



Learning Innovation in the Digital Age: Improving Digital Competence with Kodular-assisted Zapraz

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Abstract. The low digital competence of students is due to the absence of technology utilisation in the learning process. Technology-based learning media can create learning to be more effective and can attract students' interest. This study aims to produce Kodular-assisted Zapraz learning media and has been validated by material experts, media experts and small group trials and is able to improve students' digital competence. This type of research is Research and Development (RnD) research using the Borg and Gall model which was tested on Phase F MPLB students of State Vocational School 1 Banyumas, Banyumas Regency, Central Java. The product results of this study are in the form of Kodular-assisted Zapraz learning media with barcode scanning features for inventory processes, there are materials that can be accessed offline and attractive displays and have been validated by material experts, media experts who state that they are very feasible to implement. Small group and large group trials showed the results that Zapraz learning media assisted by Kodular was able to be a learning solution and could improve the digital competence of students in the Facilities and Infrastructure Element.

Keywords: Learning Media, Digital Competence, Zapraz, Kodular.

1 INTRODUCTION

Science and technology (IPTEK) is currently developing very rapidly in various fields, including one in the education sector. All forms of educational activities can be carried out easily using technology. According to [1] Nowadays, almost all learning processes carried out in schools already use technology-based media. Using technology-based media can add variety to the learning process and harmonise with current technological developments. Thus, the learning process can be delivered optimally. As part of the National Education System, Vocational High School (SMK) is an education that prioritises the development of students' abilities to become professionals and can become ready-to-use personnel in the industrial world. [2]. The ability referred to in this case is the competence of students in the use of (digital) technology. Thus, the use of technology in SMK can hone students' digital competencies to be ready to enter the world of work.

Digital competence is an ability that learners must have in the use of technology to achieve a learning goal. [3]. In this study, learners' digital competence is seen based on psychomotor learning outcomes. In learning activities, digital competence is needed by students to prepare for entering the world of work [4]. [4]. To create a learning process that can improve digital competence, teachers can use interesting learning media by utilising technology. [5], [6]. According to [7] digital-based learning media, as one of the media supported by technology, has great potential to attract students' attention and interest. With the existence of digital-based learning media, it can make it easier for teachers and make students not bored with the monotonous learning process. [8], [9]. In addition, digital learning media must be able to create a more interactive, effective and efficient learning experience, making it more interesting and easier for students to understand the material. [10], [11]. Learning media needs to be designed in a very interesting way so that it can attract students' learning interest, so that their digital competence can develop optimally [12], [13], [14], [15]. Kodular is a website that can be used to create applications with the concept of *drag and drop* programming. [16], [17]. With Kodular-assisted applications that have an attractive appearance, it will be an attraction for students so that they can increase digital competence [18], [19]. [18], [19]. Relevant research states that Kodular-assisted learning media is effectively implemented in the learning process and has the ability to improve students' abilities in the psychomotor domain. [20], [21]. The application of digital-based learning media in learning activities is effective in stimulating learner involvement in the classroom [21]. [22]. Therefore, the development of digital-based learning media can be considered an effective solution for improving students' digital competence.

Based on the results of preliminary observations conducted at State Vocational School 1 Banyumas, Banyumas Regency, Central Java in the Office Management and Business Services Department (MPLB), information was obtained that the learning process in the Facilities and Infrastructure Element was considered ineffective and inefficient because the digital competence of students was low with an average of 69 and below

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KKTP 75 with 44% of students' digital competence classified as low. In addition, learning practices are carried out manually or still using paper so that students often make mistakes such as entering item codes that do not match the item and also writing errors (*typos*). Students are also not enthusiastic in doing manual practice so that the process is slow and takes a lot of time. Whereas SMK graduates are prepared to be oriented towards the world of work, where currently the world of work already requires workers who are professional and also master technology.[23]. To deal with these problems, researchers developed digital learning media with Kodular assistance tailored to the needs of students so that the learning process can run effectively and efficiently.

Seeing the large number of *smartphone* users with the android system at State Vocational School 1 Banyumas, Banyumas Regency, Central Java, researchers developed Kodular-assisted Zapraz learning media on the Facilities and Infrastructure Element to support learning activities. With Kodular-assisted Zapraz which has an attractive appearance, it will be an attraction for students to use this learning media. In addition, learners can also hone their skills in using digital tools so as to improve learners' digital competence (*karo-karo*). To be able to create effective and efficient learning, Kodular-assisted Zapraz learning media is needed. This learning media contains features of channeling, inventorying and distributing facilities and infrastructure by *scanning barcodes* so that it can facilitate students in inventory practice. In addition, there is also material about inventory that can increase students' knowledge. This research and development only measures digital competence in the psychomotor domain of students.

It is important that this research is carried out considering some previous research conducted by [24] stated that digital-based learning media is feasible to use in the learning process to improve science and digital literacy. Other research has also been conducted by [25] stated that the application of digitalization in learning media has proven effective in increasing competency achievement during the learning process. [26] also conducted research that showed that digital-based learning media is considered effective in supporting the learning process. However, what distinguishes this research from previous research is that researchers develop learning media applications named "Zapraz". The Zapraz application is a learning media with a focus on improving students' digital skills in inventorying facilities and infrastructure. The use of this Zapraz application provides convenience to teachers and students. The learning process also becomes more varied by using an android-based digital *platform* because it is easily accessible and flexible in use. The *barcode scanning* feature for inputting facilities and infrastructure can encourage students to practice their ability to use technology. The practicum activities can be implemented to improve students' digital competence.

2 METHODS

This type of research is *Research and Development* (RnD) research using the Borg and Gall model which has been modified into nine steps to shorten time and adjust to school conditions. The orientation of this *Research and Development* research is the Kodular-assisted Zapraz Application as a Learning Media in the Facilities and Infrastructure Element at State Vocational School 1 Banyumas, Banyumas Regency, Central Java. The following is a picture of the stages of the RnD development model from Borg and Gall which has been modified by the researcher:

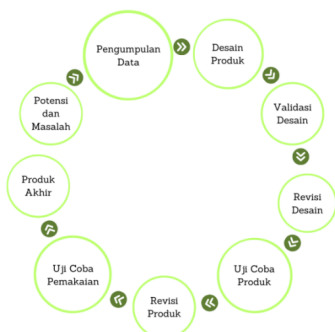


Figure 1. Stages of the Borg and Gall Model
Source: (Sugiyono, 2016) and processed by researchers

The first step taken by researchers is to carry out the potential and problem stages related to the problems that occur in schools, especially in the Facilities and Infrastructure Element. The second step, researchers conducted a data or information collection stage related to learning media that could overcome the potential and problems in the first stage. The third step, researchers conducted a product design stage to be developed in the form of learning media by looking at the potential and problems as well as data and information that had been done in the previous stage. The fourth step, the learning media developed was tested for feasibility by validators, namely media experts and material experts. In the fifth step, researchers revised the design after the product was validated. Step six, researchers conducted product trials with a small group of 6 students. Step seven, researchers revised the product after being tested on a small group to minimise the shortcomings in the learning media. Step eight, researchers conducted product trials with a large group, namely Phase F MPLB 2 to improve digital competence. The ninth step is the final product which is the final result of the planning and development stages in this study in the form of the Zapraz application.

The data generated from this research is in the form of quantitative data and qualitative data, where quantitative data is obtained from the results of

The results of this research include quantitative and qualitative data, where quantitative data is obtained from the validation assessments of learning media and seen from the difference in digital competence of students before and after research. While qualitative data is obtained from comments, criticisms and suggestions given by media experts, material experts and small groups. To listen to understanding on learning media, the data from the validation assessment of media experts, material experts and small group trials were analysed using the descriptive percentage method. While the analysis of trial research in large groups uses descriptive analysis techniques that are included in the standard assessment of students' digital competence to determine the increase in digital competence in large groups, namely Phase F MPLB 2 which uses the developed learning media. Digital competence in this study uses an assessment of psychomotor learning outcomes with an assessment rubric in Table 1. as follows:

Table 1. Psychomotor Assessment Rubric

No.	Assessment Component
1.	Work Preparation <ul style="list-style-type: none"> a. Joining the lesson on time b. Prepare yourself by paying attention to directions c. Switch on the smartphone
2.	Process (Systematic and Working Method) <ul style="list-style-type: none"> a. Open the downloaded application on the smartphone b. Register to create an account on the application c. Listen to the directions given regarding the use of the application
3.	Work Result <ul style="list-style-type: none"> a. Practise the steps to inventory the Zapraz application b. Submit an assignment report
4.	Work Attitude <ul style="list-style-type: none"> a. Students' accuracy in the process of inventorying facilities and infrastructure in the Zapraz application b. Independence in operating the Zapraz application

Source: [27] and modified by the researcher

3 RESULTS AND DISCUSSION

3.1 Results

The product produced from this research and development is Kodular-assisted Zapraz learning media on Facilities and Infrastructure Elements. Zapraz is a digital facilities and infrastructure inventory application used to support practical activities in the Facilities and Infrastructure Element learning process. This product can be accessed through an android smartphone *online* by downloading the application via the following *link* <https://11nk.dev/AplikasiZapraz>. Learners can not only use Zapraz to inventory facilities and infrastructure, but learners can also distribute facilities and infrastructure and can access materials regarding distribution, inventory, and operation of facilities and infrastructure. Zapraz learning media has an attractive appearance and several features that can facilitate students in conducting inventory. This application displays the main page that users can access as in Figure 2, below:

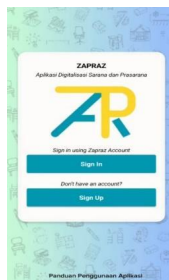


Figure 2. Homepage display

Figure 2. is a Homepage display on Kodular-assisted Zapraz learning media. The media display has a "Sign In", "Sign Up" and "Application Usage Guidelines" menu which is the first step for students to enter the Zapraz application. After successfully entering, students will be presented with several menus such as "Distribution of Facilities and Infrastructure", "Inventory of Facilities and Infrastructure" and "Material". Learners can download the *barcode* of each item in the "Distribution" section so that they can carry out the inventory process. The menu display in the inventory section with a barcode scan can be seen in Figure 3 below:

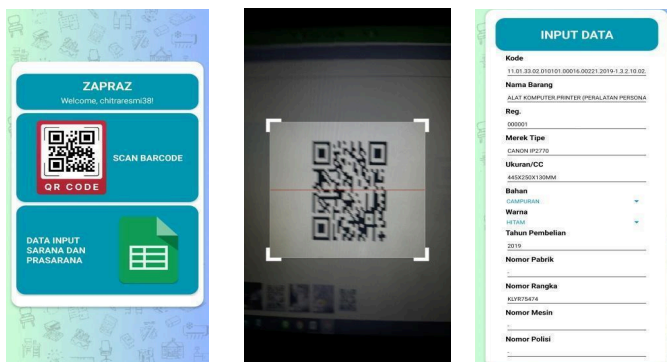


Figure 3. Display of the Facilities and Infrastructure Inventory Menu

Figure 3 is a display in the Inventory of Facilities and Infrastructure menu which consists of a *barcode scan* that is used to automatically input information on facilities and infrastructure which will later enter the Facilities and Infrastructure Input Data. Students can also fill in facilities and infrastructure data manually by replacing the latest facilities and infrastructure data information according to the situation. In addition, the Kodular-assisted

Zapraz learning media also provides a "Material" menu that can be accessed by students offline. The display of the "Material" menu is presented in Figure 4 below:

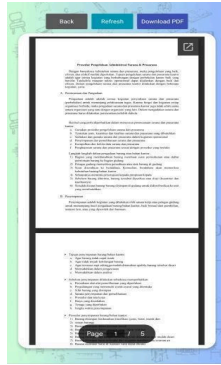


Figure 4. Material Menu Display

The learning media products that have been produced by researchers contain material in accordance with the Merdeka Curriculum and the learning outcomes presented in element 9 regarding the management of facilities and infrastructure in the Kodular-assisted Zapraz learning media, namely distributing, inventorying and operating facilities and infrastructure. The learning materials presented are also in the form of material explanations and learning videos that collaborate with the *YouTube* learning platform so that they can attract students' interest in the learning process. Learning videos can be accessed by pressing the *link* in the material document that has been *downloaded* by students.

The Kodular-assisted Zapraz learning media that has been developed by researchers is then tested based on the results of validation from material experts and media experts and then analysed using descriptive methods. This learning media product was also tested on small group users totalling 6 students with the criteria of 2 students with high ability, 2 students with medium ability and 2 students with low ability. The results of the Zapraz Application validation by media experts and material experts as well as the overall small group trial are presented in the following tables:

Table 2. Material Expert Validation Results

No.	Aspect	Percentage	Criteria
1.	Usability	96%	Very feasible
2.	Presentation of Material	88%	Very Decent
Average		92%	Very Decent

Source: Data processed by researchers (2024)

Based on the analysis from Table 2, Zapraz learning media products assisted by Kodular have been validated by material experts with the results showing very feasible criteria because they have fulfilled several aspects, namely the usefulness and presentation of material. The indicators of the usability aspect include suitability for SCPL; learning activities with the help of products can improve digital competence; products provide students to practice independently; products are easily accessible; and products support learning activities. While the indicators in the aspect of material presentation include the suitability of the material; the suitability of the material sequence; the suitability of the product with elements; the effectiveness of language use; and the accuracy of the language in the product. Material experts conveyed criticism and suggestions that there should be a learning video about the use of facilities and infrastructure in the material presented. Thus it can be concluded that the material available in Kodular-assisted Zapraz learning media products is included in the criteria very feasible to be implemented in the Facilities and Infrastructure Element to improve students' digital competencies.

Table 3. Media Expert Validation Results

No.	Aspect	Percentage	Criteria
1.	Ease of	95%	Very feasible
2.	Presentation	93,3%	Very Decent
Average		94,15%	Very Decent

Source: Data processed by researchers (2024)

Based on the analysis of Table 3. Kodular-assisted Zapraz learning media products have received validation from media experts with the results showing very feasible criteria for use in learning activities because they have fulfilled two aspects, namely aspects of convenience and presentation. Indicators from the convenience aspect include ease of login; ease of selecting the presentation menu; ease of operation; and ease of inputting data. While indicators from the presentation aspect include the suitability of writing; suitability of colours and fonts; suitability of images; suitability of background and text colours; accuracy of menu arrangement; and clarity of the flow of application use. Based on criticisms and suggestions from media experts to optimise the visual *design* and add media utilisation guidelines to the application so that it can attract students to use Kodular-assisted Zapraz learning media.

Furthermore, Kodular-assisted Zapraz learning media products that have been developed by researchers have also conducted product trials to small group users by obtaining very feasible statements based on two aspects, namely convenience and usefulness. Students in the small group trial responded that this learning media was new to them so that it could add experience and insight in learning and could increase interest in learning activities. In addition, teachers also responded that the existence of Kodular-assisted Zapraz learning media made learning in the classroom more effective and efficient because it met the needs of students in learning activities. So that learning activities in the classroom will seem more interesting and not monotonous for teachers and students.

Based on the responses from validators and small group trials, it shows a high level of agreement with the questions addressed in the questionnaire. This can be seen from the rating scale chosen in the questionnaire, so it can be concluded that the Kodular-assisted Zapraz learning media product is feasible and valid to be applied in learning activities for Facilities and Infrastructure Elements at State Vocational School 1 Banyumas, Banyumas Regency, Central Java. The results of validation from material experts, media experts and small group trials that have been carried out show that Zapraz learning media assisted by Kodular is feasible and valid so that it can improve the digital competence of students (ayu, faqih).

In this study, researchers used a *pre-test* and *post test* research design. Where in this *design* the researcher takes measurements at the beginning of the study without using a product trial, then the product trial is carried out again using the product produced. [28]. Researchers used the learning media in the *post-test* group in the practicum activities of distributing and inventorying facilities and infrastructure in the Facilities and Infrastructure Element and the *pre-test* group as a comparison without using Kodular-assisted Zapraz learning media. Practicum itself is a learning activity that can add to the learning experience of students such as being able to interact with objects around them. [29]With the existence of practicum activities in learning activities, it can train students' abilities, especially in the psychomotor domain. [30].

Kodular-assisted Zapraz learning media is a learning media that has the potential to improve students' digital competence in learning activities. The following is the percentage result of students' digital competence through questionnaire assessment from observers presented in Figure 5 below:

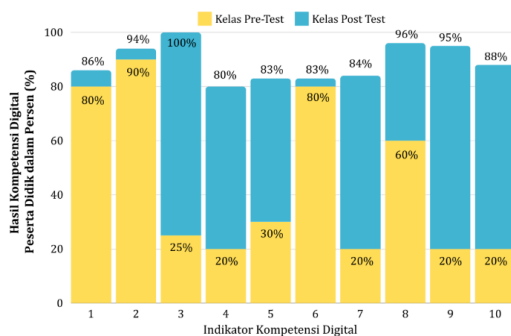


Figure 5. Average Results of Learners' Digital Competence

Source: Data processed by researchers (2024)

Table 4. Digital Competency Indicators

No.	Assessed Aspect
1.	Attend the lesson on time
2.	Prepares himself/herself and pays attention to directions

No.	Assessed Aspect
3.	Switching on the <i>smartphone</i>
4.	Open the downloaded application
5.	Creating an account on the application
6.	Listening to the directions given
7.	Practise the steps by using the application
8.	Submitting a task report
9.	Thoroughness in practical activities
10.	Independence in operating the application

Source: Nafiati (2021) and Data processed by researchers (2024)

Based on Figure 5, it can be seen that the average digital competency results of students in the *post-test* class are higher by 44.4% than the *pre-test* class. The average digital competency results of the *pre-test* class were 44.5% with a sufficient category. While the average digital competency results of the *post-test* class were 88.9% with a very high category. The average results of students' digital competence are obtained from the following formula:

$$P = \frac{\sum x}{\sum x_i} \times 100\%$$

P = percentage

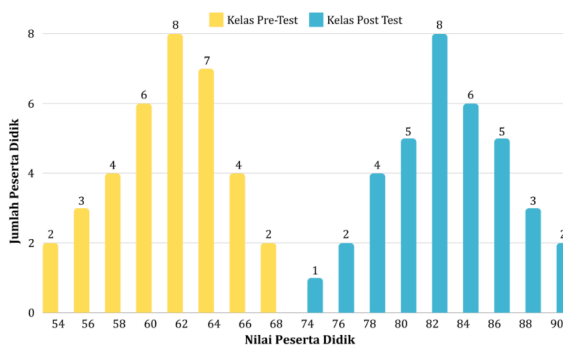
$\sum x$ = number of answer scores

$\sum x_i$ = total score of the highest answer

100% = constant

Based on the data analysis results, it can occur because students feel more interested and enthusiastic in using Kodular-assisted Zapraz learning media on the Facilities and Infrastructure Element. This is in line with previous research which states that digital learning media is proven to be effective in learning activities. [25]. [31] also stated that digitalisation of learning media is proven to strengthen competency achievement in learning activities. The effectiveness of using Kodular-assisted Zapraz learning media can be seen through the results of the calculation of the average value of digital competence in *pre-test* and *post-test* class students. The value of digital competence is presented in Figure 6 below:

Figure 6. Students' Digital Competency Score



Source: Data processed by researchers (2024)

Figure 6 above shows the value of students' digital competence between the *pre-test* and *post test* classes which is used as an indicator of measuring the effectiveness of using Kodular-assisted Zapraz learning media. The average value of students' digital competence in the *post test* class is higher than the *pre-test* class, namely with an average *post test* class of 82.5 while the *pre-test* class is 61.5. So it can be concluded that Zapraz learning media assisted by Kodular is able to improve students' digital competence.

Furthermore, to determine the difference in digital competence of students in the *pre-test* class and *post-test* class, it was analysed using the normality test and *independent sample t-tests*. The results of the normality test of students' digital competence scores in the *pre-test* and *post test* classes are presented in Table 5 as follows:

Table 5. Kolmogorov-Smirnov Normality Test^a

Digital Competency	Class	Statistic	Df	Sig.
Results	<i>Pre-test</i> Class	0,145	36	0,053
	<i>Post-test</i> Class	0,126	36	0,161

Source: Data processed by researchers (2024)

Based on Table 3, the Kolmogorov-Smirnov normality test shows that the data on students' digital competence is normally distributed. This can be seen from the significance value of the *pre-test* class and *post test* class with a Sig. 0.05. So it can be concluded that the digital competence of students in the *pre-test* class and *post test* class is normally distributed. Then, the data on students' digital competence that has been normally distributed is analysed with the *independent sample t-test* test. The *independent sample t-test* test is presented in Table 6 as follows:

Table 6 Independent Sample t-Test Test

Digital Competence		T	df	Sig. (2-Tailed)
Results	Equal variances assumed	-45,126	70	0,000
	Equal variances not assumed	-45,126	69,999	0,000

Source: Data processed by researchers (2024)

Based on Table 4 above, the results of data analysis of students' digital competence show that the *independent sample t-test* shows the Sig value. α (2-Tailed) ≤ 0.05 , then H is rejected and H is accepted. This indicates that there is a significant difference in students' digital competence between the *pre-test* class and the *post-test* class. The use of Zapraz learning media assisted by Kodular is able to significantly improve the digital competence of students in Phase F Facilities and Infrastructure Elements of Business Service Office Management at State Vocational School 1 Banyumas, Banyumas Regency, Central Java.

3.2 Discussion

This research and development produces a learning media product Zapraz assisted by Kodular to be used in Phase F learning activities of Office Management and Business Services at State Vocational School 1 Banyumas. This learning media focuses on the Facilities and Infrastructure Element, especially on the learning objectives of channeling and inventorying facilities and infrastructure. Zapraz learning media assisted by Kodular is a digital learning media used as a means to support learning activities with various interesting features and materials that can increase the enthusiasm of students. [5], [32], [33]. This learning media is also designed with attractive colour compositions and icons so that students are interested in using this learning media. [34], [35]. Kodular-assisted Zapraz learning media can be accessed using a *smartphone* with an android system. Kodular-assisted Zapraz learning media is a facilities and infrastructure inventory application with various features such as distribution of facilities and infrastructure and learning materials coupled with learning videos. The features in this Zapraz application can increase effectiveness and be more efficient when used in the learning process, such as *barcode scanning* and distribution features that make it easier for students to input facilities and infrastructure inventory data. In addition, these features can also save time in learning practices, compared to manual practices that use paper. The Kodular-assisted Zapraz application is also effective in the learning process because students become more focused and thorough when doing digital-based practices. The design of this application is also made with bright colours so that it can attract students' interest in using it. Meanwhile, other features of this application such as material are also useful for students to increase knowledge and can be accessed anywhere and anytime. This application-based learning media has the advantage of being able to make learning more effective and efficient and can make the learning process interactive. [36], [37], [38], [39], [40] In addition, application-based learning media can also make it easier for teachers to deliver learning

materials, and can train students to be able to keep up with the times that are all digital. [6], [41]. With application-based learning, the learning process becomes more accessible or flexible. [42], [43], [44], [45]. Application-based learning media can also increase students' experience in learning and can be used as material for independent learning so that it can add insight and train students' abilities outside of learning hours. [8], [46].

Kodular-assisted Zapraz learning media developed by researchers have gone through material expert validation, media experts and small group trials. Validation from material experts and media experts is carried out to assess the suitability of the product being developed before it is applied to students. Material expert validation has been carried out by the teacher of Office Management Facilities and Infrastructure Elements and Business Services at State Vocational School 1 Banyumas, Banyumas Regency, Central Java. This was done to determine the feasibility of the material presented in Kodular-assisted Zapraz learning media. Based on the validation that has been carried out by material experts, it states that the material presented in the Zapraz learning media assisted by Kodular is very feasible to be applied in learning activities. Media expert validation was conducted by one of the lecturers from the Faculty of Education, State University of Malang. Based on the assessment conducted by media experts, it is stated that the Zapraz learning media assisted by Kodular developed is very feasible and valid for use in learning activities. The validation results from material experts and media experts have stated that Zapraz learning media is very feasible to be applied in learning activities, after going through revisions from criticisms and suggestions from material experts and media experts. The revision is useful for improving the quality of learning media to be better than before. After product revision, the next step is that the product is tested on a small group consisting of 6 students with the criteria of 2 low-ability students, 2 students with medium ability and 2 students with high ability. The results of the small group trial stated that this Kodular-assisted Zapraz learning media was very feasible to be applied to support the learning process. This is proven because this learning media has fulfilled the indicators of assessment by small groups, namely the ease and usefulness of learning media. Based on small group trials, it can be concluded that Kodular-assisted Zapraz learning media is very feasible and very valid for use in learning activities. The feasibility of application-based learning media such as learning media developed by researchers has also been carried out in previous studies which state that the results of the validation resulted in high feasibility. [18], [19], [47].

Based on the results of the calculation of students' digital competence, the highest average percentage is found in the indicator of turning on the *smartphone* and sending task reports in the *post-test* class because students use *smartphones* in their learning activities so that they are more interested and enthusiastic in participating in learning. [48]. This affects the speed and accuracy carried out in the learning practice to be more effective and efficient. [48], [49]. A significant difference in the results of digital competence between the *pre-test* and *post-test* classes can be seen in the indicators of accuracy and independence in the learning process, which indicates that students are more thorough in inventory practice activities and more independent when using Kodular-assisted Zapraz learning media. This happened because in manual practice activities (using paper) made students in the *pre-test* class more often make writing errors in data entry. In addition, learners also felt discouraged and uninterested in participating in practical activities due to monotonous learning. In contrast to the *pre-test* class, students in the *post-test* class felt interested in digital inventory practice activities because the use of digital-based learning media was new to students. Learners can explore and understand the material with technology that makes them more independent in learning practice activities. [50]. Based on the results of significant differences in indicators, it is in accordance with behaviouristic learning theory which states that the learning process can shape the behaviour of students, both positive and negative behaviour. Changes in behaviour are in the form of abilities in the form of changes in behaviour in a new way as a result of stimulus and response [51]. [51]. By using Kodular-assisted Zapraz learning media as a stimulus in the learning process, students are actively involved in learning practice activities that can stimulate student behaviour to be more focused, thorough and independent as a response to the use of learning media. Assessment of students' digital competence is carried out through a questionnaire filled out by the observer. The observer questionnaire is used to provide a value for the digital competence of students during learning activities. There are 10 indicators that are used as benchmarks or references in assessing students' digital competence, including 1) attending learning on time; 2) preparing and paying attention to directions; 3) turning on the *smartphone*; 4) opening the downloaded application; 5) creating an account on the application; 6) listening to the directions delivered; 7) practicing steps using the application; 8) submitting assignment reports; 9) thoroughness in practical activities; 10) independence in operating the application. [27]. The results of the digital competence of *post-test* class students have a higher percentage than the *pre-test* class. Thus, it can be concluded that Zapraz learning media assisted by Kodular effectively improves the digital competence of Phase F Office Management and Business Services 2 students at State Vocational School 1 Banyumas, Banyumas Regency, Central Java.

4 CONCLUSIONS

The research and development conducted by this researcher produced Zapraz learning media with the help of Kodular on the Facilities and Infrastructure Element of Phase F Office Management and Business Services, especially in the learning objectives of distributing and inventorying facilities and infrastructure at State Vocational School 1 Banyumas. Zapraz learning media assisted by Kodular is an android application-based learning media used to facilitate inventory practices that are able to provide new learning experiences to be more interesting, effective and efficient. Zapraz learning media has been declared "Very Valid" and very feasible to use in learning activities. Facilities and infrastructure through validation by media experts and material experts as well as assessments in small group trials. In addition, this Kodular-assisted Zapraz learning media is also proven to be effective in improving digital competence in learning activities on Facilities and Infrastructure Elements. This has been proven in the large group trial which has been analysed based on percentages. Zapraz learning media assisted by Kodular can be used to train students' ability to use digital tools, so that they can improve their digital competence to prepare themselves to enter the digital world of work.

Based on the research findings that have been conducted, researchers recommend that teachers always use technology-based learning media in the learning process. This can support students' ability to use technology which can be useful for entering the world of work. In addition, technology-assisted learning also makes students more excited and more interested in participating in learning so that their digital competence can increase. This Kodular-assisted Zapraz learning media only focuses on the learning objectives of distribution and inventory of Facilities and Infrastructure and also its use is limited to internet availability. In addition, the use of this application is also only intended for *smartphone* users with the Android system *online*. Therefore, researchers provide suggestions to future researchers to develop media that provide *offline* application access. In addition, it is hoped that future researchers can also develop learning media on all learning objectives in the Facilities and Infrastructure Element and can be developed using the Android or IOS operating system. This needs to be done to reduce the possibility of internet constraints and considering that currently students do not only use android *smartphones*.

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