

## Students' readiness in the use of technology for rural elementary schools

Siti Latifah\* and Sujarwo

Faculty of Education and Psychology, Universitas Negeri Yogyakarta, Indonesia

\*Email: [sitilatifah.2022@student.uny.ac.id](mailto:sitilatifah.2022@student.uny.ac.id)

**Abstract:** The research aims to determine the effect of the use of technology rural elementary schools in Yogyakarta. The quantitative research method was in the form of a survey at four elementary schools with the best National Examination scores based on ASPD 2021/2022, favorite schools in Kretek, schools accepted inclusive students, and disciplinary schools. The research subjects were fourth grade elementary school students, the instrument is a technology readiness questionnaire and secondary data on learning outcomes in the form of one semester report card grades. Data collection includes questionnaires and documentation, data were taken using descriptive and inferential statistics. The results presented that there was an effect of the use of technology on the learning outcomes of elementary school students. It is known that the sig value for technology normality, learning outcomes, the technology linearity test value and learning outcomes, as well as hypothesis was tested using a simple linear regression. Based on the calculation, the  $H_0$  was rejected and  $H_a$  was accepted.

**Keywords:** *use of technology, learning outcomes, elementary school students*

How to cite (APA 7<sup>th</sup> Style): Latifah, S., & Sujarwo. (2023). Students' readiness in the use of technology for rural elementary schools. *Jurnal Kependidikan*, 7(2), 127-135. <https://doi.org/10.21831/jk.v7i2.59226>.

### INTRODUCTION

Education is a foundation of life as it can organize human intelligence and skills to be more sharpened and tested in dealing with the increasingly complex dynamics of life. Technological developments have led to several changes in the education system which have driven teachers to deliver material in accordance with the developing technological advances. Suharjo (2006) states that elementary schools are basically educational institutions that organize six-year education programs for children aged 6-12 years.

According to Marinda (2020) in Piaget's theory states that 7-11 years old children are in the concrete operational stage using real examples in daily life. In this stage, they find difficulties in terms of understanding materials if only imagining them. The research result found that there was an interaction relationship between technology and working memory (Fan, Zhan, Qing, Gao, & Wang, 2021). This is an effective system for increasing student' understanding and correctness of concepts. However, the current learning in schools uses technology a lot as a tool for learning. Its emergence provides distinctive challenges for education stakeholders comprising teachers, students, institutions, and even the wider community such as parents. These related parties must have an active role in helping students learn and achieve the desired competencies. Currently, the teachers have to find out the ways to transfer learning materials that can be easily accepted by students. Therefore, education at this time can use technology a lot that can assist teachers in providing concrete examples to students when learning.

The use of technology in education can provide concrete examples for student learning. The complicated teaching aids for particular subjects, teachers can use technology as a tool

that facilitate them to transfer the real materials so that students can understand easily. One of the teachers at SD Negeri 1 Kretek stated that the development of technology had increased students' grades significantly, from 70 to 90 and even 100. It was because in completing assignments, students were able to seek references and facilities through the technology itself. The impact is obviously different from students in the past, the current students will possess significant cognitive abilities and skills. This is possible because parents sometimes assist their children with homework. In actuality, children do not always comprehend the task at hand because their parents always do it. Meanwhile, in face-to-face, unlike online learning, students display their real cognitive abilities and capabilities. Students during face-to-face learning also represent the original ability of the student themselves, which vary considerably from student to student (Patricia, 2020).

Student grades are their own original marks by virtue of their learning abilities in the class. It is definitely varied from one student to the other. The main challenge for elementary school educators is to keep students convenient and straightforward to receive lessons with existing technological advances. The use of the internet and multimedia technology can change the way knowledge is conveyed and can be an alternative to learning in the classroom (Zhang, Zhao, Zhou, & Nunamaker, 2004).

It requires technology readiness from students to keep up with learning in accordance with the time development. Elementary school students' readiness includes technology readiness that supports learning. It covers mobile phones that have various application features such as WhatsApp, zoom, Google meet, and Google Drive. The problem of delivering learning materials from educators to students can be solved. Technology has a major influence on the course of education, for instance, making it easier for teachers to transfer materials by giving concrete examples to students. Technology readiness needs to be possessed during learning activities in order to solve problems that occur in the learning process. If there is no technology readiness, the teacher will experience difficulties in delivering materials. Students will also face difficulties to receive and understand materials during learning without giving real examples. Technology can be a support in the education system so that desired learning objectives can be achieved (Unik, Sari, Lathif, Lestari, & Ayuning, 2020).

In rural areas, technology usually develops slowly. It is because the infrastructure in the village is inadequate and the nature of openness of local communities for innovation is quite difficult. Technology can be accepted and used by rural inhabitants in some communities that really need it, for example, in terms of supporting education. The more useful a technology in education is, the more likely people to use it in their life. Technology has a pivotal role in improving the quality of education. Moreover, that the role of technology can increase the effectiveness and efficiency of the teaching and learning process in order to achieve educational goals (Suyuti et al., 2023). It means that technology in education provides benefits in supporting the success of learning in rural elementary schools. Therefore, the role of technology in rural elementary schools can help them move more advanced in the education system.

The use of technology in the learning process has a great impact on the learning outcomes of rural elementary school students where the majority of rural communities are mostly in the agricultural sectors such as farmers, cultivators, or fishermen/breeders. In addition, the success of learning using technology can be measured from the human resources in the school, for example, elementary school students. Those who already have technology readiness will affect student learning outcomes during the learning process. It is inevitable that

students possessing technology readiness will experience better learning outcomes compared to those who do not own it and it is based on their respective abilities.

According to the elaboration above, the researcher concerns about “The Use of Technology in Rural Elementary Schools in Yogyakarta”. The effectiveness of education using this technology not only depends on the technology readiness of students, but also relies on human resources. Students who own a level of technology readiness will undoubtedly acquire better learning outcomes than those who do not have it. This research aims to examine the level of technology readiness of rural elementary school students in Yogyakarta.

## **METHOD**

The research adopted a quantitative study using a survey of 93 elementary school students at grade IV in Kretek, Bantul, Yogyakarta. The sampling technique used a random sampling. The data of students' technology readiness was obtained using a closed questionnaire containing 20 statements, while the data on students' learning outcomes was taken through secondary data in the form of student final exam scores written on semester reports. The data analysis consisted of descriptively statistical and inferential analysis. It consists of validity and reliability tests, normality tests, linearity tests, and hypothesis testing used a simple linear regression.

## **FINDINGS AND DISCUSSION**

The research data was obtained at grade IV of elementary school students in particular cluster, Kretek, as research subjects and population in the study. This data will explain the independent variable data (X), technology readiness and the dependent variable (Y), learning outcomes. The research found that around 95% of students at grade IV well responded on the technology readiness when they were given questionnaire and filled it out. Improving understanding of learning using technology, teachers usually give simple assignments to students aiming to keep learning and acquiring knowledge of the subject by exploring comprehensive sources either through YouTube, the internet, or others.

The technology readiness variable (X) affected on the learning outcome variable (Y).  $H_0$  was rejected and  $H_a$  was accepted, so this study stated that “There is an influence between the use of technology in rural elementary schools in Yogyakarta”. The results obtained a  $YX_1$  coefficient of 0.303, the magnitude of the significant influence between the use of technology for elementary school students in Kretek on learning outcomes was 0.303 or 30.3%. The 30.3% result was influenced by the technology readiness variable and the remaining 69.7% was influenced by other variables, for example the level of intelligence of students and other abilities that support the learning process and learning outcomes of elementary school students.

According to the several prior studies, a digital technology makes work easier because it operates quickly, qualifiedly, effectively, efficiently, and easily informed. It affected student learning outcomes because all students are able to integrate technology with education in recent time. During the learning process, a teacher can present learning materials at first before explaining the material to be studied. At the end of the session, students were given assignments at the end of the meeting. It is relatable to the former research, the research at cluster 1 in Public Elementary Schools in Kretek, learning outcomes can be obtained from various assignments given by the teacher, either using WhatsApp, zoom, google classroom,

or others. Students who have technology such as mobile phones will easily and quickly access learning information from their teachers, while students who do not own mobile phones will lack of information from teachers. Therefore, students need to have media such as cellphones as a means of information from the school or teacher. It will lead to a good communication from the teacher related to learning activities.

*Findings.* The data presented the values consisting of Mean, Median, Mode, and Standard Deviation as well as their classification. The data will be used for the purpose of hypothesis testing. The presentation of the data revealed about the distribution of the mean, median, mode, standard deviation, variance, minimum score, maximum score, and their classification for each variable. The results of the descriptive analysis on the variables of technology readiness and learning outcomes are the following.

*The Results of Technology readiness.* The research instrument used to measure the technology readiness variable was a questionnaire with 20 question items. The statement score for each item was 1-4. Based on the data, the results are seen in Table 1.

Table 1  
*Statistical results of technology readiness variable (X)*

	N	Range	Min.	Max.	Means	Std. Deviation	Variances
Technology readiness	93	26	55	81	66.43	5.973	35.683
Valid N (listwise)	93						

Table 1 showed the respective value of Mean = 66.43; std. Deviations = 5.973; Variance = 35.683; Range = 93; Minimum = 55; Maximum = 81. The next stage is to determine the technology readiness category at grade IV of Elementary Schools at cluster one, Kretek. According to Stephens (2007) to determine the category of these variables, it is necessary to figure out the ideal Mean and Standard Deviation. To find the ideal mean value (Mi) is  $\frac{1}{2}$  (maximum score + lowest score), while for the ideal standard deviation (Sdi) is  $\frac{1}{6}$  (maximum score + lowest score). The results of the ideal Mean (Mi) 68 and standard deviation (Sdi) 4.3 above can be analyzed into technology readiness.

The technology readiness category data was 32,2% indicating at very low level, 26.5% was in the low level, 20.4% was in the moderate level, 6.5% was in the high level, and 14% was in the very high level. Thus, the Mean (M) = 66.43 categorized into interval class of  $X \leq 61.55$  with a frequency of 30 students, so the technology readiness at grade IV of elementary school students at cluster one, Kretek, was in the very low level with 32.3 %.

*The results of learning outcomes.* Learning outcome data was obtained through documentation of learning outcome data for one semester in the 2021/2022 academic year. Based on the data obtained, it is calculated as seen in Table 2.

Table 2 presented that the minimum score was 78 and the maximum score was 93; Means = 85.84; std. Deviations = 2.732; Range = 15; Variance = 7.463. The next step was to determine the learning outcomes category at grade IV of SD N 1 Kretek' students at cluster one, Kretek. According to Stephens (2007), determining the category of these variables are important to figure out the ideal Mean (Mi) of  $\frac{1}{2}$  (maximum score + lowest score), while for the ideal standard deviation (Sdi) is  $\frac{1}{6}$  (maximum score - lowest score).

Table 2  
 Statistical results of learning outcome variable (Y)

	N	Range	Min.	Max.	Means	Std. Deviation	Variances
Learning outcomes	93	15	78	93	85.84	2.732	7.463
Valid N (listwise)	93						

The learning outcome data in which the 10.8% was in the low level, 12.9% was in the moderate level, and 76.3% was in the high level. Hence, the Mean (M) = 85.84 was in interval class of  $81.95 < X \leq 89.05$  with a frequency of 71 students, the learning outcomes at grade IV of elementary school students at cluster one, Kretek, included in moderate level of 76.3%.

*Discussion.* The analysis results related to pupils "technology readiness showed that the majority (95%) of fourth grade students responded very well to the questionnaire. Although the learning process was done out offline with limited face-to-face meetings, these students showed high satisfaction since they could communicate directly with teachers and classmates. Furthermore, the pupils admitted that it was easier to understand the material that was presented offline. To boost students' knowledge in online learning sessions, teachers usually give light assignments to students. This task is meant so that students can learn and understand that related subject matter independently. According to Davies (2006), the use of IT tools in the learning process will increase efficiency, motivation, and provide active learning facilities, facilitated experimental and consistent learning, thus generating better learning. In line with this theory, giving assignments has quite effect on learning outcomes which can be seen from the results of testing the hypothesis using simple linear regression. According to Taupan, Sunyoto, and Kartika (2016), the normality test is used for examining the independent variable, X and the dependent variable, Y, with the applicable criteria if the value of significance  $\geq 0.05$  means the data is normally distributed. The results of the normality test showed that the asymp.sig value of technology readiness was 0.137 and the learning outcome was 0.128 which was greater than 0.05.

The linearity test was carried out through a test of linearity with the applicable criteria. If the linearity value is  $\leq 0.05$  and the deviation from linearity is  $\geq 0.05$ , there will be a linear relationship between the independent variable and the dependent variable. Having conducted trial on learning outcomes and the use of technology, it obtained a significance value of  $0.814 > 0.05$ . It has a linear correlation between the use of technology and learning outcomes. It is in accordance with Susanto's statement (2015) that a linearity test is conducted to find out whether the independent variable (X) and the dependent variable (Y) were linear or not.

The regression test using technology and learning outcomes stated that there was a relationship with the significance value of  $0.003 < 0.05$  and  $t_{count} > t_{table}$  of  $3.030 > 1.701$  which stated that  $H_0$  was rejected and  $H_a$  was accepted. The calculation of the regression equation yields  $Y = 76.643 + 0.138 X$ . It means that the use of technology has a significant effect on learning outcomes. In point of view of Kuncoro (2013), the criteria for testing the hypothesis were a) using a significance coefficient (Sig) by comparing the value of Sig. Deviation from linearity  $> \alpha$  then  $H_0$  is accepted. However,  $H_0$  is not accepted if the Sig value on Deviation from linearity  $< \alpha$ ; b) using the value of the coefficient F in the line of Deviation from linearity or F Impairment (TC) in the ANOVA table compared to  $F_{table}$ . If

$F_{\text{count}} < F_{\text{table}}$  with  $dk$  in the numerator = 1 and  $dk$  in the denominator =  $k - 2$ , then  $H_0$  is accepted. However,  $H_0$  is rejected  $F_{\text{count}} > F_{\text{table}}$  with  $dk$  in the numerator = 1 and  $dk$  in the denominator =  $k - 2$ .

The technology readiness variable (X) affected the learning outcome variable (Y).  $H_0$  was rejected and  $H_a$  was accepted. Therefore, this study states that there is an influence between the use of technology in rural elementary schools in Yogyakarta. The results calculation obtained a YX1 coefficient of 0.303, indicating that the significant influence of the use of technology for SD Negeri 1 Kretek' students on learning outcomes was 0.303 or 30.3%. The 30.3% result is influenced by the technology readiness variable and the remaining 69.7% was influenced by other variables, for example the level of intelligence of students and other abilities that support the learning process and learning outcomes of elementary school students.

The technology readiness variable (X) influenced the learning outcome variable (Y).  $H_0$  was rejected and  $H_a$  was accepted. Therefore, this study states that "There is an influence between the use of technology in rural elementary schools in Yogyakarta". The results of calculations obtained a YX1 coefficient of 0.303, indicating that the significant influence of the use of technology for elementary school students in Kretek on learning outcomes was 0.303 or 30.3%. The 30.3% result was influenced by the technology readiness variable and the remaining 69.7% was affected by other variables, for example the level of intelligence of students and other abilities that support the learning process and learning outcomes of elementary school students.

The use of technology has quite effect on student learning outcomes in SD Neeri 1 Kretek. Achieving good learning outcomes and learning goals are part of students' success in the learning process. Learning outcome is teacher's evaluation in assessing students for one semester by making report book. The second variable of learning outcomes was obtained from secondary data by recapitulating scores during one semester which were presented into grades in the student report. Learning outcomes was observed from two sides including student side and the teacher side. From the student's point of view, learning outcomes are defined as a better level of mental development than before learning. Meanwhile, the teacher's point of view, learning outcomes are the stage of achievement carried out by the teacher during the learning process (Sulastri, Iman, & Firmansyah, 2014).

Learning outcomes are the teacher's evaluation in assessing students for one semester by making report book. The existence of technology readiness can improve student learning outcomes because it already has a component that supports learning. Attaining good learning outcomes and achieving learning objectives are part of the success in the learning process. This result is supported by Faridawati's research (2011) with the title "The Effect of Learning Facilities and Parental Attention on Mathematics Learning Achievement of Upper Grade Students in Elementary School State 2 Ngepringan, Jenar, Sragen in 2011". The purpose of this previous research was to figure out that learning facilities and parental attention influenced on students' mathematics learning achievement.

The test data obtained a number of 0.482 which illustrated that students' mathematics achievement was influenced by learning facilities and parental attention by 48.2% and the remaining 51.8% was influenced by other variables. The similarity of this research to the currently conducted research lies in the learning support tools and the dependent variable, student achievement. Meanwhile, the difference lies in the type of collection of the dependent

variable that uses learning facilities and parental attention. The contribution has a significant influence with the facilities and parental attention to improve the mathematics learning outcomes of upper grade students in elementary schools.

This research is also supported by Chairudin's research (2021) with the title "The Influence of Online Learning on Student Achievement at Grades 5 and 6 of MI Ma'arif Gedangan, Tuntang, Semarang for the Academic Year of 2020/2021". The aim of this study was to describe the significant influence between online learning and learning achievement. Therefore, researchers may use this source as a relevant study. The results of the study summarized that there was a significant influence between online learning and student achievement. H1 was accepted indicating that there is an effect of online learning on student achievement at grades 5 and 6 of MI Ma'arif Gedangan, Tuntang, Semarang for the academic year of 2020/2021. The result was that online learning was able to help students during the Covid-19 outbreak. It was obviously proved from the consistency of students' learning achievement.

The similarly previous research was on the variable influence of learning. However, the difference was in the respondents in the previous study using 2 classes, grades 5 and 6. The contribution to the research currently carried out is that there will be a significant influence between learning using technology and student achievement in elementary schools.

Another research was conducted by Muhasim (2020) with the title "The Influence of Digital Technology on Student Learning Motivation". The purpose of this research was in terms of digital technology such as cellphones with various kinds of sophistication, the technology can be used for learning. The results of the study showed that digital technology made work easier, because it operated automatically, quickly, qualifiedly, effectively, efficiently, and easily communicated to other media. Many other sophisticated media benefit for human activities. The integration of digital technology with the implementation of education has been assembled in a fairly neat network dubbed as E-Learning which is a learning network through online media. This means that students can already take advantage of digital technology in learning.

According to the several previous studies that digital technology made work easier because it operated quickly, qualifiedly, effectively, efficiently, and easily informed. It affected student learning outcomes because all students were able to integrate technology with education in recent time. The teacher during learning transferred learning material at first before explaining the material to be studied. Then, at the end of the session students were given assignments at the end of the meeting. It is relatable to the former research, the research at cluster 1 in Public Elementary Schools in Kretek, learning outcomes can be obtained from various assignments given by the teacher, either using WhatsApp, zoom, google classroom, or others.

The correlation between the use of technology and learning outcomes is that students acquire adequate information to support learning, knowledge, abilities, skills, and experience in the learning process. In line with the notion of Slameto (2010), someone will adjust to these conditions and will influence or tend to respond to existing conditions. Students at cluster 1, Kretek, have sufficiently qualified skill to use technology to support learning. It was proven that 30.3% of learning outcomes were influenced by the readiness or use of technology for elementary school students after carried out research in four schools.

According to Handoko, Ariani, and Prawiradilaga (2016), the increasingly sophisticated technology is equipped with various educational application features that help students in

the learning process. Students who have technology such as mobile phones will easily and quickly access information from teachers in learning, while students who do not own mobile phones will lack of information from teachers. Therefore, students are required to have media such as cellphones as a means of information from the school or teacher so that good communication will be obtained from the teacher in the learning activities.

## CONCLUSION

According to the results of research conducted at a particular cluster of SD Negeri 1 Kretek, Bantul, Yogyakarta can be concluded that there was a significant influence between the use of technology and the learning outcomes of elementary school students. This is indicated by the significance value of technology readiness of 0.137 and learning outcomes of 0.128 which is greater than 0.05. The normality test results meet the normality test prerequisites and there is no significant difference. The linearity test shows that learning outcomes and technology are linear with the value of  $0.814 > 0.05$ . The simple linear regression test presented that  $t_{\text{count}} (3.030)$  was greater than  $t$  table (1.701) with a significance level of 0.003 (smaller than 0.05). The regression equation obtained  $Y = 76.643 + 0.138 X$ . This value stated that  $H_a$  was accepted, technology readiness affected the learning outcomes of elementary school students in rural areas. In summary, the research hypothesis which states the use of technology in rural elementary schools in Yogyakarta is valid with significance level of  $0.003 < 0.05$ .

## REFERENCES

- Davies, B. (2006). Subjectification: the relevance of Butler's analysis for education. *British Journal of Sociology of Education*, 27, 425-438. <http://dx.doi.org/10.1080/01425690600802907>.
- Fan, L., Zhan, M., Qing, W., Gao, T., & Wang, M. (2021). The short-term impact of animation on the executive function of children aged 4 to 7. *International in Environmental Research and Public Health*, 18(6). <https://doi.org/10.3390/ijerph18168616>.
- Faridawati, T. (2011). *Pengaruh fasilitas belajar dan perhatian orang tua terhadap prestasi belajar matematika siswa kelas atas SD Negeri Ngepringan 2, Jenar, Sragen* (Undergraduate thesis, unpublised report). Universitas Muhammadiyah Surakarta.
- Kuncoro. (2013). *Metode penelitian kuantitatif kualitatif dan R&D*. Erlangga.
- Marinda, L. (2020). Teori perkembangan kognitif Jean Piaget dan problematikanya pada anak usia sekolah dasar. *Jurnal Kajian Perempuan & Keislaman*, 13(1). <https://doi.org/10.35719/annisa.v13i1.26>.
- Muhasim, (2020). Pengaruh teknologi digital, terhadap motivasi belajar peserta didik. *Jurnal Studi Keislaman dan Ilmu Pendidikan*, 5(2). <https://doi.org/10.36088/palapa.v5i2.46>.
- Patricia, A. H. (2020). College students' use and acceptance of emergency online learning due to Covid-19. *International Journal Education Research*, 1(11). <https://doi.org/10.1016/J.IJEDRO.2020.100011>.
- Handoko, H., Ariani, D., & Prawiradilaga, D. S. (2016). *Mozaik teknologi pendidikan e-learning*. Kencana.
- Slameto. (2010). *Belajar dan faktor-faktor yang mempengaruhinya*. Rineka Cipta.
- Stephens, N. M., Markus, H. R., & Townsend, S. S. M. (2007). Choice as an act of meaning: The case of social class. *Journal of Personality and Social Psychology*, 93(5), 814-830. <https://doi.org/10.1037/0022-3514.93.5.814>.



- Suharjo. (2006). *Mengenal pendidikan sekolah dasar teori dan praktek*. DIKTI.
- Sulastri, Imran, & Firmansyah, A. (2014). Meningkatkan hasil belajar siswa melalui strategi pembelajaran berbasis masalah pada mata pelajaran IPS di kelas V SDN 2 Limbo Makmur Kecamatan Bumi Raya. *Jurnal Kreatif Tadulako*, 3(1).
- Susanto. (2015). Korelasi kemampuan pengelolaan laboratorium dan hasil belajar pada mata kuliah pengelolaan laboratorium. *Jurnal Penelitian Bidang Pendidikan*, 23(2), 80-85.
- Suyuti, S., Ekasari Wahyuningrum, P., Jamil, M., Nawawi, M., Aditia, D., & Ayu Lia Rusmayani, N. (2023). Analisis efektivitas penggunaan teknologi dalam pendidikan terhadap peningkatan hasil belajar. *Journal on Education*, 6(1), 1-11. <https://doi.org/10.31004/joe.v6i1.2908>.
- Taupan, F., Sunyoto, C., & Kartika, E. W. (2016). Hubungan leader-member exchange dan komitmen operasional: Studi pada karyawan restoran D'Cost Seafood Surabaya. *Jurnal Hospitality dan Manajemen Jasa*, 4(2).
- Unik, S. H., Sari, L. I., Lathif, K. H., Lestari, A. P., & Ayuning, A. (2020). Peran teknologi dalam pembelajaran di masa pandemi Covid-19. *Jurnal Penelitian dan Kajian Sosial Keagamaan*, 17(2). <https://doi.org/10.46781/al-mutharahah.v17i2.138>.
- Zhang, D., Zhao, J. L., Zhou, L., & Nunamaker, J. F. (2004). Can e-learning replace classroom learning. *Communication of the ACM*, 47(5). <https://doi.org/10.1145/986213.986216>.