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Development of Instructional Video Media for Special Needs Education to Support Students with Intellectual Disabilities in Independent Learning

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Abstract: This study aims to develop a valid, practical, and effective video-based learning media to support students with intellectual disabilities in learning independently. The research employed a Research and Development (R&D) method using the Four-D model: Define, Design, Develop, and Disseminate. The product was tested with 8 students at SLB Mutiara Budi Lubuk Alung with intellectual disabilities. Data were collected through validity, practicality, and effectiveness evaluations using expert validation sheets, student questionnaires, and performance tests. The data were analyzed quantitatively using percentage scores and categorized based on predetermined criteria. The results showed that the media achieved high validity scores from both media (95%) and content experts (91%), indicating very good validity. The practicality score from student responses was 86%, indicating practicality. Moreover, the effectiveness score based on learning outcomes was 87%, indicating effectiveness. These findings suggest that the developed video-based instructional media is feasible for use and has potential to enhance inclusive science learning by providing accessible, engaging, and self-paced learning experiences.

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Introduction

Education serves as a fundamental tool in developing the potential of every individual, including those with special needs (Hussain & Begum, 2024) One group that requires special attention in the learning process is students with intellectual disabilities (Bober et al., 2024) These students often face challenges in cognitive functioning, memory, and comprehension (Hermida, 2025) As a result, they struggle to engage with conventional learning methods that depend heavily on verbal explanations or abstract instructions (Trumble et al., 2024) Within the framework of inclusive education, students with intellectual disabilities are entitled to the same quality of learning opportunities as their peers (Taneja-Johansson & Singal, 2025) However, in practice, the learning process for these students is frequently hindered by limited instructional time (VanWyngaarden et al., 2024) insufficient individualized approaches, and a lack of suitable media to address their specific needs (Nurhayati et al., 2024). These barriers often result in suboptimal learning outcomes, particularly in specialized schools that cater to students with disabilities (Isnawati et al., 2025)

This issue is particularly evident in Islamic Religious Education, where students are expected to acquire essential competencies such as performing prayer. However, the existing learning media for Islamic Religious Education remain predominantly limited to printed textbooks, teacher explanations, or direct demonstrations. Such methods tend to be abstract and less effective for students with intellectual disabilities, who require clear visual representations, structured repetition, and adaptive pacing to fully understand the material.

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Teachers often encounter difficulties in delivering lessons that are simultaneously engaging, accessible, and aligned with students' unique learning needs. Consequently, students struggle to master sequential prayer movements, and classroom instruction alone is insufficient to support their independent practice.

Addressing this challenge requires the development of adaptive learning media capable of overcoming constraints of time and space while offering flexibility in learning pace and delivery. Video tutorials provide a promising solution by enabling students to repeatedly observe and practice the material at their own pace, both inside and outside the classroom. This approach supports independent learning and enhances comprehension through the integration of visual and auditory stimuli, which align more closely with the preferred learning styles of students with intellectual disabilities.

The growing integration of technology into education further strengthens the relevance of video-based learning (Ribawati, 2015) Many students, including those with special needs, are increasingly familiar with digital devices such as smartphones and tablets. These tools can be effectively utilized to deliver accessible, engaging, and portable instructional media (Suherman & Vidákovich, 2025) By leveraging such resources, learning motivation can be increased, and deeper understanding can be fostered.

Designing learning media for students with intellectual disabilities necessitates careful consideration of their cognitive and sensory preferences (Anas & Hartono, 2024). Materials should be concrete, visually rich, and repetitive, avoiding abstract or overly complex verbal explanations. Therefore, the proposed video tutorial incorporates step-by-step demonstrations, simple language, clear visual cues, and supportive background audio to reinforce each stage of the learning process. The role of teachers and caregivers remains essential in maximizing the effectiveness of such media. While video tutorials offer flexibility and accessibility, structured guidance is required to ensure that students engage meaningfully with the content. Teachers can integrate the videos into classroom instruction, encourage home practice, and track students' progress, thereby creating a more holistic and responsive learning experience.

Beyond improving academic outcomes, the implementation of adaptive video tutorials can foster confidence and independence among students (Ribawati, 2015) Repeated, self-paced practice allows them to master skills gradually, leading to a greater sense of achievement and increased willingness to participate in future learning activities (Firmadani, 2020) The novelty of this study lies in the development of an adaptive instructional video specifically designed for teaching prayer movements in Islamic Religious Education to students with intellectual disabilities, an area that has received limited attention compared to general subjects. Unlike conventional media, the proposed video integrates step-by-step demonstrations, structured repetition, and accessible visual elements tailored to the unique learning needs of these students. This study aims to develop a valid, practical, and effective video tutorial to support Islamic Religious Education, specifically focusing on teaching prayer movements to students with intellectual disabilities at SLB Mutiara Budi Lubuk Alung. The intended outcome is to enhance independent learning, improve comprehension, and strengthen learning achievement, thereby contributing to inclusive education practices through innovative and adaptable teaching media (Utomo, 2023).

Research Method

This study employed a research and development (R&D) method (Aziz & Suharjo, 2024). The primary objective of R&D is to create and improve a product in order to enhance its effectiveness in the learning process (Fathuloh et al., 2025) In this research, the

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development model used is the 4D model, which consists of four stages: Define, Design, Develop, and Disseminate. Therefore, this model was applied in the development, through a series of tests to determine its validity, practicality, and effectiveness as a learning tool (Hardiyansyah et al., 2019; Susilawati et al., 2021).

The subjects of this research were 8 students with intellectual disabilities from SLB Mutiara Budi Lubuk Alung. The students were selected through purposive sampling because they met the criteria of requiring assistance in learning Islamic Religious Education (PAI), particularly in mastering prayer movements. The instruments used in this study consisted of, Expert validation sheets, to assess the feasibility of media and content by one media expert and one content expert. Student questionnaires, to evaluate the practicality of the video tutorial in terms of usability, clarity, and engagement. Performance test sheets, to measure the effectiveness of the learning outcomes, particularly students' ability to perform the prayer movements correctly and sequentially. The data obtained were analyzed quantitatively using percentage calculations. The validity, practicality, and effectiveness scores were converted into percentages and then interpreted according to predetermined criteria.

Results and Discussion

Define Stage

Preliminary analysis included examining students' unique learning styles and identifying the most responsive learning approaches. This analysis informed the selection of appropriate learning strategies, content scope, learning objectives, and instructional methods tailored to students with intellectual disabilities. The ultimate goal is to enable students to perform religious worship independently and correctly, as taught in the Qur'an and Hadith. Based on student surveys at SLB Mutiara Budi, it was found that some students still lacked understanding of proper prayer movements, while others showed significant improvement after using the video tutorial. Given the diversity in cognitive abilities among students with special needs, the media had to accommodate a range of learning speeds and comprehension levels. The video tutorial, featuring a teacher demonstrating the prayer movements, was designed to help students visualize and imitate each movement in sequence. Observations during implementation showed students found it relatively easy to follow the tutorial, though not all reached full comprehension, they preferred high-contrast, non-glaring colors and were attracted to animated characters and visuals. While some students tended to forget the concepts, repeated exposure to the video helped reinforce learning. These findings were taken into account during the development of the media to ensure it aligns with student characteristics, allowing them to revisit the material as needed.

Design Stage

The purpose of this stage was to produce a video tutorial prototype for prayer movements in Islamic Religious Education. The media design process included validation, practicality testing, and learning outcome assessments. The tools used for developing the media included a Canon DSLR camera for video capture and Camtasia 2025 and CapCut for editing. The video tutorial was structured into several segments:

Table 1. Initial Draft of Media

No	Description	Pictures	No	Description	Pictures
1	Opening Scene		5	Segment III	

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2	Table of Contents		6	Repetition Segment	
3	Segment I		7	Closing Segment	
4	Segment II				

Development Stage

Expert Validation

The media was reviewed by two expert validators (one in media and one in content). Validation results are shown below:

Table 2 Media's Validation Result

No	Aspect	Item No	Result		Validity Score	Criteria
			Lecturer 1	Lecturer 2		
1	Appearance	1	4	4	**95%**	**Excellent**
		2	5	5		
		3	4	5		
		4	5	5		
2	User-friendliness	5	4	4		
		6	5	5		
3	Consistency	7	5	5		
4	Format	8	5	5		
		9	4	5		
5	Graphics	10	5	5		
		11	5	5		
Total			**104**			

The average validity score of 95% categorized the media as "very good" and suitable for implementation. In addition to media validation, material validation was also carried out to ensure the content feasibility, language appropriateness, presentation, and usefulness of the developed product. The material validation was conducted by an expert in the field who provided an assessment based on 17 items. This validation process aimed to guarantee that the material presented was accurate, well-structured, easy to understand, and relevant to the learning objectives. The results of the material validation can be seen in the following table.

Table 3. Material's Validation Result

No	Aspect	Item No	Result	Validity Score	Criteria
1	Content Feasibility	1	4	**91%**	**Excellent**
		2	5		
		3	4		

		4	5
		5	4
		6	5
2	Language	7	5
		8	5
		9	4
		10	4
		11	4
		12	5
3	Presentation	13	5
		14	3
		15	5
4	Usefulness	16	5
		17	5
Total			**77**

Based on the results of the material validation, the developed product obtained a validity score of 91%, which falls into the "Excellent" category. This indicates that the learning material is appropriate in terms of content feasibility, language clarity, presentation, and usefulness, making it suitable for use in the learning process. After passing the expert validation stage, the next step was to test the practicality of the product through student assessments, as presented in the following section.

Practicality Test

A practicality test was conducted with 8 students using a questionnaire. Results are shown below:

Table 4. Practicality Result

Aspect	Total Score	Practicality (%)	Criteria
Student Test	412	86%	Practical

The total possible score was 480 (8 students × 12 questions × 5 points). The result indicates the media is practical for use in the classroom.

Learning Outcome Test

A performance-based assessment was conducted on the students' prayer movements. The results are summarized as follows:

Table 5. Learning Outcome

Total Score Achieved	Maximum Score	Effectiveness (%)	Category
416	480	87%	Effective

Students demonstrated the ability to perform the prayer sequence correctly and in order, indicating that the tutorial is effective in improving learning outcomes.

Discussion

The development of this video tutorial was motivated by the need to overcome obstacles in religious instruction for students with intellectual disabilities, who often face difficulties in understanding abstract concepts and maintaining engagement in learning activities. Low participation and poor academic outcomes highlighted the urgency of providing engaging and accessible learning media. The tutorial was developed through the Four-D model: Define, Design, Develop, and Disseminate. In the Define stage, problem identification, student and content analysis, task analysis, and formulation of learning objectives were carried out. The Design stage involved producing a prototype based on students' needs, while the Develop stage focused on validation, revision, and testing practicality and effectiveness. The results showed that the media achieved very good validity (95%) and the material achieved very good validity (91%), was practical for classroom use

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(86%), and effective in improving learning outcomes (87%). These findings align with Mayer's Cognitive Theory of Multimedia Learning, which emphasizes that learners understand and retain information more effectively when instructional materials combine visual and verbal modes (Mayer, 2002). Video tutorials, by integrating narration, images, and animation, facilitate dual-channel information processing and reduce cognitive overload, which is particularly beneficial for students with intellectual disabilities.

Moreover, the practicality results indicate that teachers can implement the tutorial without requiring excessive resources or training. This supports Clark & Mayer (2023) assertion that well-designed e-learning resources should be efficient, adaptable, and user-friendly. The effectiveness of the tutorial is further reinforced by prior studies showing that video-based instruction enhances motivation, attention span, and retention among students with special needs (Ayres & Cihak, 2010). The repetitive and step-by-step presentation in the tutorial reflects the principle of behaviorist learning theory, where repetition, modeling, and reinforcement are crucial for mastering procedural skills such as prayer movements (Skinner, 1957) Additionally, the use of animated elements and teacher demonstrations reflects Vygotsky's scaffolding concept, where guided assistance supports learners in bridging the gap between their actual developmental level and potential learning capacity (Vygotsky, 1978). Through visual modeling and gradual reduction of support, students are encouraged to develop independence in performing prayer rituals. Thus, the dissemination of this video tutorial not only provides a reliable learning tool for teachers and students but also contributes to the advancement of inclusive education, as emphasized by Unesco (2017) by offering accessible, engaging, and repetitive learning experiences tailored to diverse student needs. This research underscores the importance of developing digital learning resources that are pedagogically sound, validated, and practical, ensuring that students with intellectual disabilities can meaningfully participate in religious education and improve their learning outcomes.

Conclusion

Based on the findings of the research, it can be concluded that the developed video tutorial was declared valid after being reviewed and validated by two expert validators in content and media. The validity score from media and content experts reached 95% (very valid), and the material achieved very good validity (91%), the practicality score from student responses was 86% (practical), and the effectiveness score based on learning outcomes was 87% (effective). These results indicate that the developed video-based instructional media is feasible for use and has potential to enhance inclusive science learning by providing accessible, engaging, and self-paced learning experiences.

Recommendation

Based on the result, teachers are encouraged to use the developed video tutorial as a complementary medium to support students with intellectual disabilities in mastering prayer movements both in the classroom and at home, while future researchers may expand its application to other aspects of Islamic Religious Education, involve larger and more diverse samples, and integrate interactive features to further enhance student engagement and learning outcomes.

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