

P-Cash App Based on Microsoft Office Access to Improve Learning Outcomes of Vocational High School Students

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ABSTRACT

The development of the world of work in the current era of computerization is developing so fast, that in office activities begin to apply technology to its work activities. So that vocational students who are prepared to enter the workforce must also follow this development. This study aims to produce a P-Cash App based on Microsoft Office Access on learning material for managing petty cash funds. P-Cash App is an alternative learning by utilizing technology development to achieve learning objectives. In the development of this P-Cash App, research and development (R&D) is carried out using the Borg & Gall model. These steps include Potential and Problems, Data Collection, Product Design, Design Validation, Design Revision, Product Trial, Product Revision, Usage Trial, Product Revision, and Final Product. Based on the results of the validation of the material experts, media experts, as well as small group trials shows that the learning media application manager for cash fund based on microsoft office access is very feasible to use in the learning process. This product is effectively used in learning based on the results of the posttest in the experimental class which shows a higher score when compared to the control class. Therefore, teachers of subjects in Automation and Financial Governance are advised to use this media as an alternative support for learning.

Keywords: p-cash app, microsoft office access, learning outcomes, vocational school

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INTRODUCTION

The development of information technology in recent years has changed the way of life, work, socializing and learning. That is because the use of technology offers many conveniences in it [1]. Education in Indonesia is currently starting to encourage efforts to renew and use technology in the learning process [2]. This can be seen from several research developments over the past five years [3]–[6]. Amazingly, technology-related development research in 2020 has also been carried out [7]–[9]. Technology is becoming increasingly prevalent in the world of education, so there will be hope for educators to utilize digital tools to support teaching and learning activities in the classroom [10], [11].

Media is an intermediary or means used to convey messages or information [12]. If the media conveys information related to learning material, then the media is called learning media [13]–[15]. The learning process in schools will be easier to understand if supported by learning media that is suitable for the objectives to be achieved [16]. Learning media are all things related to software and hardware that can be used to convey the contents of material from learning resources to students [17]. The use of instructional media is an important component that can motivate a learning atmosphere to be more effective and conducive [18], [19] and to improve student learning outcomes [20], [21]. For this reason it is necessary for a teacher to provide and develop a variety of learning media that are easy to learn by students [22]–[25].

Through the development of this P-Cash App, students can learn flexibly without being limited by specific time and space. The P-Cash App is packaged attractively with several petty cash fund learning

features such as transaction added features, transaction evidence, and various forms of petty cash fund reports. The P-Cash App also comes with a usage guide on the front page of the application, so students can practice on their own without waiting for an explanation from the teacher. In addition, the P-Cash App also features a login feature to enter a username and password so that it is more secure.

Microsoft office access is a database management program that is part of the Microsoft Office package, which makes it possible to manage a set of data that is arranged in a fixed structure [26]. Microsoft office access is a database management program that is widely used today, because its features are free and provide convenience in processing various types of data in various types of objects [27]. The structure of Microsoft Access makes information easy to choose, sort, display and print in various formats. So that Microsoft Office Access is widely used to develop an application [28]–[30].

Learning to manage petty cash funds in vocational schools in the Competency of Automation and Office Governance is still emphasizing the conventional practice of using paper sheets. Meanwhile, developments in the world of work in the era of computerization developed so rapidly that office activities began to apply technology to their work activities. Therefore, vocational students who are prepared to enter the workforce must also follow this development. Responding to this, the government also changed the learning program towards automation, one of which was to change the name of the introduction of financial administration to automation of financial governance, in which there were basic competencies that needed to be mastered,

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namely, implementing the operation of petty cash fund applications.

This research is very important to be carried out considering the number of Vocational Schools with the Competency of Office Automation and Governance (OTKP) in Indonesia currently totals 2,038, with 128,343 students [31], so the development of learning media applications for petty cash fund managers is certainly very much awaited. That is because the material that implements the operation of the petty cash fund application is a basic competency that is still new, so many schools do not yet have the application. One of them is in SMK Negeri 1 Boyolangu Tulungagung. In this regard, the researchers developed learning media P-Cash App (Petty Cash Application) based on Microsoft Office Access to improve student learning outcomes. This application can be used as a simulation medium or student practice in managing petty cash funds using technology-based imprest systems. So that in the future students have the ability to manage petty cash funds where they work.

Definition of P-Cash App

In order to support this 4.0 revolution era, teachers are expected to be able to apply technology to the learning process. One of them is using the P-Cash App which stands for petty cash application or petty cash fund application. The application was developed as a medium for vocational student learning on the subject of automation and financial management. Learning using the application not only presents material from the cognitive and psychomotor side, but more about how to encourage students in fun learning activities and make students as the main agents in the learning process.

Method

The method used in this research is the Research and Development (R&D) method. R&D methods in education are the processes used to develop and validate educational products. The steps of this process are usually referred to as the R&D cycle which consists of several steps namely, (1) studying the findings of previous research relating to the product to be developed, (2) developing a product based on these findings, (3) testing the product in the place where the product will be used later, and (4) revising it to correct deficiencies found in the testing phase [32].

In developing this P-Cash App learning innovation, researchers used the Borg & Gall model which consisted of ten steps. This model was chosen because it is considered by researchers as an appropriate development model. Researchers can modify the research steps according to the needs of researchers. The decisive stage in this development is the process of collecting data as study material from the P-Cash App system. Data collection is the most important stage because in order to get accurate data from several individuals and schools concerned. The stages of development are as follows:

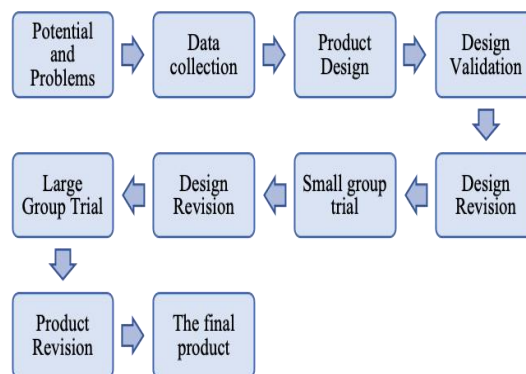


Figure 1. Stages of research and development

Figure 1 explains the various stages of developing a P-Cash App based on Microsoft Office Access. The first step is knowing and determining potential and problems. To determine the potential and problems, interviews were conducted with the office automation and governance teacher and conducted a direct review of the school concerned. The second step is data collection. Researchers do two ways in collecting data, namely interviews with students and teachers and carry out observation. The third step is product design. This activity is carried out to develop a P-Cash App framework that will be used. P-Cash App is designed using Microsoft Office Access. The fourth step is design validation. Validation was carried out by 4 validators, consisting of 2 media experts and 2 material experts.

The fifth step is the design revision. Based on the results of the validation from the previous stage, we can know the weaknesses of the product being developed. Researchers can find out information on the parts that need to be revised through the results of a questionnaire that has been filled out by media experts and material experts. The sixth step is small group testing. This stage is carried out on 12 students of class XII Office Automation and Governance 1 and class XII Office Automation and Governance 2. From each class, 2 students with high ability, 2 students with medium ability, and 2 low-ability students chosen as the examiners of this P-cash App product. The seventh step is product revision. After testing the product, a conclusion can be drawn whether the product is suitable for use or not suitable for use referring to the eligibility criteria

The eighth step is a large group trial. After testing the product successfully, the next step is to apply the product in real conditions with a broader scope. However, it is still being assessed whether there are deficiencies or not on the product. This is done aiming to improve the product to perfection. The ninth step is product revision. Product revision is carried out if in the use of real conditions there are still shortcomings and weaknesses. The tenth step is the final production after perfecting the media through a revision of the trial run, then the learning media P-Cash App based on Microsoft Office Access that has been tested for validity and is really feasible is applied to all students who majored in Competency (Expertise) Automation and Office Management.

Results and Discussion Typestyle and Fonts

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The result of this research and development is a learning media based on Microsoft Office Access P-Cash App. This application is used in the Financial Management Automation lesson, especially in Basic Competencies in Applying the Operation of the Petty Cash Fund Application. This application is used as a simulation or medium of student practice on the basic competencies of applying the operation of the petty cash fund application. This application is packaged in a CD (Compact Disk) and is provided with a manual and practice questions for student practice. It aims to increase student activity and student learning outcomes at the same time [33]. The use of instructional media for petty cash fund management applications has several benefits, including (1) to improve student competency [34], (2) improve students' ability to operate computers [35], and (3) gives students the opportunity to learn independently with their own pace, time, and place [36].

A product must be validated by experts before the test phase is carried out on the development results. In this case, validation was carried out by two material experts and two media experts. Both provide input and evaluation on the product to be developed so that it can be used as a revision and improvement of the results of the development of this learning innovation. Material expert validation consisted of 2 validators, the first validator was Lecturer in Office Administration Education, Ms. Raisa Fiti, S.AB., M.M and the second validator was the teacher of Office Management Automation, Ms. Rindang Rejeki, S.Pd. The validation results show that the application of a small cash fund manager based on Microsoft Office Access is appropriate for use in the learning process. This is based on filling in the validation questionnaire from the material experts and looking at the assessment criteria guidelines. The results show that the application is in accordance with competency standards, learning materials, learning objectives and easy to operate, so this application can support the learning process.

Media experts also consisted of 2 validators, the first validator was lecturer in Office Administration Education Management Department of Malang State University, Mr. Andi Basuki S.Pd., M.Pd and the second validator was teacher Competency in Computer and Network Technology Expertise at SMK Negeri 1 Boyolangu, Ibu Endang Ary Handayani, ST. The results of the validation conducted by media experts also indicate that the application of a petty cash fund manager based on Microsoft Office Access is appropriate for use in the learning process. This is based on filling in the validation questionnaire from media experts and looking at the assessment criteria guidelines. The results show that based on three aspects of assessment namely (1) aspects of convenience, (2) writing and (3) aspects of appearance, the average validation of media experts filled it with decent criteria.

In addition to validation by experts, the P-Cash App was also tested on a small group of 12 students from Class XII Office Automation and Governance. The students were asked to provide an assessment of the aspects of ease of use, attractive design, visual communication and the usefulness of the media. Data validation results by material experts, media experts and small group trials are presented in table 1 as follows:

Table 1. Validation Data

No	Validator	Percentage	Eligibility Criteria
1.	Material Experts	97,85%	Eligible
2.	Media Experts	95,29%	Eligible
3.	Students	94,44%	Eligible
	Average	95,86%	Eligible

Based on table 1, the percentage of data validated by material experts, media experts and small group trials is included in the eligible criteria. Thus, it can be concluded that the P-Cash App is suitable for use as a learning medium that can support learning activities in the classroom. The application was declared feasible because after going through the feasibility test stage, this application gets an average eligibility percentage of 95%. [37]. Media that is otherwise feasible can be used in the learning process thereby increasing the experience and abilities of students [38]- [40].

Based on the results of the validation, it can be concluded that there are several advantages of learning media P-Cash App based on Microsoft Office Access, including: the results of reports generated from this application are more accurate, so the process becomes faster [41]. This application also has another advantage that data from this application cannot be easily duplicated because the P-Cash App is equipped with a username and password [42].

P-Cash App Completion

Based on the suggestions in the validation phase of the experts, small and large group trials, an improvement was made to the P-Cash App. One of them is by adding account names to the petty cash report and changing the format of the petty cash report in accordance with the latest report format. The researcher also added the logo of Malang State University which will become the identity of this learning innovation development product. The logo is placed on the front page of the application, which has a simple but meaningful appearance. Here are some pictures of the final product of the product that has been developed.



Figure 3. Initial Display of Learning Media

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Before entering the main menu, users are advised to read the instructions first. Then, just click the sign in button to enter the homepage of the application.



Figure 4. Home Display of Learning Media

This application homepage contains 4 menus, namely, (1) Menu, used to enter the main menu; (2) Edit Officer, to change officer name, username and password; (3) Agency Management Menu, to fill in the identity of the agency concerned and (4) About the Application, which contains developer information.



Table 2. Normality Test Results of Learning Outcomes

	Tests of Normality			
	Class	Kolmogorov-Smirnova		
		Statistic	Df	Sig.
Learning Outcomes	Pre-Test of Experimental class	.118	32	.200*
	Post-Test of Experimental class	.129	32	.195
	Pre-Test of Control class	.121	34	.200*
	Post-Test of Control class	.135	34	.120

Source: SPSS 16 (2019)

The results of the Kolmogorov-smirnov normality test showed that the pretest-posttest score of the experimental class and the pretest-posttest score of the control class had a significance value > 0.05. From these values it can be concluded that the results of the pretest and posttest questions are normally distributed.

If the research data is normally distributed, the next step is to conduct an independent sample t test, to

Figure 5. The Main Menu Display of Learning Media

On the main menu, there are several other menus, including (1) 'Add Transaction' Menu, used to record all cash receipts and disbursement transactions; (2) 'Transaction Management' menu, used to view and correct transaction contents if there is an error in inputting and to make a petty cash fund application form; (3) 'Current Balance' menu, used to find out the amount of available balance; (4) The 'Petty Cash Receipts' menu is used to record and print receipts of Petty Cash; (5) 'Evidence of Petty Cash Expenditures' menu, used to record and print proof of petty cash expenditures; (6) 'Recap expense' menu, used to find out all expenditure transactions; (7) 'Receipt Recap' menu, is a menu used to find out all receiving transactions; (8) The 'Petty Cash Book Report' menu is used to find out all revenue and expenditure transactions; (9) Menu 'Petty Cash Report Per Period' is used to find out the transactions carried out according to a certain period; and (10) 'Small Cash Reports Per Account' menu, used to find out the types of transactions made according to the available accounts.

P-Cash App Completion

To measure student learning outcomes using P-Cash App based on Microsoft Office Access with students who do not use the application, the researcher provides a test in the form of practice questions in 2 classes namely in Class XII Office Automation and Governance 1 as an experimental class (using P- Cash App) and Class XII Office Automation and Governance 2 (not using the P-Cash App). Student learning outcomes are then processed with SPSS version 16. The first step to determine differences in student learning outcomes in the experimental class and the control class is to test the normality of research data. The normality test in this study was carried out using the Kolmogrov-Smirnov test. The normality test results can be seen in table 2 below:

test the difference in the results of the posttest scores from the experimental class (the class that uses media) and the results of the posttest value of the control class (the class that does not use media). Table 3 below, shows the results of the independent sample t test of the experimental class posttest and the control class posttest.

Table 3. Independent Sample test results

		Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
Learning Outcomes	Equal variances assumed	.252	.617	4.845	64	.000	5.344	1.103	3.141	7.547	
	Equal variances not assumed			4.862	63.848	.000	5.344	1.099	3.148	7.540	

Source: SPSS 16 (2019)

Before conducting the independent sample t test, it is necessary to test the similarity of the variance between the experimental class and the control class. So that is used a formula on Sig. Levene's Test for Equality of Variance as follows:

- If the significance value (sig) > 0.05, then H₀ is accepted and H_a is rejected, which means that the variance is assumed to be the same.
- If the significance value (sig) < 0.05, then H₀ is rejected and H_a is accepted, which means that the variance is assumed to be unequal.

Based on the above output, Sig. Levene's Test for Equality of Variance is 0.617 > 0.05, then H₀ is accepted and H_a is rejected, which means that the data variance between the experimental class and the control class is homogeneous or equal. So that the interpretation of table 3 about the independent

output Sample t test, is guided by the value of the equal variances assumed in table 3 above.

Based on table 3, the independent output Sample t test in the Equal variances assumed section is known as sig. (2-tailed) of 0,000 < 0.05, then as the basis for decision making in the independent sample t test, it can be concluded that H₀ is rejected and H_a is accepted. Thus it can be concluded that there are significant (real) differences between the average student learning outcomes in the posttest of the experimental class and the posttest of the control class.

The difference in the results of the average value between the experimental class and the control class can be seen in Table 4, which shows descriptive statistical data of the experimental class and the control class.

Table 4. Descriptive Statistics Results

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Test of Experimental class	32	76	92	83.16	3.861
Post-Test of Experimental class	32	82	98	91.34	4.217
Pre-Test of Control class	34	75	94	83.00	5.033
Post-Test of Control class	34	77	95	86.00	4.710
Valid N (listwise)	32				

Source: SPSS 16 (2019)

Based on table 4, the average value of learning outcomes or the mean for the experimental class posttest was 91.34, while for the control class posttest was 86.00. With the difference in the average of 5.34, then statistically descriptive it can be

concluded that there are differences in the average learning outcomes between the experimental class and the control class. These results are also explained in Figure 2 below.

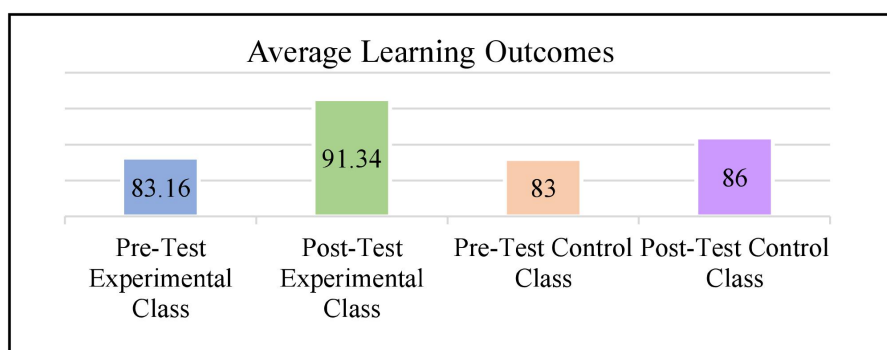


Figure 2. Differences in Learning Outcomes of Experimental and Control Classes

The difference in student learning outcomes using the P-Cash App and students who do not use the application is because when taught using learning media, students are more interested and motivated to learn [46]. In addition, the use of P-Cash App based on Microsoft Office Access makes it easier for students to work on petty cash fund transactions because the reports will be made automatically, so that the processing process becomes faster and more accurate. [47]. control class, students must create a report column and transaction evidence manually which results in the execution of a petty cash fund report taking a long time. So, it can be concluded that the use of P-Cash App based on Microsoft Office Access can improve student learning outcomes on the basic competencies of implementing the operation of the petty cash fund application in the subject of financial governance automation.

Based on this description, we can know that the use of instructional media is a very important factor to improve student learning outcomes in the learning process, because learning media is one of the very supportive tools in the development of knowledge possessed by someone, especially in the learning process at school. So, the school should pay attention and provide a complete educational media, so that the learning process in the class can run effectively, this is because students are more motivated to learn if the lesson is explained and accompanied by practice directly. In addition, lessons are also easier to understand so that during daily tests and semester exams students can answer exam questions well.

Conclusion

Learning media in the form of a petty cash fund manager application based on Microsoft Office Access is a simulation or student practice media on the basic competencies of implementing the operation of the petty cash fund application. Based on the results of the validation of the experts and the trials, the results obtained were 97.85% of the material experts, 95.29% of the media experts, and 94.44% of the limited group trials. This means that the application for managing a petty cash fund based on microsoft office access is feasible to be applied to learning activities on the material for implementing the operation of the petty cash fund application.

The use of learning media applications for managing petty cash funds based on Microsoft Office Access effectively improves student learning outcomes. This is supported by statistical calculations with a

significance value = 0,000 <0.05 when testing the effectiveness between the experimental class and the control class. This significance value indicates a significant difference between these two classes. The average value obtained by the experimental class was 91.22 while the control class was 85.97. Based on the average value of posttest learning outcomes (after being treated), it can be concluded that the value of the experimental class is better than the value of the control class.

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