post-test, the experimental class students completed the questionnaire that was then administered to scrutinize learning instructions' practicality using MLM. The data collected were quantitatively analyzed using descriptive statistics and inferential statistics.

RESULT AND DISCUSSION

The Validity of Android-based MLM

In the form of Application Package Files (APK), the developed Android-based MLM was operable for Android phones. Besides, the students were only required to install the application on their phone with a relatively small memory capacity of 33.6 megabytes. Therefore, students or other users can easily install it. Android-based MLM media resembles

a PowerPoint, but it is more interactive and convenient for navigation. Moreover, this media can load videos, audios, images, and animations and provide practice questions with automatic feedback. The appearance of the Android-based Mobile Learning Media can be seen in Figure 1 to 6.

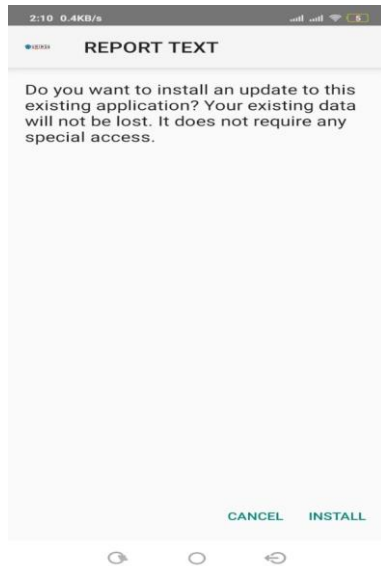


Figure 1. The APK File is Ready to Install on the Phone



Figure. 2 The Installed Android-based MLM App is Ready to Use in the Learning Process



Figure 3. Main Menu Page

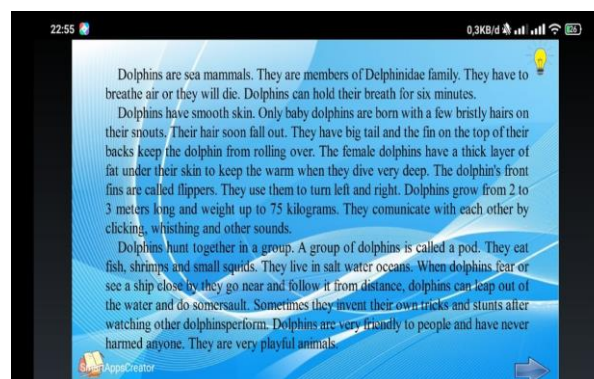


Figure 4. Example of Teaching Material Page

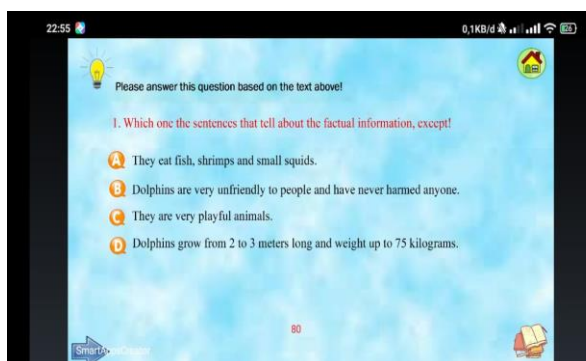


Figure 5. An Example of an Independent Practice Page

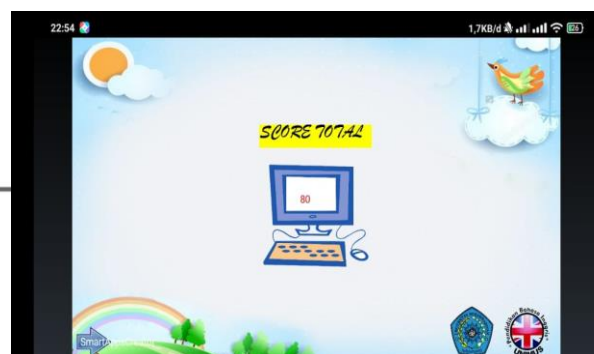


Figure 6. Total Scores of Reading Tasks

This research applied the developed Android-based MLM in the learning process of report texts. Android becomes more prevalent in education, and one of its uses is to develop learning media. Using Android, in the form of a mobile phone application, aims to support the students' learning.

This media was successfully developed and could be used in the learning process. This finding agrees with the expert validation test and the students' perception of the Android-based MLM. Besides, this success was obviously depicted in the students' involvement in the learning process. They could be active and more enthusiastic because this media was applicable in online teaching. Therefore, all materials were already available on the students' mobile.

The assessment was based on two aspects of expert media validation and four aspects of expert material validation. The range category for validation form can be seen in Table 1.

Table 1. Percentage range of Android based Mobile learning Media Validation

Range (%)	Qualitative Criterion
81 - 100	Very valid
61 - 80	Valid
41 - 60	Valid enough
0 - 40	Not Valid

The results of validation from the media expert are presented in Table 2.

Table 2. The Validation Results from the Media Expert

Validation I		
Media Expert	%	Interpretation
Graphic feasibility aspect	55.3%	Valid enough
Language feasibility aspect	60.0%	Valid

The results of expert media validation reveal that Graphic feasibility aspect of the media are categorized as very valid. Meanwhile, language feasibility aspect is categorized as valid. It indicates that the developed android-based mobile learning media is already feasible to use in the learning process.

Table 3. The Validation Results from the Material Expert

Validation II		
Material Expert	%	Interpretation
Content eligibility aspect	100%	Very valid
Aspects of the quality of exercises	66.7%	Valid

The data of the material expert in Table 3 interpret that the content eligibility aspects of developed media is very valid, and aspects of the quality of exercises is valid. Thus, Android-based MLM materials were declared to be worth and qualified to use in the learning process.

The Effectiveness of Android-based MLM

The researchers analyzed the normality test and descriptive statistics to explore Android-based MLM's effectiveness in the learning process. The analysis results are explained as follows:

The Result of Normality Test

The normality test of the experimental class is shown by Sig. (2-tailed) value > 0.05 ; it means that the data of pre-test and post-test are normal. The results of normality data reveal the Sig. (2-tailed) values of pre-test and post-test in the experimental class = 0.563 and 0.306. These findings indicate 0.563 and $0.306 > 0.05$. Furthermore, the results reveal the Sig. (2-tailed) values of pre-test and post-test in the control class = 0.661 and 0.167. These findings indicate 0.661 and $0.167 > 0.05$. It is possibly concluded that the data results of pre-test and post-test are normal.

The Result of Descriptive Statistics

The pre-test and post-test data scores in the experimental class are shown in the variables of pre-test and post-test scores with 24 respondents. The mean pre-test score of the experimental class is 57.67, and the mean post-test score is 79.50. The minimum pre-test score in the experimental and control class is 36, while the minimum post-test score is 72. Next, the maximum pre-test score in the experimental class is 84, while the maximum post-test score is 88. The last is a standard deviation. The standard deviations of pre-test and post-test scores in the experimental class are 12.196 and 3.788.

Furthermore, the pre-test and post-test data scores in the control class are shown from the variable of pre-test and post-test scores with 25 participants. The mean pre-test score of the control class is 53.44, and the mean post-test score of the control class is 72. Besides these control class scores, descriptive statistics explains the minimum score, maximum score, and standard deviation. The minimum pre-test score in the control class is 20, and the minimum post-test score is 48. Meanwhile, the maximum pre-test score in the control class is 88, and the maximum post-test score is 84. The last was a standard deviation. The pre-test's standard deviation score is 19.489, and the post-test's standard deviation score is 9.522.

To find out the effectiveness of the media, the significant value (sig.) of the SPSS output must indicate (2-tailed) < 0.05 . It means that H_0 is rejected while H_a is accepted. On the other hand, the significant value indicating (2-tailed) > 0.05 means that H_0 is accepted and H_a is rejected. Based on the data in Table 1 and Table 2, it is concluded that the significant value (2-tailed) of the experimental class is equal to $0.000 < 0.05$. Therefore, H_0 is rejected while H_a is accepted. Meanwhile, the significant value of the control class is equal to $0.000 < 0.05$. It indicates that H_0 is rejected and H_a is accepted. The paired sample of T-test results concludes that there was a different mean between pre-test and post-test results. It indicates that Android-based MLM had several effects on the learning process.

Table 5. The Different Scores of Pre-Test and Post-Test of the Experimental and Control Classes

Class	Total of Students	Mean of Pre-Test	Mean of Post-Test
Experimental	24	57.66	79.50
Control	25	53.44	72.00

Table 5 explains the students' pre-test and post-test results in the experimental and control classes. The students' average pre-test result in the experimental class is 57.66, and in the control class is 53.44. Moreover, this research conducted a post-test for both classes to measure students' reading comprehension achievement. The data in Table 5 deduce that the learning process applying Android-based MLM acquire a higher average score rather than a learning process applying the conventional learning media. The experimental class's score is 79.50, while the control class's score is 72.00. Furthermore, Table 5 denotes that the different pre-test scores between the experimental and control classes are not significant for 57.66 and 53.44. It means that the two classes still have a common understanding of the material before the teaching process. Besides the pre-test score, the students' understanding was seen when asked several questions before the teaching process. Several students who did not understand the report text's material could not comprehend the report texts. They confusedly differentiated report texts from descriptive texts.

The students' pre-test results in the experimental class and control class d that most students could not distinguish the identification of descriptive texts and general classification of report texts. Besides, they could not understand the text contents. Consequently, they hesitantly analyzed texts that contain facts and opinions.

Furthermore, the post-test results in the experimental class and control class show a significant difference between the students in the experimental class and the control class for 79.50 and 72.00. The students' exercise results had supported the data after the teacher

explained the material. Most of the students could analyze report texts and distinguish between report texts and descriptive texts.

Furthermore, the significantly different results of the experimental class were shown by the analysis result of students' reading comprehension of report texts. They could distinguish the general classification and identification of report texts and descriptive texts. Moreover, they could determine the report texts' main information and write a scientific resume after thoroughly researching the texts. Meanwhile, in the experimental class, students' understanding is shown by their scores after completing assignments on Android-based MLM.

The students' post-test results in the control class can be indicated by understanding the differences between facts and opinions in a report and descriptive texts. Most of them could understand that report texts were usually created after a careful investigation through various considerations.

The average pre-test score in the experimental class is 57.66, and in the control class is 53.44. In comparison, the average post-test score in the experimental class is 79.33, and in the control class is 76.64. This research obtained difference of 21.67 between the pre-test's mean scores and post-test's mean scores in the experimental class. The post-test score had been higher than the pre-test score before the students received the materials using Android-based MLM. Moreover, this research obtained the difference between the pre-test's mean score and the post-test's mean score for 23.2 in the control class.

The students in the two observed classes, class 10, showed a significant difference between using Android-based MLM and using YouTube video or WhatsApp group discussion as learning media. This difference were presented by the mean scores of pre-test and post-test that were previously clarified. The average score comparison between pre-test and post-test is presented in Figure 4.

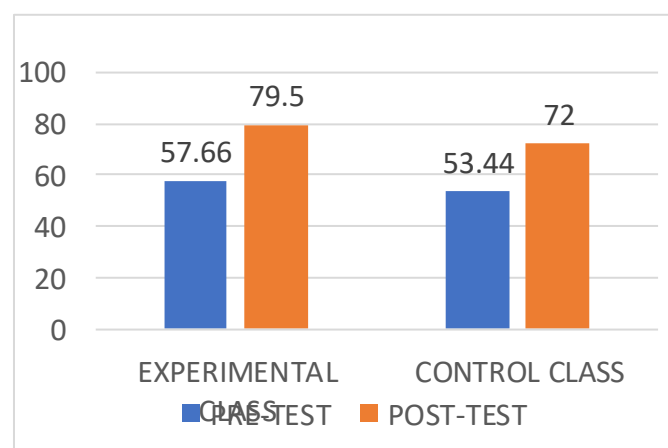


Figure. 4. The Average Score Comparison of Pre-Test and Post-Test

Figure 4 denotes that the experimental class showed improvement in average score of 21.89, from 79.50 to 57.66. Meanwhile, and the control class's average score improved for 18.56, from 72 to 53.44. It indicated that the experimental class has a higher score than the control class. Therefore, it is concluded that there was a significant difference between the students using Android-based mobile learning and the students using YouTube videos and WhatsApp group discussion in the learning process. This finding indicated that Android-based mobile learning media is accepted. Moreover, this finding agrees with Sung et al. (2016), who explained that mobile phone technology can support the students' activities in the teaching process because learning media-based technology can increase their interest in the learning process and effectiveness of the learning process. This theory deduced android-based MLM influenced the pre-test and post-test results in the experimental class. The students could understand the materials more easily because m-learning media made the teaching process attractive and attracted students to participate actively.

Furthermore, the significantly different teaching process in the experimental class was visible before the students received Android-based MLM materials. These significant differences were from the pre-test and post-test results and students' enthusiasm to learn the materials.

These results concluded that Android-based MLM provides better facilitates for the students to learn report texts than YouTube videos or WhatsApp group discussions. Moreover, the students' comprehension could be seen from their scores of answering exercises and questions in the teaching process. This condition agrees with Zatulifa et al. (2018), who deployed that mobile technology can be an alternative learning media for the learning process because it was flexible and enables students to learn anywhere and anytime. Consequently, the frequency of students' learning possibly increases, and students' high retention is available. Besides, the students' understanding can be seen from their scores of answering exercises and questions in the learning process.

Android-based MLM was easily applied in the learning process because the students did not need to wait for the teachers' material explanation. This application was designed with sophisticated features, such as pictures, videos, audios, and exercises that view the scores automatically, and many icons that enable the students to operate as their demands. Therefore, this media is good and positively useful to support the students in grade 10 to learn report texts. The previous data concluded that the use of Android-based MLM in the

teaching reading process of report texts has a significant effect on students' reading comprehension (Ananto & Ningsih, 2020; Chen & Lin, 2018; Hao, Lee, Chen, & Sim, 2019; Keezhatta & Omar, 2019; Naderi & Akrami, 2018).

The Practicality of Android-based MLM

This research discovered the students' perception of experimental class in the teaching process using Android-based MLM. This research distributed the questionnaire to the experimental class students to present their perception of utilizing android-based MLM. This questionnaire was distributed after they applied the Android-based-MLM in the teaching process of report texts. Then, the obtained data from the questionnaire were analyzed. The range of mean scores for questionnaire results can be seen in Table 6. Meanwhile, the obtained results are presented in Table 6.

Table 6. Range of Mean Scores for Questionnaire Results

Mean range	Category
4.50 - 5.00	Excellent
3.50 - 4.49	Good
2.50 - 3.49	Fair
1.00 - 2.49	Poor

Table 6. Questionnaire Results of the Experimental Class

No.	Statements	Mean	Category
1.	Android-based MLM as learning media can help the students' learning process.	2.84	Good
2.	Android-based MLM is more efficient for the learning process.	2.88	Good
3.	Using Android-based MLM in the learning process can empower students to be more autonomous.	3.00	Good
4.	Using Android-based MLM in the learning process can increase the students' activity in the learning process.	2.76	Good
5.	Android-based MLM can increase the students' responses to understand the material.	2.68	Good
6.	Android-based MLM can directly provide feedback for the learning process.	2.84	Good
7.	Implementing Android-based MLM makes the learning process more effective than implementing conventional media.	2.76	Good
8.	Using Android-based MLM can encourage the students to interact in the learning process.	2.76	Good
9.	Android-based MLM is more authentic than conventional learning media.	2.80	Good
10.	Android-based MLM is more easily accessed than conventional learning media.	2.84	Good

The statistical results presented in Table 6 conclude that the students agreed with the statements. It means that Android-based MLM is good and worthwhile to support media to learn report texts for students of grade 10.

The first questionnaire's score is 2.84 and is categorized as good. It means that the students agreed with the statements. They could easily understand the material when the teachers used Android-based MLM because each student could access this media.

The second statement's average score is 2.88 and is categorized as good. It means that most of the students agreed that using Android-based MLM in the learning process was more efficient because all materials and exercises were on the application. Thus, they could learn every time and everywhere.

The third statement's average score is 3.00 and is categorized as good. It means that most of the students preferred Android-based MLM because it could empower them to be more autonomous in the learning process.

The next statement obtained an average score of 2.76, and it is categorized as good. Most of the students were active and interested in the learning process of implementing Android-based MLM. Moreover, the class became active during the learning process because they obligatorily understood the material individually.

The fifth statement's average score is 2.68 and is categorized as good. It means that the students' responsibility to understand the material increased after using Android-based MLM.

Furthermore, the sixth statement's average score is 2.84 and is categorized as good. It means that the students agreed with using Android-based MLM in the learning process because the application could view feedback automatically and immediately.

The seventh statement's average score is 2.76 and is categorized as good. It means that the teaching process using Android-based MLM was more effective because it helped students understand the material more easily. Besides, they could apply this media in the learning process at any time.

The eighth statement's average score is 2.76 and is categorized as good. Most students agreed that Android-based MLM media could encourage their interaction because they had to understand the materials. When the material was unclear, the app would force them to interact with their teachers or friends.

The ninth statement's average score is 2.80 and is categorized as good. It means that Android-based MLM media is authentically used in the learning process. The students could

see the results of their exercises on this app. Thus, they could evaluate their learning after seeing their scores.

The last statement's average score is 2.84 and is categorized as good. It concludes that Android-based MLM is more accessible because it is only installed once on the students' gadgets. Besides, most students stated that the app was simple and easy to access on mobile devices, and it can be accessed offline or did not require an internet connection for the learning process.

The students' perception of implementing Android-based MLM shows that most students agreed to use Android-based MLM in the learning process. The detailed results are:

1. The percentage score of 10 students in the small group trial is 68% and is categorized as good.
2. The percentage score of 25 students in the large group trial or the operational field trial increases from 68% to 70.4% and is categorized as good.

The results of the small group trial and field trial reveal that the students positively responded and gave feedback on this media. Nevertheless, some students suggested several points for Android-based MLM.

1. Android-based MLM was supposed to attract the students to join the teaching process because it motivated them to learn English. Besides, this media was the first Android-based MLM used in the learning process.
2. The icons were supposed to be larger.
3. The media was supposed to be more innovative, attractive, and engaging.

The students' perspectives inferred that they need advanced learning media to increase their learning motivation and effectiveness (Cahyana, Paristiowati, & Fauziyah, 2018; Hao et al., 2019; Helwa, 2017; Klimova & Polakova, 2020; Naderi & Akrami, 2018). Android or smartphones significantly influence education, and thus, teachers can develop it as a learning media. This statement agrees with (Squire, 2009; Meister, 2011; Behera, 2013), who stated that smartphones can be developed for learning media.

CONCLUSION

This research concluded that using Android-based MLM for grade ten students at a senior high school was valid. Furthermore, the media and material were categorized as valid. The final product was based on teaching media evaluation criteria and was applicable for the small and large learning groups. Android-based mobile learning was categorized as effective because the post-test results were higher than the pre-test results. Android-based

MLM positively affected the learning process. The students' perceptions showed that the teaching process using Android-based MLM was effective for students and could increase their learning activities. Besides, this media obtained students' positive responses in a field trial.

REFERENCES

- Ananto, P., & Ningsih, S. K. (2020). Incorporation of Smartphones and Social Media to Promote Mobile Learning in an Indonesian Vocational Higher Education Setting. *International Journal of Interactive Mobile Technologies*, 14(19), 66–81. <https://doi.org/10.3991/ijim.v14i19.13863>
- Cahyana, U., Paristiowati, M., & Fauziyah, S. (2018). Development of Android-Based Mobile learning media on Atomic Structure and Periodic Table. *IOP Conference Series: Materials Science and Engineering*, 434(1), 1–7. <https://doi.org/10.1088/1757-899X/434/1/012095>
- Chen, T. H., & Lin, C. C. (2018). Enhancing L2 English Learning through Mobile-Assisted TBLT: EFL Learners' Perspectives. *The Journal of Asia TEFL*, 15(2), 453–461. <https://doi.org/10.18823/asiatefl.2018.15.2.1.453>
- Elfiona, E., Zaim, M., & Refnaldi. (2019). Mobile-Based Media as the Solution in Teaching and Learning Listening Skill. *Journal of Physics: Conference Series*, 1387(1), 1–6. <https://doi.org/10.1088/1742-6596/1387/1/012024>
- Hao, Y., Lee, K. S., Chen, S. T., & Sim, S. C. (2019). An evaluative study of a mobile application for middle school students struggling with English vocabulary learning. In *Computers in Human Behavior* (Vol. 95). <https://doi.org/10.1016/j.chb.2018.10.013>
- Helwa, H. (2017). Using Mobile Assisted Language Learning (MALL) Approach for Developing Prospective Teachers' EFL Listening Comprehension Skills and Vocabulary Learning. *Journal of Research in Curriculum Instruction and Educational Technology*, 3(4), 133–176. <https://doi.org/10.21608/jrciet.2017.24440>
- Keezhatta, M. S., & Omar, A. (2019). Enhancing Reading Skills for Saudi Secondary School Students through Mobile Assisted Language Learning (MALL): An Experimental Study. *International Journal of English Linguistics*, 9(1), 437. <https://doi.org/10.5539/ijel.v9n1p437>
- Klimova, B., & Polakova, P. (2020). Students' perceptions of an EFL vocabulary learning mobile application. *Education Sciences*, 10(2). <https://doi.org/10.3390/educsci10020037>
- Mulyadi, D., Wijayatingsih, T. D., Budiastuti, R. E., Ifadah, M., & Aimah, S. (2020). Technological pedagogical and content knowledge of ESP teachers in blended learning format. *International Journal of Emerging Technologies in Learning*, 15(6), 126–139. <https://doi.org/10.3991/ijet.v15i06.11490>
- Naderi, S., & Akrami, A. (2018). EFL learners' reading comprehension development through MALL: Telegram groups in focus. *International Journal of Instruction*, 11(2), 339–350. <https://doi.org/10.12973/iji.2018.11223a>
- Ocepek, U., Bosnić, Z., Nančovska Šerbec, I., & Rugelj, J. (2013). Exploring the Relation between Learning Style Models and Preferred Multimedia Types. *Computers and Education*, 69, 343–355. <https://doi.org/10.1016/j.compedu.2013.07.029>
- Rahim, M. I., Kamarudin, R., Sheha, S., Aziz, S., & Karim, N. A. (2019). Students' Perception S On The Use Of Mobile Application For English Course (Mapec) As A Pre-Language

Learning Tool. *Journal of Academia UiTM Negeri Sembilan*, 7(1), 11–21.

Trimurtini, T., Lifiyah, L., & Ahmadi, F. (2018). The Development of Android-Based Mobile Learning Media (MLM) for Elementary School Students of Kendal Indonesia. *UNNES International Conference on Research Innovation and Commercialization 2018, KnE Social Sciences*, 2019, 694–705. <https://doi.org/10.18502/kss.v3i18.4759>