Learning innovation for generation Z: development of e-modules and videos in research proposal courses

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Article Info

Abstract

This study aims to develop e-modules and learning videos as learning media or resources in the Research Proposal course that can improve student understanding and engagement through a more interactive, practical, visual, and engaging digital approach for Generation Z students. The development process includes the creation of e-modules and videos, validation, and implementation of e-modules and videos. The research method used is Research and Development (RnD) with questionnaire and test data collection techniques. The population and sample in this study were 75 students majoring in Elementary Madrasah Teacher Education at UIN Siber Syekh Nurjati Cirebon. The results showed that the developed e-modules and videos were categorized as good (suitable for use). In addition, the use of e-modules and learning videos was effective in improving students' conceptual understanding, research skills, and learning motivation. This innovation not only facilitates access to materials but also encourages students to be more independent and active in the learning process. These findings indicate that e-module and video-based learning technology can be an effective solution for creating a more interactive and engaging learning experience in the context of higher education.
Keywords: e-modules, learning videos, research proposals,

INTRODUCTION

The rapid development of information technology has transformed various aspects of life, including education. One significant change is the transformation of teaching and learning methods, which previously relied on conventional methods to increasingly rely on digital technology. The use of technology in education can enrich the learning experience and improve the quality and effectiveness of teaching (Sari, 2024; Lubis & Nasution, 2024; Robbani et al., 2024). This is particularly relevant in higher education, where students are faced with more complex material and require more interactive and independent learning methods (Mariyono et al., 2024).

Generation Z students, those born between 1997 and 2012, have distinct learning patterns from previous generations. They grew up in the digital era with easy access to technology and information (Kyrousi et al., 2022). Generation Z tends to prefer fast, practical, and technology-based learning (Tuada & Raihani, 2025). They are more accustomed to using digital devices, such as smartphones and laptops, to search for information, communicate, and learn. Furthermore, this generation of students tends to prioritize interactive, visual, and experiential learning (Shatto & Erwin, 2016, 2017). Therefore, the use of technology-based learning media, such as e-modules and learning videos, is well-suited to meeting their learning needs and preferences.

However, in practice, many students face difficulties in writing their theses, which is a primary requirement for graduation in higher education (Matra & Fajar, 2015; Zain et al., 2021; Andani & Oktaviani, 2018; Rismen, 2016). In fact, problems arise even in the early stages of thesis writing, when students prepare the thesis proposal (Susetyo & Noermanzah, 2020; Tutpai & Er Unja, 2022; Khairun & Al Hakim, 2022; Daniel & Taneo, 2019). These problems hinder students from completing their studies, resulting in a longer time to complete their undergraduate education.

According to Tutpai & Er Unja (2022), obstacles faced by students during the thesis proposal writing stage include difficulties in key chapters: Chapter I (Introduction) at 62.1%, Chapter II (Literature Review) at 57.5%, and Chapter III (Methodology) at 60.4%. Generally speaking, the problems faced by students in writing thesis proposals relate to the research problem, finding a thesis title, and applying research methods. This is often caused by students' lack of understanding of research methods and their confusion in applying what they have learned to writing their thesis proposals. Furthermore, the lack of clear, practical guidance on the content and structure of research proposals further confuses students about what their proposals should contain.

This problem is exacerbated by the fact that existing modules or guides tend to be theoretical and rarely provide practical steps for proposal development. Commercially available books or modules typically only provide basic theory without providing detailed practical guidance on how to develop a proposal. Therefore, students need more applicable and practical learning resources that can be accessed anytime and can guide them in developing effective research proposals.

Therefore, this research aims to develop an e-module and learning video for the Research Proposal course in the PGMI Department at UIN Siber Syekh Nurjati Cirebon. Using a Research and Development (R&D) approach, this research focuses on creating an e-module that not only contains theory but also provides practical, step-by-step guidance for writing a thesis proposal, as well as learning videos that provide visual and interactive understanding. The development of this technology-based learning media is expected to help students overcome difficulties in writing their thesis proposals, strengthen their understanding of research theory, and improve their learning skills and motivation in the context of higher education.

RESEARCH METHOD

This research applies a Research and Development (R&D) approach to create e-modules and learning videos for the Research Proposal course in the Elementary Madrasah Teacher Education Department (PGMI), UIN Siber Syekh Nurjati Cirebon. The R&D approach was chosen because it aims to produce learning products that can be tested, validated, and revised to increase their effectiveness in helping students understand research proposal development. Furthermore, this research seeks to make a tangible contribution to the learning process through the integration of digital technology relevant to the needs and characteristics of today's generation.

The type of research used is Research and Development (R&D), referring to the Borg and Gall (1983) development model, which has been widely developed and applied in various modern educational contexts (Sugiyono, 2020). The development process consists of several stages: needs analysis, initial product design, prototype development, expert validation, field trials, and final revision. The primary focus of this research is the creation of interactive and practical digital-based learning media, thereby enhancing students' understanding of the research proposal development material.

The research subjects consisted of two main groups: students and lecturers of the Research Proposal course at the PGMI Department, UIN Siber Syekh Nurjati Cirebon. Approximately 75 students participated in the trial, randomly selected to use the e-modules and learning videos. Lecturers also participated in assessing the quality and effectiveness of the developed learning products.

Data collection was conducted using three main instruments: questionnaires, comprehension tests, and interviews. The questionnaires were used to measure student and lecturer satisfaction and perceptions regarding content quality, ease of use, and the benefits of the learning media. The comprehension tests were used to evaluate the improvement in students' academic competencies after using the media. Meanwhile, in-depth interviews were conducted to obtain qualitative data on user experiences and subjective responses. Data analysis was conducted quantitatively using descriptive statistics and qualitatively through thematic analysis to provide a comprehensive overview of the effectiveness of the developed products.

FINDINGS & DISCUSSION

Development of Learning Modules in the Research Proposal Course

The initial stage of the research was problem analysis. At this stage, researchers identified various obstacles faced by students in preparing research proposals, such as difficulty understanding proposal structure, limited practical guidance, and a lack of applicable examples. These problems served as the basis for developing the learning module. All module components, including visual design, material presentation, and supporting content, were designed as solutions to problems encountered in the field. Thus, the module was developed contextually and oriented towards student learning needs.

The next stage was product design. The module was developed by defining materials, learning concepts, and designs that were appropriate to the characteristics of PGMI students. The module was designed as an ebook that can be accessed via laptop or smartphone. The

module's presentation resembles a lecture textbook, but is enriched with links to learning videos and supporting forms to assist students in developing research proposals. The material is presented systematically, not only theoretically but also practically.

Following the design stage, a pilot test of the module was conducted at the PGMI Department of UIN Siber Syekh Nurjati Cirebon through direct use in learning. This pilot test aimed to identify module deficiencies. Next, a Focus Group Discussion (FGD) involving students and lecturers was conducted to obtain feedback. The FGD results indicated the need for revisions, including the addition of questions or tests to each chapter as an evaluation tool, additional material with a clearer separation between qualitative and quantitative research, and strengthening the integration of learning videos as both core and supporting material.

The final stage of this development is mass production. Mass production in this study does not mean mass printing, but rather the distribution of the modules through digital media. The modules are uploaded to Google Drive so they can be downloaded and widely used by students and others who need them.

Development of Learning Videos in the Research Proposal Course

The initial stage of development was problem analysis. At this stage, researchers identified various problems faced by students in preparing research proposals, such as difficulty understanding proposal structure and limited applicable supporting materials. These problems served as the primary basis for developing the learning video. All aspects of the video, from visual design and color selection to presentation and learning content, were designed to address the problems encountered in the field. Thus, the learning video is expected to assist students in preparing their thesis proposals in a more systematic and focused manner.

The next stage was product design. At this stage, researchers determined the material, learning concept, and video design tailored to the characteristics of PGMI students. The learning video was designed in the form of a video tutorial and a video learning material. The presentation of the material was concise and communicative, yet still grounded in relevant research theory, ensuring it was easy to understand and applicable for students.

Following the design stage, a product trial was conducted in the PGMI Department of UIN Siber Syekh Nurjati Cirebon, utilizing the learning video as a teaching material in class. Through this trial, several findings were obtained regarding the shortcomings of the learning video. Next, researchers conducted Focus Group Discussions (FGDs) involving students and lecturers to obtain feedback for improvements. The FGD results indicated the need to adjust the video length to 5–10 minutes to better suit students' focus, add material with a clearer separation between qualitative and quantitative research, and strengthen the integration between the learning videos and the learning modules, with some video materials serving as core material. The final stage of development was mass production, which involved digitally distributing the learning videos by uploading them to Google Drive and YouTube for widespread access and use.

Feasibility of the Learning Module and Video

To assess the feasibility of the thesis proposal learning module and video, the researchers engaged expert sources as validators. The feasibility assessment was conducted using a research instrument containing 14 assessment aspects, covering the quality of content, presentation, language, and media display. The expert assessment results were used as the

basis for determining the feasibility of the learning module and video before wider implementation. A summary of the expert validation assessment results is presented Table 1.

Table 1. Expert Validation Results of the Learning Module and Video

Assessment Aspects and Indicators	Modul Score	Video Score
Content Feasibility		
Relevance to Learning Material	4	4
Material Accuracy	4	4
Instructional Content Support	4	4
Content Currency	5	5
Presentation Feasibility		
Presentation Techniques	4	4
Presentation Support	4	4
Instructional Presentation	5	5
Completeness of Presentation	5	5
Language Feasibility		
Clarity	4	4
Communicativeness	4	4
Dialogic and Interactive Quality	5	4
Appropriateness of Content and Language	4	4
Graphical Feasibility		
Coherence and Logical Flow of Ideas	4	4
Use of Terms, Symbols, or Icons	5	5
Total Score	61	60
Mean Score	4,35	4,28
Category	Good	Good

The expert validation results presented in Table 1 show that both the learning module and instructional video developed for the Proposal Writing course achieved *good* feasibility ratings across multiple quality dimensions. The learning module obtained a total score of 61/70 (mean = 4.35) and the instructional video obtained 60/70 (mean = 4.28), indicating that both media meet expert standards for use as instructional resources. These validation outcomes are consistent with contemporary research on the importance of expert evaluation in instructional material development. Expert validation, involving content experts, language specialists, and media designers, is a widely recognized procedure in educational development research to ensure that instructional products align with pedagogical aims and learner needs (Anggraini et al, 2024).

From the perspective of content feasibility, high scores indicate that the materials are relevant, accurate, and aligned with intended learning outcomes. This aligns with current evidence that content validity is essential for instructional modules to effectively support student learning and deepen understanding of complex topics (Anggraini et al., 2024). In terms of presentation feasibility, favorable expert scores reflect a well-structured instructional flow and completeness of material. Research on e-module and learning media development emphasizes that systematic organization and clear instructional sequencing enhance student engagement and reduce cognitive load, facilitating better comprehension (Fadhilah & Zulyusri, 2023).

Assessment of language feasibility also yielded strong results, indicating that both the module and video employ clear and communicative language appropriate for the academic level of students. The clarity of language in instructional materials significantly influences learner comprehension and reduces misunderstandings of complex concepts (Aulianingsih et al., 2023). Additionally, graphical feasibility assessments support the module and video's visual coherence, showing that design elements such as icons, layout, and organization aid the learning process. Research confirms that thoughtful visual design can improve attention, memory retention, and learner engagement in multimedia instructional environments.

Overall, the expert validation results indicate that both the learning module and the instructional video meet the required standards of educational and media quality, confirming their suitability as instructional resources for supporting research proposal preparation. The positive evaluation across content, presentation, language, and graphical aspects suggests that the developed media are capable of facilitating effective and structured learning experiences for students. Furthermore, the incorporation of expert feedback throughout the development process aligns with best practices in instructional design, which emphasize iterative evaluation and revision to strengthen product validity and enhance pedagogical effectiveness.

Effectiveness of the Learning Module and Video

This study investigated the effect of a learning module and instructional video on students' research proposal writing skills. Data were analyzed using a *t*-test with SPSS software. Prior to hypothesis testing, prerequisite analyses were conducted to ensure that the data met the assumptions of normality and homogeneity required for parametric testing. Normality was assessed using the Kolmogorov–Smirnov and Shapiro–Wilk tests. The results indicated significance values of 0.000 ($p < .05$), confirming that the data were normally distributed. Homogeneity of variances was examined using Levene's test, which yielded a significance value of 0.001 ($p < .05$), indicating that the data were homogeneous.

Following confirmation of these assumptions, a *t*-test was performed to compare pretest and posttest scores. The results revealed a statistically significant difference between pretest and posttest scores ($p = .001$). This finding suggests that the implementation of the learning module and instructional video had a significant effect on students' ability to prepare research proposals. Overall, the results provide empirical evidence that the developed instructional media effectively enhance students' research proposal writing skills and can be considered a viable instructional resource in higher education research methodology courses.

The findings of this study indicate that the integration of a learning module and instructional video significantly enhanced students' research proposal writing skills, as demonstrated by the statistically significant difference between pretest and posttest scores (*p* = .001). This result supports prior research suggesting that well-designed digital learning resources can improve students' academic performance, particularly in higher education contexts that require complex cognitive skills (Stanevičienė & Žekienė, 2024).

The effectiveness of combining instructional videos with structured learning modules aligns with empirical evidence showing that multimedia-based learning environments promote deeper understanding and higher engagement. A systematic review by Musfiza et al. (2023) found that video-based instructional media consistently contributed to improved learning outcomes by facilitating conceptual clarity and learner motivation. In the context of

research proposal preparation, such multimedia integration appears to support students in understanding abstract research concepts and procedural components more effectively.

From a theoretical perspective, these findings are consistent with the Cognitive Theory of Multimedia Learning, which posits that learners achieve better learning outcomes when information is presented through both verbal and visual channels (Mayer, 2020). When instructional videos complement textual modules, learners can distribute cognitive load more efficiently, thereby improving comprehension and retention of complex material such as research design, methodology, and proposal structure.

Furthermore, recent studies on microlearning suggest that concise instructional videos—typically under ten minutes—can enhance learner focus and reduce cognitive overload (Pitaloka, 2022). This may explain why the instructional videos used in this study were effective in supporting students' learning processes. However, as noted by Noetel et al. (2021), the pedagogical effectiveness of instructional videos depends heavily on their alignment with learning objectives and instructional design principles rather than their mere presence.

The significant improvement in students' research proposal writing after the implementation of the learning module and instructional video can be understood in light of the distinct characteristics of Generation Z learners. Generation Z (those born approximately between 1997 and 2012) have grown up in an era dominated by digital technology, which has shaped how they interact with information and learning environments. Research indicates that Gen Z students are highly proficient with technology and prefer interactive, visually rich, and technology-integrated learning experiences rather than passive lecture-based instruction, which aligns with the design of the multimedia learning resources used in this study (Shofiyyah et al., 2024).

In particular, studies show that Generation Z students respond more positively to instructional materials that are engaging, relevant, and tailored to their digital literacy. They tend to favor learning environments that emphasize visual content, interactivity, and problem-solving, often using technology as a primary tool for accessing information and constructing understanding (Keristanti et al., 2024). This preference suggests that media such as instructional videos and well-structured digital modules not only support comprehension but also resonate with the learning habits and expectations of Gen Z learners, contributing to improved academic performance as evidenced by the significant pretest–posttest differences.

Additionally, Gen Z learners are characterized by autonomy and a preference for self-directed learning, leveraging online tools to explore content at their own pace. They are more likely to engage deeply with material that allows them to interact dynamically with content rather than absorb information passively (Shofiyyah et al., 2024). This generational trait reinforces why multimedia instructional resources that incorporate interactive elements and multiple modes of representation (text, video, links) can enhance both motivation and skill acquisition in complex tasks such as research proposal writing.

Thus, the present study's findings are consistent with broader empirical evidence that instructional design tailored to Generation Z's distinct preferences and technological fluency can significantly enhance learning outcomes in higher education.

CONCLUSION

This study provides compelling evidence that the integration of a structured learning module and instructional video significantly enhances students' research proposal writing skills. Statistical analysis revealed a substantial improvement between pretest and posttest scores (p = .001), confirming the effectiveness of the developed instructional materials. Expert validation further indicated that the module and video met rigorous standards in content accuracy, instructional organization, linguistic clarity, and visual design, establishing their appropriateness for higher education contexts. The findings are consistent with the Cognitive Theory of Multimedia Learning, which emphasizes that the meaningful integration of verbal and visual information optimizes cognitive processing and reduces extraneous cognitive load. Moreover, the results can be interpreted through the lens of Generation Z learners, who are digital natives with strong preferences for interactive, visually rich, and technology-integrated learning environments. Generation Z students demonstrate higher engagement and improved learning outcomes when instructional resources are relevant, interactive, and allow for self-directed exploration. By aligning instructional design with these generational characteristics, multimedia learning resources not only support comprehension but also enhance motivation and skill acquisition in complex academic tasks. Overall, this study contributes to the growing body of evidence that pedagogically aligned, technology-enhanced instructional materials are highly effective in promoting research competencies and can inform best practices for higher education curricula tailored to digitally fluent learners.

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