Can Keyboarding Skills Improve Student Performance and Engagement?

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Abstract:

Lecturers must strive for innovative and engaging learning so that students can feel involved in every learning process. Therefore, the student's academic performance improved. This study tested the effectiveness of the blind system method assisted by 10astfingers learning media in improving students' performance and engagement. This study used a treatment-by-level design (T-LD). Seventy-three respondents were undergraduate students of business administration at Politeknik Balekambang Jepara. The data were collected through practicum tests and questionnaires. An independent sample test was used for data analysis. This study finds that 10fastfingers learning media can improve students' cognitive and psychomotor performance. Thus, this medium is effective as a keyboard learning medium for improving student performance. The findings also found that 10fastfingers media were able to increase student involvement in learning process activities. Therefore, this study concludes that the use of 10fastfingers media can improve academic performance and student engagement.

Keywords: keyboarding skills, student performance, student engagement.

INTRODUCTION

Providing positive influence, knowledge, and skills for learners is the main goal of an educator. This goal can be achieved if educators can adjust the right learning methods. Choosing learning methods that follow the course can help the teaching and learning process become more effective and successful (Gaižiūnienė et al., 2020). Because learning methods can have a significant impact on students' academic performance (Agamber et al., 2019; Waheed et al., 2020). Similar to Adu-Gyamfi, technology-based learning methods are a practical method in teaching because they can significantly improve student performance (Adu-Gyamfi, 2014). Moreover, the use of technology can also improve the student learning experience (Chowdhry et al., 2014).

In vocational schools, learning is student-centered and practice-focused. For this reason, skills are indispensable for college and career readiness in the 21st century (Moeller & Reitzes, 2011). Students will learn more when they are involved in the teaching and learning process, this happens when lecturers can create more space for students to feel comfortable in class (Hod & Katz, 2020). Lecturers who create an atmosphere for student engagement influence how students will involve themselves during the teaching and learning process (Haward, 2020).

In the digital age, higher education institutions require students to have good communication, writing, and computer skills (Lubbe & Mentz, 2006; Ninghardjanti & Yuwantiningsih, 2018), because these skills are often used by professional and nonprofessional people, and used by students to find and store information, record thoughts and ideas, communicate and solve problems. For students to achieve success in their field of study, keyboarding skills will greatly help them in completing their coursework to be more effective and efficient (Asare et al., 2020). Because keyboarding ability becomes a basic skill used in the basic operation of computers. Added by Pebriani & Oktarina (2018), keyboarding is a fundamental job and is found in all fields, be it in private organizations, government, or other organizations.

Improving keyboarding skills can help students use computers to deal with different kinds of tasks more efficiently (Ikhsananto & Sutirman, 2018). Keyboarding is a bimanual action, which requires simultaneous coordination between hand and fingers and in which the right and the left hand never interfere with each other, because they are assigned to different parts of the keyboard (Cerni et al., 2016). Keyboarding skills, as a motor skill, are defined as the ability of learners to key a piece of information into the memory of the computer with the minimum effort and energy use (Sulastri, 2014). Keyboarding skills are one of the typing skills

that is a combination of self-regulated to increase self-esteem and self-efficacy (Lubbe & Mentz, 2006). Students who have these skills can efficiently write better, get work done faster, produce neater documents, and have better motivation (Asare et al., 2020). In addition, having keyboarding skills affects several things, such as the results of the quality of the writing produced, reducing brain work, and also being able to think quickly. Particularly, this skill can reduce the time to complete a job. Keyboarding skills are one of the typing skills that is a combination of self-regulated to increase self-esteem and self-efficacy (Lubbe & Mentz, 2006). Students who have these skills can efficiently write better, get work done faster, produce neater documents, and have better motivation (Asare et al., 2020). Furthermore, having keyboarding skills affects several things, such as the results of the quality of the writing produced, reducing brain work, and also being able to think quickly. Hence this skill can reduce the time to complete a job.

Ratatype survey results present that the average speed of a person's keyboarding is 41 words per minute with an average duration of 92% with the most age distribution under 20 years. Supported by research McInerney & Green-Thompson (2019) and Okwuduba & Okigbo (2018) found that students' abilities are still very lacking because the teaching methods used by teachers make students less interested in learning to type, so students do not play an active role in learning typing skills. Added to Asare et al. (2020), teaching typing skills without practice is not effective for students, so the learning needs to use practical techniques. Findings related to students' keyboarding ability are still low, so the use of keyboarding programs or applications can improve one's typing skills.

One of the keyboarding programs that can be used is 10fastfingers. This application is a tool that has the function of training typing with blind system techniques. Some of the benefits of typing or keyboarding applications make it easy to complete writing tasks with a level of efficiency; and save time when creating reports, emails, and presentations faster (Agustiani, 2023). Additionally, the use of keyboarding apps can also improve ergonomic, efficient finger movements and unnecessary looking results and keyboard, as well as reduced fatigue in the fingers, arms, and neck (Mariskha Z. et al., 2016; Marwan & Wira Wardani, 2023). Thus, 10fastfingers can be an alternative for lecturers to train students' speed and accuracy on computers.

Armiati and Rahmidani's study found that the use of keyboarding applications and programs such as typing masters can improve one's keyboarding skills to be better in typing techniques, speed, and accuracy (Armiati & Rahmidani, 2019). Reinforced by Supriyadi et al.

(2019) and Rozi et al. (2018), the use of media in the form of keyboarding applications affects the understanding and knowledge of adolescent cadets. In agreement with Arsa Adilla and Windriyani, the use of keyboarding application programs has an influence on the accuracy and speed of students in typing (Arsa Adilla & Windriyani, 2022). Thus, the purpose of this study was to find out whether typing speed and accuracy can improve student performance. In the same way, this study also aims to find the influence of keyboarding skills through self-engagement that can affect student performance and academic achievement.

METHODS

Research Design

This study used experimental quantitative research methods. The research design uses treatment by level design (T-LD) where before the experiment it is necessary to try first so that non-experimental variables are equalized. The dependent variable is the competence of students including cognitive, affective, and psychomotor. While the independent variable is a 10fastfinger learning media and self-engagement. The research design is illustrated in the following table.

Table 1. Research Design

Group	Pre-test	Treatment	Post-test
Experiment (E)	O_1	X	O_2
Control (C)	O_1		O_2

Collecting Data

All students majoring in Business Administration at Politeknik Balekambang Jepara, namely 73 people, became the population in this study. The sample of 25 people in the experimental group and 24 people in the control group was selected using purposive sampling techniques (Arikunto, 2013). This technique was chosen for consideration, based on the two lowest pre-test average scores, namely E (experimental class) and C (control class).

For data collection, the study used tests and questionnaires. The instrument used is the self-engagement scale (SES) (Gunuc & Kuzu, 2015), which consists of 57 statement items using four Likert scales. The competency instrument was carried out by providing a typing practicum test with 10fastfinger media for the experimental class and a manual for the control class. Meanwhile, to assess student engagement using questionnaires.

Hypothesis

Keyboarding skill or 10-finger typing skills, also known as touch typing, is the ability to type using 10 fingers without looking at the keyboard (Ariawan et al., 2019). These skills are one of the basics of computer mastery, so it is very important to learn. If someone masters the skill of keyboarding, then they will work effectively and efficiently, reduce errors in typing, and the keyboard can be durable or not damaged quickly. Thus, keyboarding capabilities can improve individual performance.

Because of the importance of keyboarding skills, lecturers should strive for the use of innovative and engaging learning media for students so that they can be motivated and involved in learning activities. One of the learning media that is often used in honing keyboarding skills is 10fastfinger. The use of keyboarding applications is proven to improve student learning outcomes and accuracy in typing scripts (Marwan & Wardani, 2023). Supported by previous research, the accuracy of learning media can support educators in delivering material thoroughly so that students can understand and obtain maximum learning outcomes (Dufrene & Young, 2014; Musa et al., 2023).

In addition, the use of learning media such as the 10fastfingers application can also increase student experience and involvement in learning. In line with Isran Rasyid Karo-Karo & Rohani (2018) and Prianto (2023), the benefits of learning media are for the delivery of more interesting, efficient, and attractive material so that it can increase engagement, and quality of learning outcomes, and foster positive student attitudes towards content. Student engagement is key to keeping students connected to learning (Dixson, 2015). In general, student engagement refers to students who are actively engaged in their tasks and learning activities in keals (Lei et al., 2018). Because student involvement will affect student performance or success (Nguyen et al., 2018). Student engagement and academic performance are one of the most important things for educational institutions because institutional productivity is largely assessed by academic achievement (Ogunsakin et al., 2021). Thus, the hypothesis of this study is as follows:

H1:   Keyboarding skill affects student academic performance.

H2:   Keyboarding skill affects student engagement.

Data Analysis

The validation results for student engagement showed a value of 0.452 where the correlation value was greater than the critical value, and the reliability value was 0.96. This

means that the self-engagement questionnaire items are valid and reliable. Validation tests on practicum tests are also carried out by considering the content and construct of keyboarding practicum material. Data analysis using descriptive analysis techniques and differential analysis with the help of SPSS for Windows release 25.

RESULTS AND DISCUSSIONS

Results

Research data collection was obtained before and after the learning process. Before the learning process, data is collected to categorize and determine which classes will be control and experimental classes. Meanwhile, after the learning process, data was collected to determine whether there were differences in self-engagement and student performance in control classes and experiments.

The normality test results in the pre-test and post-test in the experimental and control classes were a = 0.896 more than 0.05, then the performance values between the experimental and control classes were normally distributed. While the output of the Levene test on the pre-test data shows a value of 0.575 more than 0.05 so the performance value in the pre-test has homogeneous data. Judging from the significance value, the post-test data is 0.682. For this reason, student performance in post-tests in experimental and control classes has homogeneous data. Because both classes have the same level of performance, the study continues.

This study used 10fastfingers media to be applied to the experimental class, while the control class used learning media as usual. This research experiment was carried out during seven meetings. At the last meeting, the students were given a practice test to see if there was an improvement in their learning performance. In more detail, student performance can be seen in Table 2.

Table 2. Descriptive statistics of students' competencies and engagement

Data		N	Range		$\bar{x}$		SD	
			Before	After	Before	After	Before	After
Cognitive	C	24	36-100	41-100	58.8	80.9	6.83	2.35
	E	25	35-81	52-100	58.5	82.6	2.00	3.85
Affective	C	24	54-85	57-86	59.7	81.2	7.17	5.19
	E	25	48-75	53-99	46.2	78.6	6.24	5.35
Psychomotor	C	24	62-84	70-100	76.0	90.5	3.37	9.43
	E	25	38-88	75-100	45.0	97.6	3.78	5.19
Self-engagement	C	24	34-100	60-100	49.7	54.7	5.27	7.86
	E	25	40-100	51-100	42.8	58.5	6.62	9.16

The findings in Table 2 show that the level of self-engagement tends to be low, and student performance during the keyboarding practicum pre-test is also low. In Table 3, the

control class and the experiment had significant differences in student engagement and performance variables. Thus, previous findings suggest that both classes share similar characteristics. The next stage is to plan learning activities for the experimental class. The activity starts before the learning process with details as follows: prepare learning design using 10fastfingers media; prepare the needs of tools during the learning process; develop assessment and collection of instrument data; and group students and conduct simulations with students selected by lecturers.

During the classroom learning process, the activities carried out by researchers include explaining the competencies to be achieved in learning; describing the model and learning media applied; grouping and organizing students in groups based on a predetermined plan; asking students to practice typing with blind system techniques using 10fastfingers media; and conclude the lectures that have been carried out and evaluate the lectures. The entire lecture process is held for seven meetings with an allocation of 100 minutes for each meeting.

Learning engagement and student performance after lecture activities can be seen in Table 2. Broadly speaking, student involvement in both classes is different. The mean result on variable student involvement in the experimental class was lower compared to the control class. The mean values in the experimental and control classes were 42.8 and 49.7. However, the final score of student involvement in the experimental class increased compared to the control class.

Effectiveness Test and Hypothesis Test

T-testing was used as a tool for effectiveness and hypothesis testing in this study. Judging from Table 2, the students' performance scores in the control class were better than those in the experimental class. For this reason, this test needs to be done to prove the difference between student performance scores in experimental and control classes through t-tests. The output of the t-test results can be seen in Table 3.

Table 3. T-test Results on Pretest and Posttest

Data		F	Sig.	t	α (2-tailed)
Students'	Pretest	0.167	0.557	1.705	0.000
performance	Posttest	0.887	0.953	2.282	0.000
Students'	Initial	6.878	0.013	5.813	0.000
engagement	Final	2.291	0.011	5.620	0.000

Table 3 presents that the significance value (2-tailed) is 0.000 less than 0.05, hence there is a significant difference from the use of 10fastfingers media on student engagement. In the

table, the post-test results also show that the experimental class scores are higher than the control class. These results mean that there is an increase in experimental and control classes. From the post-test results, the study continued to test independent samples to prove differences in student performance in the cognitive, affective, and psychomotor fields in control classes and experiments. Research findings showed that students in the control class obtained lower grades than the experimental class. For hypothesis testing, this study used paired samples t-test and independent sample t-test. The results of the hypothesis test can be seen in Table 4.

Table 4. The output of paired samples t-test

Data	Pretest-Posttest
Mean	18.90883
SD	11.01863
SE	1.46889
t	-10.127
α (2-tailed)	0.000

The value shown in Table 4 shows that 0.000 is smaller than 0.05, so the first hypothesis, there is an increase in student performance in the cognitive field when using 10fastfinger learning media, which is accepted. The average cognitive score on the pre-test in the experimental class was 58.5 and increased at the time of the post-test to 82.6. Meanwhile, in the control class, the average score increased from 58.8 to 80.9. This means that the experimental class increased by 24.1, and the control class by 22.1.

The second hypothesis testing is that there are differences from the use of 10fastfingers learning media on student performance in the psychomotor field in experimental and control classes. The second hypothesis was tested using the independent sample t-test shown in Table 5. Table 5 shows that the value of a is 0.001 < 0.05, so the second hypothesis is accepted.

Table 5. Independent samples t-test

Data	Psychomotor	
	C	E
t	5.83	5.82
MD	16.27	16.27
SE	3.72	3.20
α (2-tailed)	0.001	0.001

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Table 6. Coefficient Test Output

Information	Mean
R	0.773
R square	0.851
Adjusted R square	0.015
SE of the estimate	5.572

Next, the determination of the significance or linearity value in regression is addressed in Table 7. In the significance test, the criteria used as a benchmark is that if the significance value is lower than 0.05, then the regression equation model is significant. Judging from Table 7, the significance value is 0.001, then the value meets the criteria limit so that the regression equation model in this study is significant.

Table 7. Output significance value

Data	Mean
Mean square	20.822
F count	0.661
Sig.	0.001

Discussion

The use of learning media can generate new desires and interests, generate motivation stimulate learning activities, and even bring psychological influences on students to support the achievement of student competence. For this reason, the role of the media is very important in the learning process, because the activity presents the media as an intermediary that can improve student performance, including in introductory computer and typing courses. This course material must be studied by first-semester students because it contains basic practices such as keyboarding skills useful in operating computers these skills will be useful in supporting the work of lecture assignments to be more effective and efficient.

This study utilizes 10fastfingers media to train students' skills in keyboarding. This study found that the use of 10fastfingers learning media was able to improve student performance in both cognitive, affective, and psychomotor. This finding reinforces the results of Lusiana & Maryanti's (2020) research that the use of learning media is very important in supporting the teaching and learning process in schools because it can improve student performance. As supported by Daniels (2020), the results of obtaining student typing speed tests have increased when using typing applications. In line with the results of research by Rozi et al. (2018), the use of typing applications can increase student performance by 13.16% compared to not using

typing applications. Thus, the use of the 10fastfingers application in typing lectures provides a significant improvement in student performance. In addition, the use of software and internet networks as learning media can encourage students to be involved in the learning process because learning media can facilitate students to be involved in learning.

Student engagement is key to keeping students connected to learning (Dixson, 2015; Lin & Huang, 2018). In general, student engagement refers to students who are actively engaged in their tasks and learning activities in class (Ali & Hassan, 2018; Lei et al., 2018). Because student involvement will affect student performance or success (Dinh & Nguyen, 2022). Student engagement and academic performance are one of the most important things for educational institutions because institutional productivity is largely assessed by academic achievement (Ogunsakin et al., 2021).

Previous research found that student engagement has a significant effect on student academic achievement, where when student engagement is high, the student's academic achievement will also be high (Lei et al., 2018). One of the efforts that can be made to increase student engagement is to utilize technology as a learning medium. Thus, this study uses 10fastfingers media to increase student involvement in lecture activities. This finding shows that the use of 10fastfingers media can affect student involvement in lecture activities. In agreement with (Senior et al., 2020), there is a positive and significant influence of student involvement on student performance in the form of typing speed. The use of technology-based media makes the class more interesting and fun ((Blasco-Arcas et al., 2013; Chang et al., 2010; Hodgson et al., 2013; Stevens et al., 2017; Weigelt Marom & Weintraub, 2015).

CONCLUSION

The results and discussion of this study found that (1) 10fastfingers learning media can improve students' cognitive performance, aimed at pre-test and post-test scores in control classes and experiments where the significant value on the paired samples t-test is 0.000. (2) There is a significant difference in psychomotor performance with 10fastfingers learning media. The difference can be seen from the results of the practice value of the control class and experiments tested with independent samples t-test where the significance value is 0.001. (3) 10fastfingers learning media is proven to be effective in typing courses which can be seen from the passing average score of 75.33%. (4) The use of 10fastfingers learning media with blind systems techniques can increase student involvement in learning. Therefore, this learning media not only aims to improve student performance, but also increase student engagement

about the importance of keyboarding skills in introductory computer and typing courses. In future research, researchers can conduct deeper studies related to what affects the effectiveness of learning media.

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