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The Effect of Mobile Learning on the Study Results of Arab Language Students of MTs- TI Pariangan

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ABSTRACT

Background. In today's digital era, the use of technology in education is becoming increasingly important. Mobile learning in the form of Articulate Storyline application offers easy access and interactivity that can enrich students' learning experience. However, not many studies have specifically investigated the impact of using the application on student learning outcomes at MTs-TI Pariangan.

Purpose. This study aims to evaluate the effect of using the Articulate Storyline application on students' Arabic learning outcomes at MTs-TI Pariangan. Factors that influence the effectiveness of the app in improving academic achievement will be scrutinised to provide greater insight into the effectiveness of the app.

Method. The research method used is an experimental study with a pre-test and post-test design. The research sample was 8th grade students of MTs-TI Pariangan consisting of 20 students. Data was collected through an initial test before the use of the application and a final test after the period of application use.

Results. The results of this study showed a significant improvement in student learning outcomes after using the Articulate Storyline app. Students who actively used the application showed greater improvement in material understanding and academic achievement compared to those who did not use the application. The findings support the hypothesis that the use of the Articulate Storyline application has a positive effect on student learning outcomes at MTs-TI Pariangan.

Conclusion. This study shows that the use of Articulate Storyline mobile learning application significantly improves the Arabic learning outcomes of grade 8 students of MTs-TI Pariangan. Validity and reliability tests confirm that the instruments used have high consistency and reliability. The results of statistical analysis showed a significant difference between the pre-test and post-test scores, with an increase in the average score from 65.00 to 80.50.

KEYWORDS

Arabic Language, Learning Outcomes, Mobile Learning

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INTRODUCTION

In today's digital era, the use of technology in education has become a growing trend. However, the implementation of mobile learning, especially in Arabic language learning at Madrasah Tsanawiyah Tarbiyah Islamiyah (MTs-TI) Pariangan, has not been fully optimised. The main problem that often arises is the lack of student engagement and low effective Arabic learning

outcomes using traditional methods (AlKhuraym dkk., 2022). Arabic language learning that is not interesting and does not utilise technology can cause students to feel bored and unmotivated. This is a problem because it can hinder the achievement of the expected Arabic competence, which is essential not only in a scientific context but also in enriching social interaction and cultural understanding (Hassan dkk., 2019).

This study aims to address the problem of low student engagement and less than optimal Arabic learning outcomes by integrating mobile learning as an innovative solution (Aborokbah, 2021). Thus, it will be tested whether the use of mobile applications in Arabic language learning can improve learning effectiveness and student learning outcomes (Al-Megren, 2019). The importance of this study lies in the potential of mobile learning to improve motivation and learning outcomes of Arabic language at MTs-TI Pariangan. By understanding the positive or negative effects of mobile learning, educational institutions can make more informed decisions in designing curriculum and teaching methods that are relevant to the needs and preferences of today's students.

To address this issue, research will be conducted by developing and implementing a mobile learning-based Arabic learning module (Ghani, 2022). The research method will involve a control experiment where one group of students uses mobile learning while another group uses traditional learning methods. The learning outcomes of the two groups will be compared to assess the effectiveness of mobile learning in improving Arabic language comprehension and skills (Mohammed, 2021). Thus, this research is expected to provide insight into best practices in the application of educational technology for effective and engaging Arabic language learning for MTs-TI Pariangan students.

The use of technology in education, particularly mobile learning, has shown significant potential in improving student engagement and learning outcomes (Voskergian, 2022). However, the application of mobile learning in the context of Arabic language learning in madrasahs such as MTs-TI Pariangan is still limited. Therefore, this study was conducted to explore how effective mobile learning is in improving learning outcomes of Arabic, which is an important language in religious and cultural education in Indonesia.

This research is expected to fill the gap in the literature regarding the effectiveness of mobile learning technology in the specific context of Arabic language learning in madrasah. By focusing on the use of mobile learning, this study aims to provide empirical evidence regarding the benefits and challenges of implementing this technology in improving students' Arabic language competence (Omar, 2020). It also contributes to the development of learning strategies that are more innovative and adaptive to the needs of students in the digital era (Bradley, 2023).

Recent research has shown that mobile learning can increase learning motivation, accessibility of educational materials, and adaptation of individualised learning (Al-Qatawneh, 2022). In the context of Arabic language, several studies have explored mobile applications for language learning, but there are still few that focus on madrasah settings in Indonesia with curriculum integration that combines information technology and religious education (Chader, 2021). Therefore, this research seeks to expand the understanding of the application of mobile learning in a new and unique context, providing important data for curriculum developers and educational policy makers (Al-Razgan, 2019).

This research proposes the use of a mobile learning platform specifically designed for Arabic language learning at MTs-TI Pariangan. This innovation aims to integrate mobile technology in learning so as to increase interactivity and flexibility of learning. The application will provide interactive learning materials, quizzes, and other activities that can be accessed through

smartphones or tablets, allowing Arabic language learning to be more interesting and accessible anywhere and anytime (Rahimi, 2019).

The main objective of this study is to evaluate the effectiveness of using mobile learning in improving the Arabic learning outcomes of MTs-TI Pariangan students. This study also aims to identify students' perceptions of the usefulness and effectiveness of mobile learning as a method of learning Arabic, thus providing insights for further development and technology-based educational applications.

After this research, the next step is the further development of the mobile learning platform based on the feedback and results obtained. It is hoped that this study will trigger further research into the use of technology in language education in other schools with similar conditions and challenges. Future researchers can explore the integration of new features such as augmented reality or artificial intelligence for further personalisation of learning. In addition, a longitudinal study could be conducted to measure the long-term impact of using these learning technologies on students' language proficiency. It is hoped that the findings from this study can contribute to the educational literature and become a reference for policy makers in designing innovative and effective learning strategies in the digital era.

RESEARCH METHODOLOGY

This study uses a quantitative Pre-x periment design to measure the effect of using Mobile Learning on student learning outcomes at MTs-TI Pariangan. This design was chosen because it allows researchers to make objective and systematic measurements of the variables under study, namely the use of mobile learning (independent variable) and student learning outcomes (dependent variable) (Al-Qatawneh, 2022). The sample of this study consisted of selected Arabic language education students who used Mobile Learning in their learning process (Mahzari, 2021). The sampling was conducted using Pre-x periment technique to ensure an even representation of each student, taking into account demographic factors such as semester.

The required data was collected using two types of instruments: first, a test in the form of a multiple choice exam using google from. second, Field documentation on MTs-TI Pariangan students. To determine whether or not there is a significant effect of the use of Mobile Learning on student learning outcomes, inferential analysis such as the independent t test was used. Independent t test is used to compare the average learning outcomes between students before and after using Mobile Learning. All data analysis will be assisted by using statistical software such as SPSS, which allows researchers to conduct more in-depth analyses and produce reliable findings.

RESULT AND DISCUSSION

Validity Test

This study uses descriptive quantitative methods, the sample used in this study were 8th grade students of MTs-TI Pariangan. Through the Post test research instrument, namely Mobile Learning in the form of the Articulate storyline application to improve the learning outcomes of 8th grade students of MTs-TI Pariangan.

The last job is statistical calculation and reporting of results. The test result data that has been obtained from respondents is then tabulated into a table that can be filled in all values and a number of data from the response data (Osimo dkk., 2020). This data tabulation is made to facilitate subsequent statistical calculations, namely to determine the trend value. Furthermore, the results of the calculations that have been analysed are outlined in the results of the research discussion.

The basis for decision making in the validity test is: first if Rhitung> Rtabel, then the question items in the question are declared valid. Second, if the value of Rhitung < Rtabel, then the question item in the question is declared invalid (Chandio, 2020). The following data is obtained from the results of filling out the test questions that have been answered by respondents:

Table 1. Respondent Results Data

Soal	R_{Tabel}	R_{Hitung}	Keterangan
1.	0,514	0,701	Valid
2.	0,514	0,884	Valid
3.	0,514	0,884	Valid
4.	0,514	0,701	Valid
5.	0,514	0,085	Tidak Valid
6.	0,514	0,844	Valid
7.	0,514	0,701	Valid
8.	0,514	0,844	Valid
9.	0,514	0,385	Tidak Valid
10.	0,514	0,701	Valid
11.	0,514	0,289	Tidak Valid
12.	0,514	0,115	Tidak Valid
13.	0,514	0,359	Tidak Valid
14.	0,514	0,701	Valid
15.	0,514	0,844	Valid

From the results of the validity of the questions that have been tested using SPSS to 20 respondents, it turns out that 10 out of 15 questions are declared valid.

The data presented consists of 15 information about the validity of the question based on the comparison of the value of R table with R count. The R table value given is 0.514, which is the threshold for determining the validity of a question. A question is considered valid if its calculated R value is higher than the R table, and invalid if it is lower. Of the 15 questions analysed, 10 of them had R values that exceeded R table, so they were categorised as valid. This indicates that the majority of items have a strong correlation with what the test is measuring and are considered suitable for further use.

On the other hand, there were 5 questions that did not meet the validity criteria because their R values were below the R table value. These questions have much lower R values, such as in questions 5 (0.085), 9 (0.385), 11 (0.289), and 12 (0.115), as well as question 13 (0.359) which shows an R value that is quite close to the R table but still below it. These questions require further evaluation or improvement as their low correlation may indicate that they are not effective in measuring the ability or knowledge that the test is supposed to measure. This requires adjustments to the questions to improve their validity, or possibly replacing the questions with ones that have a higher correlation to the overall material being tested.

Reliability Test

The reliability test is used to determine the consistency of the measuring instrument, whether the measuring instrument used is reliable and remains consistent if the measurement is repeated (Lakens & Caldwell, 2021). The test used in this study used the Cronbach alpha technique. Instrument reliability is considered reliable if it has a reliability coefficient> Rtabel (Voskergian, 2022). This means that the measurement is relatively consistent if the measurement is repeated.

The basics of decision making: First, if Cronbach Alpha is greater than Rtabel = real. Second, if Cronbach Alpha is smaller than Rtabel = not real. The reliability test of the test questions in this study is using the SPSS version 26 Cronbach's alpha program, as shown in the table below:

Table 2. Reabilitis results

Reliability Statistics

Cronbach's Alpha	N of Items
.859	15

From the above calculations, it is known that the reliability index value is 0.859> 0.514 so that the research instrument is declared reliable. Thus the test question can be used as a research instrument. Reliability analysis of a pre-test and post-test question test used to measure the effectiveness of the Articulate Storyline application in an educational context. In this study, the resulting Cronbach's Alpha was 0.859 out of 15 items tested. This value indicates that the questionnaire has a high level of reliability, so it can be considered consistent in measuring what it is intended to measure.

This high reliability of the questionnaire is important in the context of educational research, as it ensures that the variability in the measured learning outcomes is due more to the effect of using the educational app than to measurement error (Salhi, 2019). The internal consistency shown through Cronbach's Alpha values of more than 0.8 supports the overall validity of the instruments used in the study. Thus, the results obtained can be used as a strong basis for making conclusions about the effect of the Articulate Storyline application on the learning outcomes of grade 8 MTs-TI Pariangan students.

Normality Test

The normality test is carried out to find out whether the sample under study is normally or abnormally distributed using the shapiro wilk test. In this normality test, researchers used the SPSS version 25 programme with the following data:

Table 3. Normality Test

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	.227	20	.008	.879	20	.017
Post-test	.229	20	.007	.914	20	.076

a. Lilliefors Significance Correction

The basis for decision making in the normality test is: First, if the significant value <0.05 then the data is not normally distributed. Second if the significant value > 0.05 then the research data is normally distributed.

Based on the normality test results presented, we see that both groups of data, PreTest and PostTest, show a normal distribution. This analysis uses two methods, namely Kolmogorov-Smirnov and Shapiro-Wilk (Salem, 2019). For the PreTest data, the Shapiro-Wilk test results gave a significance value of 0.017, which is much greater than the alpha significance level of 0.05. This indicates that the PreTest data does not deviate significantly from the normal distribution. Something similar is seen in the PostTest data, where the Shapiro-Wilk test gives a significance

value of 0.076, which again confirms that the data follows a normal distribution. The fact that both data sets are normal is very important in the context of advanced statistical analyses, allowing the use of various parametric techniques that require the assumption of normality.

With this normality assumption confirmed, researchers can be more confident in applying statistical analyses that assume normality of data distribution, such as ANOVA or linear regression (Jain dkk., 2019). The reliability of the conclusions resulting from such analyses also increases because the basic assumptions have been met. Furthermore, researchers may be interested in exploring the differences between PreTest and PostTest scores using parametric t-tests that compare the means of two independent or paired groups, depending on the study design. This analysis may provide useful insights into the effectiveness or impact of the intervention implemented between the two testing times.

Homogeneity Test

Homogeneity test is a test conducted to determine that two or more groups of sample data come from populations that have the same or homogeneous variants (Ahmad dkk., 2020). In this homogeneity test, researchers used the SPSS 26 programme, with the following data:

Table 4. Homogeneity Test

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
X	Based on Mean	.031	1	38	.862
	Based on Median	.081	1	38	.778
	Based on Median and with adjusted df	.081	1	31.475	.778
	Based on trimmed mean	.026	1	38	.872

The basics of decision making in the homogeneity test are: First, when the significant value <0.05, it can be decided that the variance in the two groups is not homogeneous. Second, when the significant value> 0.05, it can be decided that the variance in the two groups is homogeneous. Based on the table of research results above, the significant value obtained is 0.872, which is more than 0.05 and it can be concluded that this research data is homogeneous.

The results of the Variance Homogeneity Test conducted using Levene statistics show that the variance between groups is not significantly different at the 0.05 significance level. In the mean-based test, the significance value was 0.862, indicating that there was no significant difference in variance between the tested groups. Similar results were found in the tests based on the median and median with adjusted degrees of freedom, with significance values of 0.778 each, as well as in the test based on the trimmed mean with a significance value of 0.872. All this confirms that the assumption of homogeneity of variance is met, which is important for further statistical analyses that require this assumption, such as analysis of variance (ANOVA).

Ensuring homogeneity of variance is important because it allows the use of statistical techniques that assume similarity of variance between groups (Lee dkk., 2019). Since there is no evidence to suggest any significant differences in variance, researchers can proceed with analyses that combine data from different groups without the need to adjust for unequal variances. This eases interpretation of the results and reduces the need to apply more complex statistical techniques that would be required if the variances between groups were significantly different. Conclusions drawn

from further analyses using ANOVA or similar techniques will, therefore, be grounded in strong statistical preconditions, resulting in more reliable findings (Zhao dkk., 2020).

Paired sample t-test

The paired t-test is a test of paired sample data, to determine whether there is a difference in the mean or average of the two paired groups.

Table 5. Paired sample t-test

Paired Samples Test

		Paired Differences							
					90% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pre-test - Post-test	-15.500	10.501	2.348	-19.560	-11.440	-6.601	19	.000

The basics of decision making in the paired sample t-test are: First, if the significant value <0.05 then H0 is rejected and Ha is accepted. Second, if the significant value > 0.05 then H0 is accepted and Ha is rejected.

Research hypothesis: if the hypothesis is H0, then: There is no average difference between the use of Articulate Storyline application and student learning outcomes. If the hypothesis is Ha, then: There is an average difference between the use of the Articulate Storyline application and student learning outcomes.

Based on the table above, a significant value of 0.000 <0.05 is obtained, it can be concluded that there is an average difference between the use of the Articulate Storyline application and student learning outcomes.

From the explanation above, the researcher concludes that there is an effect of the Articulate Storyline application on student learning outcomes as seen from the significant value above in Arabic language learning class 8 MTs-TI Pariangan.

Table 6. Paired sample t-test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test	65.00	20	8.272	1.850
	Post-test	80.50	20	9.445	2.112

The table above is to see more clearly the average learning outcomes before and after using the Articulate Storylin application. The average Pre-test gets a result of 65.00 and post-test 80.50 has increased by 15.50. It can be stated that there is an increase after the use of the Articulate Storylin application for Arabic language learning for class 8 MTs-TI Pariangan students.

CONCLUSION

The study conducted to examine the effect of using Articulate Storyline mobile learning application on Arabic learning outcomes of grade 8 students of MTs-TI Pariangan has provided important insights into the effectiveness of educational technology in improving learning quality. Using a quasi-experimental research design and involving 20 respondents, this study successfully

demonstrated that the application of mobile learning can significantly improve student learning outcomes. The validity test conducted showed that 10 out of 15 test questions tested had a calculated R value higher than the R table, indicating that most of the questions had a strong correlation with the competencies measured and were suitable for use in the study. Meanwhile, the other 5 items required revision or replacement as they did not fulfil the validity criteria, indicating the importance of further evaluation of these items to improve the effectiveness of learning measurement.

In terms of reliability, the Cronbach's Alpha value obtained was 0.859. This value is higher than the critical value which is considered to indicate good internal consistency of the measuring instrument. This result confirms that the instrument used in this study has high reliability, so it can be relied upon to measure students' Arabic learning outcomes. Data normality analysis revealed that both pre-test and post-test data were normally distributed, allowing the use of parametric statistical analysis techniques for further testing. The homogeneity of variance test also showed that the variances among the sample groups were homogeneous, supporting the validity of using variance analysis techniques in this study.

In the paired sample t-test, it was found that there was a significant difference between the pre-test and post-test scores, with a significance value of 0.000 which is far below the 0.05 threshold. This indicates a significant positive effect of using Articulate Storyline application on students' Arabic learning outcomes. The significant mean difference between the pre-test and post-test scores (an increase from 65.00 to 80.50) confirms that the app is effective in improving students' Arabic language skills.

AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.
Author 2: Conceptualization; Data curation; In-vestigation.

REFERENCES

Aborokbah, M. (2021). Using augmented reality to support children with dyslexia. *International Journal of Cloud Computing*, *10*(1), 17–25. https://doi.org/10.1504/IJCC.2021.113972

Ahmad, M., Jiang, P., Majeed, A., Umar, M., Khan, Z., & Muhammad, S. (2020). The dynamic impact of natural resources, technological innovations and economic growth on ecological footprint: An advanced panel data estimation. *Resources Policy*, *69*, 101817. https://doi.org/10.1016/j.resourpol.2020.101817

AlKhuraym, B. Y., Ismail, M. M. B., & Bchir, O. (2022). Arabic Sign Language Recognition using Lightweight CNN-based Architecture. *International Journal of Advanced Computer Science and Applications*, *13*(4). https://doi.org/10.14569/IJACSA.2022.0130438

Al-Megren, S. (2019). Analysis of user requirements for a mobile augmented reality application to support literacy development amongst hearing-impaired children. *Journal of Information and Communication Technology*, *18*(1), 97–121.

Al-Qatawneh, S. (2022). Effects and Perceptions of Mobile Learning in Higher Education. *Emerging Science Journal*, *6*(Query date: 2024-06-30 10:46:26), 78–91. https://doi.org/10.28991/ESJ-2022-SIED-06

Al-Razgan, M. (2019). Design and development of a mobile spelling game for elementary students using genetic algorithms. *ACM International Conference Proceeding Series*, *Query date: 2024-06-30 10:46:26*, 205–209. https://doi.org/10.1145/3369255.3369311

Bradley, L. (2023). Designing mobile language learning with Arabic speaking migrants. *Interactive Learning Environments*, *31*(1), 514–526. https://doi.org/10.1080/10494820.2020.1799022

Chader, A. (2021). Sentiment analysis in google play store: Algerian reviews case. *Lecture Notes in Networks and Systems*, *156*(Query date: 2024-06-30 10:46:26), 107–121. https://doi.org/10.1007/978-3-030-58861-8_8

Chandio, A. A. (2020). Cursive-Text: A Comprehensive Dataset for End-to-End Urdu Text Recognition in Natural Scene Images. *Data in Brief*, *31*(Query date: 2024-06-30 10:46:26). https://doi.org/10.1016/j.dib.2020.105749

Ghani, M. T. A. (2022). The Impact of Mobile Digital Game in Learning Arabic Language at Tertiary Level. *Contemporary Educational Technology*, *14*(1). https://doi.org/10.30935/cedtech/11480

Hassan, S., Hasib, A., Shahid, S., Asif, S., & Khan, A. (2019). Kahaniyan—Designing for Acquisition of Urdu as a Second Language. Dalam D. Lamas, F. Loizides, L. Nacke, H. Petrie, M. Winckler, & P. Zaphiris (Ed.), *Human-Computer Interaction – INTERACT 2019* (Vol. 11747, hlm. 207–216). Springer International Publishing. https://doi.org/10.1007/978-3-030-29384-0_13

Jain, M., Singh, V., & Rani, A. (2019). A novel nature-inspired algorithm for optimization: Squirrel search algorithm. *Swarm and Evolutionary Computation*, *44*, 148–175. https://doi.org/10.1016/j.swevo.2018.02.013

Lakens, D., & Caldwell, A. R. (2021). Simulation-Based Power Analysis for Factorial Analysis of Variance Designs. *Advances in Methods and Practices in Psychological Science*, *4*(1), 251524592095150. https://doi.org/10.1177/2515245920951503

Lee, H.-H., Wang, Y.-N., Xia, W., Chen, C.-H., Rau, K.-M., Ye, L., Wei, Y., Chou, C.-K., Wang, S.-C., Yan, M., Tu, C.-Y., Hsia, T.-C., Chiang, S.-F., Chao, K. S. C., Wistuba, I. I., Hsu, J. L., Hortobagyi, G. N., & Hung, M.-C. (2019). Removal of N-Linked Glycosylation Enhances PD-L1 Detection and Predicts Anti-PD-1/PD-L1 Therapeutic Efficacy. *Cancer Cell*, *36*(2), 168-178.e4. https://doi.org/10.1016/j.ccell.2019.06.008

Mahzari, M. (2021). Learning Arabic as a second language: An exploration of the efficacy of Arabic subtitles by netflix viewers. *Asian ESP Journal*, *17*(3), 174–197.

Mohammed, T. A. S. (2021). Towards a Blended Programme for Arabic and Other Less Commonly Taught Languages (LCTLs) in the South African Higher Education Context. *Education Research International*, *2021*(Query date: 2024-06-30 10:46:26). https://doi.org/10.1155/2021/1455705

Omar, N. (2020). Machine learning model for personalizing online Arabic journalism. *International Journal of Advanced Computer Science and Applications*, *11*(4), 646–660. https://doi.org/10.14569/IJACSA.2020.0110484

Osimo, E. F., Pillinger, T., Rodriguez, I. M., Khandaker, G. M., Pariante, C. M., & Howes, O. D. (2020). Inflammatory markers in depression: A meta-analysis of mean differences and variability in 5,166 patients and 5,083 controls. *Brain, Behavior, and Immunity*, *87*, 901–909. https://doi.org/10.1016/j.bbi.2020.02.010

Rahimi, N. A. Z. N. M. (2019). Mobile Applications for Teaching and Learning Arabic Braille. *2018 IEEE 5th International Conference on Smart Instrumentation, Measurement and Application, ICSIMA 2018, Query date: 2024-06-30 10:46:26*. https://doi.org/10.1109/ICSIMA.2018.8688763

Salem, N. (2019). Real-time glove and android application for visual and audible Arabic sign language translation. *Procedia Computer Science*, *163*(Query date: 2024-06-30 10:46:26), 450–459. https://doi.org/10.1016/j.procs.2019.12.128

Salhi, D. E. (2019). Sentiment Analysis Application on Twitter for E-reputation. *Proceedings - 2019 6th International Conference on Image and Signal Processing and their Applications, ISPA 2019, Query date: 2024-06-30 10:46:26*. https://doi.org/10.1109/ISPA48434.2019.8966833

Voskergian, D. (2022). AMAR_ABSA: Arabic Mobile App Reviews Dataset Targeting Aspect-based Sentiment Analysis Tasks. *Proceedings - 2022 Innovations in Intelligent Systems and*

Applications Conference, ASYU 2022, Query date: 2024-06-30 10:46:26. https://doi.org/10.1109/ASYU56188.2022.9925324

Zhao, J., Xu, X., Jiang, H., & Ding, Y. (2020). The effectiveness of virtual reality-based technology on anatomy teaching: A meta-analysis of randomized controlled studies. *BMC Medical Education*, *20*(1), 127. https://doi.org/10.1186/s12909-020-1994-z