

THE DEVELOPMENT OF PINBALL ACCOUNTING MEDIA TO IMPROVE STUDENT LEARNING MOTIVATION

PENGEMBANGAN MEDIA PEMBELAJARAN PINBALL ACCOUNTING UNTUK MENINGKATKAN MOTIVASI BELAJAR SISWA

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Abstrak

This research aimed to develop Pinball Accounting as a learning media to increase learning motivation in Class X SMK N 2 Magelang with basic competency materials Adjusting Journal Entries, examines the feasibility of Pinball Accounting as Learning Media and also examines the motivation improvement of Student after the development Pinball Accounting learning media. This research used Research and Development (R & D) models and adapted ADDIE development model, which include 5 phases, namely: Analysis, Design, Development, Implementation, and Evaluation. The research results show that Material Expert obtained average score of 3.53 included in the Category of feasible, Media Expert obtained average score of 4.37 which is included in the category of Very Feasible, and Learning Practitioner obtained average score of 4.64 included in the category Very Feasible. Student learning motivation obtained an increase of 10,08% from 75,11% to 85,19% so Pinball Accounting media can improve student Learning Motivation.

Keywords: Learning Media, Student Learning Motivation, ADDIE, Adjusting Journal Entries

Abstract

Penelitian ini bertujuan untuk mengembangkan Pinball Accounting sebagai media pembelajaran untuk meningkatkan motivasi belajar di Kelas X SMK N 2 Magelang dengan materi kompetensi dasar Ayat Jurnal Penyesuaian, menguji kelayakan dari Pinball Accounting sebagai Media Pembelajaran dan juga mengkaji peningkatan motivasi siswa setelah pengembangan Media pembelajaran Pinball Accounting. Penelitian ini menggunakan model Research and Development (R & D) dan model pengembangan ADDIE yang disesuaikan, yang meliputi 5 fase, yaitu: Analisis, Desain, Pengembangan, Implementasi, dan Evaluasi. Hasil penelitian menunjukkan bahwa Ahli Materi memperoleh skor rata-rata 3,53 termasuk dalam kategori layak, Ahli Media memperoleh skor rata-rata 4,37 yang termasuk dalam kategori Sangat Layak, dan Praktisi Pembelajaran memperoleh skor rata-rata 4,64 termasuk dalam kategori Sangat Layak. Motivasi belajar siswa diperoleh peningkatan sebesar 10,08% dari 75,11% menjadi 85,19% sehingga media Pinball Accounting dapat meningkatkan motivasi belajar siswa..

Kata Kunci: Media Pembelajaran, Motivasi Belajar Siswa, ADDIE, Ayat Jurnal Penyesuaian

PENDAHULUAN

Nowdays education is rated as something that is very important to establish qualified human resources to support the achievement of national development goals. Through education, people will able to think systematically,

critically, and rationally to a problem encountered. That thing is caused by the knowledge, skill, value, character, and attitude which are transferred through an educator. Today, the development of science and technology demands people

to always run hand in hand so that the qualified of education can answer the challenge.

Vocational High School as one of the vocational institutions has a duty to prepare their students directly involve in the world of work. Students at the Vocational High School equipped with knowledge and skills in accordance with their respective expertise program. Therefore, the quality of education should be improved from the infrastructure to the learning method. One of the programs that is being interested in vocational skills is Accounting. This learning competence is identical with calculation. Starting from the analysis of transactions, theory of accounting and also the presentation of financial statement. In the calculation material the intens practice is needed so that the students can easily understand the material. Meanwhile the material that is theoretical it is needed learning method which is media. Media is important to give the different learning variation so that the learning is not boring.

Every element of education should be considered so that the purpose of education can be achieved. The success of the learning process becomes an important factor in realizing the education goals. The efforts to improve the success of the learning process needed some alternatives such as the fulfillment of

educational infrastructure, curriculum development, and learning media innovation. Within the scope of the learning process, learning media innovation is necessary to increase the interest, motivation or even the student achievement. Therefore, students need a good learning process.

According to Gagne 'and Briggs (1971) in Arsyad (2011: 4) learning media is a tool that is physically used to explain learning material (the intended media such as book, tape recorder, tape, video camera, video recorder, film, slide , photo, picture, graphic, television and computer). Besides, learning media can certainly help students to prepare and receive the material because it can be used independently at home. Learning media should be packaged in an interesting way so that students are interest and enthusiast when doing the learning process.

The learning process involves student learning motivation. Two basic factors that affect the low motivation of student learning are internal and external factors. Internal factors are the factors causing the barriers that arise from the students themselves while external factors are factors that come from the environment outside the individual. Examples of barriers from personal students such as lazy in studying, lazy reading, lack of ability in time

management, and unhealthy condition of student while external factors such as rowdy class atmosphere, ineffective learning model, the use of less precise learning media, and so forth. To overcome the low motivation of students, teachers require solutions that are suitable to internal and external factors.

The decrease in learning motivation and the emergence of boredom in the classroom can lead to discipline. Students who are not interested in what they learn or do not see any relevance in it can be a disruption in the classroom because there will be differences in the goals between students and teachers. Good teachers need to apply positive methods to motivate students so they are eager to learn and to feel valued, to have willingness to work hard, to follow rules, and to finish their education with positive values.

Based on preliminary observations held in January 8, 2018 when Teaching and Learning Activities Basic Competency Service Company Cycle students class X Accounting 1, showed that students still passive in the learning process. Learning is held by conventional methods. Conventional learning is a learning process that teacher explains in front of the class, and the students just listen to it. Based on the observations of researchers, learning to conventional

model makes students cannot stay on their concentration until class ends. The learning process in the afternoon also makes the classroom atmosphere is not conducive. Some students look sleepy, chatting with friends, and playing cell phone. Regarding to these conditions, it is needed a variety of learning that can make students easier in receive the material and not get bored with the teacher's explanation. Teacher that teaches this subject is more often using textbooks and learning media that related to the material. Delivery methods is by lecturing then giving exercises to be done. Such methods will impede the learning process characterized by the lack of attention of students to the material provided. In addition, the researcher also conducted an interview to the students accounting skill program that in learning on the accounting service companies cycle have obstacle on the process of making Adjusting Journal Entries. Therefore, researcher tries to provide solutions by using Pinball Accounting learning media on Basic Competition Adjusting Journal Entries.

Based on the problems described, the development of learning media is needed to provide more learning resources that can improve students' learning motivation. Researcher interested in conducting research with the title "The

Development of Pinball Accounting Media to Improve Learning Motivation on Basic Competence Adjusting Journal Entries in Service company For Accounting Student Class X SMK N 2 Magelang”.

RESEARCH METHODS

Type of Research

The research used research and development method or often called (RnD). Sugiyono (2015: 407) states that "research and development methods are research methods used to produce a particular product, and test the effectiveness of the product". The result of thi product in this research is Pinball Accounting learning media to improve the Learning Motivation in Basic Competence Adjusting Journal Entries.

Pinball Accounting media development as a learning media using the ADDIE model. Endang Mulyatiningsih (2012: 200) describes the development of a 5-step model of ADDIE namely Analysis (Analysis), Design (Design), Development (Development), Implementation (Implementation) and Evaluation (Evaluate). Pinball Accounting learning media is expected to be one of the alternative learning media for basic accounting subjects, Basic Competence Adjustment Journal Entries and be able

to increase student learning motivation in basic accounting lessons.

Time and Place of Research

The research was conducted at SMK N 2 Magelang in class X Accounting for academic year 2017/2018. The study was conducted in January-May 2018.

Subject and Object of The Research

The subject of this research is one media expert (Lecturer of Accounting Education, UNY), one material expert (Lecturer of Accounting Education, UNY), one accounting learning practitioner (SMK N 2 Magelang Accounting Teacher), and X Accounting 1 student amounted to 36 children. While the object in this study is the Pinball Accounting Learning Media and Learning Motivation.

Research Procedures

This research procedure adapts the development model of ADDIE, a development model consisting of Analysis, Design, Development, Implementation, Evaluation. According to Endang Mulyatiningsih (2012: 183-184) the ADDIE model can be used for various forms of product development such as models, learning strategies, learning methods, media and teaching materials. Pinball Accounting media development procedures in accordance

with the adoption of the ADDIE development model are as follows:

1. Analysis Stage

At this early stage researchers analyzed the problems in class X Accounting SMK N 2 Magelang. Motivation Student learning in the class is still low. Low Learning Motivation of students one of them caused by the methods and media used in monotonous learning. Students need an interesting, fun learning media, and can make students better understand the material they are learning. Pinball Accounting learning media is expected to meet the needs of students of class X Accounting SMK N 2 Magelang the availability of variations of learning media is interesting and not boring and can improve the Learning Motivation.

2. Design Stage

The second stage is the design stage or design of learning media Pinball Accounting includes concept creation, preparing RPP, and instrumentation grid validation. The researcher will process the data from the initial analysis result so as to produce:

a. Drafting

Researchers began to create the concept of Accounting Pinball

game that will be adapted to the material and Basic Competence Adjusting Journal Entries.

b. Preparing Plan of Learning Implementation

After the concept of the product was finished, the researcher prepares Plan of Learning Implementation which contains Adjusting Journal Entries material using Pinball Accounting Learning Media in the learning process. Preparation of Plan of Learning Implementation starts from the identity, learning objectives, learning materials, learning methods, learning media, steps of learning activities, learning resources, and assessment. The material in Pinball Accounting has been adapted to the existing competencies.

c. Compose the Grid of the Product Validation Instrument

At this stage the instrument validation grid is structured to create a validation questionnaire addressed to the material expert (Patriani Wahyu Dewanti, S.E, M.Acc), media expert (Rizki Ilyasa Aghni S.Pd., M.Pd.), learning practitioner (Laely Inayah,

S.Pd) and students (students of class X Accounting SMK N 2 Magelang).

- d. Develop learning motivation instrument used to measure student's learning motivation before and after use of interactive learning media, then perform instrument test with validity and reliability test.

3. Development Stage (Development)

The third stage is the development stage. This stage includes product creation, product usability validation, and fixes or revisions. After the product is finished then the next step is validation of product usage by Material Expert (Patriani Wahyu Dewanti, S.E, M.Acc.), Media Expert (Rizki Ilyasa Aghni S.Pd., M.Pd.), learning practitioners (Laely Inayah, S.Pd.) and students. Then do the repair/revision of Pinball Accounting learning media.

a. Making Product

Making the learning media of all materials designed into one, in order to become a learning media that has been conceptualized.

b. Expert Validation

Products that have been created then validated by Material Expert (Patriani

Wahyu Dewanti, S.E, M.Acc.), Media Expert (Rizki Ilyasa Aghni S.Pd., M.Pd.), and learning practitioners (Laely Inayah, S.Pd.). The validation results containing comments and suggestions.

c. Revision I

After the product have been validated, it will be revised in accordance with comments and suggestions from media experts and material experts.

d. Revision II

Products are revised based on feedback and advice provided by accounting learning practitioners. The revised product at this stage is then used in the implementation stage to the students as a product usage target.

4. Implementation Stage

In the fourth stage is the implementation phase, at this stage the product of the revision is implemented to the students through two stages, the first one is small group trial and field trials.

a. Small Group Trials

At this stage the product is tested to 12 students of

class X Accounting 2 SMK N 2 Magelang. At this stage the researchers also distributed a questionnaire to determine the students' assessment of the products developed.

b. Field Trial

At this stage the product is tested to 36 students of class X Accounting 1 SMK N 2 Magelang. At this stage also distributed a questionnaire to determine the students' ratings of the product assessment and questionnaire Learning Motivation.

5. Evaluation Stage (Evaluation)

In the fifth stage the researchers conducted an evaluation to measure the success of product development goals Pinball Accounting Media is improving the Learning Motivation basic competence Adjusting Journal Entry. The product effectiveness test is carried out in the final stages of media development after the finished product and has passed the validation stage. The effectiveness test is carried out to determine the effectiveness of the product if applied to a broader research subject. Researcher conduct research on student learning

motivation. Tools to measure students' learning motivation by sharing questionnaires of learning motivation before and after media application.

Data Collection Technique

a. Data collected in the study includes qualitative and quantitative data, namely (1) Qualitative data is data about the development process of Pinball Accounting learning media in the form of criticism, suggestion, comment, and input from from material expert, media expert, practitioner of Accounting and student appraisal. (2) Quantitative data is the principal data in research in the form of data

a. Feasibility assessment of the Pinball Accounting Media is an assessment score from a material expert, a media expert, a learning practitioner, and a student.

b. Assessment of media learning feasibility by media experts, material experts, and learning practitioners

The data collected from questionnaires of media experts, material experts, and accounting learning practitioners will be analyzed by the following steps:

Table 1. Likert Scale Assessment Criteria Validation Experts

Criteria	Score
Very Feasible	5
Feasible	4
Enough	3
Infeasible	2
Very Infeasible	1

- a. Changing the qualitative to quantitative assessment
Source: Sugiyono (2015; 135) with modifications
- b. Calculating the average value of the score of each indicator by the formula:

$$X = \frac{\sum X}{n}$$

Information:

- X : The mean score
- $\sum X$: The total score of each aspect
- n : Number of trial subjects (Eko Putro Widoyoko, 2011: 237)

- c. Sums the average score of each aspect
- d. Interpret qualitatively the average number of scores per aspect by using the five scale score conversion formula.

Table 2. Conversion Formulas Average Score on Scale Five

Score	Formula	Value	Category
5	$X > X_i + 1,80S_{bi}$	A	Very Feasible
4	$X_i + 0,60S_{bi} < X \leq X_i + 1,80S_{bi}$	B	Feasible
3	$X_i - 0,60S_{bi} < X \leq X_i + 0,60S_{bi}$	C	Enough
2	$X_i - 1,80S_{bi} < X \leq X_i - 0,60S_{bi}$	D	Infeasible
1	$X \leq X_i - 1,80S_{bi}$	E	Very Infeasible

Information:
X : The number of scores obtained

Ideal maximum score :
The number of indicators x highest score

Ideal minimum score : The number of indicators x lowest score

X_i : $\frac{1}{2} (\text{max score} - \text{min ideal base} + \text{score})$
 $\frac{1}{2} (5 + 1)$
: 3

S_{bi} : $\frac{1}{6} (\text{max score} - \text{min ideal base} + \text{score})$
: $\frac{1}{6} (5 - 1)$
: 0,67

(Eko Putro Widoyoko, 2011: 238)

Table 3. Guidelines for Conversion Score on Assessment Results with 5 Categories

Score	Formula	Value	Classification
5	$X > 4.20$	A	Very Feasible
4	$3.40 < x \leq 4.20$	B	Feasible
3	$2.60 < x \leq 3.40$	C	Enough
2	$1.80 < x \leq 2.60$	D	Infeasible
1	$X \leq 1.80$	E	Very Infeasible

- b. Measure Improving Student Motivation

To determine the role of Pinball Accounting Learning Media in improving student learning motivation, the data is analyzed by following the steps as follows:

Table 4. The scoring criteria on Learning Motivation Questionnaire

Criteria	Score	
	Positive	Negative
Strongly Agree (SS)	5	1
Agree (S)	4	2
Less Agree (KS)	3	3
Disagree (TS)	2	4
Strongly Disagree (STS)	1	5

Source: Sugiyono (2015: 135)

Improvement Motivation Student learning will be analyzed by using gain score. The gain-score data analysis technique is by calculating the gain value (g) by the formula:

$$g = \frac{\% \text{ of final motivation average} - \% \text{ average initial motivation}}{100 - \% \text{ average of initial motivation}}$$

(Hake, 2012: 1)

The results of calculations using the formula above and then interpreted into categories of criteria gain value shown in the table.

Table 5. Gain Value Criteria

value g	Criteria
$g > 0.7$	High
$0.3 < g < 0.7$	Moderate
$g < 0.3$	Low

Source: Hake (2012: 1)

RESULT OF THE RESEARCH AND DISCUSSION

The Product Development of Pinball Accounting Media

The Development of Pinball Accounting Learning Media follows the ADDIE model consisting of five stages: analysis, design, development, implementation and evaluation. The overall implementation of the development procedure in this research in detail can be seen in the following description:

- a. Analysis Stage. The activities in this stages include: Analysis of student needs Curriculum analysis Competency analysis.
- b. Design Stage. The activities in this stages include: Making Concept, Making Lesson Plan, Validation grating instruments
- c. Development Stage. The activities in this stages include: Product Making, Expert Validation, Revision
- d. Implementation stage. The activities in this stages include: The small group trial, Field trials
- e. Evaluation stage. This evaluation is carried out to determine the increase motivation to learn after the use of Media Pinball Accounting at the Basic Competence Adjusting Journal Entries.

Feasibility of Pinball Accounting Learning Media

Feasibility of Pinball Accounting learning media was known through the stages of validation by expert:

1. Material Expert

Table 6. Recapitulation of Assessment by Material Expert

No.	Aspects	Score
1	Aspects of Learning Design	3.53
	Category	Feasible

Media developed in terms of learning design by the material experts obtained score 3.53. Based on the conversion of scores into the five-scale scores, the results of validation of the material expert on the learning aspects are in the range of $3.40 < X \leq 4.20$ so it got the "B" value with the category "Feasible".

2. Media Expert

Table 1. Recapitulation of Assessment by Media Expert

No.	Aspects	Score
1	Media Design Aspects	4.00
	Visual	
2	Communication Aspects	4.73
	Category	Very Feasible

Media developed in terms of media design aspects and Visual Communication Aspects by media experts obtained average

score of 4.37. Based on the conversion of scores into the five scale scores, the results of media expert validation on media design aspects and Visual Communication Aspects are in the range $X > 4.20$ so it got "A" value with the category "Very Feasible".

3. Learning Practitioner

Table 2. Recapitulation of Assessment by Accounting Learning Practitioner Expert

No.	Aspects	Score
1	Media Design Aspects	4.40
2	Learning Design Aspects	4.86
	Visual	
3	Communication Aspects	4.67
	Category	Very Feasible

Media developed in terms of media design aspects, learning design aspects and visual communication aspects by learning practitioners are obtained average score 4.64. Based on the conversion of scores into the five-scale scores, a validation result of learning practitioners on the media design aspects, learning design aspects and visual communication aspects are in the range of $X > 4.20$

so it got an "A" value in the category of "Very Feasible".

Implementation of Pinball Accounting to the Students

1. The small group trial

Table 9. Recapitulation of Student Assessment on Small Group Trials

No .	Aspects	Total score	Score
1	Media Design Aspects	21,50	4.30
2	Learning Design Aspects	16.59	4.17
3	Visual Communication Aspects	26.15	4.35
Average Score			4.27
Category			Very Feasible

The assessment of students to the media developed in terms of media in terms of media design aspects, learning design aspects and visual communication aspects are obtained average score of 4.27 which is in the range of $X > 4.20$ so it got an "A" value with "Very Feasible" category

2. Field trials

Table 10. Recapitulation of Student Assessment on Field Trial

No .	Aspects	Total score	Score
1	Media Design Aspects	21.36	4.27
2	Learning	17.47	4.37

Design Aspects			
3	Visual Communication Aspects	26.44	4.41
Average Score			4.35
Category			Very Feasible

The assessment of students to the media developed in terms of media design aspects, learning design aspects and visual communication aspects are obtain average score 4.35 which in the range of $X > 4.20$ so it got an "A" value with "Very Feasible" category.

Improvement Learning Motivation

Table 11. Learning Motivation Results Before and After Implementation of Media

No.	Statement	Value	Average (%)	Increase (%)
1	Motivation Before Application Media	2704	75.11	10.08
2	Motivation After Application Media	3067	85.19	

An increased learning motivation on students amount 10.08% from 75.11% (Motivation before application of the media) to 85.19% (Motivation after application of the media).

Furthermore, to know the interval difference improvement of Learning Motivation before the application of media and after the application of media then tested gain score. The test score gain formula is:

$$g = \frac{\% \text{ average motivation end} - \% \text{ average initial motivation}}{100 - \% \text{ average initial motivation}}$$

$$= \frac{85.19 - 75.11}{100 - 75.11}$$

$$= \frac{10.08}{24.89}$$

$$= 0.40$$

Based on the gain test, obtained 0.40 value. According to that value that refer to table 14 about acquisition category gain value so Pinball Accounting media can increase learning motivation because it has a gain value in 0.40 g which in the range $\leq 0.3 < 0.7$ with medium category.

CONCLUSION AND SUGGESTION

Conclusion

Based on the results of research and discussion, it can be concluded that:

1. Development of Pinball Accounting Learning Media through five stages and shows the following results:
 - a. Analysis. Based on the analysis, then the appropriate product to be developed as learning media in

Basic Competence Adjusting Journal Entry is the Pinball Accounting Learning Media.

- b. Design. At this stage produces the concept of game design and design of Pinball Accounting Learning Media. At this stage also produces the Lesson Plans and the grid of the Pinball Accounting media valuation tool.
- c. Development. At this stage produces a ready-made Pinball Accounting Learning Media product and has passed the validation assessment stage of the experts (material experts, media experts, and learning practitioners) and has been revised in accordance with expert advice, so Pinball Accounting Learning Media is already to be use for implementation.
- d. Implementation. At this stage produces Pinball Accounting Learning Media products that have passed the assessment stage of the students either from small group testing stage or field trial.
- e. Evaluation. This stage is the final stage of the development of Pinball Accounting Learning Media that is measuring the achievement of product development objectives seen from

the improvement of Student Motivation. From the measurement results of Learning Motivation using gain score, Pinball Accounting media can improve the Motivation of Students of Class X Accounting 1 SMK N 2 Magelang by 0.40. Increased Learning Motivation included in the category of being.

2. Feasibility of Pinball Accounting Learning Media on Basic Competence Adjusting Journal Entries based on assessment from Material Expert obtained average score of 3.53 included in Category Feasible, Media Expert assessment obtained average score of 4.37 which belongs to the category Very Feasible, and assessment from Practitioner Learning obtained the average score of 4.64 is included in the Very Feasible category. Based on the assessment of the experts obtained the average overall score of 4.37 which lies in the range $X > 4.20$ and get the category "Very Feasible". Thus, it can be concluded that Pinball Accounting media feasible to be used as a learning media in SMK that seen from the assessment of experts.
3. Student assessment on Pinball Accounting Learning Media in

small group test overall got average score 4.27 which lies in the range $X > 4.20$ so it got "A" value with the category "Very Feasible" and student assessment on field trials overall got average score 4.31 which lies in the range $X > 4.20$ so it got "A" value with the category "Very Feasible". Thus Pinball Accounting Learning Media is feasible of being used as learning media in Vocational students seen from the students' assessment.

4. Improvement Learning Motivation of the student class X Accounting 1 SMK N 2 Magelang can be seen from the results of the Learning Motivation questionnaire analysis which increased by 10.08% from 75.11% (before the use of learning media) to 85.19% (after the use of learning media). The result of calculation by using gain score shows that the learning media Pinball Accounting can improve student's Motivation of 0.40. Increased Learning Motivation is entered into the moderate category of being because the value of the gain is in the range $0.3 < g < 0.7$.

Suggestion

Based on the development research and the limitations of the

research that have been explained, Pinball Accounting Learning Media as a learning media is still has deficiency. Therefore, some suggestions utilization and further development of products required are as follows:

1. Pinball Accounting Learning Media is feasible to be developed as a accounting learning media that proven could improve learning motivation of student so that teacher can use it as an alternative media that can be applied by students in basic competence/other materials.
2. Pinball Accounting board should be made by an expert person in the art so that the form and the size are depending to the desired. Pinball parts in a design made more attractive and brighter color again.
3. Need for further development of Pinball Accounting learning media so that the material is not only limited to the basic competence adjusting journal entries but also to cover all the basic competencies.
4. Measurement of learning motivation after the use of the media is not just one class only, but also use some class to know the more optimal results.
5. Pinball Accounting Learning Media neatly packed again in order to have economic value and can be traded

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