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Development of Accounting Crossword Puzzle Learning Media to Improve Vocational High School Students' Learning Activities

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Abstrak

Penelitian ini merupakan penelitian pengembangan (RnD) yang bertujuan untuk meningkatkan Aktivitas Belajar Siswa pada Kompetensi Akuntansi Perusahaan Jasa pada Siswa Sekolah Menengah Kejuruan melalui Pengembangan Media Pembelajaran Teka Teki Silang Akuntansi. Penelitian ini dilaksanakan secara kolaboratif selama dua siklus. Model ADDIE digunakan untuk mengembangkan media pembelajaran dengan siklus *analyze, design, develop, implementation,* dan *evaluation*. Uji validitas dari 5 ahli terhadap media dilakukan untuk menilai kelayakan dari media sebelum diterapkan di lapangan. Uji dilanjutkan dengan melihat respon kelayakan dan kepraktisan dari guru dan siswa setelah siklus I dan II dilaksanakan. Sampel penelitian yang digunakan dalam penelitian ini sebanyak 144 siswa dan 10 guru yang diambil dengan *purposive random sampling.* Analisis data yang digunakan yaitu analisis data deskriptif dengan persentase. Berdasarkan hasil penilaian ahli menunjukkan pengembangan media pembelajaran teka teki silang akuntansi valid untuk digunakan dalam pembelajaran akuntansi. Berdasarkan penerapan teka teki silang akuntansi terjadi peningkatkan aktivitas belajar dari siklus I ke siklus II. Berdasarkan data catatan harian menunjukkan perubahan positif sikap siswa terhadap pengembangan media pembelajaran teka teki silang akuntansi di Sekolah Menengah Kejuruan.

Kata Kunci: *Akuntansi; Pengembangan; Media Pembelajaran; TTS*

Abstract

This research is development research (RnD) which aims to improve student learning activities in service company accounting competencies for vocational high school students through the development of accounting crossword learning media. This research was carried out collaboratively over two cycles. The ADDIE model is used to develop learning media with a cycle of analyze, design, develop, implementation and evaluation. Validity tests from 5 experts on the media were carried out to assess the suitability of the media before being implemented in the field. The test continued by looking at the feasibility and practicality responses from teachers and students after cycles I and II were carried out. The research sample used in this study was 144 students and 10 teachers taken using purposive random sampling. The data analysis used is descriptive data analysis with percentages. Based on the results of the expert assessment, it shows that the development of accounting crossword learning media is valid for use in accounting learning. Based on the application of accounting crossword puzzles, there was an increase in learning activities from cycle I to cycle II. Based on daily record data, it shows positive changes in students' attitudes towards the development of accounting crossword puzzle learning media in Vocational High Schools.

Keywords: *Accountancy; Development; Learning Media; TTS*

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INTRODUCTION

Accounting is a subject that contains numbers so understanding it requires high concentration. Accounting material contains an interrelated accounting cycle. If students miss one subject in accounting subjects, students will have difficulty understanding. Students are required to concentrate in accounting subjects. However, the average student finds it difficult to understand and follow the material taught by the teacher after several hours of lessons have passed (Husni, 2020). Based on the results of observations, students have high concentration when they are at the beginning of teaching and learning activities. However, when learning activities are underway, concentration will decrease (Sailer et al., 2021). Students have difficulty understanding accounting lesson material because it is considered difficult. Students miss out on some material that should be understood. Maintaining the efficacy of the teaching and learning process heavily depends on the role that teachers play (Saputri, 2019). Students soon become bored when teachers use learning resources in a less inventive way. Teachers do not pay enough attention that in teaching they must also use interesting learning media (Melati & Hakim, 2023). Teachers must also provide motivation to students during learning. Accounting material requires concentration so interesting learning media is needed (Tri Octavina, 2021). In delivering the lecture, the teacher often explains quickly without providing motivational interludes and the importance of studying accounting material in relation to everyday life. Ideally, in the teaching and learning process students should also play an active role, both in asking questions and providing opinions related to the subject of accounting (Rizkianda et al., 2023).

Seeing this phenomenon, in the next accounting lesson it is natural to design an interesting accounting learning media. Teaching does not only convey information from the teacher to students (Nurrahman et al., 2023), but also requires the involvement of students' actions. The active learning process will make students stay in class for a long time, because during active learning activities, students will take part in thinking about the material being taught. Students use and hone their minds to learn ideas (Ardianti & Susanti, 2022), solve various problems, and apply what they learn, not just listen to the teacher deliver the material. Students engaging in learning activities demonstrate active learning. Students search for and solve their own problems, find examples, and carry out learning tasks that must be achieved. To realize an active learning process, teachers and students must play an active role. One effort to create active and fun learning is by developing accounting crossword puzzle learning media. Teachers can invite students to guess, think, and find the right answer related to the material being discussed in the lesson. Teachers provide motivation and students play an active role in learning.

Based on initial observations carried out in August 2023 at State Vocational High School 1 of Depok, it shows that accounting learning activity is still low. There are 53% of students who are still passive in learning. In this case, some students chat with their friends, stay quiet, play with gadgets, and pay less attention to the teacher. One of the reasons for this is that the learning media used by teachers is less interesting. Ideally, in teaching and learning activities not only the teacher is active, but the students are also active. The use of learning media is still limited to Power Point. The use of less interesting learning media causes students not to pay attention to the teacher who is explaining accounting material (Zou et al., 2022). This causes low student activity during the teaching and learning process.

Less diverse teacher-produced learning materials result in lower student learning activity. Thus, the creation of accounting crossword puzzle learning resources that instructors and students may utilize in the Vocational High School teaching and learning process is suggested by the researchers in this study. Good teaching is one that gives students the chance to study independently or complete tasks on their own (Aprieza et al., 2023). Learning activities are emphasized more through a unit activity program. Student learning activities become the basis for achieving more adequate learning goals and outcomes (Hofer et al., 2021). Learning activities are physical and mental activities. If a child thinks without doing something, it means the child is not thinking (Avriliamin Putri & Pratiwi, 2022). From several experts, it may be said that to achieve successful teaching, learning activities involve both mental and physical actions (Mclaughlin, 2018).

Learning activities can be enhanced by using learning media that attracts students' interest (Vo et al., 2017). Learning media that is visually attractive and easy to apply is crossword puzzles (Martinez & Parra, 2011). Crossword media is a game of guessing words in small square boxes filled with keywords (Kurniawan, 2015). In the game of crossword learning media, players fill in blank areas with letters and numbers to make words or numbers in the correct order as directed by the teacher. This allows students

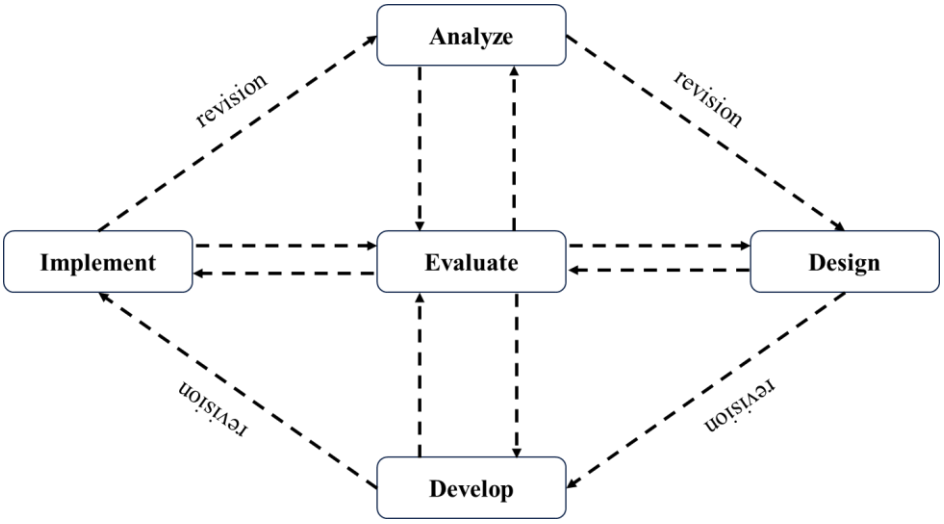
to improve their knowledge, abilities, and attitude. This learning media can strengthen students' memory, accuracy in answering, and increase student activity (Weni & Isnani, 2016).

This research is research and development which refers to five development steps. The development model uses Branch theory with 5 development steps, namely analysis, design, develop, implementation, and evaluation. The study's findings demonstrate that students are becoming more motivated to learn accounting, as evidenced by seven indications: namely the indicators of paying attention to the teacher who is teaching, expressing opinions and formulating answers, listening well to the teacher's explanations, recording the teacher's explanations completely and neatly, responding and asking questions (Yanto et al., 2021), remembering material and being able to solve problems, courage in expressing opinions.

The accounting learning process at Vocational High Schools has less than optimal learning activity. From the results of observations, 53% of students were still passive. There are students who chat with their friends, stay quiet, play with gadgets, and pay less attention to the teacher. This student behavior shows that there are problems in the learning process. Varied learning media can attract students' attention, so that students are active in learning activities. Teachers are more active in explaining material and practicing questions during teaching and learning activities. With less varied learning media, it can lead to low student learning activity. Therefore, it is necessary to apply active learning methods and interesting media so that student learning activities will increase. One of the active learning media in the learning process is crossword puzzle learning media so that it can create active learning, therefore researchers are interested in carrying out research with the title "Development of Accounting Crossword Puzzle Learning Media to Improve Vocational High School Students' Learning Activities". The aim of this research is to develop Android-based learning media to increase the learning activities of Vocational High School students.

RESEARCH METHODS

The research method used in this research is Research & Development (R&D). Research and development are a method used to develop products and measure product validity (Aka, 2019). Research and development contain several steps to develop new products or innovate existing products. The research uses the ADDIE development model, which includes Analyze, Design, Develop, Implementation, and Evaluation. The basic reason researchers use the ADDIE development model is because this model has systematic stages and is suitable for development research. The product form of development that will result from this research is Accounting Crossword Puzzle Learning Media as a student learning media. The stages in the ADDIE research model are more clearly shown in Figure 1.



Source: Processed By Researchers (2024)

Figure 1. Stages of ADDIE Model Development

Figure 1 is used as a reference in the development of Accounting Crossword Puzzle Learning Media, where at each stage revisions are possible and have interrelated relationships. Validity tests from 5 experts on the media were carried out to assess the suitability of the media before being implemented in the field. The test continued by looking at the feasibility and practicality responses from teachers and students after cycles I and II were carried out. The research sample used in this research was 125 students in this study were vocational high school accounting class students and 10 teachers taken using purposive random sampling. The data analysis used is descriptive data analysis with percentages. The procedure for developing accounting puzzle learning media consists of five steps, namely:

The first step in research and development is an initial needs analysis in vocational high schools. Thoughts about the product include accounting learning media that will be developed. Identifying products that suit student targets and accounting learning objectives. Identify the environment that will be used in delivering learning.

The second step in this development is designing the product. Design a new product concept by writing or describing it in detail on an accounting crossword puzzle. Design new product devices that will be developed by writing and drawing them in detail and precision. Plans are written for each lesson along with instructions for use. The product design is still conceptual at this level of design and will guide the development process later (Lohr et al., 2021).

The develop stage is an activity to realize the product design that has previously been created. Developing a guidebook for using accounting crossword puzzles. At this point, a tool is developed to assess the viability and performance of the product. Learning media and material accounting measurements contain validation from media experts, material experts and learning practitioners with Aiken (Aiken, 1985; Nurrahman et al., 2022).

Start using crossword puzzle learning media that has been created in accounting learning. Delivering a guide to the use and analysis of answers to accounting crossword learning media. Ask for responses or feedback from teachers and students as evaluation material.

Seeing the impact of using products in learning. Evaluate the achievement of product development goals. Make improvements according to feedback obtained from the previous stage. Measuring the accomplishment of objectives for product development is the evaluation's ultimate purpose.

The assessment criteria by experts will use a 5-scale Likert (1-2-3-4-5) with the assessment criteria shown in Table 1. The assessment criteria will be calculated using the Aiken V formula (Aiken, 1985).

Table 1.
Assessment Criteria According to Likert Scale

Criteria	Value/Score
Very Good	5
Good	4
Pretty Good	3
Not Good	2
Very Not Good	1

Source: Aiken (1985)

Meanwhile, the assessment criteria regarding the feasibility and effectiveness of accounting crossword puzzle learning media from the trial results are presented in Table 2.

Table 2.
Eligibility Interpretation Criteria

Criteria	Persentase (%)
Very Worth It	81-100
Worth It	61-80
Decent enough	41-60
Unworthy	21-40
Very Unworthy	0-20

Source: Aiken (1985)

The data collection technique used in this research is using direct observation to determine the implementation and effectiveness of the product being developed and also a questionnaire in the form

of a set of questions or statements to which responses or responses will be given from trial respondents to assess the feasibility of using accounting crossword learning media.

RESULTS AND DISCUSSION

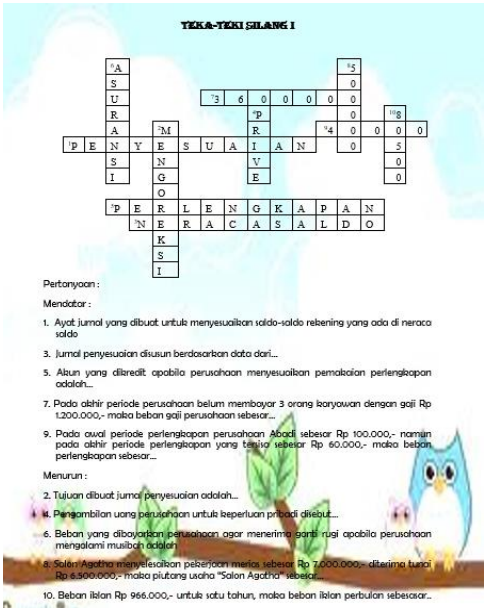
The result from research accounting puzzle learning media consists of five steps, namely:

Analyze

At this stage the researcher conducted a needs analysis in vocational high schools, especially accounting study programs, whether they needed learning media or not. Based on the results of the analysis, it is known that not many teachers and students use media in carrying out learning. So accounting learning is still packaged conventionally and tends to be rigid. Students also actually feel challenged by the existence of different learning concepts such as games. Based on this, it can be concluded that teachers and students need learning media in the form of interesting games to be used in schools. This design analysis is very important to know and identify the basic needs of learning namely the development of learning media (Cahyani & Nurrahman, 2024).

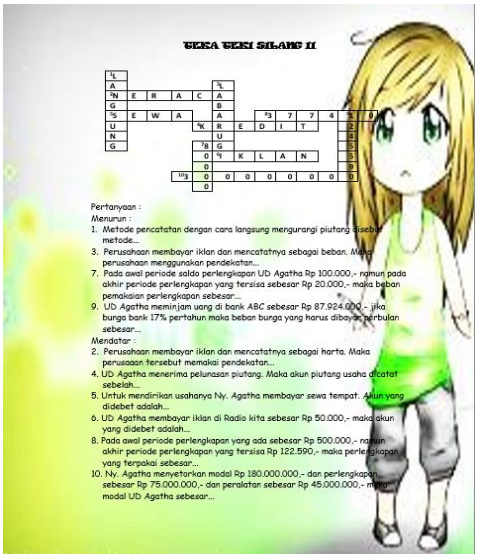
Design

At this design stage, the researcher has designed accounting crossword puzzle learning media in three steps, namely: 1) Product design, with the result being accounting crossword puzzle learning media which contains 30 questions which is divided into three puzzles with 10 questions each arranged vertically with 5 questions and horizontally with 5 questions. 2) the researcher prepared the instruments used as questions with a total of 10 questions which were based on the learning material that had been studied. Apart from that, a guide was also created for working on the puzzle. The accounting crossword puzzle design is shown in Figure 2, 3, and 4.



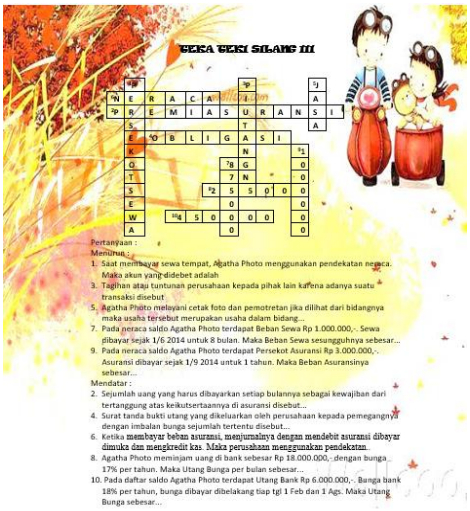
Source: Processed By Researchers (2024)

Figure 2. Design Accounting Crossword Puzzle 1



Source: Processed By Researchers (2024)

Figure 3. Design Accounting Crossword Puzzle 2



Source: Processed By Researchers (2024)

Figure 4. Design Accounting Crossword Puzzle 3

Develop

The develop stage was carried out to produce an Accounting Crossword Puzzle application development product as a learning medium which carried out several tests as follows expert validity testing of test materials and instruments is carried out to determine how valid the test instruments developed or prepared are according to the experts' opinions (Andrian et al., 2018; Nurrahman et al., 2022). Five experts were selected to provide assessments with assessment sheets using a Likert scale of 5. The results of expert validation calculations of the material and test instruments from the 3 test packages developed are presented in Tables 3, 4, and 5.

Table 3.
Material Validity Results 1

Item	*V-value*	Criteria	Item	*V-value*	Criteria
1	0.88	Valid	6	0.94	Valid
2	0.94	Valid	7	0.88	Valid
3	0.81	Valid	8	0.94	Valid
4	0.94	Valid	9	0.88	Valid
5	0.81	Valid	10	0.88	Valid

Source: Processed By Researchers (2024)

Table 4.
Material Validity Results 2

Item	*V-value*	Criteria	Item	*V-value*	Criteria
1	0.94	Valid	6	1.00	Valid
2	0.88	Valid	7	0.94	Valid
3	1.00	Valid	8	0.88	Valid
4	0.94	Valid	9	0.94	Valid
5	0.88	Valid	10	0.81	Valid

Source: Processed By Researchers (2024)

Table 5.
Material Validity Results 3

Item	*V-value*	Criteria	Item	*V-value*	Criteria
1	0.94	Valid	6	0.88	Valid
2	1.00	Valid	7	0.94	Valid
3	0.94	Valid	8	0.94	Valid
4	0.94	Valid	9	0.88	Valid
5	0.81	Valid	10	0.94	Valid

Source: Processed By Researchers (2024)

Based on Tables 3, 4, and 5, it is known that the material and test instruments developed obtained scores between 0.81 – 1.00, which means they are valid because they are more than > 0.6 (Retnawati, 2016). So that all test instrument packages can be used as tools for learning media.

The results of the expert validation test on the Accounting Crossword Puzzle learning media were carried out to test the validity of the media based on the opinions of experts. Four experts provided assessments using a Likert scale of 5. The results of expert validation of the Accounting Crossword Puzzle learning media are presented in Table 6.

Tabel 6.
Validity Results of Accounting Crossword Puzzle learning media

Item	*V-value*	Criteria
Media readability	0.88	Valid
Media Display	0.94	Valid
Ease of Use/Practicality	0.94	Valid
Media Quality	0.88	Valid
Layout	0.88	Valid
Topography of Media Content	0.94	Valid

Source: Processed By Researchers (2024)

Based on Table 6, it is known that the validity results of the Accounting Crossword Puzzle learning media developed obtained a value between 0.88 – 1.00, which means it is valid because it is more than > 0.6 (Retnawati, 2016). So the media is suitable for use for trials as a learning

medium. Valid media is very necessary to guarantee that the resulting product can be used as intended (Azwar, 2016; Cahyani et al., 2024).

Implementation

Implementasi dari media pembelajaran accounting crossword puzzle dilaksanakan melalui dua siklus di sekolah menengah kejuruan. The results of research and development of learning media cycle I are as follows Table 7.

Table 7.
Results of Research and Development of Learning Media Cycle I

No	Observed indicators	Percentage of Student Activities
1	Students read relevant Accounting material	66.17%
2	Students pay attention to the teacher's explanation of the material	63.67%
3	Students ask questions to teachers or friends during the teaching and learning process	67.83%
4	Students provide opinions, suggestions, comments to teachers or friends about the material being discussed	67.35%
5	Students discuss in groups	72.50%
6	Students listen to teacher or friend explanations during the learning process	72.83%
7	Students take notes on the material presented by the teacher	73.67%
8	Students record the results of the discussion	65.33%
9	Students write answers during a crossword puzzle game	61.67%
10	Students find the right answer in doing group assignments	70.83%
	Average student learning activity	68.18%

Source: Processed By Researchers (2024)

Based on the table 7, of the students in class to teachers or friends during the teaching and learning process, 67.35% of students gave opinions, suggestions, comments to teachers or friends about the material being discussed, 72.50% of students discussed in groups, 72.83% of students listened to teacher or friend explanations during the learning process, 73.67% students recorded the material presented by the teacher, 65.33% of students recorded discussion results, 61.67% of students wrote answers during crossword games, and 70.83% of students participated in doing group assignments. From the results, the percentages are added up and then divided by the number of indicators, the average student learning activity in cycle I is obtained at 68.18%. This number was felt to be insufficient because student activity during learning using the lecture method assisted by crossword media had not yet reached the target success criteria for researchers and teachers, namely ≥ 75% of the number of students in one class so it would continue with Cycle II. To illustrate the percentage score of students' accounting learning activities, the following diagram is presented regarding students' accounting learning activities based on the table 8.

Table 8.
Results of Research and Development of Learning Media Cycle II

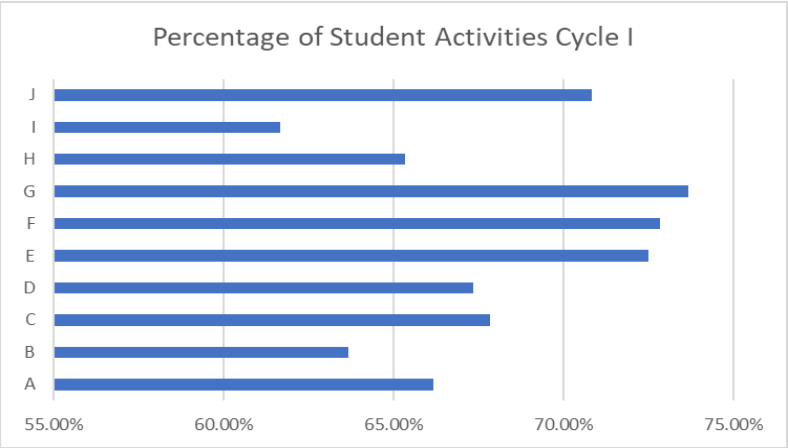
No	Observed indicators	Percentage of Student Activities
1	Students read relevant Accounting material	81.83%
2	Students pay attention to the teacher's explanation of the material	89.33%
3	Students ask questions to teachers or friends during the teaching and learning process	85.17%
4	Students provide opinions, suggestions, comments to teachers or friends about the material being discussed	77.17%
5	Students discuss in groups	85.67%
6	Students listen to teacher or friend explanations during the learning process	87.33%

No	Observed indicators	Percentage of Student Activities
7	Students take notes on the material presented by the teacher	91.83%
8	Students record the results of the discussion	85.17%
9	Students write answers during a crossword puzzle game	88.17%
10	Students find the right answer in doing group assignments	89.33%
Average student learning activity		86.1%

Source: Processed By Researchers (2024)

Data regarding the calculation of student learning activities in cycle II is based on the table 8, from students in class material from the teacher, 85.17% of students asked questions to teachers or friends during the teaching and learning process, 77.17% of students gave opinions, suggestions, comments to teachers or friends about the material being discussed, 85.67% of students discussed in groups, 87.33% of students listened to the teacher's explanation or friends during the learning process, 91.83% of students recorded the material presented by the teacher, 85.17% of students recorded discussion results, 88.17% of students wrote answers during crossword games, and 89.33% of students participated in doing group assignments. From the results, these percentages are added up and then divided by the number of indicators, the average student learning activity in cycle II is obtained at 86.1%. This number has reached the target desired by researchers and teachers, namely more than 75% of the total number of students in one class are active in the accounting teaching and learning process.

To illustrate the percentage score of students' accounting learning activities, the following diagram is presented regarding students' accounting learning activities based on the picture 4.

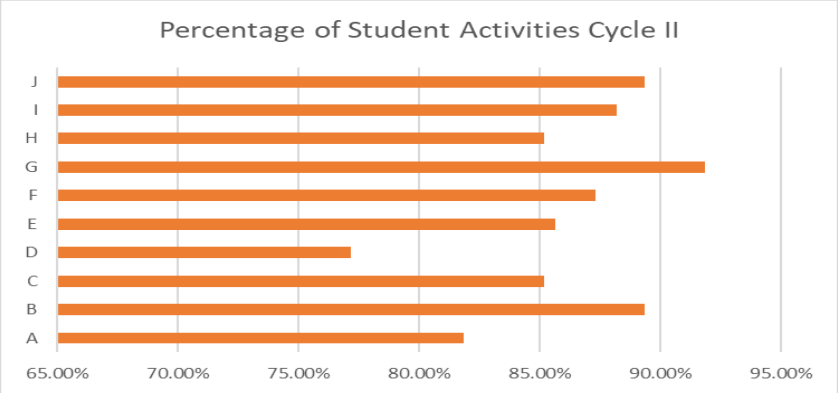


Source: Processed By Researchers (2024)

Figure 5. Percentage of Student Activities Cycle I

Discussion of students' accounting learning activities. In cycle I it cannot be said to be optimal because judging from the learning activities of students there are still those who do not pay attention to the teacher's explanations, talk to their friends, students still do not want to ask questions and express opinions to the teacher. Students are also still reluctant to take notes on the material presented by the teacher. Reflection in cycle I was carried out to improve the implementation of cycle II actions. Improvements made include providing clear instructions to students, motivating students to play an active role in doing group assignments, providing an understanding of the purpose of the game, and making variations of questions in crossword puzzles according to the material being studied. Through improving the learning activities of class This is in accordance with the opinion of Anwar (2019) that the factors that influence the success of implementing student activity-based learning are the application of appropriate learning methods and learning media.

The following picture 5 shows data on how using crossword learning media to improve students' accounting learning activities in class XI Accounting and Financial Institutions at SMK Negeri 1 Depok's accounting competency of service firms:



Source: Processed By Researchers (2024)

Figure 6. Percentage of Student Activities Cycle II

Based on the data above, student learning activity in reading material increased, which was shown in cycle I by 66.17% to 81.83% in cycle II. This increase was because in cycle II the questions in crossword puzzles were material studied during the learning process. This encourages students to study accounting lesson material.

Student participation in paying attention to the teacher's explanation of the material increased from cycle I by 63.67% to 89.33% in cycle II. This increase was because students began to feel happy with the learning media applied during learning. Students enthusiastically participate in the teaching and learning process. Students' activeness in asking questions to teachers or friends during the teaching and learning process increased from cycle I by 67.83% to 85.17% in cycle II. This increase occurred because the crossword puzzle questions in cycle II used material learned during the teaching and learning process. This encourages students to ask questions during the teaching and learning process.

Students' activeness in providing opinions, suggestions or comments to teachers or friends about the material being discussed in cycle I was 67.35%, increasing to 77.17% in cycle II. The aspect of expressing opinions in discussions has increased because expressing opinions will provide alternative answers, making it easier to find the right answer. Students become brave to express opinions and arguments.

Student participation in discussions increased from cycle I of 72.50% to 85.67% in cycle II. This happens because the teacher explains the rules of the crossword puzzle game well and clearly to students. This makes students understand and active in discussions. Student participation in listening to teacher or friend explanations during the learning process increased from cycle I by 72.83% to 87.33% in cycle II. Based on data obtained from a questionnaire regarding the application of crossword puzzle media, this increase is because students are happy and interested in the application of learning media used by teachers during the teaching and learning process. This causes students to enthusiastically listen to the teacher.

Students' activeness in recording material presented by the teacher increased from 73.67% in cycle I to 91.83% in cycle II. This is because students begin to understand that the material presented by the teacher can later be used as learning material. This causes students to become active in taking notes on the material presented by the teacher. Student participation in recording discussion results increased from 65.33% in cycle I to 85.17% in cycle II. This is because students began to be interested in finding answers in crossword games in cycle II. This causes most students to record the results of the discussion.

Students' activeness in writing answers when playing crossword puzzles increased from 61.67% in cycle I to 88.17% in cycle II. This increase was due to the teacher explaining the rules of the crossword puzzle game clearly so that students were encouraged to work in groups and write answers when playing the crossword puzzle game. Students become actively involved in learning. Students' activeness in finding the right answer in doing group assignments in the form of crossword puzzles increased from 70.83% in cycle I to 89.33% in cycle II. This is because students are starting to be interested in crossword puzzle games and are challenged to find the right answer. Students take turns answering questions in the crossword game. Students answer questions in a crossword puzzle game and explain the answers to friends in one group.

The results of this research indicate that there is an increase in learning activity with the application of accounting crossword media. This is shown in student learning activities in cycle I which amounted to 68.18% in the implementation of actions in cycle II which increased to 86.1%. This increase has achieved the expected indicator of success, namely ≥75% of the number of students in one class who have been active during the learning process by implementing accounting crossword media. The results of this research prove the hypothesis that the application of crossword puzzles can increase learning activities in the accounting competency of class XI students at SMK Negeri 1 Depok.

Evaluation

At this stage, an evaluation of accounting crossword media products was carried out to measure the level of practicality and effectiveness of learning media in accounting learning in vocational high schools.

Student responses were carried out after students carried out testing using accounting crossword media. The student response sheet was given by the researcher via Google Form, where the results of the practicality test are displayed in Table 8.

Table 9.
Practicality Test Results from Student Responses

No	Category	Indicator	Percentage	
1	Comprehensive	Indicator 1	90%	89%
		Indicator 2	88%	
2	Accurate	Indicator 3	88%	88%
		Indicator 4	88%	
3	Easy to use	Indicator 5	91%	92%
		Indicator 6	93%	
4	Useful for Users	Indicator 7	90%	92%
		Indicator 8	94%	
Average				89,5%

Source: Processed By Researchers (2024)

Based on Table 8, it is known that the results of student responses regarding the level of practicality after using accounting crossword media are an average of 89.5%, which means the application is very practical to use as a learning medium. It is hoped that with this practicality, lecturers can make better use and packaging of accounting crosswords, which can become a learning medium for teachers and students that can be used at any time. This level of practicality also makes it a form of assessment that this learning media is easy to use (Mahuda et al., 2021).

The accounting crossword learning media that has been developed is then tested for its level of effectiveness, whether it meets the practical elements of the media or not. The results of the practicality test are presented in table 9.

Table 10.
Results of Accounting Crossword Learning Media Effectiveness Test

No	Category	Item Butir	Percentage		Keterangan
1	Makes the teacher's job easier	Item 1	91%		
		Item 2	91%	91%	Very effective
		Item 3	92%		
2	Going according to plan	Item 4	94%		
		Item 5	94%	95%	Very effective
		Item 6	96%		
		Item 7	96%		
Average				93%	Very effective

Source: Processed By Researchers (2024)

Based on Table 9, it can be seen that the total average percentage score for effectiveness results from the trial is 93% with the category "Very effective" with details of the category making teachers' tasks easier at 90% with the category "Very Effective", and the category running according to plan at 95% with “Very Effective” category. The effectiveness of learning media is very important so that the implementation of learning can take place effectively and efficiently and achieve the goals of education. Assessment of product quality, design, and usability/usefulness is indeed very good if it is to be used as a learning evaluation medium in the digital era like today. An elegant concept, with a combination of game forms, and easy to use by participants and creators, this accounting crossword learning media can be the best alternative to be used as an option for educators.

CONCLUSION

The results of the research that has been carried out can be concluded that the accounting crossword puzzle learning media that has been developed can be used as a student learning media because it has been proven to be valid, practical and suitable for use. The results of validation by experts show that the material and instruments obtained a value of 0.81-1.00, which means they are valid. The expert validation results for the accounting crossword puzzle learning media were 0.88-1.00, which means they are valid. The test results using the application show that the average student score is 81.53 in the good category. The assessment of student responses to the practicality test using accounting crossword puzzle learning media obtained a score percentage of 89.5%, which means very good. The feasibility test results show that the application is very suitable for use as learning media with a percentage of 93%.

The development of accounting crossword puzzle learning media can increase learning activities in accounting learning. The overall average data obtained from observations shows that there has been an increase in the average aspect of student learning activities from 67.08% to 83.92%. Based on the daily notes of class XI students at SMK Negeri 1 Depok, it shows positive changes in students becoming more active and participating in accounting learning. Students demonstrate this by participating actively in the accounting crossword activity and listening intently to the teacher's explanations. Students are enthusiastic about the learning process by applying the accounting crossword puzzle learning media that has been developed. Students do not get bored quickly while taking accounting lessons. Students can listen to the teacher's explanation of the material and can express opinions and comments to the teacher and friends so that communication is established.

Based on daily records, it also shows an increase in student learning activities. There has been an increase in student participation in the learning process, a decrease in the number of students who are sleepy when learning accounting. Based on the questionnaire regarding the application of crossword puzzle learning media, it shows that students are happy and enthusiastic when working on crossword games and participating in discussions. Future research can develop accounting learning media that is more in-depth on other competencies in accounting subjects. Future research should prepare better and make better time management in observations. Future research can expand and increase the number of research samples.

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