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Instructional Design Based on Social Media: Developing Facebook Learning Content to Facilitate Online Student Engagement in Islamic Primary School

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Abstract. This study aims to develop Facebook-based learning content on human and animal locomotor systems to enhance student engagement among fifth-grade students at MIN 1 Kediri. The development process employed the Sadiman model, which consists of nine stages: needs analysis, objective formulation, content development, assessment design, scriptwriting, production, testing, revision, and final product implementation. The resulting product consists of learning content uploaded to a Facebook Group, including short instructional videos and visual materials designed to support interaction and discussion. The validation results indicate that the content is highly feasible, with a score of 89% from material experts and 100% from media experts. Product trials conducted at the individual, small group, and field levels yielded scores of 85.7%, 86%, and 83%, respectively, indicating that the product is practical and suitable for online learning. Furthermore, the field trial results show that student engagement reached 83%, placing it in the high category. Therefore, Facebook-based learning content has strong potential to facilitate students' behavioral, emotional, and cognitive engagement in the learning process.
Keywords. Facebook; Learning Media; Student Engagement; Online Learning

INTRODUCTION

Learning is understood as a conscious process that leads to changes in knowledge, skills, and attitudes through meaningful learning experiences. These changes occur through active interaction between learners and their environment, including available learning resources (Illeris, 2018). One key factor influencing the quality of the learning process is the use of instructional media. Instructional media serve not only as tools for delivering information but also as facilitators of learning experiences that enable students to construct deeper and more structured understanding (Mishra & Koehler, 2006). The appropriate use of media can enhance students' motivation, participation, and engagement, thereby making learning more effective and relevant to learners' needs (Bond & Bedenlier, 2019).

With the advancement of digital learning, educational processes increasingly rely on technology and online platforms. Students are no longer passive recipients of information; they are expected to engage with digital learning resources actively. However, several studies indicate that online learning may reduce student motivation and engagement if it is not supported by interactive media and appropriate instructional strategies (Adeoye, 2024; Almahasees et al., 2021; Dhawan, 2020). With the advancement of digital learning, educational processes increasingly rely on technology and online

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platforms. Students are no longer passive recipients of information; they are expected to engage with digital learning resources actively. However, several studies indicate that online learning may reduce student motivation and engagement if it is not supported by interactive media and appropriate instructional strategies.

One potential approach to facilitating student engagement is using social media as a learning support tool. Previous studies have shown that social media can enhance interaction, participation, and student engagement, particularly when it is designed with clear pedagogical intentions (Greenhow & Chapman, 2020; Manca & Ranieri, 2017; Tess, 2013). In addition, several studies highlight that platforms such as Facebook can foster active and participatory learning communities (Junco, 2012; Selwyn, 2012). Facebook remains one of the most widely used platforms in Indonesia and offers features for discussion, group interaction, and content sharing (Enawaty & Fajaryati, 2024). Research has also demonstrated that using Facebook Groups in learning can promote participation, collaboration, and student engagement in online learning environments (Iftekhar et al., 2019).

Student engagement plays a central role in determining learning success. It encompasses behavioral, emotional, and cognitive dimensions, which are reflected in students' active participation, attention, enthusiasm, and effort in understanding learning materials (Fredricks et al., 2004). Higher levels of engagement are associated with improved learning outcomes and overall learning effectiveness (Bond & Bedenlier, 2019; Henrie et al., 2015).

Previous studies have explored the use of Facebook as a learning medium, primarily focusing on its role in enhancing student participation and interaction through group discussions and online communication (Iftekhar et al., 2019; Manca & Ranieri, 2017). Other studies have shown that Facebook can support collaborative learning and strengthen social presence in digital learning environments (Ansari & Khan, 2020; Keles, 2018). However, most of these studies emphasize the use of Facebook as a communication tool or content-delivery platform, without specifically designing structured learning content and activities to facilitate comprehensive student engagement. Furthermore, research that integrates Facebook-based instructional design with the characteristics of primary school students remains limited.

Based on these considerations, this study aims to develop Facebook-based learning content on human and animal locomotor systems to facilitate student engagement among fifth-grade students at MIN 1 Kediri. The novelty of this study lies in the design of structured learning content that leverages Facebook Group features, including short instructional videos, guided discussion via comments, and feedback mechanisms to encourage active student participation. Therefore, this development is expected to create a more dynamic, interactive, and meaningful learning experience in digital learning contexts.

METHODS

This study employed a Research and Development (R&D) approach using the Sadiman development model, which consists of nine stages: (1) needs analysis, (2) formulation of instructional objectives, (3) content development, (4) development of

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assessment instruments, (5) script writing, (6) production, (7) testing, (8) revision, and (9) final product implementation. This model was selected because it provides a systematic, structured set of steps suitable for developing instructional media, particularly video-based learning content.

The participants in this study were 22 fifth-grade students from MIN 1 Kediri, who comprised the research population. The sampling technique used was purposive sampling, taking into account students' involvement in online learning. Product testing was conducted in stages following formative evaluation procedures, including individual trials involving 2 students, small group trials involving 4 students, and field trials involving the entire class. This staged testing was intended to provide gradual feedback to improve the developed product.

The development procedure based on the Sadiman model is illustrated in the figure 1.

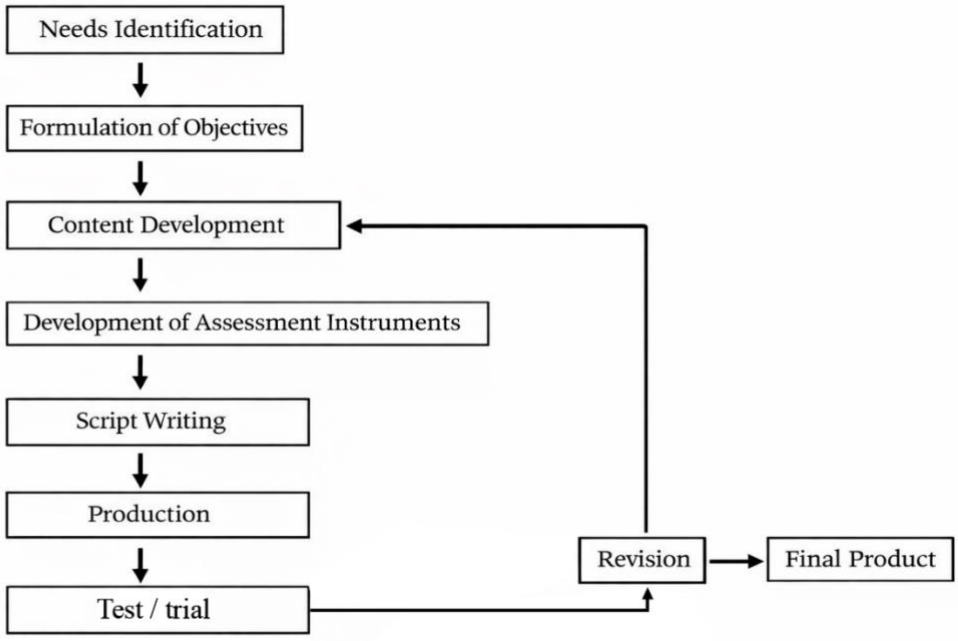

Figure 1. Development Procedure Based on the Sadiman Model (Sadiman, 2006)

In the first stage, namely the analysis stage, this step serves as the initial phase prior to the development process. At this stage, several analyses were conducted, including needs analysis, identification of student characteristics, and potential learning barriers. The needs analysis involved collecting data through observation and interviews. Observations were conducted at MIN 1 Kediri to identify gaps between actual learning conditions and expected learning outcomes. In addition, interviews were carried out with the classroom teacher, focusing specifically on Subtheme 1: human and animal locomotor systems.

The second stage involved formulating instructional objectives, which include defining teaching goals and learning targets. These objectives were designed to cover the content and scope of the material. Ideally, students are expected to experience improvements in overall engagement across cognitive (knowledge), behavioral

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(participation), and emotional (interest and motivation) domains. These objectives were aligned with the design of Facebook-based learning content.

The next stage focused on content formulation for human and animal locomotor systems. The developed content covered several key concepts: (1) movement as a characteristic of living organisms, defined as the displacement of position of part or the whole body; (2) movement in humans and animals involving locomotor organs organized within a movement system; (3) similarities between human and animal locomotor systems, including passive and active movement organs; and (4) passive movement organs (bones) and active movement organs (muscles). The assessment instruments included tests, assignments, and behavioral checklists.

The instruments used in this study consisted of questionnaires and observation sheets designed to assess student engagement, which comprises three dimensions: behavioral, emotional, and cognitive engagement (Fredricks et al., 2004). These instruments were used to observe students' responses during the implementation of Facebook-based learning content.

Table 1. Blueprint of Student Engagement Instrument

No	Engagement Dimension	Indicator	Form of Activity
1	Behavior	Activeness in following learning	Access and watch videos
		Participation in discussions	Leave a comment on a post
		Accuracy in completing tasks	Answering teacher questions
2	Emotional	Interest in the material	Enthusiastic in responding
		Feeling happy in the learning process	Positive expressions in comments
		Social engagement	Interaction with friends
3	Cognitive	Understanding of the material	Material-relevant answers
		Thinking skills	Provide opinions/reflections
		Efforts to understand the material	Ask or respond to a discussion

The fifth stage involved script writing, which served as a guideline for media production. The script served as a reference for capturing visuals and recording audio, ensuring the content was delivered in a structured, coherent manner.

The sixth stage was the production process, which was carried out by considering both media specifications and the structure of the learning content.

The seventh stage involved validation through product testing by experts, including material experts and media experts. The developers prepared observation notes to assess the effectiveness and feasibility of the developed learning media. This

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process also aimed to examine the extent of student engagement before and after the implementation of the instructional videos. The validation process was conducted through expert review involving both media and subject-matter experts.

The eighth stage was the revision stage, which involved improving the media based on feedback from material and media experts. Revisions were made to ensure the product met the feasibility criteria before testing with students. This process aimed to refine the media so users could easily understand and engage with the learning content.

Data analysis in this study employed both quantitative and qualitative approaches. Quantitative data were analyzed using percentage techniques (Arikunto, 2017). The obtained percentages were then converted into qualitative categories based on validity criteria. The validity criteria used in this study are presented in Table 2.

Table 2. Validity Criteria

Category	Percentage	Category	Equivalent
A	76% - 100%	Valid	Valid
B	51% - 75%	Quite Valid	Moderately Valid
C	26% - 50%	Less Valid	Less Valid
D	0% - 25%	Invalid	Invalid

Source: (Arikunto, 2017)

The criteria for interpreting validity scores are as follows:

1. If the developed media achieves a score of 76%–100% (Category A), it is considered valid and feasible for use in the learning process.
2. If the score falls within 51%–75% (Category B), the media is considered moderately valid and adequately feasible.
3. If the score falls within 26%–50% (Category C), the media is considered less valid and less feasible.
4. If the score is within 0%–25% (Category D), the media is considered invalid and not feasible for use in learning.

RESULTS

This research and development study resulted in Facebook-based learning content on human and animal locomotor systems for MIN 1 Kediri. The developed product consists of structured learning content delivered via a Facebook Group, including instructional videos and images.

The instructional videos have an average duration of 1–2 minutes and provide concise explanations, supported by narration and visual illustrations. Additionally, the material is presented as images with segmented textual explanations to facilitate students' gradual understanding.

The learning process was designed systematically, beginning with the teacher uploading instructional materials in the form of videos and images to the Facebook

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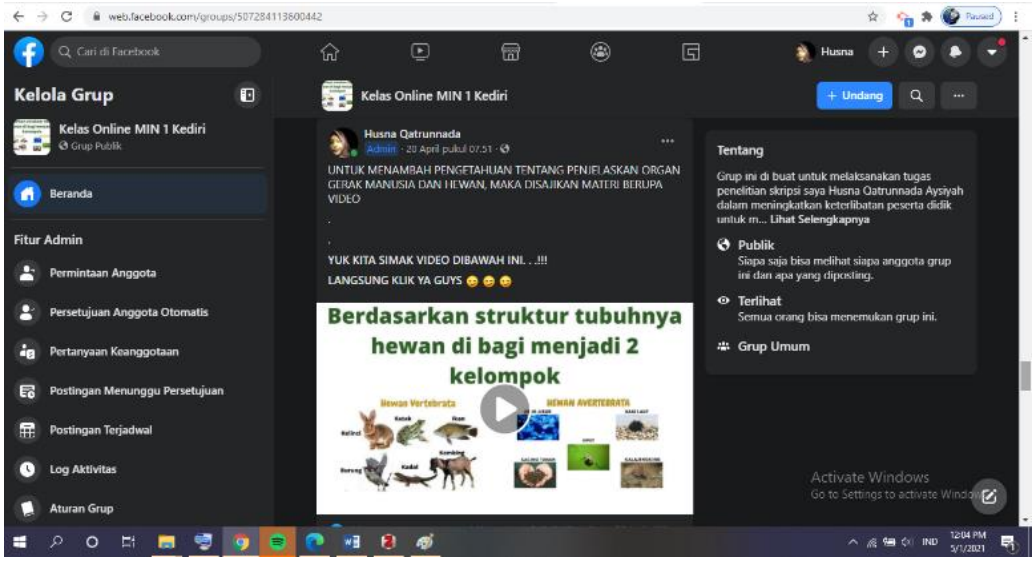
Group. Students were then required to access and study the materials. Afterward, they were encouraged to respond through the comment section by answering questions, expressing opinions, or engaging in discussions. The teacher subsequently provided feedback to reinforce students' understanding and promote interaction.

Interactions in the comment section indicate a two-way discussion pattern between the teacher and students, in which students not only answered questions but



also responded to their peers' opinions. The developed content includes both video- and image-based materials uploaded to the Facebook Group. Figure 2. Example of Facebook-Based Learning Video Content.

Figure 2. Example of Facebook-Based Learning Video Content

Table 3. Expert Validation Results

No.	Expert Validators	Percentage
1	Material Expert	89%
2	Media Expert	100%

Based on the evaluation conducted by the material expert (16 items), the product received a score of 89%, indicating validity. The evaluation conducted by the media expert (18 items) yielded a 100% score. These findings indicate that the developed Facebook-based learning content is highly feasible for use in learning activities. This also indicates that the integration of content design, media presentation, and instructional structure has been well aligned with students' learning needs.

Table 4. Product Trial Results

No.	Trial	Percentage
1.	Individual	85.7%
2.	Small Groups	86%
3.	Field	83%

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The individual trial involving two students yielded a score of 85.7%, while the small-group trial involving four students yielded 86%. The field trial conducted with all students yielded a 83% score, indicating that the product is feasible and practical for online learning. This suggests that the developed content is not only feasible but also practical for real classroom implementation in online learning settings.

In addition to expert validation and product trial data, this study examined student engagement using questionnaire responses collected during the implementation of Facebook-based learning content. The instrument was developed based on the concept of student engagement, which includes behavioral, emotional, and cognitive dimensions.

Based on a field trial involving 22 students, the engagement score was 83%, placing it in the high category. This finding indicates that students responded positively to the use of Facebook-based learning content in the learning process.

More specifically, behavioral engagement was reflected in students' active participation in accessing learning materials, watching instructional videos, and responding to tasks through the comment section. Emotional engagement was demonstrated through students' interest in the learning materials, their enjoyment during the learning process, and their positive responses during interactions. Meanwhile, cognitive engagement was indicated by students' ability to understand the material, answer questions, and provide relevant responses to the learning content.

Overall, these findings indicate that the developed Facebook-based learning content can facilitate active student engagement across behavioral, emotional, and cognitive dimensions. This suggests that the structured use of Facebook Groups, particularly through guided interaction in the comments and feedback mechanisms, plays a significant role in encouraging students to actively participate in the learning process rather than passively receive information.

DISCUSSION

The validation results indicate that the developed Facebook-based learning content is highly feasible for use in the learning process. The material expert validation score of 89%, media expert validation score of 100%, and field trial result of 83% suggest that the developed content meets pedagogical standards, instructional design principles, and usability requirements for students. This finding aligns with the perspective that the quality of digital instructional media is determined by content relevance, visual clarity, and user accessibility (Sadaf & Johnson, 2017).

In addition to demonstrating product feasibility, the field trial results also provide insights into students' engagement during the implementation of the learning content. The engagement score of 83% indicates a high level of student engagement. Based on the student engagement framework, which includes behavioral, emotional, and cognitive dimensions (Fredricks et al., 2004), this finding suggests that the developed content successfully facilitates comprehensive engagement. This result is consistent with previous studies indicating that student engagement in digital learning environments is strongly influenced by interactive and participatory instructional design (Dixson, 2015; Henrie et al., 2015). Behavioral engagement is reflected in students' participation in accessing and responding to learning materials, and emotional engagement is indicated

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by students' interest and positive responses. In contrast, cognitive engagement is demonstrated through students' understanding and meaningful responses to the learning content.

These findings are also consistent with prior research indicating that the use of Facebook in learning environments can enhance student participation and interaction when it is designed pedagogically (Giannikas, 2020). Facebook, as a learning community platform, can strengthen social presence and students' sense of belonging in the learning process (Keles, 2018). Therefore, Facebook functions not only as a medium for content delivery but also as an interactive space that enables students to construct knowledge through active engagement. Furthermore, the use of social media creates a more flexible learning environment and enhances the quality of interaction between students and teachers in online learning contexts (Akpen et al., 2024).

In addition to supporting academic interaction, Facebook also serves as a collaborative learning environment. Previous research has shown that group features in social media facilitate two-way communication between teachers and students and improve students' readiness to understand learning materials (Cain, 2024). This is further supported by findings indicating that social media promotes collaborative learning through knowledge sharing and reflective interaction (Ansari & Khan, 2020). In this context, Facebook serves not only as a tool for content distribution but also as a medium for knowledge construction through social interaction. This finding is also supported by research showing that peer interaction in online environments significantly influences student engagement and knowledge construction (Sari, 2025).

The positive impact of social media on learning is also evident in terms of learning outcomes. A meta-analysis by Zhao and Yang (2023) demonstrates that social media-supported learning can enhance both student engagement and learning outcomes when it is designed based on pedagogical principles rather than merely technological implementation. This finding is reinforced by studies indicating that digital learning technologies can improve student motivation and engagement through well-designed interactive learning experiences (Makkad, 2019). Greenhow and Chapman (2020) emphasize that social media can extend the learning environment beyond the classroom, particularly in distance learning contexts.

However, Facebook-based learning also presents several challenges. The potential for distraction from non-academic features may reduce students' focus, as highlighted in previous studies emphasizing the need for proper pedagogical management and supervision in the use of social media for learning (Manca, 2020) In addition, variations in student participation may be influenced by internal motivation and external factors such as internet access and connectivity, as identified by Akbari, Pilot, and Simons (2015). Therefore, teachers need to provide structured guidance to ensure that learning activities remain aligned with instructional objectives.

Overall, the findings of this study indicate that the developed Facebook-based learning content is not only feasible but also has strong potential to facilitate student engagement in the learning process. The integration of Facebook Groups into learning provides opportunities for students to actively and independently construct their

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understanding of the material, while also supporting the development of more interactive, collaborative, and adaptive digital learning environments.

These findings highlight the importance of structured instructional design in utilizing social media as a learning platform. Rather than merely using Facebook as a communication tool, this study demonstrates that carefully designed content and guided interaction can transform social media into an effective learning environment that supports active student engagement.

This study also has several limitations that should be considered. First, the implementation of Facebook-based learning is highly dependent on students' access to devices and internet connectivity, which may influence their level of engagement. Second, online learning often requires parental assistance, and differences in parents' digital literacy may affect the effectiveness of the learning process. Third, using Facebook as a learning platform can introduce distractions from non-academic features, potentially diverting students' attention. In addition, not all students participate at the same level in online discussions, resulting in uneven engagement. Therefore, these findings should be interpreted in light of these limitations.

CONCLUSION

The development of Facebook-based learning content on human and animal locomotor systems is feasible for use in fifth-grade instruction. The validation results from both material and media experts indicate that the developed content meets the required standards for content accuracy and media design. Furthermore, the field trial results show that student engagement reached 83%.

The use of Facebook Groups in the learning process enables more flexible discussion, interaction, and knowledge sharing, thereby providing students with opportunities to participate in learning activities actively. The integration of social media in instructional design has strong potential to facilitate students' behavioral, emotional, and cognitive engagement.

Future research may extend the development of social media-based learning content to other subject areas or integrate it with more structured collaborative learning strategies to further enhance the quality of digital learning, particularly in primary education contexts. This study contributes to the growing body of research on digital learning by emphasizing the role of instructional design in maximizing the educational potential of social media platforms.

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