

Development of Learning Media Based on MOODLE Integrated with Blended Learning in Mathematic Learning Process at SMA Muhammadiyah Al-Amin Sorong.

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Abstract. This research aimed to produce a web e-learning (moodle) media intergrated with blended learning method. The objects of this research were the eleventh grade students of SMA Muhammadiyah Al-Amin Kota. This research used ADDIE method (analysis, design, develop, implement, and evaluation). The media and the materials were validated by the expert. The data were collected using expert validation sheets, observation, test result, and questionnaire of students and teacher. The result of the research showed that (i) the media used in the learning process was valid $2,5 \leq M < 3,5$ or the average score was $\bar{V} = 3.1$ and it meant that the media was (ii) the students and the teacher had positive responds to the media (iii) the media were effective to use in learning process, particularly in mathematic learning.

Keywords:

1. Introduction

Technology provides broad, fast, effective, and efficient informations to many people in the world, especially in education and of learning process. The widespread use of the Web and other Internet technologies in post-secondary education has exploded in the last 15 years. Therefore, the teachers supposed to be able to use the technology in learning process. asserts that while technicians can be employed to fix and maintain computers, teachers and educators must know how to exploit ICT for what it does best – opening learners up to the world of knowledge

Based on the description above, to help the students to solve the problems in learning mathematics, it was necessary to develop a web learning media. E-learning has many advantages, it is cheaper than conventional learning process. Therefore, the researchers decided to conduct the research entitled "Development of Web Learning Media (Moodle) Integrated with Blended Learning Method for Mathematics Learning in Grade XI Students of SMA Muhammadiyah Al-Amin, Sorong". Blended learning contexts that integrate physical and virtual components are seen as critical strategies for higher education institutions.



2. Methodology

This research used ADDIE method (Analysis, Design, Develop, Implement, and Evaluate). The method consists of three phases, the were design, development and implementation. The object of the research was the 11th of Mathematic students of SMA Muhammadiyah Al-Amin Sorong. The participants of this research were 20 students and 1 teacher of Mathematic.

3. Result and Discussion

This research produced an e-learning moodle in Mathematic in SMA Muhammadiyah Al-Amin. The following chart was the flowchart of the media based on the website e-learning moodle.

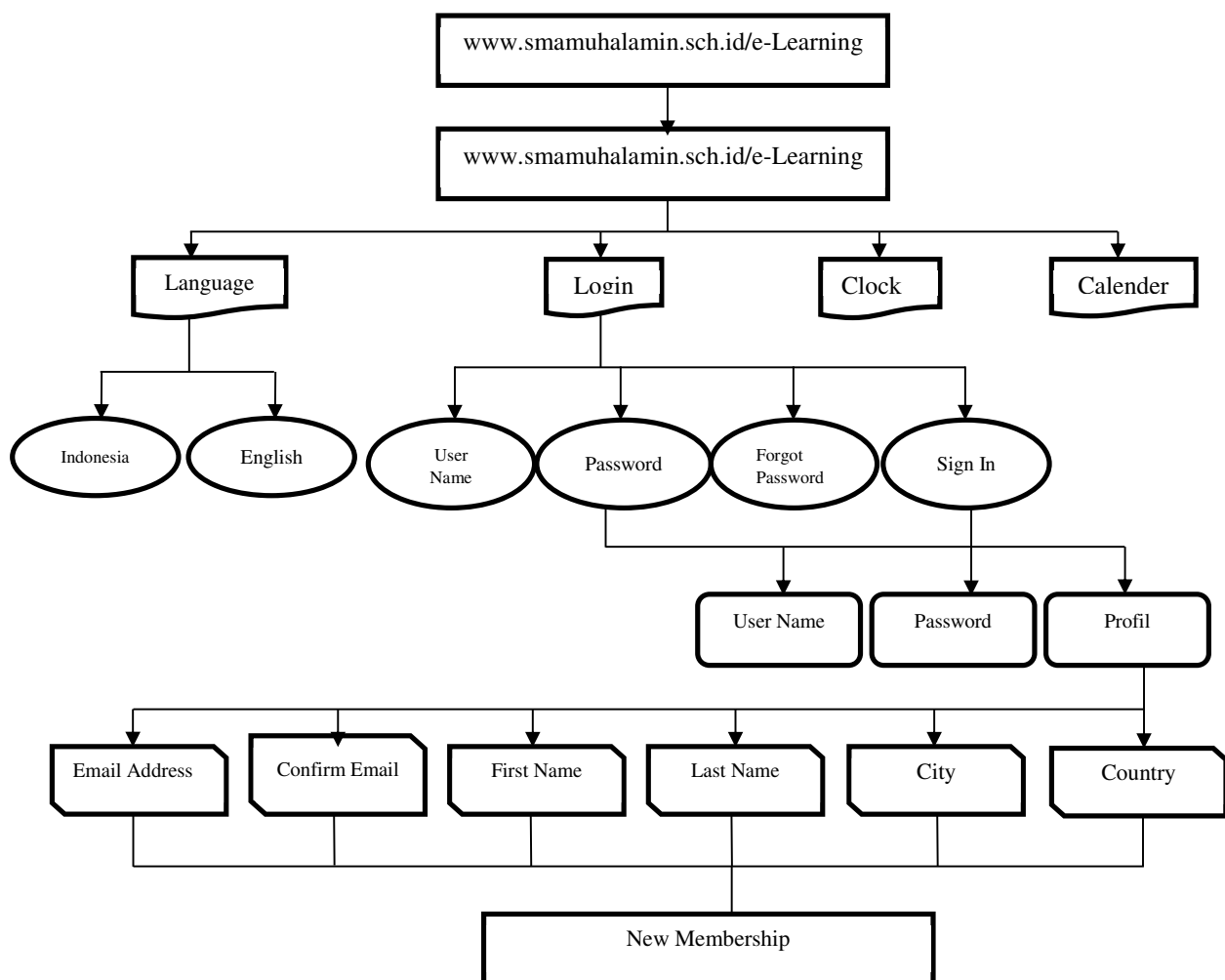
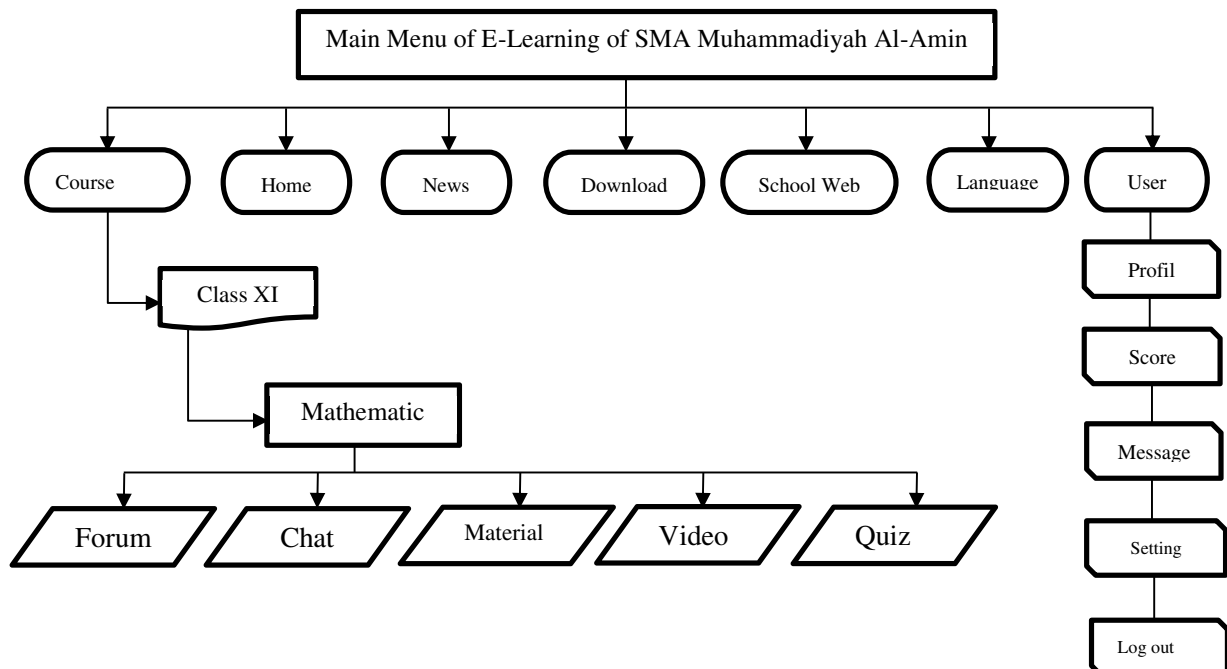


Figure 1. The Flowchart of website e-learning moodle of SMA Muhammadiyah Al-Amin



Figures 2. Flowchart Menu of E-Learning Moodle Website

The materials in the website were inportable document format (pdf) and in the video format. The media and the materials in the website were validated by Drs. Mohammad Sanmas M.Pd a lecturer of STKIP Muhammadiyah Kabupaten Sorong. The teacher questionnaires were validated by Deden Apud Setiawan, S.Pd, and the student questionnaires were validated by the 20 11th students of SMA Muhammadiyah Al-Amin.

The software engineering and visual aspect were validated using Likert Scale which consisted of 4 multiple choices.

Table 1. Validation result of learning media

Indicator		
No.	Software Engineering Aspect	Score
1	Maintainable	2
2	Easy to use	4
3	Flexibility	3
4	Comprehensive	3
5	Reusable	4
Total		16
Average		3.2

Based on the expert validation the score for software engineering was 16, and the average score was 3.2. Based on the result ($2.5 \leq M \leq 3.5$) it concluded that this media was valid to use in the learning process.

Table 2. The validation result of audio visual communication

No.	Indicator Audio Visual Communication	Score
1	Communicative	4
2	Creative	3
3	Simple and interesting	4
4	Interactive	4
5	Motivate	4
6	Audio	2
7	Visual	3
8	Animation	2
Score		26
Average		3.2

The score for audio visual communication was 26 and average score was 3.2. Based on the score it concluded that this media was valid to use in the learning process. The validation score for this media was $2.5 \leq M \leq 3.5$.

3.1 The validation result of material

The questionnaire consists of 10 indicators and four multiple choices for each indicator (very valid, valid, valid enough, and invalid). The result of the validation can be seen as follow:

Table 3. The validation result of material

No	Indicator	Score
1	Learning goal	2
2	The relevance of learning goal and education system.	3
3	The relevance of material and the goal	4
4	Motivate	3
5	Contextual	3
6	Completeness and quality of e-learning	3
7	Comprehensive	3
8	Easy to understand	4
9	Sistematic, clear	3
10	Examples and excercises	3
Total		31
Average		3.1

The score of validation result was 31, while the average score was 3.1 based on the validation criteria the material was in valid category.

3.2 The Evaluation of Teacher Response

Yamasari (2010) stated that there were three categories in validating the response of the teacher in the research, very positive, positive, less positive, and negative [6]. The purpose of the evaluation was to investigate the practicality of the media in the learning process. The media were validated by Deden Apud Setiawan, S. Pd

Table 4. The result of teacher response in mathematic learning process

No.	Indicator	Score
1	Is the media enjoyable?	4
2	Do you have any difficulties when do you use the media in learning process?	4
3	Is the media easy to use?	3
4	Are the materials in the media comprehensive?	3
5	Is there any advantage of learning math using the media than another source?	4
6	Is the learning process using e-learning moodle impressively?	4
7	Are you interested to use the media in learning process?	4
Total score		26
Percentage		92%

Based on the teacher validation it can be concluded that the media was effective to use in the learning process. The score of the validation result was 26, and the average score was 92%. This also showed that this media was “very positive” ($85\% \leq RT$).

3.3 The analysis of learning process using website e-learning (moodle)

The result of learning process using the media was as follow:

Table 5. The Summary of Learning Process

Aspect	Assesment	Teacher Activity			Student Activity		
		Meet1	Meet2	Meet3	Meet1	Meet2	Meet3
Phase 1	Prepare me	3.7	4	3.7	3.7	4	3.7
	Show me	4	4	4	4	4	4
	Let me	4	4	4	4	4	4
Phase 2	Check me	3	3.5	3	4	4	4
	Support me	4	4	4	3.5	3.5	3.5
	Coach me	3.5	3.5	3.5	3	3.5	3
	Connet me	4	4	4	4	4	4

The observation result in phase 1 and phase 2 showed that the learning processes were in “very good” category.

Table 6. Result of learning Process

Assesment Score	Teacher Activity			Student Activity		
	Meet1	Meet2	Meet3	Meet1	Meet2	Meet3
Final Activity	3.6	3.6	3.6	3.6	3.6	3.6

The result of learning process for 3 phases showed that the learning process was in very good category. Based on the result it can be concluded that the learning process using website e-learning integrated to moodle blended learning very effective to use in the learning process.

3.3.1 The analysis of student learning result.

The result showed that the average score of students was 77.05 that means the score of the students was above of the standard. This also showed that 95% of students were success.

3.3.2 The analysis of students response.

The result of students’ response was 84.33% or $70\% \leq RT \leq 85\%$. It showed that the response of the students on the media was positive.

4. Conclusion

Based on the result of the research it concluded that the learning process use e-learning moodle integrated to blended learning was effective to use in the learning process. The media and the material were also valid to use in the learning process. The response of the teachers and the students about the media and the material used in the learning process were very positive. The result of material and software engineering validation were valid and very positive.

5. References

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