The Effect of Kahoot on Learning Performance of Prospective Elementary School Teacher in Indonesia

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Abstract: The Effect of Kahoot on Learning Performance of Prospective Elementary School Teacher in Indonesia. **Objectives:** This study aims to determine the effect of Media Kahoot on the learning outcomes of prospective elementary school teachers. **Methods:** This research is a quasi-experimental research, namely by applying the use of Kahoot Media in the experimental class, the treatment is carried out to examine student learning performance. **Findings:** The average post-test score for the experimental class using Kahoot Media was 87.24 while the average in the Control class was 79.35. So that there is an increase in the average value of 7.89 using Kahoot Media. The use of Kahoot Media on the material characteristics of living things is quite effective for student learning outcomes. **Conclusion:** It is expected that lecturers and students use Kahoot Media as one of the interesting and interactive supporting media at the school and college level.

Keywords: Kahoot, learning outcomes, elementary school teacher Students

Abstrak: Dampak Kahoot terhadap Hasil Belajar Mahasiswa Calon Guru Sekolah Dasar di Indonesia. ***Tujuan****: Penelitian bertujuan untuk mengetahui pengaruh Media Kahoot terhadap hasil belajar mahasiswa calon guru sekolah dasar.* ***Metode:*** *Penelitian ini adalah penelitian kuasi eksperimental, yaitu dengan menerapkan penggunaan Media Kahoot dalam kelas eksperimen, perlakuan dilakukan dengan maksud untuk mengkaji hasil belajar mahasiswa.* ***Temuan:*** *Rata-rata nilai post-test kelas eksperimen dengan menggunakan Media Kahoot sebesar 87,24 sedangkan rata-rata di kelas Kontrol sebesar 79,35. Sehingga ada peningkatan rata-rata nilai sebesar 7,89 dengan menggunakan Media Kahoot. Penggunaan Media Kahoot pada materi ciri-ciri makhluk hidup cukup efektif hasil belajar siswa.* ***Kesimpulan:*** *diharapkan kepada dosen dan mahasiswa untuk menggunakan Media Kahoot sebagai salah satu media pendukung yang menarik dan interaktif di tingkat sekolah maupun tingkat perguruan tinggi.*

Kata kunci: Kahoot, hasil belajar, mahasiswa calon guru sekolah dasar.

■ INTRODUCTION

In today's era, information and communication technology is very important in everyday life and has become one of the most important things for humans. People use technology in every part of their life. It affects every aspect of life. One of these influences occurs in the world of education. This affects the ability of lecturers to master the technology they use in learning activities (Mada & Anharudin, 2019; Baber, 2020; Martin et al., 2020). Online learning refers to the environment study electronics, no like learning traditional, no there is student same age physical , and there freedom time and space (Mada & Anharudin, 2019; Baber, 2020). With growth technology and the Internet, e-learning has secure good position in academic world (Baber, 2020). Online learning is implemented because The Corona Virus is spreading with fast globally and impact direct to 33 countries in various parts of the world affected by the Corona virus (Bahasoan et al., 2020). Online learning that has been increase with institution education tall invest source enough power big in technology learning electronic. Student as object learning feel impact biggest from application online (Martin et al., 2020; Ngurah & Laksana, 2020). Crisis moment this has revolutionize whole architecture education country high through -based online learning video conferencing because no there is another option for balance activity disrupted academic (Chiang, 2020; Daryanes & Ririen, 2020; Dutta, 2020). Besides shake sector education and fear this possibility will echo throughout sector education globally. Plague Covid-19 pandemic forced many school and college tall for permanent closed while. A number of area affected all over the world and there Fright will lost the entire current semester in progress this or even more in the future (Dhawan, 2020; Nikoliæ et al., 2022).

To get a better quality of education, student learning achievement is the main target of every educational institution, both at state universities and at private universities. (Siregar & Sihombing, 2021). For tertiary institutions, the Semester Final Score (NAS) in a course can be one way to measure student achievement during their lectures. (Santoso & Oktafien, 2018). Learning media is a tool to help the course of learning effectively and practically so that learning can run well and can be carried out smoothly and in accordance with regulations (Aisyah & Haryudin, 2020). Learning media that are used appropriately in the learning process will be a more effective and efficient supporting tool in achieving learning objectives (Puspitarini & Hanif, 2019). one games involving digital devices such as mobile phones and tablets is "Media Kahoot!". Media Kahoot! was founded in 2012 by Morten Versvik , Johan Brand, and Jamie Brooker who, in project together with the Norwegian University of Technology and Science (NTNU), working same with Professor Alf Inge Wang, and then join with businessman Norway smund Furuseth and now could accessed by public at https://getKahoot.com (Chiang, 2020; Resmayani & Putra, 2020). Use for learning make learning fun , interesting and impactful for all participant educate (Suharsono, 2020). Lecturer could make quiz or use millions quiz already there is before and can To do evaluation formative at a time (Chiang, 2020; Nikoliæ et al., 2022).

One way to increase the effectiveness of learning is to provide an element of stimulation so that students are motivated in learning, one of which is through a more innovative and creative evaluation system that can stimulate critical thinking patterns. (Hameed, 2020; Wang et al., 2022). In addition, lecturers must be able to create an evaluation system that utilizes information technology because it can generate student motivation and attention so as to increase student understanding of learning materials (Daryanes & Ririen, 2020; Toma et al., 2021). in line with Activity student in activity learning is

factor important in reach destination maximum learning. Study results will good if supported with activity maximum learning because of that , for reach results maximum learning, activity study student must upgraded (Plump & LaRosa, 2017; Wahyuni et al., 2021). Study results student is one reject measuring success in the world of education (Kaso et al., 2021). IPA 1 course is one of the eye compulsory college taken UPY PGSD students, in order to pass the eye studying this every student must could dominate Theory in the form of IPA concept or science or To do practice in accordance with learned material. In the 21st century, Science has considered as eye lesson important in all level education and understanding concepts science base increase knowledge content student. Science is studies systematic about structure and behavior of the physical, social , and natural worlds through observation and experiment (Licorish et al., 2018; Akram et al., 2022). by general , science covers three field base science, that is biology, physics, and chemistry (Fadilla & Usmeldi, 2020). But in reality student not yet master IPA concept that will impact on results learn, because still found student still.

Study results could interpreted as results obtained because existence activities carried out (Bahasoan et al., 2020) Study results is things that are not could separated from activity learn , result learning achieved student have different levels and for reach results study student in accordance as expected , then need pay attention to the right learning model so that the objectives expected learning could achieved (Saihu, 2020). In Taxonomy of education objectives which divides educational objectives into 3 types, namely according to the theory presented by Benjamin S. Bloom consisting of (1) cognitive, (2) affective, (3) psychomotor domains (Nabillah & Abadi, 2019). The explanations related to learning outcomes indicators are (1) the cognitive domain is a behavior change that occurs in cognition. The learning process consists of activities starting from receiving the stimulus, storing and processing the brain. The level of cognitive learning outcomes starts from the lowest and simple, namely memorization to the highest and complex, namely evaluation (Lyon, 2020). (2) Affective domain, it is known in this affective domain that learning outcomes are arranged starting from the lowest to the highest. Thus, what is meant by the affective domain is that which relates to values which in turn are associated with attitudes and behavior (Sgrò et al., 2020). (3) Psychomotor domain, learning outcomes are arranged in order from the lowest and simplest to the highest can only be achieved when students have mastered lower learning outcomes (Reinsini et al., 2021). Study this only focus aspect cognitive, which is the aspect cognitive include: Remembering (C1). Understanding (C2), Applying (C3), Analyzing (C4), Evaluating (C5), Creating (C6) (Quadir & Chen, 2019; Syafryadin et al., 2021; Turan et al., 2022).

Based on observations and interviews with lecturer support eye In science lecture 1, it is known that most of the second semester student learning outcomes of the elementary school teacher education study program at PGRI Yogyakarta University are still low. This can be proven from the results of assignments, mid-semester exams and end-semester exams that have not reached the achievement standards set by the university. Reason from low results study student among others: (1) students feel bored with the monotonous evaluation system (2) the learning system is still conventional (3) no existence motivation and challenges in answering and working on evaluation questions (4) student enthusiasm in understanding and paying attention to the learning process still less. (5) there is no practical evaluation system in learning, so an interesting and effective evaluation tool is needed

in the learning process. For resolve Thing the so lecturer must could innovate with various models, methods or learning media latest with utilise technology that can interesting attention student (Taufik et al., 2021; Virtiè et al., 2021), so the learning process could in progress in accordance with the desired one alternative choice from various kinds of learning media interactive based on game (*game*) is Media Kahoot educational game application Media Kahoot is one of the online learning media that contains interactive and interesting quizzes and games. Kahoot media can used as a medium for *pre-test, post-test*, and practice question, reinforcement material, remedial, enrichment and others. The purpose of this research is to examine the effect of Kahoot Media to results study PGSD students. This research can be useful to contribute knowledge about Media Kahoot to results study PGSD students.

Study relevant support state that kahoot could be an effective medium in increase results study student. in line with opinion Darman in using Kahoot to improve learning outcomes, it can be applied to other materials (Darmawan, 2020). Kahoot Media Based Learning Media has a positive effect or can be said to improve student learning outcomes (Nisa'atul Wahidah & Chotibuddin, 2022). In line with opinion Setiawati there is a significant difference in learning outcomes between the experimental class and the control class (Setiawati et al., 2019) .

■ METHODS
Participant

population is gathering the place to be did a study (Majid, 2018). Population used in study this is PGRI Yogyakarta University which has 8 classes. Subject study is a person who can give information, explanation, and responsibility answer to something investigated problem. On research this is what becomes subject study is

2nd semester student of PGSD University of PGRI Yogyakarta year the 2021/2022 school. Class used in study this i.e. 2 classes that is class A3 and class A1. who became class experiment is class A3 and class control is class A1. Non-probability sampling technique with incidental sampling as technique taking sample used so that found by accidental amount students in each class A3 and class A1 are 37.

Research Design and Procedure

Method research used is method study quasi experimental (experimental pseudo) (Sudarsana, 2018), namely with apply use of Media Kahoot in class experiment, treatment conducted with meaning for study results study student as consequence treatment and without treatment with learning media without using Media Kahoot in class control . At the beginning learning pre -test and final learning a post-test was held for knowing results learn it (Irwan et al., 2019). Study this have one variable free and one variable tied. Variable free / independent is the use of interactive media learning models using Media Kahoot in learning whereas variable bound or variable dependent is results study student PGSD PGRI Yogyakarta University. As for the length of the research conducted starting in the month March until month May 2022.

As for the steps study this is as following : (1) preparation, namely prepare device learning, making quiz for Kahoot Media; (2) determine population with nonprobability sampling technique with incidental sampling ; (3) determine sample research , namely class experiment and class control with incidental sampling technique ; (4) give *pre-test* on class experiment and class control before activity learning for knowing ability student before activity learning ongoing ; (5) carry out the learning process teach with different treatment that is class experiment with using Kahoot Media while class control with

no using Kahoot Media; (6) give a post-test to the class experiment and class control after activity learning for knowing results study student after activity learning ongoing ; (7) analyze the data with using SPSS for windows version 20.0 and Microsoft Excel; (8). SPSS will used for perform normality test, paired samples test, homogeneity test, independent sample t-test, as well as N-Gain test and descriptive test statistics, while Microsoft Excel is used in create a bar chart from N-Gain test results and descriptive test stats (9) interesting conclusion from results research that has been done.

Instruments

Instruments are tools used in study (Bichi et al., 2019). The instrument used by the researcher is question test. In study this researcher use two class different, that is class experiment and class control. Whereas question test there is one question namely the pre-test for ensure that second class are of equal ability and use again on the post-test for measure ability end student. Question the in the form of an objective test (choice double). The pre-test and post-test questions were developed by the researcher alone, Testing validity done is testing validity content that uses grille instrument to the experimental and control pretest with question 25 questions choice double Theory creature life and its characteristics. Reliability of the instrument used is internal reliability consistency which formula is used is KR formula. 20 (Kuder Richardson) (Rustam & Tentama, 2020). Validity and reliability question performed by 3 experts from PGRI Yogyakarta University.

Data Analysis

In study this , researcher use a number of technique statistics in data processing starts from normality test that is for knowing the data is normally distributed or no (Madukaife, 2019) , continued with parametric test (paired sample test and independent sample test) paired sample t-test to find out there is a difference in the average of two paired samples (Syawaludin et al., 2019), the homogeneity test was used to determine the variance of the post-test and post-test data of the experimental class. (Suardana et al., 2018), independent sample t-test. test for knowing difference in the average learning outcomes post-test experimental class and post-test class control (Gerald, 2018), and the last one namely the N-gain test and descriptive statistics that will be made in bar chart (Utomo et al., 2020).

■ RESULTS AND DISCUSSION

The following is data from research on the effect of using Kahoot Media on the results: study PGSD students in science courses 1. Normality test of pre-test scores and post-test experimental and control classes using the Kolmogorov-Smirnov test with the help of the SPSS version 2 0.0 program, from this test will it is known that the data is normally distributed or no (Gerald, 2018). Based on calculations performed researcher to distribution class pre-test and post-test scores experiment (using Media Kahoot) and class control (without using Kahoot Media), then could is known big the significance for class pre-test experiment 0.200, post-test class experiment 0.051, pre-test class control 0.081 and control class post-test 0.149. Normal distributed values can be is known when probability (p) of all score known $p > 0.05$ (value probability more than 0.05) then could concluded that score the distribute normal (Kholod et al., 2019). Could seen that normality test results are valid with 37 PGSD students in both class. After it is known that the data is normally distributed then could next with with using parametric test (paired sample test and independent sample test) to complete research data analysis.

To find out whether there is a difference in the average of two paired samples, a paired sample t test is carried out using SPSS version 20.0. How

to determine paired sample t test that is when score significance (2-tailed) < 0.05 (value significance not enough of 0.05) shows existence significant difference. Among variable beginning with variable end (Husain & Ardhiansyah, 2020). Based on the output pair (from SPSS results) obtained a sig (2-tailed) value of 0.000 <0.05, so it can be concluded that there is a difference in the average student learning outcomes for the pre - test experimental class with post-test experimental class, so It can be concluded that there is an effect of using Kahoot on student learning outcomes in the Science 1 course on living things and their characteristics.

Homogeneity test only using the pretest score in class experiment and class control (Manshur, 2020). The homogeneity test was used to determine whether the post- test data variance was experimental class using Kahoot Media and post-test data control class without using Kahoot Media is homogeneous or not. The homogeneity test data in this study used SPSS version 20.0. Test this using 37 PGSD students in class A3 and 37 PGSD students in class A1. Based on the

output on SPSS can be known that the significance value (sig.) is based on mean is 0.668 > 0.05 so it can be concluded that the variance of the post-test data experimental class and class control is the same or homogeneous (Ichsan et al., 2020). Thus, one of the requirements of the independent t test is fulfilled.

To find out whether there is a difference in the average post-test learning outcomes experimental class (using kahoot) with post-test learning outcomes control class (without using kahoot) using independent sample t test - test using SPSS version 20.0 (Srakaya, 2020), with criteria if probability (sig) > 0.05 then no there is difference , however , if probability (sig) < 0.05 then there is difference . (Yuberti et al., 2019). Based on the SPSS output obtained the value of Sig. (2-tailed) of 0.00 < 0.05, it can be concluded that there is a difference in the average student learning outcomes between using Kahoot (experimental class) and not using Kahoot (control class). For Knowing the difference in the average post-test learning outcomes for the experimental class and the control class can be seen in the bar chart below this:
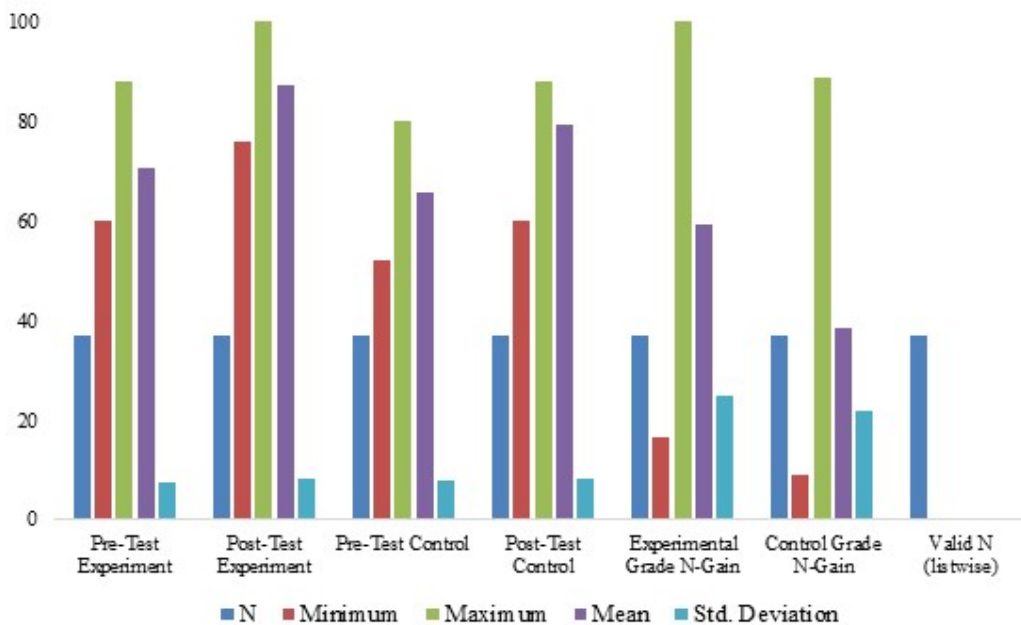
Figure 1.

Based on the data in the statistical descriptive bar chart above, it can be seen that N or the total population of the two classes are 37 students, the minimum pre-test score for the control class (without using Kahoot Media) is 52 points while the experimental pre-test score (using Kahoot Media) is 60 points. Could seen minimum grade post - test score control (without using Kahoot Media) which is 60 points whereas score minimum post-test class experiment (using Media Kahoot) that is 76 points. As for the value maximum pre-test class control (without using Kahoot Media) which is 80 points and the value of maximum pre-test class experiment (using Media Kahoot) 88 points, while score maximum post-test class control (without using Kahoot Media) which is 88 points and the value of post-test maximum class experiment (using Media Kahoot) is 100 points. So can concluded existence difference score points good minimum value or score maximum. From the diagram data above, it can also be seen post-test average the experimental class using Kahoot was 87,24 while the average in the control class was 79,35. There is an increase in the average value of 7.89 by using Kahoot on creature matter life and its characteristics. Research on other materials also has a significant influence. The use of kahoot on environmental change material has a significant effect on learning outcomes. Average score post-test experimental class using Kahoot is 81,27 while the average in the Control class is 73,07 so there is an increase in the average score of 8,2 using Kahoot (Kudri & Maisharoh, 2021).

These results are also in line with other studies although the fields of study and material are different. In the chemistry course, it showed a significant increase in grades and the number of students who passed the exam was more than the scores of the previous year where Kahoot was not applied (Ares et al., 2018). The survey results show that generally more than 90% of students enjoy using Kahoot Media and are able to improve their understanding of Computer Programming (Camilleri & Camilleri, 2017). Medical schools are also recommended to start using Media Kahoot as an alternative tool for formative assessment to improve student learning ((Ismail & Mohammad, 2017). Technology is increasingly being integrated into the teaching environment in view of increasing student engagement and motivation (Licorish et al., 2018). Learning media using kahoot is able to attract the attention of students and students do not will feel bored (Baetina, 2021). Use of N-gain in study this that is for knowing effectiveness use something method , or media in a study (Banawi et al., 2019). With criteria categorization score N-Gain score is >76 percent = category effective , 56 percent -75 percent = category enough effective , 40 percent – 55 percent = category not enough effective and < 40 percent = category no effective (Mitarlis et al., 2020). From the data above could is known the average N-Gain value in the post-test is 59.3435 percent, which means could concluded that enough use of Media Kahoot effective in study experiment this.

Kahoot Media enough effective as an assessment tool because it is easy to use, practical, and fun (Bayram, 2019). About gender differences in Media Kahoot! use, males appear to score higher on motivation and knowledge retention than females (Virtiè et al., 2021). Both males and females agree that using the Kahoot! can increase engagement and motivation, increase focus on learning, facilitate learning, offer effective feedback, and encourage reflection. (Chiang, 2020). Media Kahoot motivates and encourages students to engage in classroom interactions. The use of Kahoot Media in the course has a positive impact on the knowledge and skills they acquire (Licorish et al., 2018). The use of Media Kahoot as an educational game in the classroom can minimize distractions when lecturer teach online

(Turan et al., 2022), thereby increasing the quality of teaching and learning beyond that provided in conventional classrooms. Media a Kahoot as a learning medium without reducing the objectives, content and quality of learning content (Rafnis, 2018). Kahoot, as a cognitive tool, can enable students to become more involved and think more deeply about the subject under study and facilitate knowledge building and student reflection (Correia & Santos, 2017).

As for the reason many teachers and lecturers using Kahoot Media, among others , flexible , easy used , diverse , interesting , global and free used by anybody (Quadir & Chen, 2019). Media Kahoot is quite effective in terms of the ability to encourage and strengthen learning, especially with regard to theoretical frameworks, analytical models, media concepts, media language features or tools, and media writing techniques (Plump & LaRosa, 2017). Facilities and infrastructure in the form of computer /laptop and or device being connected to the internet is barriers that exist in the use of Media Kahoot (Darmawan, 2020). Limitations use of Kahoot Media, in particular problem wi-fi connection (Korkmaz & z, 2021). Lack of stable internet connection it turns out hinder response they to quiz. Another obstacle of Media Kahoot may be Becomes clear if student Becomes bored with gamified technology (Toma et al., 2021). Need noted that a student will find benefit in use of Media Kahoot (Binti Rosdy & Yunus, 2021), which can linked with no always use paper when work exam (Inayah et al., 2021), with using Kahoot Media no direct will save world trees (Hameed, 2020), as tool comparison from only using pen and paper traditional become a website -based media (Chiang, 2020) .

■ CONCLUSIONS

Based on the results of the research that has been done, it is hoped that lecturers and students will use Kahoot Media as an interesting and interactive supporting media at the school and college level. So things that need to be considered in using Kahoot Media are (1) the motivation of lecturers and students in using Kahoot Media, (2) involving students in the learning process when using Kahoot Media so that student learning outcomes will increase.

Smooth internet network is very important when using Media Kahoot, because Media Kahoot is one of the websites on the internet that offers interesting quiz features. The existence of Media Kahoot as a lecturer's tool in attracting student interest in order to improve their learning outcomes, and it is proven that Media Kahoot can improve student learning outcomes of PGSD PGRI University Yogyakarta.

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