

# Developing Google Sites-Based E-Modules to Enhance Teachers' ICT Competence at Al Husna Foundation

Ilma Fauziana Fariz<sup>1</sup>, Sholeh Hidayat<sup>2</sup>, Isti Rusdiyani<sup>3</sup>

<sup>1</sup> Universitas Sultan Ageng Tirtayasa, Serang, Indonesia; ilmafarihalhusna@gmail.com

<sup>2</sup> Universitas Sultan Ageng Tirtayasa, Serang, Indonesia; sholeh.hidayat@untirta.ac.id

<sup>3</sup> Universitas Sultan Ageng Tirtayasa, Serang, Indonesia; isti\_rusdiyani@untirta.ac.id

---

## ARTICLE INFO

### Keywords:

e-module development;  
google sites;  
ICT competence;  
interactive learning materials;  
teacher professional  
development

### Article history:

Received 2025-02-28

Revised 2025-04-17

Accepted 2025-09-30

## ABSTRACT

Integrating Information and Communication Technology (ICT) into teaching remains a significant challenge for many educators, particularly those at Yayasan Al Husna, Tangerang, who continue to rely on traditional methods despite available digital tools. Enhancing teachers' ICT competence is essential to support more effective and engaging learning experiences. This study aimed to develop a Google Sites-based e-module to improve teachers' abilities in creating interactive, web-based instructional materials. The research employed the ADDIE instructional design model (Analysis, Design, Development, Implementation, and Evaluation) and adopted a mixed-methods approach. Data were collected through structured interviews, expert validations, questionnaires, and pre-post tests. Expert validation results showed a feasibility rating of 70% from a content expert and 92% from a media expert, classifying the e-module as "very valid." The module includes structured content with step-by-step tutorials, visual aids, and interactive exercises. During implementation with 17 teachers, the e-module demonstrated high usability and practicality. Pre- and post-test comparisons showed a moderate improvement in ICT competence, with an average N-Gain score of 0.66. The findings suggest that the developed e-module is effective in enhancing teachers' ICT skills, particularly in designing digital learning materials using accessible platforms. This study provides a replicable model for teacher professional development in schools with limited digital adoption. Future research could explore broader implementation across diverse educational settings.

*This is an open access article under the [CC BY-NC-SA](https://creativecommons.org/licenses/by-nc-sa/4.0/) license.*



---

### Corresponding Author:

Ilma Fauziana Fariz

Universitas Sultan Ageng Tirtayasa, Serang, Indonesia; ilmafarihalhusna@gmail.com

---

## 1. INTRODUCTION

Technology continues to evolve in response to practical, social, and economic challenges, with the primary aim of improving human life through innovation. This evolution encompasses both tangible tools and intangible systems, including knowledge, skills, and methods (Surur, 2021). Among the most influential advancements is Information and Communication Technology (ICT),

which has significantly reshaped various sectors—particularly education—by introducing new ways of teaching, learning, and managing educational environments.

In the educational context, ICT supports a wide range of learning experiences by enabling flexible access to information, encouraging self-paced and personalized learning, and incorporating multimedia tools that enhance student engagement (Anwar et al., 2022; Fahyuni, 2017). Learners can access resources at any time and from any location, which promotes efficiency and autonomy in the learning process. Educators also benefit through improved instructional delivery and streamlined administrative processes (Buza & Mula, 2017; Zokirovna, 2020). However, the successful integration of ICT in education requires collaborative engagement from all stakeholders—teachers, students, school leaders, and parents—to build a supportive and effective digital learning environment (C.N., 2016).

One tool that has shown promise in supporting digital pedagogy is Google Sites. This web-based platform enables educators to create interactive and visually engaging learning materials without needing advanced technical skills. Its ease of use and accessibility make it particularly appealing for teachers looking to digitize their instructional resources (Khasanah & Muflihah, 2021; Maryani et al., 2022; Sevtia et al., 2022). Empirical studies have demonstrated the effectiveness of Google Sites in enhancing students' comprehension, motivation, and participation, particularly during periods of remote learning such as the COVID-19 pandemic (Gumilar & Effendi, 2022; Utami, 2023; Zainal & Kasmawati, 2021).

Despite the growing presence of digital tools in schools, many educators face barriers in adopting them effectively. A significant challenge lies in the digital competence gap among teachers. At Yayasan Al Husna in Tangerang, for example, many educators continue to rely on traditional teaching methods, despite the availability of ICT tools. Preliminary observations suggest that this is due to a lack of confidence and proficiency in utilizing technology for pedagogical purposes.

This situation stands in contrast to national education standards. According to Indonesian Law No. 14 of 2005, teachers are expected to demonstrate pedagogical, personal, social, and professional competencies, which include the ability to incorporate ICT into their teaching practices (Undang-Undang Republik Indonesia No. 14 Tahun 2005 Tentang Guru dan Dosen, 2005). As emphasized by Sudrajat (2020), digital competence is essential for the development of relevant, engaging, and effective learning resources.

In response to this gap, the present study seeks to design and validate an e-module using Google Sites, aimed at improving the digital skills of teachers at Yayasan Al Husna. By equipping educators with the ability to create interactive, web-based learning content, this initiative aspires to foster more dynamic and technology-integrated teaching practices.

## 2. METHODS

This study utilized a saturated sampling technique, engaging all 17 teachers at Yayasan Al Husna in Tangerang Regency as research participants. Prior to the large-scale field trial, a small-scale trial was conducted with 3 teachers from the same foundation to assess the feasibility of the developed e-module during Phase I. The research adopted the Research and Development (R&D) methodology, following the ADDIE model, which includes five stages: Analysis, Design, Development, Implementation, and Evaluation. A mixed-methods approach was employed, combining both qualitative and quantitative data to evaluate the development of the e-module and its impact on enhancing teachers' ICT competencies.

Data collection instruments included structured interviews and questionnaires. Structured interviews were conducted to gather information from teachers regarding the teaching materials they have used and their initial understanding of the Google Sites platform. Questionnaires were used to collect data from media and content experts to validate the developed e-module. The product validation process was supported by two experts in their respective fields: Dr. Aan Hendrayana, M.Si, who served as the content expert, and Ms. Yanti Febriyanti, M.Pd, who served as the media expert.

These questionnaires were divided into two sections: These questionnaires were divided into two sections: one for media experts to assess the design and usability of the product, and one for content experts to evaluate the appropriateness of the material presented in the e-module.

**Table 1.** Media Expert Evaluation Guide

Aspect	Dimension	Items	Total
Self-Instructional	Clarity of learning objectives and content	1 - 6	6
Self-Contained	Completeness of instructional content	7	1
Stand Alone	Independent use without other media	8	1
Adaptive	Adaptability to ICT developments	9	1
User-Friendly	Ease of use for learners	10	1
<b>Total</b>			<b>10</b>

Source: (Najuah et al., 2020)

This questionnaire assessed the validity and feasibility of the developed e-module for creating interactive websites using Google Sites. It was distributed to media experts. As for the material expert, they evaluated the content quality of the e-module, focusing on the accuracy and comprehensiveness of the material. It was distributed to material experts, and the evaluation criteria are detailed in Table 2.

**Table 2.** Material Expert Evaluation Guide

Aspect	Dimension	Items	Total
Content	Coverage of competencies and logical flow	1 - 2	2
Learning Methods	Appropriateness of learning methods and activities	3 - 4	2
Language	Clarity and suitability of language	5 - 6	2
Illustrations	Relevance and quality of visual aids	7 - 8	2
Graphics Layout	Arrangement of content, font, and visual design	9 - 10	2
<b>Total</b>			<b>10</b>

Source: (Supardi, 2020)

Data were collected using two main methods. First, qualitative data were obtained from interviews with teachers to explore the teaching materials in use and the integration of ICT in their teaching practices. Second, quantitative data were gathered from questionnaires administered to media and content experts to evaluate the validity of the developed e-module. The questionnaires used a Likert scale to assess various aspects of the product, including the suitability of the content, design, and functionality. The data from the questionnaires were also used to assess the practicality and effectiveness of the e-module based on feedback from teachers as the end-users.

For data analysis, both qualitative and quantitative descriptive analysis techniques were applied. The qualitative data from the interviews were analyzed using thematic analysis to identify recurring themes related to the teachers' experiences and feedback regarding the e-module. Meanwhile, the quantitative data from the validation questionnaires and teacher response sheets were analyzed using descriptive statistics. The following formula was used to calculate the overall validity percentage:

$$\text{Overall Validity} = \frac{\text{Total Responden Answers}}{\text{Total Ideal Scores}} \times 100\%$$

The scores from the validation questionnaires were then calculated using a Likert scale, which included five categories:

**Table 3.** Score Categories

Category	Score
Excellent	5
Good	4
Fair	3
Poor	2
Very Poor	1

Source: (Sugiyono, 2008)

These scores were used to assess the feasibility of the e-module based on feedback from media and content experts. Based on the Likert scale table above, the calculation will be performed by determining the average percentage of each statement item using the following scale qualifications:

**Table 4.** Rating Scale Qualification

Score	Achievement Level	Qualification	Description
5	81% - 100%	Excellent	Very suitable/very valid/ no revision needed
4	61% - 80%	Good	Suitable/valid/ no revision needed
3	41% - 60%	Fair	Fairly suitable/fairly valid/revision needed
2	21% - 40%	Poor	Less suitable/less valid/revision needed
1	20% and below	Very Poor	Not suitable/invalid/revision needed

Source: (Sugiyono, 2008)

The product validation was conducted to seek the opinions of subject matter experts and media experts to ensure that the developed product meets the needs of the teachers. Each element of the e-module, from the content to the visual design, was evaluated based on its feasibility and relevance. This validation process is crucial to ensure the quality and effectiveness of the product before it is applied on a larger scale.

### 3. FINDINGS AND DISCUSSION

#### 3.1. Findings

The ADDIE model was followed during the development of the e-module, which guided the entire process of creating and validating the instructional resource.

##### 3.1.1 Analyze Phase: Identifying ICT Gaps

During the Analyze phase, observations at Yayasan Al Husna indicated that 14 out of 17 teachers were still relying heavily on conventional teaching materials, particularly printed textbooks, despite the availability of digital tools such as laptops, projectors, and multimedia classrooms. This points to a significant underutilization of ICT in the learning process, especially in terms of integrating web-based platforms like Google Sites. The core problems identified include low ICT competence among teachers, minimal use of interactive digital materials, and the absence of adequate training or support systems. Consequently, teachers struggle to design engaging, web-based learning resources. To address this gap, there is a clear need for practical, easy-to-follow training modules that focus on how to use ICT tools effectively, especially for creating interactive and visually appealing teaching materials that can enhance student engagement and learning outcomes.

### 3.1.2 Design

During the design phase, clear objectives were set for the e-module, focusing on improving teachers' competencies in using ICT tools to create interactive web-based teaching materials. This phase also involved structuring the content and selecting appropriate instructional method. First, e-module are primarily created using the Canva application, which offers a wide array of sophisticated graphic design tools, facilitating the creation of visually compelling elements.

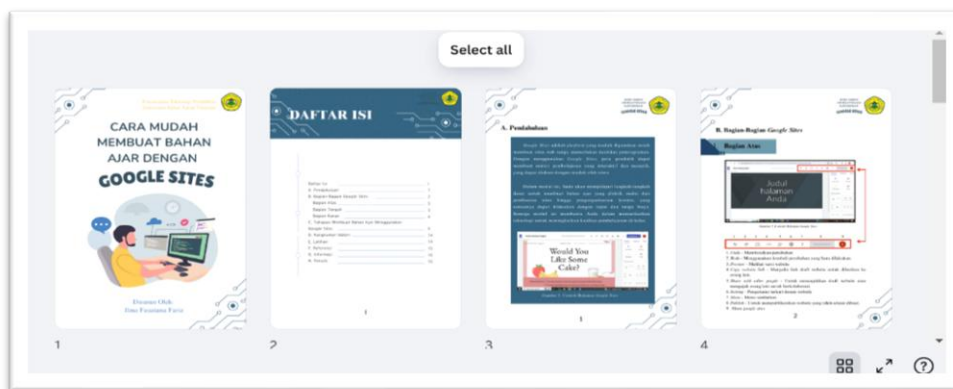


Figure 1. The E-Module Development Process Using Canva

Furthermore, the e-module is comprised of several essential components, with the first being the cover, which is meticulously crafted to feature visually striking elements that not only capture attention but also offer a preliminary insight into the module's content, serving as both an informative and aesthetic introduction to the material within. The table of contents serves as a navigational guide, systematically listing the major sections and subsections of a document or module in a clear and organized manner, allowing readers to easily locate specific topics or chapters. It acts as a roadmap, offering a snapshot of the structure and flow of the content, ensuring that users can quickly identify and access the material they wish to explore, thus enhancing the overall usability and coherence of the work.

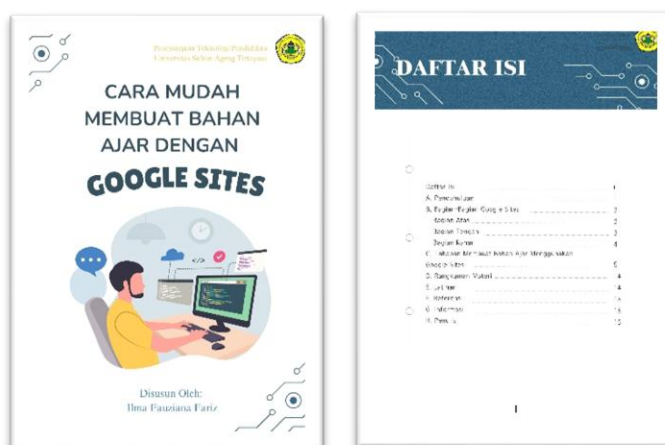


Figure 2. Cover and Table of Content of E-Module

Section three is the introduction, which serves as the foundational segment of the module, providing readers with essential background information, context, and an overview of the subject matter. It sets the tone for the rest of the content by outlining the objectives, scope, and purpose of

the work, guiding the reader into the core material while establishing a clear understanding of what to expect in the ensuing sections.



Figure 3. The Introduction in the E-Module

Section four is the introduction to the various components within google sites, providing a detailed overview of the key elements and functionalities that make up the platform. This section aims to familiarize the reader with the structure and tools available in google sites, helping them understand how to navigate and utilize the different features effectively. By outlining the core components, this section ensures users can gain a comprehensive understanding of the platform's layout and capabilities, setting a solid foundation for further exploration and use.

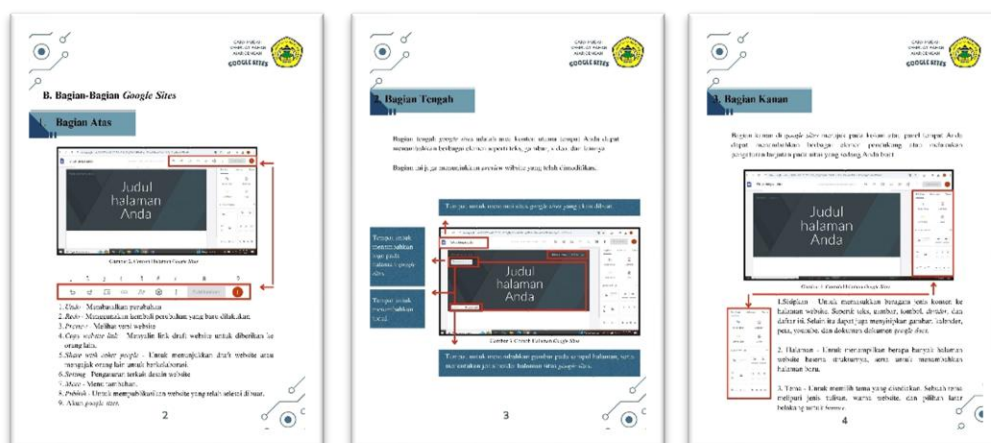
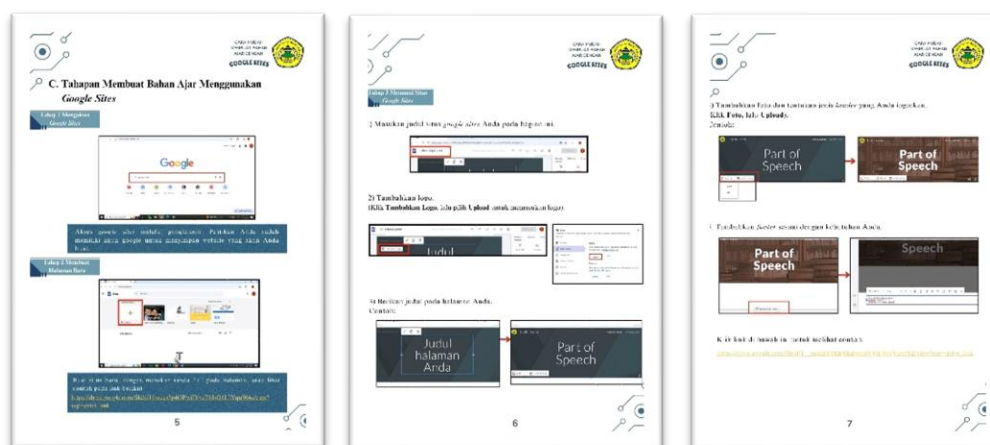


Figure 4. The Introduction to the Various Components within Google Sites

Section five outlines the steps involved in creating educational materials using Google Sites, providing a structured approach to help users effectively design and organize their content. This section details each stage of the process, from initial planning and content creation to incorporating multimedia elements and customizing the site's layout. By guiding readers through the systematic process of developing educational resources, this section ensures that they can leverage Google Sites' tools to produce engaging and well-structured learning materials, enhancing both the teaching and learning experience.



**Figure 5.** The Steps to Create Educational Materials Using Google Sites

Section seven encompasses a comprehensive summary, exercises, references, and author information and data. This section consolidates the key points discussed throughout the module, offering a concise recap for the reader. It also includes practical exercises to reinforce learning, a list of references for further exploration, and provides detailed information about the author, such as credentials and background, to establish credibility and context for the content. This section serves as a concluding segment that not only summarizes the material but also offers additional resources for deeper understanding and engagement.

### 3.1.3 Development

Based on the results of the feasibility test of the *“Easy Ways to Create Teaching Materials Using Google Sites”* e-module, which was evaluated by both a content expert and a media expert, it can be concluded that the product has met the criteria for a good level of feasibility, although some improvements were recommended for refinement. The content validation was conducted by Dr. Aan Hendrayana, M.Si, who assessed the e-module with an average score of 3.5 out of 5, or 70%, falling into the “good” category. His evaluation indicated that the instructional materials related to using Google Sites to create digital teaching content were comprehensive, aligned with the required competencies, and presented in a clear, systematic manner. However, he suggested that the e-module could be enhanced by including hyperlinks for further explanations and providing access to video tutorials, which would help optimize the product and provide more engaging learning experiences for users.

On the other hand, media validation was conducted by Yanti Febriyanti, M.Pd, who gave a high average score of 4.6 out of 5, or 92%, indicating that the e-module was very well developed in terms of instructional design, visual appeal, and user guidance. She noted that the content was easy to follow, with intuitive navigation and clear instructions. Her suggestions for improvement included adding learning objectives, an introductory section, and making adjustments to the font colors to enhance readability and visual aesthetics.

Overall, the e-module demonstrated a high level of feasibility based on expert evaluations. While generally considered ready for use, the product will benefit from incorporating the expert suggestions to further enhance its quality, usability, and impact on improving teachers’ competence in using Google Sites for developing digital teaching materials.

**Table 5.** Expert Validation Results

Aspects	Score	Categories
Material	70%	Suitable/valid/ no revision needed
Media	92%	Suitable/valid/ no revision needed
Average	81%	Very suitable/very valid/ no revision needed

### 3.1.4 Implementation

After the expert validation and revision process, the e-module was implemented in a full field trial involving all 17 teachers at Yayasan Al Husna. During this stage, teachers were introduced to the e-module and guided through its content. They were encouraged to explore and practice using Google Sites to develop digital teaching materials independently.

The results of the field trial indicated that the majority of teachers responded positively. They reported that the e-module was clear, user-friendly, and highly relevant to their needs, especially in helping them integrate technology into their teaching practices. The teachers also expressed increased confidence in using digital tools for instructional purposes. Final revisions were made based on the feedback gathered during this trial to optimize the e-module for broader use. Overall, the implementation phase confirmed the product's feasibility and its potential to significantly support teachers' professional development in ICT.

**Table 6.** N-gain Value Calculation Results

No	Respondent	Pre test	Post test	Post test- Pre test	Ideal Score (10) – Pre test	N- Gain Score	N-Gain Score (%)
1	Dinda Rizky, S.Pd	2	6	4	8	0.50	50%
2	Emben Baeniah, S.Pd.I	7	8	1	3	0.33	33%
3	Heni Syamsiah, S.Pd	0	9	9	10	0.90	90%
4	Topik, S.Pd	3	8	5	7	0.71	71%
5	Euis, s.Pd	3	8	5	7	0.71	71%
6	Maskupah, S.Pd	8	9	1	2	0.50	50%
7	Aang Siswandi	3	8	5	7	0.71	71%
8	Herni, S.Pd	4	9	5	6	0.83	83%
9	Fahmi	3	4	1	7	0.14	14%
10	Pajar, S.Pd	5	9	4	5	0.80	80%
11	Hesti, S.Pd	7	8	1	3	0.33	33%
12	Roni, S.Pd	0	9	9	10	0.90	90%
13	Tari Hapsari, S.Pdi	8	10	2	2	1.00	100%
14	Risa Gestiana Raharsi, S.Pd	1	7	6	9	0.67	67%
15	Devy Rizani, S.Pd	9	10	1	1	1.00	100%
16	Yosi Apriliyani, S.Pd	4	5	1	6	0.17	17%
17	Eka Silvia Nita, S.Pd	3	10	7	7	1.00	100%
Total		70	137			11.22	1122%
Average		4.12	8.06			0.66	66%

Based on the data obtained from the pretest and posttest results administered to 17 teachers at Yayasan Al Husna, Tangerang Regency, the N-Gain calculation was performed to measure the

effectiveness of the developed e-module. N-Gain is used to assess the extent to which teachers' competencies improved after using the e-module. The average N-Gain score obtained was 0.66, which falls into the medium category, with an average percentage of 66%. This suggests that the e-module product can be categorized as moderately effective in enhancing teachers' competence in creating teaching materials using Google Sites.

Overall, although there was some variation in the N-Gain test results, the majority of the participants experienced significant improvement, indicating that the developed e-module demonstrated a fairly good level of effectiveness in this study.

### 3.1.5 Evaluation

Meanwhile, the evaluation stage was conducted continuously throughout the implementation process. The first evaluation took place during the validation by content and media experts to ensure that the product met the established standards. After the small-scale trial, further evaluation was carried out to assess whether the product met the users' needs and identify areas that required improvement.

This evaluation continued during the field trial phase, which involved all the teachers. Feedback from the teachers was used to assess the effectiveness of the e-module in improving their competence in utilizing ICT. Based on the evaluation results from each stage, revisions and refinements were made to ensure that the e-module was ready for optimal use by all teachers at Yayasan Al Husna, Tangerang Regency. This ongoing evaluation was crucial for measuring the extent to which the product had a positive impact on enhancing teachers' competence

### 3.2 Discussion

Teaching materials are an essential component in the learning process that assists teachers in delivering content to students. According to the Indonesian Dictionary (KBBI), teaching materials are systematically organized educational content designed to be used in the learning process. Waraulia (2020) and Nasrudin et al. (2022) emphasize that teaching materials should be designed to foster cognitive understanding while equipping students with practical skills that can be applied in daily life. However, at Yayasan Al Husna in Tangerang Regency, despite the availability of digital facilities such as laptops and projectors, most teachers still rely on conventional teaching materials, such as Student Worksheets (LKPD) and textbooks. This reflects a mismatch between the availability of ICT facilities and their utilization in the teaching and learning process. This phenomenon is consistent with Anwar et al. (2022), who recommend increasing the use of ICT in education to optimize the quality of teaching.

The e-module development process follows a systematic and structured ADDIE model, starting with the analysis phase to identify learning needs, student characteristics, and objectives. According to Sugiyono (2008), the ADDIE model enables the development of products that meet quality and functional standards and can be continuously evaluated. This research developed an e-module to enhance teachers' ability to create teaching materials using Google Sites. The design and development phases of the product adhere to the principles proposed by Slamet (2022), focusing on creating a product that not only meets teaching needs but can also be optimized through consistent evaluation.

The feasibility test results indicate that the developed e-module meets the feasibility criteria, with a score of 3.5 (70%) from content experts and a score of 4.6 (92%) from media experts. These results indicate that the material in the e-module is well-structured and easy to understand. This finding is consistent with previous studies by Ratna Yulinda et al. (2021) and Imam Hasan et al. (2022), which confirm that the use of Google Sites in teaching has proven effective in helping teachers create ICT-based teaching materials. However, suggestions such as adding hyperlinks and tutorial videos could further enhance the product's appeal and effectiveness.

Regarding practicality, the e-module received an average score of 4.01 (80%), indicating that the product is highly practical for use. Najuah et al. (2020) argue that an ideal e-module should possess characteristics such as being self-instructional, self-contained, stand-alone, adaptive, and user-friendly, all of which are met by this e-module. While most teachers provided positive feedback, some responses indicated the need for improvements, especially in personalizing elements for users who may not be very familiar with technology. This suggests that although the e-module is quite practical, there is room for further enhancement to make the product more accessible to all users.

In terms of effectiveness, the e-module demonstrated a significant improvement in teachers' competencies, with an average N-Gain score of 0.66 (medium category). This indicates that while there were variations between individuals, the e-module was generally effective in improving teachers' understanding and skills in creating digital teaching materials. These findings align with research by Utami (2023), which showed that using platforms like Google Sites can enhance the effectiveness of teaching, providing a more engaging learning experience for students. Maryani et al. (2022) also reported that Google Sites facilitates teachers in structuring teaching materials that are well-organized and easily accessible by students.

The developed e-module aims to guide teachers in using Google Sites to create teaching materials. The e-module includes step-by-step instructions that are easy to follow and is designed with ideal e-module characteristics, as described by Najuah et al. (2020), including being self-instructional, self-contained, stand-alone, adaptive, and user-friendly. This allows teachers to access and use the product independently without requiring external assistance.

The primary limitation of this research lies in the small sample size, with only 17 teachers from Yayasan Al Husna in Tangerang Regency participating. As a result, the findings cannot be generalized to a wider population, such as teachers in other regions or types of schools. With a relatively small sample, the results of this study reflect the perceptions and experiences of a specific group of respondents, thus not capturing the variations or characteristics that may exist among teachers in different areas or contexts. Therefore, to obtain a more comprehensive understanding of the practicality and effectiveness of the product, future research should involve a larger and more diverse sample, encompassing various regions and types of schools. Such studies would provide a more valid and generalizable picture of the potential and impact of e-modules in improving teachers' competencies on a broader scale.

Based on the findings of this study, the developed e-module can be an effective alternative for improving teachers' competencies in utilizing ICT, particularly in creating digital teaching materials. Therefore, policies supporting the integration of ICT in teacher training programs should be encouraged, along with the development of similar e-modules across various educational institutions. Such policies can enhance teachers' ability to adapt to technology, which in turn will improve the overall quality of education.

#### 4. CONCLUSION

This research successfully developed and validated an e-module using Google Sites to enhance teachers' competencies in ICT, particularly for creating interactive teaching materials. The e-module was developed using the systematic ADDIE model, which ensured that the product met the educational needs of the teachers. The development process included content validation by subject and media experts, and its practicality and effectiveness were thoroughly tested through small and large-scale trials. The findings of this research show that the e-module is not only feasible and practical but also significantly improved teachers' ability to create digital teaching materials, with an average N-Gain score of 0.66, indicating a moderate level of effectiveness.

The contribution of this research lies in providing a well-structured, user-friendly, and practical tool that empowers teachers to integrate ICT into their teaching practices. This e-module is a valuable

resource for teachers at Yayasan Al Husna and potentially other educational institutions, enabling them to create interactive and engaging materials that enhance the quality of learning.

In light of the findings, it is recommended that educational policies be strengthened to support the widespread adoption of digital tools like Google Sites in teacher training programs. Educational institutions should consider incorporating ICT-based training into their curriculum to equip teachers with the skills they need to use digital platforms for content creation effectively. Additionally, teacher training should emphasize the importance of continuous professional development, particularly in areas where teachers face challenges, such as integrating technology in the classroom. By doing so, educators will be better prepared to meet the demands of 21st-century learning environments and improve the overall quality of education.

**Acknowledgments:** The authors would like to express their gratitude to the experts who provided valuable feedback during the validation process, as well as to the teachers at Yayasan Al Husna for their participation in the study. We also appreciate the administrative and technical support provided by the institution throughout this research.

## REFERENCES

- Anwar, F., Pajarianto, H., Herlina, E., Raharjo, T. D., Fajriyah, L., Astuti, I. A. D., ... Suseni, K. A. (2022). *Pengembangan Media Pembelajaran "Telaah Perspektif Pada Era Society 5.0"* (R. M. Alti & V. Rizki, eds.). CV. TOHAR MEDIA.
- Buza, K., & Mula, F. (2017). The role of the Teachers in the integration of ICT in Teaching in Secondary Low Education. *European Journal of Social Sciences Education and Research*, 10(2), 240. <https://doi.org/10.26417/ejser.v10i2.p240-247>
- C.N, B. (2016). Impact of ICT on Teaching and Learning: A Literature Review. *International Journal of Management and Commerce Innovations*, 4(1), 24–31. Retrieved from [www.researchpublish.com](http://www.researchpublish.com)
- Fahyuni, E. F. (2017). Buku Ajar Teknologi, Informasi, dan Komunikasi. In S. B. Sartika & M. T. Multazam (Eds.), *Universitas Muhammadiyah Sidoarjo* (Vol. 1). Jawa Timur: Umsida Press.
- Gumilar, C. B. S., & Effendi, K. N. S. (2022). Analisis kebutuhan media pembelajaran berbasis Web Google-Sites materi Statistika pada pembelajaran matematika SMA. *Jurnal Penelitian Pendidikan Dan Pengajaran Matematika*, 8(1), 9–18. <https://doi.org/10.37058/jp3m.v8i1.4445>
- Hasan, I., Fauzi, A. Z., Syah, A. L. N., & Karunia, A. (2022). Peningkatan Kapasitas Guru dalam Pembuatan Learning Management System (LMS) untuk Pembelajaran Daring Menggunakan Google Sites. *Jurnal Pengabdian UntukMu NegeRI*, 6(1), 103–109. <https://doi.org/10.37859/jpumri.v6i1.3394>
- Khasanah, R., & Muflifah, S. M. (2021). Online Learning Management Using Google Sites on Relations and Functions in Pandemic Conditions. *Journal of Education and Learning Mathematics Research (JELMaR)*, 2(1), 68–76. <https://doi.org/10.37303/jelmar.v2i1.49>
- Maryani, Nisak, M. S., & Supriadi, B. (2022). Implementation of Google Sites Web-Based Learning Media to Improve Problem Solving Skills for High School Students the Subject of Sound Waves. *Jurnal Penelitian Pendidikan IPA*, 8(4), 2430–2438. <https://doi.org/10.29303/jppipa.v8i4.2037>
- Najuah, Lukitoyo, P. S., & Wirianti, W. (2020). Modul Elektronik: Prosedur Penyusunan dan Aplikasinya. In *Yayasan Kita Menulis*. Yayasan Kita Menulis.
- Nasrudin, Sari, D. M. M., Makruf, S. A., Darmawan, I. P. A., Herman, Jumiyati, S., ... Purwanto, H. (2022). *Pengembangan Bahan Ajar* (A. Yanto & T. P. Wahyuni, eds.). PT. GLOBAL EKSEKUTIF TEKNOLOGI. Retrieved from <https://id.scribd.com/document/422513894/Module-of-Information-principles-published-on-2012-Modul-Dasar-dasar-Informasi-2012>
- Sevtia, A. F., Taufik, M., & Doyan, A. (2022). Pengembangan Media Pembelajaran Fisika Berbasis Google Sites untuk Meningkatkan Kemampuan Penguasaan Konsep dan Berpikir Kritis Peserta Didik SMA. *Jurnal Ilmiah Profesi Pendidikan*, 7(3), 1167–1173. <https://doi.org/10.29303/jipp.v7i3.743>
- Slamet, F. A. (2022). *Model Penelitian Pengembangan (R n D)* (R. Risdiantoro, ed.). Institut Agama Islam

Sunan Kalijogo Malang.

- Sudrajat, J. (2020). Kompetensi Guru Di Masa Pandemi Covid-19. *Jurnal Riset Ekonomi Dan Bisnis*, 13(2), 100. <https://doi.org/10.26623/jreb.v13i2.2434>
- Sugiyono. (2008). *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Penerbit Alfabeta Bandung.
- Supardi. (2020). *Landasan Pengembangan Bahan Ajar* (S. Arifin, ed.). Sanabil.
- Surur, A. M. (2021). Pengembangan Media Pembelajaran; Teori, Aplikasi, dan Publikasi. In *K- Media* (Vol. 1). Yogyakarta: Penerbit K- Media. <https://doi.org/10.24252/asma.v2i1.13380>
- Undang-Undang Republik Indonesia No. 14 Tahun 2005 Tentang Guru dan Dosen.* , (2005).
- Utami, R. P. (2023). Pemanfaatan Media Pembelajaran Berbasis Google Sites Dalam Pembelajaran Ipa Di Sekolah Dasar. *SENTRI: Jurnal Riset Ilmiah*, 2(2), 394–401. <https://doi.org/10.55681/sentri.v2i2.400>
- Waraulia, A. M. (2020). Bahan Ajar Teori dan Prosedur Penyusunan. In D. Puspitasari (Ed.), *UNIPMA Press*. UNIPMA Press.
- Yulinda, R., Putri, R. F., & Sya'ban, M. F. (2021). Pembuatan Bahan Pembelajaran Melalui Google Site Untuk Guru Smp Pada Pembelajaran Daring. *Jurnal Warta Desa (JWD)*, 3(2), 130–135. <https://doi.org/10.29303/jwd.v3i2.143>
- Zainal, M., & Kasmawati, S. T. (2021). Optimalisasi Google Site sebagai Media Pembelajaran Berbasis Website pada Pembelajaran Jarak Jauh. *Seminar Nasional Pendidikan LPPM IKIP PGRI Bojonegoro*, 42–51.
- Zokirovna, O. D. (2020). The Effectiveness of Implimentation of ICT in Learning Process. *European Scholar Journal (ESJ)*, 1(4), 9–11.