THE EFFECT OF DIGITAL TECHNOLOGY CAPABILITIES ON THE ACHIEVEMENT OF HIGH SCHOOL STUDENTS IN JABODETABEK

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Abstrak : Penelitian ini bertujuan untuk mengetahui pengaruh kemampuan teknologi digital terhadap prestasi siswa SMA di jabodetabek. Penelitian ini menggunakan jenis penelitian kuantitatif. Populasi dalam penelitian ini yaitu siswa SMA di jabodetabek. Teknik pengambilan sampel dilakukan dengan teknik *non probability* sampling jenis sampling incidental. Selanjutnya dilakukan perhitungan menggunakan Rumus Slovin sehingga diperoleh sampel sebanyak 200 siswa. Teknik pengumpulan data yang digunakan yaitu kuesioner, dokumentasi dan wawancara. Data penelitian selanjutnya dianalisis menggunakan analisis regresi linear sederhana dengan bantuan SPSS 16.0. Hasil analisis data diperoleh bahwa nilai sig sebesar 0,00, maka tolak Ho sehingga dapat disimpulkan bahwa terdapat pengaruhkemampuan teknologi digital terhadap prestasi siswa. Besar pengaruh kemampuan teknologi terhadap prestasi siswa yaitu 51,80% dan sisanya 48,20% dipengaruhi oleh variabel lain.
Kata Kunci: kemampuan teknologi digital, pretasi siswa, siswa SMA di Jabodetabek

Abstract : This study aims to determine the effect of digital technology capabilities on the achievement of high school students in Jabodetabek. This research uses quantitative research. The population in this study were high school students in Jabodetabek. The sampling technique was carried out using a non-probability sampling technique of incidental sampling. Furthermore, calculations are carried out using the Slovin formula so that a sample of 200 students is obtained. Data collection techniques used are questionnaires, documentation and interviews. The research data were then analyzed using simple linear regression analysis with the help of SPSS 16.0. The results of data analysis showed that the sig value was 0.00, then rejected Ho so that it can be concluded that there is an influence of digital

technology ability on student achievement. The influence of technology ability on student achievement is 51.80% and the remaining 48.20% is influenced by other variables.

Keywords: Digital Technology Ability, Student Achievement, High School   Students In Jabodetabek

INTRODUCTION

The presence of new information technology, such as digital technology, has opened up new opportunities and challenges in education. The presence of digital technology is one of the challenges for conventional schools and brings a paradigm shift in the teaching and learning process. Initially, students have to go to school in buildings or classrooms with considerable transportation costs. Now students easily learn online. In addition, there are also changes in learning methods. With the

Learning that is carried out online with the help of technology requires technology applications (platforms). Teachers and students are required to be able to utilize the right technology in the implementation of online learning. Technology applications used by students must be user-friendly, so as to make students comfortable in using them (Wang et al., 2013). Various technology applications or platforms that are currently available can be used by teachers and students in carrying out online learning during the Covid-19 pandemic. Easy-to-use technology applications are becoming very important.

Social media is one alternative as a technology-based learning media. Based on the results of research conducted by (Rustiyanti, 2022) stated that the use of social media in the learning process of economics

development of technology today, students can learn through the internet or other technology-based learning media and everything can be done at home. This has a positive side for schools, students and parents. Schools can reach a wider community. Students easily to get quality and affordable learning materials. Previous studies have explained that educational technology has a positive and significant effect on student learning outcomes and even student achievement (Viorica &; Carmen, 2013) and even student achievement (APPLE, 2002).

subjects can increase student achievement supported by a good social environment. In addition to social media applications, special applications based on classroom learning can also be used in the learning process, such as Google Classroom, Moodle, and Schoology. By using this application the interaction between teachers and students is more well organized. Students can view materials or assignments bound by the teacher in the app. The use of special applications based on classroom learning can be effective in implementing the learning process (Yulfianti &; Dewi, 2021).

Technology applications used in online learning can be developed by schools themselves or can be obtained for free or paid. Various technology applications that can be obtained for free or applications whose use is limited when free is one of the best facilities to

support smooth learning carried out online. Free technology applications that have often been used in online learning include Whatsapp, Google Classroom, Email, and Zoom. Whatsapp is one of the most widely used social media by teachers and students during online learning. In addition to Whatsapp, Google Classroom as an application that is devoted to learning activities is also used in online learning. Teachers and students in online learning also use Zoom as a conference application to replace face-to-face learning at school with face-to-face online. In addition, email has also been used to facilitate online learning because email has become one of the means of communication that has been around for a long time and is very easy to use. Thus, various applications used in online learning have been mastered by students well (Amri, 2021).

The development of the internet and digital technology makes it easier for students to access and obtain a lot of information easily so that the tasks given by the teacher will be completed faster. The use of digital technology certainly requires direction from teachers and supervision from parents. Students must understand how to use digital devices properly and wisely. Using technology wisely will help the learning process (Sari et al., 2021). . Teachers must be able to follow and take advantage of increasingly advanced technology, so as not to be outdated, and make students feel bored with the same learning method. The more innovations made by teachers, the more productive things teachers do such as careful teaching preparation, preparation of learning rooms, and supporting student learning, interesting media and so on. The development of science and technology

also requires a teacher to always follow it and have creative innovations. Innovations that can be done by teachers in the educational process based on information technology are able to create media or learning methods that are in accordance with the characteristics of social change. Teachers are examples in the use of information and communication technology in schools, so teachers must be wise and role models for students, thereby reducing the misuse of technology for students (Anggriani, 2022).

Student achievement is one of the indicators of educational success. Achievements will be achieved by students when they have completed learning activities. Many factors affect student achievement, one of which is the presentation of material and the interesting learning process. Most students always use internet access as a learning medium and source of information because accessing information is easier and more practical and can be done anywhere, anytime and can be done on each student's cellphone (Husnah, 2022); (Shah et al., 2021).

Student achievement is also influenced by various factors, namely factors from within and from outside. One factor is the use of digital technology and the way students get learning information and how to learn. The results of research conducted by (Elyana et al., 2022) stated that student achievement can increase in the distance learning process carried out by providing learning videos. In addition, the results of research conducted by (Lasut et al., 2022) stated that power point learning media and video learning media in online learning both directly tind together (simultaneously) affect student achievement. Students who use their digital technology skills to the maximum can

influence student prestige. To find out whether technological ability affects achievement, this study was conducted with the aim of determining the influence of technological ability on the achievement of high school students in Jabodetabek.

RESEARCH METHODS

This research is a type of quantitative research (Creswell & Garrett, 2008). This study aims to determine the influence of digital technology capabilities on student achievement and to find out how much influence it has. The population in this study was all high school students in Jabodetabek. The sampling technique used is non-probability sampling, incidental sampling type. In this study, sample calculations were used according to the Slovin Formula (Sugiyono, 2013). The total population is 174,700 students, then calculations are carried out so that the calculation results are obtained as many as 100 students at least as a sample. In this study there were 200 samples.

Data collection techniques are carried out using non-test techniques. Non-test data collection techniques are carried out by questionnaires, observation, and documentation. Questionnaires are used to find out information related to student responses to online learning and student achievement. The documentation method is used to determine the profile, organizational structure of the school and school achievement data. Observation is carried out with the aim of knowing the condition of the school directly and teaching and learning activities of students at school. The data analysis technique used is a simple linear regression analysis using the help of SPSS 16. Applied linear regression analysis includes t test, F test and determination coefficient test.

RESULTS AND DISCUSSION

The data obtained from the results of the study in the form of questionnaire data were then obtained using a linear regression statistical test. The results of the hypothesis test in this study are presented in the following table.

Table 1. Test Results t

	Coefficients[a]				
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1 (Constant)	1.247	.377		3.309	.001
Digital_Technology_Capability	.661	.086	.518	7.716	.000
a. Dependent Variable: Student_Performance					

Based on the results of the hypothesis test in Table 1, it can be seen that the calculated t value is 7.716 and the t table is 1.972. The calculated t value is greater than the table t value and the sig value of 0.000 so that it can be concluded that Ho was rejected that there is an influence of digital technology skills on student achievement.

Table 2. F Test Results

ANOVAª					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	56.474	1	56.474	59.529	.000ᵇ
Residual	153.686	162	.949		
Total	210.160	163			
a. Dependent Variable: Student_Performance					
b. Predictors: (Constant), Digital_Technology_Capability					

Based on the results of the F test in Table 2, it is known that F count is 59.529 and F table is 3.04. The calculated f value is greater than the f table value so that it can be concluded that there is a positive and significant influence of digital technology capabilities on student achievement.

Table 3. Coefficient of Determination Test Results

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.518ª	.269	.264	.97400
a. Predictors: (Constant), Digital Technology Capability				

Furthermore, to find out how much influence the ability of digital technology on student achievement, a coefficient of determination test was carried out. Based on the test results in Table 3, R-square has a value of 0.518 or 51.80%. This shows that the ability of digital technology affects student achievement by 51.80%, the rest is influenced by other variables.

DISCUSSION

This study aims to determine the influence of digital technology capabilities on student achievement and to determine the magnitude of this influence. The results showed that the sig value of 0.00 showed that Ho was rejected so that it could be implied that there was an influence of digital technology skills on student achievement. In addition, based on R squere, 51.80% of technological ability can affect student achievement and the rest is influenced by other variables. This is in accordance with the results of research that has been previously conducted, which states that digital technology capabilities can affect student achievement (Mukhlisah, 2019); (Anando &; Gundo, 2021); (Simbolon et al., 2022); (Rohmanurmeta &; Dewi, 2018).

Digital technology capabilities are currently indispensable for schools in developing countries so that education can continue to develop (Lahovnik &; Breznik, 2014). The latest technology, including internet technology. The ability of internet technology is very important in helping schools (Bianchi, 2017). The ability of digital technology has a significant influence on

student achievement (Chantanaphant, Nabi, &; Dornberger, 2013). Even Lahovnik &; Breznik, (2014); Bianchi, 2017 emphasizes that the dominant source of student achievement excellence is the ability of technological innovation. Schools can have the ability to provide wider access to information. Schools can know the needs and values felt by their students. So technological skills are needed to support student achievement. This is also supported by the results of research which states that online learning can increase student achievement (Armin et al., 2020).

Hussein et al., (2020) mentioned that there is time and cost effectiveness, security, and convenience as positive aspects of online learning. However, the study also mentions some of the problems students face, such as heavy assignments, internet connectivity issues, and inadequate support from instructors. This study shows that facilities and infrastructure positively affect student achievement in online learning (Gumede &; Badriparsad, 2022) supporting this statement. This study shows that good communication between teachers and students is essential in improving online learning. Penrod et al. (2022) also showed that student involvement and motivation are highly dependent on interaction and communication between teachers and students. In online learning it is recommended to use discussion methods, interactive videos, and evaluation responses or feedback from teachers to improve communication and encourage student engagement. The studies reviewed show that interaction between teachers and students can be an important factor in improving the online learning experience, and thus increasing student motivation and engagement. Regarding student experience, (Mulyono et al., 2021) pointed out that students still experience some problems with online learning such as the inconvenience of learning with others online and difficulties in building online learning interactions. (Mali &; Lim, 2021) points out that students do not feel comfortable engaging online, and suggests teachers develop interactive tasks to improve student engagement, motivation and performance in online environments.

(Gumede &; Badriparsad, 2022) also point out that students lose purpose and struggle to focus during online learning. Nasir et al. (2021) suggest that students tend to turn their attention to other activities, such as online games, when facing difficulties during online learning, which can cause a negative impact on student performance in class. (Melgaard et al., 2021) mentioned that the demands of self-regulation are higher in online learning than traditional face-to-face settings. The study also mentions that lack of motivation and effort among students is significantly higher in online learning. (Patricia Aguilera- Hermida, 2020) points out that online learning requires self-regulation skills where students must manage their own learning process. (Maqableh &; Alia, 2021) also points out that during the transition to online learning, students have issues related to mental health and balance between life and education. In addition, there are several things that must be considered when using technology in learning, namely: The choice of learning platform is the main success factor in online learning, Intellectual media platforms

are chosen by most teachers because they lead to two-way interaction, and Parental assistance is also needed to increase student

motivation (Robiatusofiyah &; Mawardi, 2022).

CONCLUSIONS AND RECOMMENDATIONS

Based on the research that has been done, it can be concluded that there is an influence of technological capabilities on student achievement in Jabodetabek. This can be seen from the sig value of 0.00, this means that the sig value is smaller than 0.05

so that it rejects Ho. In addition, based on the results of the coefficient of determination test, an Rsquare value of 0.518 was obtained. This means that the ability of digital technology affects student achievement by 51.80% and students 48.20% are influenced by other variables.

BIBLIOGRAPHY

Amri, F. (2021). Persepsi Siswa tentang Aplikasi Teknologi yang Digunakan dalam Pembelajaran Online. *Edukatif : Jurnal Ilmu Pendidikan*, 4(1), 250–258. https://doi.org/10.31004/edukatif.v4i1.1216

Anando, Y. Y. A., & Gundo, A. J. (2021). Pengaruh Antusiasme Belajar dan Media Belajar Website "Sekolah Digital SMKN 3 Salatiga" Terhadap Prestasi Belajar Simulasi Digital. *Jurnal Ilmiah Wahana Pendidikan*, 7(1), 391–402. https://doi.org/10.5281/zenodo.6133247

Anggriani, N. M. (2022). Peranan Guru Dalam Inovasi Pendidikan Terhadap Perkembangan Teknologi Informasi Abad 21. Universitas Lambung Mengkurat, 1–8. APPLE. (2002). The Impact of Technology on Student Achievement. *Apple Computer, Inc.*

Armin, E., Khaedar, M., Satriawati, & Amaliyah, N. (2020). Pengaruh Pembelajaran Daring Terhadap Prestasi Belajar Siswa Sekolah Dasar. *Jurnal Basicedu*, 3(2), 524–532. https://jbasic.org/index.php/basicedu/artic le/view/971

Creswell, J. W., & Garrett, A. L. (2008). *The " movement " of mixed methods research and the role of educators*. 28, 321–333.

Elyana, D., Wulandari, A. A., Bandiningaih, O., Mulyani, T., & No, J. P. (2022). *Peningkatan Prestasi Belajar Matematika Siswa dalam Pembelajaran Jarak Jauh Berbasis Vide*o. 2, 77–86.

Husnah, F. (2022). *Analisis Penggunaan Internet Dalam Pembelajaran Sains Dikelas Xii Sma Negeri 1 Tualang Riau.* 4, 349–356.

Lasut, M. S., Sumampouw, Z. F.,

Mangangantung, J. M., Daniel, R., & Pangkey, H. (2022). Pengaruh Penggunaan Media Powerpoint dan Media Video dalam Pembelajaran Daring Terhadap Prestasi Belajar Siswa Sekolah Dasar. *Edukatif : Jurnal Ilmu Pendidikan*, 4(4), 5001–5009.

Mukhlisah, I. (2019). Pengaruh Media Pembelajaran Berbasis Informasi Teknologi (It) Terhadap Prestasi Belajar Fiqih Siswa Di Madrasah. *Mamba'ul Ulum*, 15(1), 29–45.

Robiatusofiyah, & Mawardi, A. (2022). Dampak Pembelajaran Daring Terhadap Tingkat Pencapaian Prestasi Siswa Sekolah Dasar. *Seminar Nasional Inovasi Pendidikan Ke-5 (SNIP 2021) Dan Seminar Nasional Guidence Counseling Project (GCP 2021)*, 1(69), 5–24.

Rohmanurmeta, F. M., & Dewi, C. (2018). Pengaruh Media Komik Digital Pelestarian Lingkungan Terhadap Prestasi Belajar Tematik Pada Siswa Sekolah Dasar. *Prosiding SNasPPM*, 3(1), 87–90. https://doi.org/10.1016/j.dib.2020.105 929

Rustiyanti, D. (2022). *Penggunaan Media Sosial Dan Lingkungan Sosial Pada Mata Pelajaran Ekonomi Kelas X.*

Sari, A. M. P., Safitri, J. N., & Fitriyanti, S. (2021). Penggunaan Media Belajar Berbasis Teknologi Internet Dalam Mendukung Belajar Anak Dirumah. Jurnal Literasi, *Jurnal Pengabdian Pada Masyarakat*, 1, 11–22.

Simbolon, M. E., Marini, A., & Nafiah, M. (2022). Pengaruh Literasi Digital Terhadap Minat Baca Siswa Sekolah Dasar. *Jurnal Cakrawala Pendas*, 8(2), 532–542.

Syah, A., Rizki, P., & Suandi, D. (2021). *Penggunaan Internet of Thing melalui Google Suite (Goggle Meet, Jamboard , Google Dokumen) untuk meningkatkan pembelajaran matematika*. 110–116.

Viorica, C., & Carmen, A. (2013). The Impact of Educational Technology on the Learning Styles of Students. *Procedia - Social and Behavioral Sciences*, 83, 851–855. https://doi.org/10.1016/j.sbspro.2013. 06.160

Wang, C. H., Shannon, D. M., & Ross, M. E. (2013). Students' characteristics, self-regulated learning, technology self-efficacy, and course outcomes in online learning. Distance Education, 34(3), 302–323. https://doi.org/10.1080/01587919.20 13.835779

Yulfianti, S. Y., & Dewi, R. M. (2021). Efek Learning Management System Berbasis Google Classroom dan Minat Belajar Terhadap Hasil Belajar Ekonomi Siswa. Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran, 7(2), 491. https://doi.org/10.33394/jk.v7i2.3717