

Research Article

Development of Moodle-Assisted Short Story Writing Teaching Materials in Differentiated Learning at Triguna High School 1956

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ABSTRACT

This research aims to develop teaching materials for writing short stories with the help of Moodle with a differentiated learning approach at SMA Triguna 1956 to overcome student demotivation and the limitations of conventional methods. Using the Research and Development (R&D) method with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model, this research involves needs analysis, expert validation (media and materials), and trials to grade XI students. The validation results showed a very high level of eligibility, namely 91.07% (media experts) and 88.3% (material experts), while the students' trial obtained an average score of above 74%, proving that this teaching material is effective and suitable for use. The research findings revealed that the integration of Moodle with a differentiation approach successfully facilitated more adaptive learning, although further testing in various school contexts was required, technology training for students, and the development of materials for other language skills. This study makes a significant contribution to the development of differentiation-based digital teaching materials, with recommendations for further research to evaluate its long-term impact.

Keywords: Digital Teaching Materials; Moodle; Short Story Writing; Differentiated Learning; ADDIE

1. INTRODUCTION

Education is an important foundation in building quality human resources. According to Zubaidah (2020), the process of continuous education throughout life is the main key in facing the challenges of the modern era. In the context of Indonesian language learning, the development of writing skills, especially short stories, plays a strategic role. Research by Purnomo and Suryadi (2021) proves that the use of innovative learning methods can increase student learning outcomes by up to 30%. However, the reality, as revealed by Nurgiyantoro (2020), writing short stories remains the most difficult skill to master because it requires mastery of multi-aspects ranging from creativity, story structure, to linguistic rules. A worrying fact was revealed in a study by Wulandari et al. (2023) which showed that the majority of high school students had difficulty developing original and interesting story ideas. This condition further emphasizes the urgency of developing teaching materials that are truly in accordance with the needs of 21st century learning.

Teaching materials play an important role in improving the quality of learning at various levels of education. The development of well-designed teaching materials can significantly improve student learning outcomes, as evidenced in various academic studies (Prastowo, 2022). Digital teaching materials in particular have shown advantages in increasing student engagement compared to conventional methods, with measurable increases in student active participation (Nurdin et al., 2023). The use of multimedia elements in teaching materials also has a positive impact on students' long-term memory retention, with an increase in learning achievement of up to 35% compared to traditional approaches (Septyanti et al., 2021). These findings consistently show a positive correlation between the quality of teaching materials and the effectiveness of the learning process.

Short stories as a medium of literary learning have been proven to be effective in various academic studies. Learning through short stories is able to improve students' literary analysis skills in a measurable manner, by increasing understanding of the elements of literary works (Wulandari & Santoso, 2023). This approach also has a positive impact on students' reading motivation, showing a significant increase in literacy interest (Sari et al., 2021). Furthermore, short story-based literary learning effectively develops students' critical thinking skills, as seen in the increase in cognitive evaluation scores (Fauzi, 2022). These data strengthen the position of short stories as a comprehensive learning medium for the development of various literacy competencies.

Understanding the structure of short stories is a fundamental component in the development of writing skills. Mastery of narrative elements directly affects the quality of students' writing, with a noticeable difference between trained and untrained groups (Nurgiyantoro, 2021). The majority of students who understand the structure of short stories are able to produce writing with a more systematic and coherent organization of ideas (Damayanti, 2023). More interestingly, there is a clear correlation between mastery of short story structure and creative problem-solving skills, indicating positive skill transfer (Purnomo & Setiawan, 2021). These findings confirm the importance of a systematic approach in teaching short story structure.

Short story writing activities provide multidimensional benefits for the development of students' competencies. A regular short story writing program results in a consistent improvement in creative thinking skills, with measurable long-term effects (Kurniawan et al., 2022). The process of writing short stories also significantly improves students' language expression skills, as seen from the development of the quality of the writing produced (Anggraeni, 2023). The practice of structured short story analysis has been proven to improve critical literacy skills, with a positive impact on understanding complex texts (Rahayu & Pratiwi, 2021). These empirical evidence shows that the integration of short story writing activities in the curriculum provides comprehensive benefits for students' academic development.

The challenges in learning to write short stories are multidimensional and complex. The results of Sari's (2021) research revealed that 72% of students experienced demotivation in creative writing because they felt they had no talent and lacked understanding of good writing techniques. On the other hand, external factors in the form of conventional teaching methods also aggravate this condition, as found by Pratiwi (2022) in his longitudinal study in 15 secondary schools. Field findings conducted by Rahman et al. (2023) in West Java show an interesting paradox: although 85% of teachers are aware of the importance of technology in learning, 68.5% of them still use conventional teaching materials that are less attractive. This situation is exacerbated by the tendency of students who rely only on personal experience as a source of ideas, without the ability to process language imaginatively and creatively. The data shows that there is a large gap between the needs of modern learning and real practice in the field.

This gap drives the need for innovative solutions through the integration of educational technology. Research by Astuti and Wijaya (2023) proves that digital platforms such as Moodle are able to increase student involvement in writing learning by up to 40%. These findings are in line with the concept of differentiated learning by Tomlinson (2020) which emphasizes the importance of adapting the material to individual student characteristics. Furthermore, the experimental study of Wijayanti (2024) showed a significant increase ($p < 0.05$) in the quality of students' short stories after the application of digital-based teaching materials. The advantage of this approach lies in its flexibility that allows students to learn at their own pace and pace, while providing access to more varied and engaging learning resources. Thus, the transformation of conventional teaching materials into an interactive digital format is no longer just an option, but an urgent need in preparing the future generation of writers.

Based on these findings, this study is designed to answer these challenges through the development of Moodle-assisted short story writing teaching materials with a differentiation approach at Triguna High School 1956. The formulation of the problem includes a needs analysis, a development process, and an evaluation of the feasibility of teaching materials—three critical aspects that have not been fully addressed in previous studies. The study not only leverages Moodle as a platform, but also integrates it with differentiated learning principles and ADDIE's development model to ensure its effectiveness. This novelty is important given that previous research used more Canva or Google Sites, without a structured differentiation approach. With a clear road map (preparation of proposals, implementation, and publication), this research is expected to produce teaching materials that are not only theoretically but also practical, so as to be able to overcome student demotivation and the limitations of conventional methods systematically.

2. RESEARCH METHOD

This research uses a Research and Development (R&D) approach with the ADDIE development model which includes five stages: Analysis, Design, Development, Implementation, and Evaluation. The Analysis Stage is conducted to assess student needs, material characteristics, and readiness of supporting technologies such as the Moodle platform. In the Design stage, the researcher compiles short story learning materials and designs Moodle features that suit students' learning styles. The Development Stage produces digital teaching material products which are then validated by media experts and material experts. Implementation is carried out by applying these teaching materials in real learning in the classroom. This research is located at SMA Triguna 1956 and is carried out from January to May 2025. The research subjects include media experts, material experts, and grade XI students who are divided into small-scale (5 students) and large-scale (60 students) trial groups. The data collection technique uses observation to assess the learning process and questionnaires to measure responses to learning media. The research procedure begins with product validation by media experts and material experts to ensure the quality of teaching materials. Observations are focused on classroom learning activities, while questionnaires are designed to gather feedback from experts and students regarding the effectiveness of media. The data were analyzed qualitatively descriptively to describe the development process and observation results, and quantitatively to calculate the level of media feasibility based on the score obtained. The research population was all students of grade XI of SMA Triguna

1956, with a sample selected through purposive techniques which included 5 students for the initial trial and 60 students for the main trial. The criteria for assessing the feasibility of media are divided into four categories, ranging from "Very Feasible" to "Very Less Feasible". The results of the research are expected to provide recommendations for improving the media as well as contributing to the development of innovative digital teaching materials that are in accordance with the needs of students in differentiated learning.

3. RESULTS AND DISCUSSION

3.1 Results

Based on the results of the needs analysis conducted at SMA Triguna 1956, it was found that both teachers and students faced challenges in learning to write short stories. Teachers identify that students have difficulty developing ideas and composing storylines, with writing skills that are still relatively low. As many as 48.5% of teachers strongly agree that students need interactive learning media to solve the problem, while 45.5% agree that Moodle can be a solution for independent and gradual learning. However, only 6.1% of teachers are familiar with the platform, indicating the need for further training. The results of the interview also revealed that teachers have only used PowerPoint as the main media, so it is necessary to develop Moodle-based teaching materials that are easy to operate and able to support differentiated learning according to student needs. On the other hand, the analysis of student needs showed that 53.7% of students often write short stories, but 68.3% had difficulty in using beautiful and varied language, and 51.2% had difficulty developing story ideas. Most students (56.1%) rely on package books or worksheets as teaching materials, which are considered sufficient but not optimal. The majority of students (61%) expressed the need for practice to improve writing skills, with individual learning preferences (58.5%) through text or article materials (48.8%) and video tutorials (36.6%). These findings reinforce the importance of developing Moodle-based interactive teaching materials that provide material variety, structured exercises, and feedback to improve the ability to write short stories independently and effectively. Based on these findings, the teaching material draft model was systematically developed to meet the learning objectives and diverse needs of students. This stage involves the preparation of the structure of the teaching materials that will be integrated into the Moodle platform, with a differentiation approach that allows students to choose how to learn and convey their learning outcomes. Materials are presented in a variety of formats, such as narrative texts, learning videos, discussion forums, and self-paced assignments, creating a flexible and interactive learning experience. The initial look of Moodle includes various components, from diagnostic assessments, an introduction to short story material, to practical steps such as determining story ideas and developing characters and settings. Each section is designed to make it easier for students to understand the material independently, supported by engaging visual and multimedia elements.

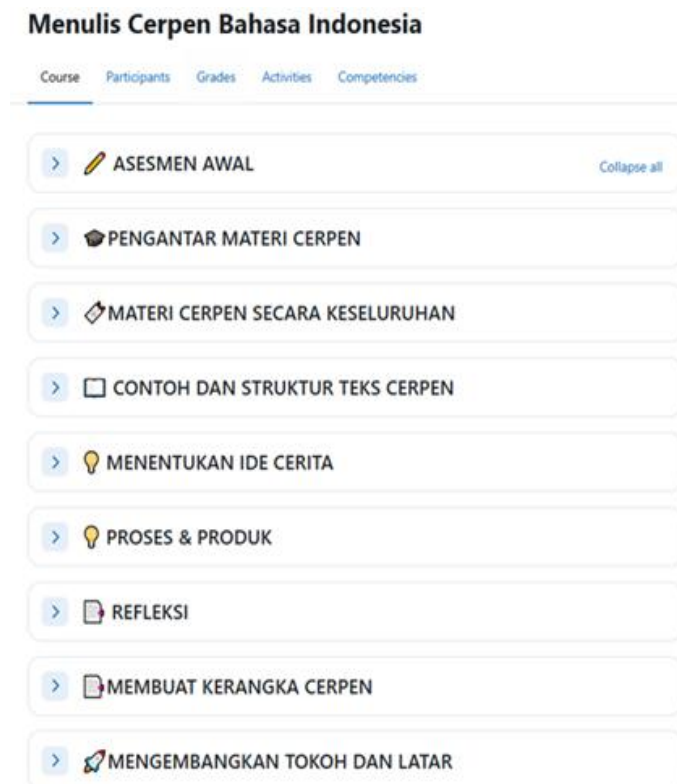


Figure 1. Moodle Initial Draft Model

The differentiated learning process in this draft model is divided into three main stages: content, process, and product. The content stage provides learning materials through visual, text, and audio stimuli, while the process stage allows students to create and collaborate to develop their ideas. The product stage emphasizes the student's work, which can be uploaded in various forms, such as text, infographics, or recordings. This approach not only facilitates an in-depth understanding of short stories but also encourages students' creativity and writing skills. With a combination of comprehensive materials and diverse learning methods, this draft model aims to create an inclusive and effective learning environment for grade XI students.



Figure 2. Differentiation Learning Display of Story Ideas

After going through an evaluation and revision process based on input from material experts and media experts, the final model of the teaching materials was developed to be more comprehensive and effective. One of the main improvements is the addition of markers of the structure of the short story, such as introduction, conflict, conflict peak, resolution, and moral message, which makes it easier for students to understand the storyline. In addition, Learning Outcomes (CP) and Learning Objectives (TP) have been included in the introduction to the material to provide clear direction. The Moodle system has also been improved by adding a range of grades and detailing short story writing instructions, including the use of online media such as movies or online short stories to help students develop ideas.

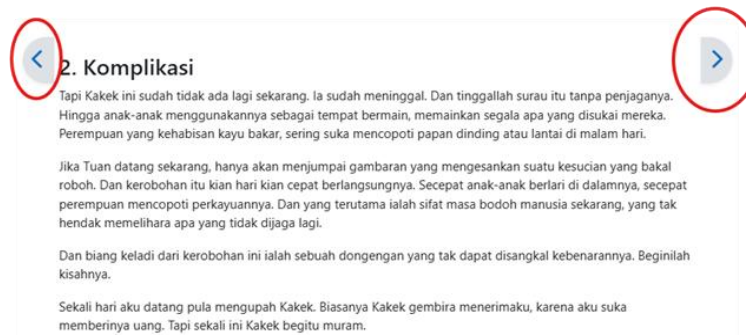


Figure 3. Revision of Markers in the Structure of Short Stories

This final model not only meets academic standards but also accommodates the practical needs of students and teachers. Media experts provide valuable input such as improving the appearance of the material, consistency of answer options in assessments, and adding examples of classic and modern short story frameworks. The materials presented in the form of videos and PDFs have also been coordinated to support each other. The previously inconsistent numbering of short story structures has been corrected to ensure clarity of information. Thus, this final model is ready to be tested on both a small and large scale, as it has considered pedagogical, technical, and readability aspects to maximize the student learning experience.

Based on the results of validation by material experts and media experts, the Moodle-assisted short story writing teaching material model is considered very feasible for use in learning. The subject matter experts, consisting of two people with strong academic backgrounds, gave an average score of 53 out of a total maximum score of 60, with a feasibility percentage of 88.3%. The aspects assessed included the suitability of the material with the curriculum, clarity, readability, and attractiveness, all of which obtained high scores. Media experts also gave a positive rating with a total score of 51 out of 56, or 91.07%, which included the composition of the display, the clarity of the instructions, and the relevance of the material. These results show that the teaching materials not only meet the content feasibility standards but also in terms of media, so they are very suitable to support differentiated learning at the high school level.

Table 1. Media Expert Validation Results

Yes	Aspects Assessed	Score Obtained
1	Composition and layout of writing on a balanced media display	4
2	The components of the media used are safe	3
3	Clear media usage instructions	4
4	The size and typeface used are proportional	4
5	The letters used are clear to read	4
6	Font color with the right background	4
7	Interesting color selection	3
8	The language used is easy to understand	4
9	Language styles that match Enhanced Spelling	4
10	The layout on the media is easy to understand the procedure	3
11	The images used are of high quality	4
12	The information available on the media can help students understand in writing short stories	3
13	Moodle media is interesting	3
14	Media relevant to the material students are learning	4
Total score		51
Percentage		91,07%
Media ratings		Highly Worth Using

In addition, small- and large-scale trials involving students have yielded positive results. In the small-scale trial, the average eligibility percentage reached 75.16%, with one student rated "Very Worthy" and the other four "Worthy". Meanwhile, a large-scale trial with 60 students showed an average of 73.59%, where 88% of students rated the teaching materials "Worth Using" and 8% even gave a "Very Feasible" rating. Although there are some criticisms, such as the need to improve the structure of the material and instructions for use, overall this teaching material has proven to be effective and ready to be implemented in learning to write short stories. These findings reinforce the conclusion that the developed model is not only feasible but also capable of meeting the needs of students in diverse learning contexts.

Table 2. Results of small-scale trials

Subject	Score obtained		Total	Percentage	Criterion
	Writing short stories	Differentiated Learning			
Student01	36	67	103	83.06%	Highly Worth Using
Student02	36	55	91	73.39%	Worth Using
Student03	28	61	89	71.77%	Worth Using
Student04	32	55	87	70.16%	Worth Using
Student05	31	65	96	77.42%	Worth Using
Overall average			93	75.16%	Worth Using

Table 3. Criteria for Large-Scale Trial Results

Criterion	Frequency (people)	Percentage
Highly Worth Using	5	8%
Worth Using	53	88%
Less Suitable for Use	2	3%
Very Less Suitable for Use	0	0%
Overall total	60	100%

Based on data obtained from 60 students, the effectiveness of the learning model using Moodle in differentiated learning to write short stories is relatively effective. The average score obtained of 3.77 is in the category of "Effective" according to Sudjana's interpretation criteria. A total of 52 students (86.67%) rated this model as effective, while 3 students (5%) categorized it as very effective, and 5 students (8.33%) stated it as quite effective. No students rated this model as ineffective or highly ineffective. The calculated effectiveness percentage reached 75.49%, which is included in the effective category based on the effectiveness score interpretation **Table 3**.

Table 5. Effectiveness Grouping (Respondents)

Criterion	Frequency (people)
Highly Ineffective	0
Ineffective	0
Quite Effective	5
Effective	52
Highly Effective	3
Total	60

This shows that the majority of students benefit from using Moodle as a differentiated learning medium, especially in helping them write short stories. Thus, it can be concluded that this model has successfully achieved its objectives and is feasible to be applied in the learning process. These results also reinforce that the integration of technologies such as Moodle

can improve the quality of learning, especially in the context of differentiation that meets the diverse needs of diverse students.

3.2 Discussion

The findings of this study reinforce the importance of a differentiated approach in learning to write short stories. The students' difficulties in developing ideas and storylines show that conventional methods such as textbooks and PowerPoint are not yet effective enough. The integration of Moodle as a learning platform provides flexibility for students to learn at their own pace and pace. Discussion forums and live feedback on Moodle also facilitate interaction and reflection, which is in line with the findings of Gunawan et al. (2021) on the role of Moodle in improving students' argumentative skills. Thus, these teaching materials not only answer the technical needs of writing, but also encourage students' active participation. The high feasibility of teaching materials according to material and media experts shows that this development meets academic and technical standards. However, the difference in score between subject matter experts (88.3%) and media experts (91.07%) indicates that the display and navigation aspects of Moodle are rated better than the depth of the material. This is in line with research by Alimah & Sumardi (2023) who found that media expert validation is often higher due to a focus on usability, while subject matter experts assess the relevance of content to the curriculum. Revisions such as the addition of short story outline examples and text structure markers help bridge this gap, so that the teaching material becomes more comprehensive.

The results of large-scale trials show that the majority of students (88%) rated the teaching materials as feasible, although only 8% said they were very feasible. This variation may be influenced by inequality of technology mastery among students, as revealed in the limitations of the study. Students who are less familiar with Moodle may take longer to adapt. These findings are in line with the research of Simanullang & Rajagukguk (2020) which emphasizes the importance of initial training before implementing Moodle. Therefore, socialization and assistance in the use of Moodle needs to be strengthened to maximize the effectiveness of teaching materials. The effectiveness of teaching materials which reached 75.49% proves that Moodle can be a solution to improve short story writing skills. However, this success also depends on non-academic factors such as student motivation and environmental support. The study did not control for variables such as students' emotional states or parental roles, which might have influenced the results. In addition, the focus on short story writing skills limits the scope of the research. Further development can include the integration of other language skills, such as oral discussion or text analysis, to create more holistic learning. Overall, this research makes a significant contribution to the development of differentiation-based digital teaching materials. The successful implementation of Moodle at SMA Triguna 1956 can be a reference for other schools, although it needs to be adapted according to the context. Limitations such as the duration of research and technological inequality are important notes for future research. With continuous improvement, this teaching material has the potential to become an innovative model in Indonesian learning, especially to improve students' writing skills in the digital era.

4. CONCLUSION

This research succeeded in achieving all three objectives. First, the needs analysis revealed that teachers and students of Triguna High School 1956 needed Moodle-based interactive teaching materials to overcome the difficulties of writing short stories, such as the development of ideas and storylines. Second, the development of teaching materials is carried out systematically with a differentiation approach, including content, processes, and products, and optimized through input from material and media experts. Third, the validation results showed high feasibility (88.3% by material experts and 91.07% by media experts), while small and large-scale trials proved their effectiveness (75.49%). Thus, this teaching material is feasible and effective to be used for differentiation learning to write short stories at Triguna High School in 1956.

RECOMMENDATIONS

For further optimization, it is recommended that similar studies be conducted in schools with different characteristics to test the effectiveness of Moodle in various contexts. In addition, the development of the material should be expanded not only to write short stories, but also other language skills. Increasing students' readiness to use technology through training and mentoring is also needed so that the use of Moodle is maximized. Finally, follow-up studies with a longer time span are important to assess the long-term impact of these teaching materials on students' writing skills as well as the sustainability of digital learning.

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CONFLICT OF INTEREST

In the study entitled "Development of Moodle-Assisted Short Story Writing Teaching Materials in Differentiated Learning at SMA Triguna 1956", the author stated that there was no conflict of interest.

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