

DIGITAL LEARNING MEDIA BASED ON CHARACTER EDUCATION: A CLASSROOM ACTION RESEARCH

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Abstract: *This classroom action research investigated the use of character-education-based digital learning media to strengthen students' academic character in the context of Industry 4.0. The study implemented Google Classroom integrated with a plagiarism checker in an Academic Writing class through one action-research cycle comprising planning, action, observation, and reflection. In alignment with Universitas Muslim Indonesia's vision of producing graduates who are knowledgeable, scientific, and morally responsible, the intervention emphasised honesty in academic writing while also promoting independence, creativity, and hard work. The medium was validated by materials and media experts and by the course lecturer, then evaluated through plagiarism checks of students' submitted assignments and a student-response questionnaire. The findings show that the integrated medium was rated "very good" by the experts and lecturer and received positive responses from students. The results indicate that Google Classroom combined with a plagiarism checker has practical potential to support students' awareness of academic honesty and related character values in writing instruction. However, because the study was conducted in a single class and within one action-research cycle, the findings should be interpreted as classroom-level improvement rather than broadly generalisable evidence. Further cycles and wider implementation are therefore recommended to strengthen the evidence base.*

Keywords: *learning media, Plagiarism checker, Google Classroom, character education*

INTRODUCTION

The development of learning media has accelerated considerably in the digital era of Industry 4.0, and this advancement has inevitably reshaped teaching and learning practices. Teachers and lecturers are no longer viewed as the sole providers of knowledge; rather, they increasingly function as facilitators who organise and deliver learning materials. This shift has transformed classroom interaction, moving learning media from tools for one-directional communication toward media that support more varied and multidirectional engagement.

Learning materials in digital form need to be presented through media that best suit the learning context, whether audio, audiovisual resources, direct instruction, electronic platforms, or self-learning packages. For that reason, decisions about media selection should be integrated into curriculum planning from the outset. Media choice must consequently be made thoughtfully and collaboratively, as selecting appropriate media is an essential component of designing effective learning activities (Mariyana, et.al, 2013; Romiszowski, 1988).

Several considerations are important when determining which learning media should be used. One primary consideration is accessibility, since media that can be easily reached and operated by learners will better support the learning process. Another important point is that the selected medium should be acceptable not only to students but also to lecturers and other stakeholders within the institution.

Along with the ongoing expansion of digital learning, educators must pay closer attention to ethical issues in academic writing, particularly the value of honesty in producing written assignments. This concern is also consistent with the character-education programme promoted by Universitas Muslim Indonesia (UMI), especially in encouraging students to compose academic work that is free from plagiarism.

In carrying out their professional duties, teachers and lecturers require instructional tools or media that can facilitate classroom activities. Nevertheless, the media commonly used by teachers are often limited to images or illustrations available in textbooks. This limitation can be addressed by developing other forms of learning media, including digital comic-based media (Sukmanasa et al., 2017).

Successful instruction is carried out by educators who understand the subject matter, recognise learner characteristics, and are able to communicate knowledge in meaningful, engaging, and motivating ways. Such instruction helps students build deeper understanding and prepares them to participate in social life. In this regard, learning media plays a significant role in increasing students' motivation while they receive and process learning content. E-learning media, for instance, function as interactive tools that can significantly support students' understanding during teaching and learning activities (Ahmad & Hamid, 2020).

The goals of education can be achieved when learning takes place effectively, that is, when the process runs smoothly, remains focused, and corresponds to the intended learning outcomes (Mustafidah & Aryanto, 2010). Effective learning may be identified through several characteristics: (1) its ability to develop concepts, (2) its ability to accommodate different learning styles and learning speeds, and (3) its ability to encourage students' learning development by actively involving them in the learning process.

Google Classroom is one form of Learning Management System (LMS) that enables the creation of virtual classrooms and supports lecturers and students in carrying out learning activities more comprehensively (Alim, 2015). Previous classroom use also suggests its usefulness; at the secondary-school level, most students rated Google Classroom as either "very good" or "good", and the majority expressed willingness to continue using the platform (Azhar & Iqbal, 2018).

Character education is closely related to moral and ethical education, as its purpose is to shape individuals who demonstrate good personal conduct, contribute positively to society, and become responsible citizens. The values developed through character education are naturally influenced by the cultural context of the community and the nation (Syarifuddin & Hasyim, 2021). Character itself refers to the qualities embedded in a person, influencing both psychological and physical aspects and appearing in behaviour, whether intentionally or unintentionally.

Based on culturally rooted character values, the Ministry of National Education (Kemendiknas, 2010) formulated eighteen values to be cultivated in students: religiosity, honesty, tolerance, discipline, hard work, creativity, independence, democratic attitude, curiosity, national spirit, patriotism, appreciation of achievement, friendliness, love of peace, reading interest, environmental care, social concern, and responsibility. Among these values, the current research focuses particularly on honesty, hard work, creativity, and independence because these values are closely connected to academic writing and are in line with UMI's mission to produce graduates who are knowledgeable, principled, and morally upright.

Grounded in this background, this study aimed to develop a digital learning medium oriented toward character education, specifically Google Classroom integrated with a plagiarism checker, for implementation in the Academic Writing course.

METHODOLOGY

This study used a classroom action research (CAR) approach, a design that emphasises systematic classroom procedures and improvement-oriented processes rather than the testing of statistical hypotheses (Arikunto, 2019). The research was guided by the Kemmis and McTaggart (1988) model, which comprises four interrelated stages in a cycle: (1) planning, (2) action, (3) observation, and (4) reflection. Implemented in a single cycle, the study sought to strengthen students' honesty, independence, creativity, and hard work in completing Academic Writing assignments through the use of Google Classroom integrated with a plagiarism-checking tool.

The research was carried out over a five-month period in the English Education Study Program, Faculty of Letters, Universitas Muslim Indonesia. The participants were students enrolled in one Academic Writing class, consisting of 18 students, with 17 students taking part in the action stage. Data collection was carried out through an interview with the course lecturer, classroom observation, expert-validation questionnaires, plagiarism checks of submitted assignments, and a student-response questionnaire distributed through Google Forms. The stages and schedule of the research are presented in Table 1. Since the action was carried out in only one cycle and in a single class, the results should be understood as evidence of classroom-level improvement rather than as findings that can be broadly generalised; this limitation is considered further in the Limitations of the Study section.

Table 1. Research Timeline

Stage	Activity	Timeline
Planning	Needs analysis, student analysis, task analysis, questionnaire construction, media & plagiarism-checker selection, initial design	August–October 2020
Action	Implementation of Google Classroom integrated with the plagiarism checker in the Academic Writing class	November 2020
Observation	Expert validation, plagiarism check of submitted assignments, collection of student responses	November–December 2020
Reflection	Analysis of results and dissemination of the improved medium	December 2020

Table 1 suggests that the four stages of the action-research cycle were implemented sequentially across five months, beginning with needs analysis in August 2020 and ending with reflection and dissemination of the improved medium in December 2020. Each stage was completed before the subsequent stage began, so the planning results directly shaped the design used in the action stage, while the outcomes of the action and observation stages provided the basis for the reflection discussed later.

FINDINGS AND DISCUSSION

Planning: Identifying the Problem and Designing the Medium

The first phase of the action-research cycle was planning, in which the instructional problem was clarified and the digital learning medium grounded in character education was prepared.

An interview with the Academic Writing lecturer was held on 9 September 2020. The results revealed that Google Classroom had not been explicitly designed to embed character values, and the existing medium did not yet sufficiently address students' honesty, hard work, creativity, and independence. The character indicators selected for development through the intervention are displayed in Table 2.

Table 2. Character Values Targeted for Development

Character Value	Indicator
Honesty	Completing assignments in accordance with academic regulations and avoiding plagiarism
Hard work	Working carefully and punctually, and actively seeking information from multiple sources
Creativity	Proposing new ideas related to the topic under discussion
Independence	Searching independently for references needed to complete assignments

The character values and measurable indicators presented in Table 2 were determined together with the course lecturer during the planning phase. These indicators then served as the basis for developing the expert-validation instruments and the student-response questionnaire. Honesty and hard work were emphasised through the plagiarism-checking component, while creativity and independence were mainly promoted through the design of assignments delivered via Google Classroom.

The student analysis indicated that students in the English Education Study Program, Faculty of Letters, UMI, were already familiar with technology and generally experienced few obstacles in using LMS-based platforms such as Google Classroom. Most students owned smartphones and had access to reliable campus Wi-Fi. Nevertheless, this familiarity with technology also made it easier for students to copy material from digital sources, which highlighted the need for a learning medium that incorporated plagiarism checking as a way to reinforce character development.

A task analysis was then conducted to determine the appropriate form and format of the medium. The analysis focused on designing a character-education-based digital medium that enabled students to access materials flexibly while still encouraging active participation in learning. The task analysis showed that the existing use of Google Classroom did not yet provide a mechanism for assessing or strengthening students' honesty, hard work, creativity, and independence. This finding supported the decision to integrate a plagiarism checker into the learning medium.

At the planning stage, a questionnaire was prepared to identify changes in students' behaviour, particularly the strengthening of character values after the intervention. Two plagiarism-checking applications, Plagiarism Detector and Grammarly, were selected to be linked with Google Classroom, and the initial design of the combined medium was developed. Grammarly was chosen in part as previous research reported that it helped reduce Indonesian EFL students' errors in vocabulary, mechanics, and language use, while also offering plagiarism-detection support (Ghufron & Rosyida, 2018).

Before being used in the classroom, the proposed medium was assessed by a materials expert, a media expert, and the course lecturer to determine its feasibility for implementation. The validation results from the materials expert are presented in Table 3.

Table 3. Materials Expert Validation Results

No	Aspect	Mean Score
1	Instructional design	3.44
2	Language use	3.67
	Mean score	3.56

The average score of 3.56 positioned the instructional material in the “very good” classification according to the conversion criteria. Accordingly, the material was considered sufficiently feasible, and further material validation was not required before proceeding to the media-validation stage.

Table 4. Media Expert Validation Results

No	Aspect	Mean Score
1	Google Classroom	3.49
2	Plagiarism checker	3.56
	Mean score	3.52

The assessment conducted by the media expert produced an average score of 3.52, indicating that the learning medium also met the criteria for the “very good” category.

Table 5. Course Lecturer's Assessment of the Instructional Material

No	Aspect	Mean Score
1	Instructional design	3.42
2	Language use	3.54
	Mean score	3.48

The lecturer's evaluation of the instructional material resulted in a mean score of 3.48, which was likewise categorised as “very good” and was comparable to the score provided by the materials expert. The similarity between these two assessments suggests that the material was appropriate for implementation in the action stage without the need for further revision.

Table 6. Course Lecturer's Assessment of the Learning Medium

No	Aspect	Mean Score
1	Google Classroom	3.58
2	Plagiarism checker	3.52
	Mean score	3.55

The course lecturer also assessed the learning medium, namely Google Classroom integrated with a plagiarism checker, and assigned it a mean score of 3.55. This score placed the medium in the “very good” category and was slightly higher than the score given by the media expert. When viewed together with the results in Table 5, this finding demonstrates that the lecturer regarded both the learning materials and the medium as suitable for direct application in the Academic Writing class.

Table 7. Summary of Materials Expert, Media Expert, and Lecturer Validation

No	Aspect	Material Expert	Media Expert	Lecturer	Mean	Category
1	Instructional design	3.44	-	3.42	3.43	Very good
2	Language use	3.67	-	3.54	3.60	Very good
3	Google Classroom	-	3.49	3.58	3.53	Very good
4	Plagiarism checker	-	3.56	3.52	3.54	Very good

No	Aspect	Material Expert	Media Expert	Lecturer	Mean	Category
	Overall mean				3.52	Very good

Table 7 shows that every component assessed by the materials expert, media expert, and course lecturer fell into the “very good” category, with an overall average of 3.52. These results confirm that Google Classroom integrated with a plagiarism checker was considered feasible and ready to be used in the Academic Writing class.

Action and Observation: Applying the Medium and Monitoring Results

In the action phase, the integrated medium was applied to 17 students in the Academic Writing class. During observation, the assignments submitted via Google Classroom were analysed using the plagiarism checker. Of the 17 assignments collected, 13 contained plagiarised content, whereas only four were free from plagiarism. This suggests that many students were still heavily reliant on unattributed source material when completing written assignments. The finding is consistent with previous research showing that plagiarism continues to be a persistent issue in Indonesian higher education, partly as students often have limited academic-writing competence and insufficient understanding of plagiarism (Adiningrum, 2015). It also highlights the relevance of plagiarism detection as a tool for encouraging students to work more honestly, creatively, independently, and with greater hard work.

As part of the observation stage, students' perceptions of the integrated medium were gathered using a questionnaire distributed through Google Forms. The summary of their responses is shown in Table 8.

Table 8. Student Response to the Integrated Medium

No	Aspect	Mean Score	Category
1	Google Classroom	3.58	Very good
2	Instructional design	3.60	Very good
3	Plagiarism checker	3.65	Very good
	Overall mean	3.61	Very good

The overall mean score of 3.61 falls within the “very good” category, indicating that students responded positively to the use of Google Classroom combined with a plagiarism checker. The response suggests that the integrated medium was perceived as helpful in promoting honesty, creativity, independence, and hard work in completing academic-writing tasks.

Reflection: Strengthening of Students' Character Values

During the reflection phase, the findings from the action and observation stages were reviewed to assess the extent to which the implemented medium contributed to strengthening students' character values and to determine possible refinements for the next cycle. The results related to the four targeted values are described as follows. Following this reflection, the revised medium was disseminated by registering it through the course lecturer's Google for Education account, making it accessible through a commonly used search engine.

a. Membuat anda mandiri dalam mengerjakan tugas.

18 responses

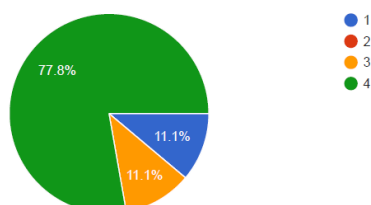


Figure 1. Independence — 77.8% of students rated the medium “very good” in promoting independence in completing assignments.

As shown in Figure 1, the majority of students (77.8%) rated the medium as “very good” in supporting independence, while the remaining students were equally distributed between the “good” and “fair” categories, and none selected the lowest category. This result suggests that the requirement to search for references and cite sources independently, supported by plagiarism checking, encouraged most students to complete their assignments by relying on their own work rather than depending on their peers.

b. Mencegah anda untuk meniru

18 responses

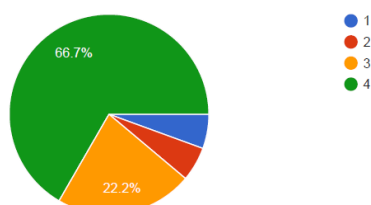


Figure 2. Honesty — 66.7% of students rated the medium “very good” in promoting honesty in completing assignments.

Figure 2 shows that 66.7% of students rated the medium as “very good” in encouraging honest assignment completion, making honesty the lowest-rated character value among the four indicators. This result aligns with the plagiarism-checking data, which found that 13 out of 17 submitted assignments still contained plagiarised material. Therefore, honesty appeared to be the value that showed the least perceived improvement and should receive stronger emphasis in a subsequent cycle.

c. Membuat anda lebih kreatif dalam pengerjaan tugas

18 responses

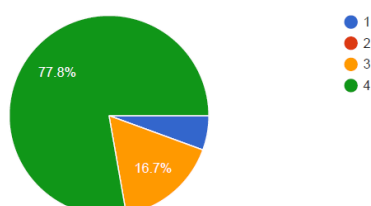


Figure 3. Creativity — 77.8% of students rated the medium “very good” in promoting creativity in completing assignments.

Figure 3 reveals that 77.8% of students assessed the medium as “very good” in fostering creativity, a proportion equal to the highest rating recorded for independence. This suggests that when students were required to avoid directly copying from sources, many of them attempted to formulate ideas and present information using their own expressions rather than reproducing the wording found in reference materials.



Figure 4. Hard work — 72.2% of students rated the medium “very good” in promoting hard work in completing assignments.

Figure 4 suggests that 72.2% of students considered the medium “very good” in promoting hard work. This finding implies that most students perceived themselves as having worked more carefully and invested greater effort in completing assignments when they knew that their work would be examined using a plagiarism-checking tool.

Overall, the four indicators received positive evaluations from most students. Independence and creativity obtained the highest ratings, each at 77.8%, followed by hard work at 72.2% and honesty at 66.7%. When considered alongside the plagiarism-checking results discussed previously, these findings suggest that integrating a plagiarism checker into Google Classroom helped improve classroom practice by encouraging students to become more honest, independent, creative, and hardworking in completing Academic Writing assignments. Nevertheless, these results reflect students' self-reported perceptions after only one action-research cycle and should not be interpreted as confirmed behavioural change across repeated cycles; this issue, along with other limitations, is discussed in the following section.

As this classroom action research was carried out in one cycle in a single class, several limitations should be considered when interpreting the findings. The action was implemented in a single cycle with 17–18 students in one class, consistent with the local practice-improvement purpose of classroom action research; consequently, the findings describe change within this particular class rather than an effect that can be generalised to a broader student population. Students' character values were assessed through a self-report questionnaire, which may be affected by social-desirability bias; only the plagiarism-detection results offer a more objective, behaviour-based indicator. The research was confined to one action-research cycle, although classroom action research generally recommends multiple cycles so that the plan can be revised and tested again after reflection; a second cycle was not conducted within the scope of this study. The reliability and validity of the self-designed instruments, namely the expert-validation sheets and student-response questionnaire, were not tested statistically. Future studies should conduct a second action-research cycle informed by the reflection presented here, extend the action to other classes if broader claims are intended, and report the validity and reliability of the instruments used so as to strengthen evidence for the medium's contribution to students' character development.

CONCLUSION

Based on the findings and discussion above, and within the boundaries of this one-cycle classroom action research, the following conclusions may be stated. Google Classroom integrated with a plagiarism checker was evaluated as “very good” by the materials expert, media expert, and course lecturer, showing that the medium was ready to serve as the action in this classroom action research. The application of Google Classroom integrated with a plagiarism checker as a digital learning medium in the Academic Writing class received positive student responses and demonstrates promising potential for supporting the character values of honesty, hard work, creativity, and independence in producing academic written work; stronger confirmation of this potential requires an additional action-research cycle with a larger and more diverse group of students. Lecturers are encouraged to continue this action into a second cycle and to apply Google Classroom integrated with a plagiarism checker more broadly in offline, online, and hybrid Academic Writing classes, while future research should address the limitations identified above, especially by conducting further cycles and testing the reliability and validity of the instruments used. The author expresses gratitude to the Research and Community Service Institution (LP2S) of Universitas Muslim Indonesia for the support and funding that enabled this research to be conducted and completed successfully.

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