Development Of Excel-Based (Nawasena) Basic Financial Accounting Learning Media To Improve Learning Outcomes In The Accounting Cycle

by Indah Eka Fitriana

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Indah Eka Fitriana, Sukirno
Faculty of Economics and Business, Yogyakarta State University
ekafitriana758@gmail.com , sukirno@uny.ac.id
Address : Jl. Colombo No.1, Karang Malang, Caturtunggal, Kec. Depok, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55281
Korespodensi email : ekafitriana758@gmail.com

Abstract. *The problem in this study is the low student learning outcomes on financial accounting cycle material. The type of research was research and development with the ADDIE model. With an experimental trial design using a pre-test - post-test control group design model. The feasibility of the product was tested by media experts, learning practitioners, namely teachers, and media users, namely students. The media was tested on the research subjects, namely students of class X AKL 2 SMK Muhammadiyah Dukun. The data collection instruments used were interview guidelines, expert validation questionnaires, teacher response questionnaires, student response questionnaires, and financial transaction questions. The results of the study show: (1) Basic Financial Accounting Learning Media Product "Nawasena" has been successfully developed to improve student learning outcomes in the accounting cycle; (2) "Nawasena" learning media is assessed as feasible by media experts with a score of 3.8; practitioner teachers 3.6; and students 3.61; (3) Learning media can improve student learning outcomes seen from the difference in gain score results between the control group 0.63 and the experiment which is 0.73.*
Keywords: *Learning media, Excel, Nawasena, Feasibility, Learning outcomes, Accounting cycle*

INTRODUCTION

One definition of learning in the context of learning is the act of acquiring new knowledge through one's involvement with many things in the learning environment. When students complete a learning activity, the end result is called learning outcomes. Increased understanding, shifts in perspective, and honed abilities are forms of learning outcomes that may occur. (Rahman, 2021). Factors that affect student learning outcomes are very important to consider in the education process. Internal factors such as student character, attitude towards learning, motivation, concentration, ability to process and explore information, self-confidence, and learning habits can have a significant effect on learning outcomes. While external factors such as teacher quality, media and learning models, social environment and peers, school curriculum, and educational facilities and infrastructure also play an important role in determining student learning outcomes. (Aunurrahman, 2012).

The accounting cycle is classified as economic science which is mandatory material for secondary school students to learn, this is stated in Permendikbud No. 21/2016 regulating the content standards of primary and secondary education. The accounting cycle of a service company is an iterative process for identifying and analyzing accounting activities in a service company carried out in a certain period of time. (Yuliyanto et al., 2022)..

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* Indah Eka Fitriana, *ekafitriana758@gmail.com* ---

SMK Muhammadiyah Dukun is a Vocational High School that has 2 majors, namely AKL (Financial and Institutional Accounting), and TKJ (Communication and Network Engineering). Based on interviews that have been conducted, the learning system carried out at SMK Muhamadiyah Dukun is still often carried out using the lecture method and school assignments are still done manually. Actually, it is not a problem if using the lecture method or what is commonly called the conventional learning method in learning accounting, but if this method is continuously used without using other learning strategies, such as using media to facilitate teaching and learning, then it can cause other problems. The problem is the decreasing level of student involvement in the teaching and learning process in the classroom. The learning process will not be able to function optimally because students are not motivated to learn and are less involved in learning and it is possible that there will be less than optimal assignment work.

Table 1. Accounting cycle test scores of class X AKL students

Number of students completed	13
Number of students not completed	34
Total number of students	47
Percentage of Students Completed	38%
Percentage of Incomplete Students	72%

Source: Accounting subject teacher of students in class X AKL SMK Muhammadiyah Dukun

Table 1 above shows that the percentage of students who completed the accounting test was 38%. Conversely, the percentage of students who did not complete was 72%. This shows that not half of the students in class X AKL have completed the financial accounting cycle test. Based on further observations and information obtained from students and teachers, it is suspected that the low student accounting learning outcomes are caused by many influencing factors, one of which is the learning media used because the assignment is still done manually, causing recording errors.

Microsoft Excel is an application that helps users perform accounting practice activities. Learners will find it easier to create journals, ledgers, financial statements, and other features with *Microsoft Excel*. *Microsoft Excel* media is one option that is quite simple but effective to help process numerical data in accounting. (Rachmawati, 2017). Many features and functions of this application program are used in number processing. *Excel* formulas, sometimes referred to as function and formula features, are widely known and often used in various situations and

domains, including data creation, editing, sorting, analysis, and summarization. In addition, *Microsoft* Excel has the ability to perform statistical and arithmetic calculations to aid in the solving of logic and math puzzles. In addition, *Excel* can be used to create budgets, financial records, and reports in the form of tables, graphs, or diagrams. (Odja et al., 2021).

Applying *excel-based* basic financial accounting learning media in schools in accounting lessons helps to improve student learning outcomes. Rahmah et al., (2021) in their research conveyed that applying *electronic media Microsoft Excel software* has a positive impact in improving student learning achievement which is marked by an increase in student learning completeness. Student cooperation can be encouraged through learning that utilizes *Microsoft Excel* software and electronic media paradigms. Students' enthusiasm, engagement, and participation in the learning process can all be positively influenced by the use of *Microsoft Excel* software and can improve student learning outcomes. Ihsan & Yuniati, (2021) in the research conducted suggested that compared to learning through traditional media, the development of interactive *excel-based* learning materials for introductory accounting courses proved to be very practical and successful, and had a greater impact on student *self-efficacy* and the achievement of optimal learning outcomes. The group of highly confident students who learned the accounting cycle with the use of the *excel-based* interactive learning media development solution outperformed their peers who used more traditional forms of teaching. Similarly students using the development product outperformed the group of students using conventional media in terms of learning outcomes when having poor *self-efficacy*.

Based on the explanation above, researchers will focus on developing *Excel-based* basic financial accounting learning media, namely accounting learning media that produces timely and accurate information and is expected to improve student learning outcomes at SMK Muhamadiyah Dukun. Basic financial accounting learning media in the form of *Microsoft Excel software* which is expected to help students of class X AKL SMK Muhamadiyah Dukun in recognizing and doing assignments to make the results faster and more accurate. In accordance with the above background, the researcher took the title "Development of *Excel-Based* Basic Financial Accounting Learning Media "Nawasena" to Improve Student Learning Outcomes in the Accounting Cycle".

RESEARCH METHODS

The research design is research and development to develop media that presents excel-based financial bookkeeping software for class X SMK. The research and development method was chosen to produce and test the effectiveness of the product.

The teaching materials are created using Microsoft Excel and are compatible with laptops and desktop computers. The purpose of making this learning media is to improve students' understanding and learning outcomes of the accounting cycle. The learning system was designed using the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) approach proposed by Dick and Carry in Mulyatiningsih, (2012).

The research trial design to determine learning outcomes in the accounting cycle uses an experimental design using a pre-test - post-test control group design model. (Arikunto, 2013). Before receiving treatment, a pre-test was given to the experimental and control groups to determine the baseline conditions. Furthermore, the experimental group received treatment (application of "Nawasena" learning media) while the control group did not. Experts in the field of educational media verified the product before testing. The learning media was changed by the researcher after validation and comments, then the product was tested.

The subjects involved in this study were 1 media expert (lecturer in Economic Education, Faculty of Economics and Business, State University of Yogyakarta), and 1 accounting teacher (teacher of SMK Muhamadiyah Dukun). In addition, the subjects of this study were students of class X AKL 1 and X AKL 2 SMK Muhamadiyah Dukun, which amounted to 23 students and 24 students respectively. The reason for choosing these classes is because the learning outcomes of the X AKL class of SMK Muhamadiyah Dukun are not satisfactory so that special use and attention is needed.

The rating scale in this questionnaire uses a Likert scale which aims to measure a person's attitudes, opinions, and perceptions. (Sugiyono, 2013). Data from the pretest and posttest results were analyzed using the standard gain (g) equation developed by Hake in (Sundayana, 2014) to determine the increase in the ability of students' learning outcomes.

RESEARCH RESULTS AND DISCUSSION

Research Results

A. Product Feasibility Test

The learning media that has been developed is then validated. The following are the results of media validation conducted by experts and teachers:

1. Media Feasibility Validation by Expert

Table 2: Media Expert Validation

No.	Aspects	Total Score	Average	Description
1.	Media Design	17	4,25	Very Feasible

2.	Visual Communication	40	3,63	Worth
Total		**57**	**3,8**	**Worth**

Based on the table above, the average score of the media design aspect of 4.25 is included in the Very Feasible category, and the average score of the visual communication aspect of 3.63 is included in the Feasible group. The overall average score is 3.8 for Media Expert validation results based on media design and visual communication aspects. Based on the System Expert validation, these findings indicate that the Basic Financial Accounting Learning Media "Nawasena" is included in the **Appropriate** category.

2. Media Feasibility Validation by Teacher

Table 3. Teacher Validation

No.	Aspects	Total Score	Average	Description
1.	Media Design	14	3,5	Worth
2.	Visual Communication	12	4	Worth
3.	Material	10	3,33	Worth
4.	Language	8	4	Worth
5.	Learning Design	10	3,33	Worth
Total		**54**	**3,6**	**Worth**

Based on the table above, the average score of the media design aspect of 3.5 is included in the Worthy category, the average score of the visual communication aspect of 4 is included in the Worthy category, the average score of the material aspect of 3.33 is included in the Worthy category, the average score of the language aspect is 4 is included in the worthy category and the average score of the learning design aspect of 3.33 is included in the Worthy group. The overall average score was 3.6 for the Teacher validation results. Based on Teacher validation, this finding shows that the Basic Financial Accounting Learning Media "Nawasena" is included in the **Feasible** category.

B. Product Trial

1. Trial Implementation

a. First Meeting

At the first meeting the activity carried out was to check the students' ability to understand the accounting cycle in service companies. By giving *pre-test*

questions consisting of 20 financial transaction questions about the accounting cycle material for service companies. All students in both classes X AKL 1 and X AKL 2 worked on the *pre-test* questions. After the *pre-test*, it is known that the average value of the accounting cycle of X AKL 1 students is 57 which is included in the category of incomplete, while the average value of the accounting cycle of X AKL 2 students is 50 this is included in the category of incomplete. The following is the data on the results of the *pre-test* questions given to class X AKL 1 (control group) and class X AKL 2 (experimental group):

Table 4. *Pre-test* Results

No.	Class	Number of Students	Average	Description
1.	X AKL 1	23	57	Not Completed
2.	X AKL 2	24	50	Not Completed
Total		**47**	**53,5**	**Not Completed**

In addition, researchers also checked the ability of students from class X AKL 2 to operate *Microsoft Excel*, with the result that all participants could operate *Microsoft Excel* well.

b. Second Meeting

After checking the students' abilities at the first meeting, it turned out that there were still many students who did not fully understand the accounting cycle of service companies. At the second meeting in the control group (class X AKL 1), the teacher explained the material about the accounting cycle of service companies to students using the lecture method. The material explained starts from financial transactions, recording general journals, posting ledgers, making balance sheets, making income statements and making balance sheets. In explaining the material occasionally the teacher asks questions to students, this aims to condition students and as a measuring tool whether the material explained is reached and understood by students.

In the experimental group at the second meeting, the teacher explained about the service company accounting cycle material and explained the learning media developed. The teacher provides direction on how to use the "Nawasena" learning media and students practice the directions given. With this direction, it is

hoped that students will better absorb the material as a whole so that they are able to apply the use of learning media independently and can help improve student learning outcomes.

c. Third Meeting

In the third meeting, learning in the control group was only a repetition of material, namely repeating material that students had not understood in more depth. Giving practice questions is still applied at this third meeting. The goal is to make students more proficient in the financial accounting cycle of service companies. At the end of the learning process, *post-test* questions are given to determine the extent of competence that has been achieved by students. Students work on *post-test* questions using paper media.

In the experimental group, learning emphasizes more on providing exercises on the accounting cycle of service companies and students work on these problems using the learning media "Nawasena". At the end of learning the same as the control group, the experimental group was also equally given a *post-test* question with the same questions. The *post-test* results are used as the value of student competence or ability. After the *post-test* questions were completed, the teacher asked students to fill out a questionnaire evaluating the "Nawasena" learning media. The following are the results of the control group and experimental group *post-test* data:

Table 5. *Post-test* Results

No.	Class	Number of Students	Average	Description
1.	X AKL 1	23	84	Completed
2.	X AKL 2	24	86	Completed
	Total	**47**	**85**	**Completed**

Based on the table above, it can be seen that the average *post-test* score of class X AKL 1 of 84 is included in the complete category. And the average *post-test* score of X AKL 2 was 86 including the complete category.

The following is the data on the *pre-test* and *post-test* increases for each class group:

Table 6. Average *Pre-test - Post-test*

No.	Class	Average	Average	Increase

		Pre-test	*Post-test*	
1.	X AKL 1	57	84	27
2.	X AKL 2	50	86	36

The data in the table shows that the control group (class AKL 1) experienced an increase of 27 points between before and after the test. Meanwhile, the increase in the average score before and after the test of the experimental group (AKL 2 class) was 36. It can be interpreted that the use of basic financial accounting learning media "Nawasena" can help improve student learning outcomes in the accounting cycle.

2. Student Response on the Feasibility of Learning Media

After working on the *post-test* questions, the experimental group (class X AKL 2) was given an assessment questionnaire regarding the feasibility of the "Nawasena" learning media. The results of the feasibility test of learning media based on student opinions are as follows:

Table 7. Student Validation

No.	Aspects	Total Score	Average	Description
1.	Media Design	252	3,5	Worth
2.	Visual Communication	265	3,68	Worth
3.	Material	175	3,65	Worth
4.	Language	86	3,6	Worth
5.	Learning Design	344	3,6	Worth
Total		**1.122**	**3,61**	**Worth**

Based on the table above, the average score of the media design aspect of 3.5 is included in the Worthy category, the average score of the visual communication aspect of 3.68 is included in the Worthy category, the average score of the material aspect of 3.65 is included in the Worthy category, the average score of the language aspect is 3.6 included in the worthy category and the average score of the learning design aspect of 3.6 is included in the Worthy group. The overall average score of 3.61 for the results of the feasibility of learning media based on class X AKL 2 students. Based on the feasibility results of the experimental group, it shows that the Basic Financial Accounting Learning Media "Nawasena" is included in the **Feasible** category.

3. *Pretest - Posttest* Results

The following is data on the improvement of student learning outcomes with the calculation of *standard gain (g)*:

Table 8. Description Data of Improvement in Learning Outcomes

Control Group (X AKL 1)			**Experiment Group (X AKL 2)**		
Interpretation	**Frequency**	**Percentage**	**Interpretation**	**Frequency**	**Percentage**
High	6	26%	High	17	71%
Medium	17	74%	Medium	7	29%
Total	23	100%	Total	24	100%
Average *gain score*	**0,61**		**Average *gain score***	**0,73**	

The data in the table shows that the learning outcomes of children in the control group have an increase in learning outcomes with a high category of 6 students (26%), and a moderate category of 17 students (74%). The average *gain score* of the control group of 0.61 is included in the moderate category. Meanwhile, in the experimental group students had an increase in learning outcomes with a high category of 17 students (71%), and a moderate category of 7 students (29%). The average *gain score* of the experimental group of 0.73 is included in the high category. It can be seen from the average *gain score* that the control group has a lower average than the experimental group. Here it can be interpreted that using basic financial accounting learning media "Nawasena" can improve student learning outcomes in the accounting cycle.

DISCUSSION

This research produces *excel-based* basic financial accounting learning media to improve student learning outcomes in the accounting cycle. Media development uses the ADDIE development method which contains several stages, namely the *analysis, design, development, implementation* and *evaluation* stages. The ADDIE method was used in this study because it can improve knowledge, abilities, and attitudes. (Muflianah, 2022).

The learning media "Nawasena" was rated in the decent category by media experts by giving a score of 3.8. A score of 3.6 from the accounting teacher of SMK Muhammadiyah

Dukun which is included in the feasible category. And obtained a score of 3.61 in the feasible category from students of class X AKL 2. Learning media is said to be valid and can be used with a minimum category of "feasible", therefore students can use the learning media "Nawasena" as a learning tool that meets the basic standards of "feasible". (Rahmatullah, 2019)

From the results of the *pre-test* and *post-test*, *it* can be seen that the experimental group given *treatment* (*excel-based* "Nawasena" learning media) has an average *gain score* of 0.73 in the high category compared to the control group using manual accounting records with an average *gain score* of 0.61 in the low category. There are differences in learning outcomes in students whose learning uses *Microsoft Excel* media and manual accounting records. (Rachmawati, 2017). The same thing said by Anissyah, (2023) By using *excel-based* learning media in the learning process, it can be seen that the experimental class is superior to the control class. From the results of the *gain score*, *it* can be concluded that the basic financial accounting learning media "Nawasena" can improve student learning outcomes in the financial accounting cycle.

CONCLUSIONS

Learning media "Nawasena" is an *excel-based* media developed by conducting analysis and observation to find out the problems of students, making products, developing products, validating experts, applying learning media to students of SMK Muhammadiyah Dukun, seeing students' opinions about the feasibility of learning media, and seeing the improvement of student learning outcomes.

The resulting product obtained a score of 3.8 from the Media Expert which was included in the feasible category, scored 3.6 from the Practitioner Teacher in the feasible category, and 3.61 from the students of class X AKL 2 which was classified as feasible to use.

Excel-based Basic Financial Accounting Learning Media "Nawasena" to Improve Student Learning Outcomes in the Accounting Cycle is stated to be able to improve student learning outcomes. This is evidenced by the *gain score* level of the experimental group (class X AKL 2) which has a *gain score* level of 0.73 including the high category compared to the control group which has a *gain score* value of 0.61 in the medium category.

Future researchers can develop *excel-based* accounting learning media with more complete financial reports. It can expand to tax and government sector accounting.

LITERATURE

Anissyah, N. C. (2023). The Effectiveness of Excel Software Media in the Contextual Teaching and Learning Learning Model as an Effort to Improve Learning Outcomes in Economics Subjects for XI Social Class Students of Arjasa State High School in the 2019/2020 Academic Year. *Journal of Education, Social, and Religion*, *9*(1), 1-10.

Arikunto, S. (2013). *Research Procedures A Practical Approach*. Rineka Cipta.

Aunurrahman. (2012). *Learning and Learning*. Alfabeta.

Ihsan, & Yuniati, M. (2021). The Effectiveness of Excel Interactive Media Development Accounting Cycle on Learning Outcomes in View of Student Self-Efficacy. *Binawakya Journal*, *16*(1), 23-34. http://ejurnal.binawakya.or.id/index.php/MBI

Muflianah, E. (2022). Implementation of the ADDIE Model Learning Strategy in Life Skills Education Packet C (National High School Equivalency Examination) at SPNF and SKB in Tegal Regency. *Review of Multidisciplinary Education, Culture and Pedagogy*, *2*(1), 33-41. https://ojs.transpublika.com/index.php/ROMEO/

Mulyatiningsih, E. (2012). *Applied Research Methods in Education*. Alfabeta.

Odja, M. O., Likadja, F. J., Ina, W. T., & Pella, S. I. (2021). The Use of Microsoft Excel for the Ease of Processing Data on Student Learning Outcomes. *Undana Journal of Community Service*, *15*(2), 22-29. https://doi.org/10.35508/jpkmlppm.v15i2.6052

Rachmawati, N. (2017). The Effect of Microsoft Excel Learning Media and Student Learning Independence on Learning Outcomes. *Journal of Educational and Learning Technology*, *4*(2), 162-171. https://jurnal.untirta.ac.id/index.php/JTPPm/article/view/7682

Rahmah, T., Yusuf, Z. H., & Raitum, S. M. (2021). Application of Microsoft ExcelL Based Learning Model on Service Company Accounting Cycle Material to Improve Student Learning Outcomes. *Journal of Education and Teacher Training*, *1* (3). https://journal.unigha.ac.id/index.php.EE/article/view/619

Rahman, S. (2021). The Importance of Learning Motivation in Improving Learning Outcomes. *Merdeka Belajar*, *November*, 289-302.

Rahmatullah, M. I. (2019). Development of E-Learning Media-Based Digital Literacy Learning Concept in PJOK Subjects in Yogyakarta City High Schools. *Journal of Sport Education*, *1*(2), 56. https://doi.org/10.31258/jope.1.2.56-65

Sugiyono. (2013). *Quantitative, Qualitative and R&D Research Methods*. CV Alfabeta.

Sundayana, R. (2014). *Education Research Statistics*. Alfabeta.

Yuliyanto, R., Pujiati, Suroto, & Maydiantoro, A. (2022). Analysis of the Needs for the Development of Flipbook Maker-Based Learning E-modules to Improve the Learning Outcomes of the Accounting Cycle of Service Companies. *Economic Education and Entrepreneurship Journal*, *5*(1), 74-84. https://doi.org/10.23960/e3j/v5i1.74-84

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