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Original Article

Development of Multidisciplinary-Based Indonesian Interactive E-Modules to Improve Students Scientific Writing Competency

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Abstract

Scientific writing is a crucial skill for students to master, as it enables them to become reliable and skilled observers. This study aims to develop an interdisciplinary-based interactive e-module for the Indonesian language course to improve students' scientific writing competence. This learning is conducted in the General Indonesian Language course at universities. The research used the Research and Development (R&D) method with the 4-D model (Define, Design, Develop, Disseminate). The subjects were 55 students from the English Education and English Literature Study Programs at Universitas Negeri Medan. Expert validation results showed a material feasibility of 77.5% and media feasibility of 73.8%, both falling within the feasible category. Student responses reached 81%, which is considered very positive. Furthermore, the average pre-test score increased from 68.2 to 82.7, with an N-Gain of 0.45, placing it in the moderate-high effectiveness category. Based on these discoveries, the developed e-module is considered feasible, practical, and effective for enhancing students' scientific writing competence.

Keywords: Development, E-Module, Indonesian Language, Interdisciplinary, Writing.

1. Introduction

The development of information and communication technology (ICT) in the era of the Industrial Revolution 4.0 has brought major changes in the world of education, especially in the learning system in universities. Digitization of education requires learning media innovations that not only facilitate access to information, but also increase interactivity and effectiveness of the learning process. The paradigm shift from teacher-centered learning to student-centered learning requires lecturers to be able to design teaching materials that support technology-based independent and collaborative learning. In this context, interactive e-modules are one of the strategic solutions to optimize the learning process in the digital era.

Indonesian as a General Course (MKU) has an important role in shaping students' critical, logical, and scientific thinking skills. One of the main competencies aimed at learning Indonesian in higher education is the ability to write scientific papers. These skills not only include the ability to write in standard language and according to rules, but also reflect the ability to think systematically, analytically, and reflectively. Through scientific writing, students learn to present ideas based on facts, theories, and research results that can be accounted for academically.

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However, various studies show that students' scientific writing skills are still relatively low. Students often have difficulty organizing ideas, determining the appropriate writing structure, choosing the right diction, and applying citation rules and academic references (Hosniyeh, 2025). In addition, Indonesian learning materials in higher education are often presented in general and not contextual with the student's field of study (Wahyuni et al., 2023). For example, students from engineering, economics, and literature study programs have different needs and contexts of scientific writing. Students will easily understand if the material taught is in accordance with their daily experiences or their daily fields. This condition causes Indonesian learning to be often considered monotonous, irrelevant, and less applicable for some students.

A multidisciplinary approach is one of the alternative solutions that can bridge these problems. With this approach, Indonesian language teaching, especially in scientific writing skills, can be adjusted to the context and needs of each scientific. For example, engineering students can practice writing experimental reports, economics students write market study articles, and education students can write papers based on learning theory. This cross-disciplinary integration not only increases the relevance of the material, but also fosters students' awareness that scientific writing skills are a universal skill that supports academic and professional success in any field (Gaol et al., 2025).

The use of multidisciplinary-based interactive e-modules also provides opportunities for students to learn more flexibly and independently. E-modules allow the presentation of materials in the form of texts, videos, quizzes, and interactive simulations that can be accessed anytime and anywhere. These features increase learning motivation, accelerate concept understanding, and allow lecturers to provide direct feedback on student practice results. Furthermore, the integration of multidisciplinary approaches in e-modules helps create learning that is contextual, dynamic, and oriented to the needs of the times.

This research was conducted to develop a Multidisciplinary-Based Indonesian Interactive E-Module that not only displays the material in an interesting and interactive manner, but is also able to adjust the content and examples of scientific writing according to the student's field of study. Through this development, it is hoped that the e-module can improve the scientific writing competence of students across study programs while supporting the Independent Learning-Independent Campus (MBKM) policy which emphasizes innovation, independence, and collaboration in the learning process (Mayeni et al., 2023).

Thus, this research has strategic value both theoretically and practically. Theoretically, the results of the research enrich the study of the development of multidisciplinary-based digital learning media. Practically, this interactive e-module product is expected to be an alternative teaching material that is relevant, interesting, and effective in improving students' scientific writing competencies in higher education.

2. Literature Review

The development of learning technology has changed the way students' access, process, and produce knowledge, including in academic Indonesian learning. Print modules that are linear and static are considered no longer adequate to develop scientific writing skills that require critical, interactive, and repetitive processes. Therefore, the development of interactive e-modules is a relevant alternative (Rezeki et al., 2023). According to Mayer (2021), multimedia-based learning works effectively when it combines "words and pictures" in a format that is in harmony with how human memory works. This principle emphasizes that

digital modules that are able to present text, visuals, animations, and feedback can strengthen the understanding of concepts while facilitating the writing process more gradually.

The concept of e-modules is defined by Clark and Mayer (2011) as "*self-instructional digital learning material that provides structured content, guided practice, and feedback*". Thus, the quality of e-modules does not only lie in their digitization, but in their instructional design. The ADDIE model developed by Reigeluth (1983) emphasizes that digital materials must go through needs analysis, systematic design, trial, revision, and thorough evaluation in order to truly improve learning outcomes. In the context of learning scientific writing, this principle is important because students' writing skills do not develop just by reading theories. They require sample text models, step-by-step exercises, scaffolding, and space for revision. Hyland (2019) explains that scientific writing is a social and cognitive activity that requires understanding rhetorical conventions in a particular discipline. Therefore, e-modules that provide authentic examples, analytical models, and context-based exercises will be much more effective than regular narrative modules.

A multidisciplinary approach is an important element in the development of scientific writing e-modules. Many studies show that students often have difficulty writing because they only learn "language" without understanding different scientific contexts. Lattuca (2001) asserts that multidisciplinary learning "*expands students' ways of thinking by integrating theories, methods, and perspectives across fields*." In Indonesian language teaching, this approach allows students to be exposed to a variety of scientific texts from various disciplines such as education, social, science, health, and economics, so that they understand the variations in structure, style, and argumentative demands in each field. Such an approach not only increases the relevance of learning, but also equips students with academic literacy skills that can be transferred to a variety of writing contexts.

Scientific writing competencies themselves include the ability to formulate problems, organize ideas, cite sources, use academic language, and write in the correct scientific structure. Swales and Feak (2004) say that scientific writing relies on typical rhetorical "*moves and steps*", for example in the introduction that must show gaps in research, justification, and contribution. However, various studies show that Indonesian students often experience obstacles at this stage. Alwasilah's research (2008) found that most students are not used to reading scientific texts intensively, so they lack a good understanding of rhetorical patterns and academic language. These difficulties can be overcome through interactive e-modules that provide sample model texts, exercises to identify rhetorical structures, as well as automated and manual feedback.

The benefits of interactive e-modules have been proven in many studies. Sape & Sambara (2024) report that the use of interactive e-modules increases motivation and learning retention because students can learn independently, choose a learning path, and get immediate feedback. Similar results were shown by Jannah's (2024) research which found that video-based interactive e-modules and quizzes improved students' understanding of scientific writing structures. This is in line with the findings of Fiorella and Mayer (2022) who stated that interactivity increases engagement while strengthening the formation of knowledge schemas. Thus, the development of e-modules that integrate text examples, interactive quizzes, explainer videos, and writing assignments will help students practice writing on an ongoing basis.

The integration of technology and formative assessments within the e-module is also very important. Black and Wiliam (2009) affirm that formative assessment through continuous feedback is the key to improving writing skills. E-modules allow for automatic feedback on certain aspects such as grammatical errors, sentence logic, or citations. However,

more in-depth evaluations such as paragraph coherence and argumentation still require manual feedback from the lecturer. Therefore, the ideal e-module is not to replace the teacher, but to be an extension of learning that allows students to obtain initial scaffolding before further discussion in class.

However, some research gaps are still visible. Many e-modules developed focus only on the appearance and technical features without paying attention to pedagogical principles. Maryati et al. (2025) show that some e-modules do not improve students' writing skills because they do not provide gradual exercises and analytical examples. In addition, there are few studies that specifically develop a multidisciplinary-based Indonesian scientific writing e-module. In fact, a multidisciplinary approach can provide a richer and more relevant learning experience for students from various study programs.

From all of these studies, it can be concluded that the development of interdisciplinary-based interactive e-modules has a strong theoretical and empirical foundation to improve students' scientific writing competence. Technology is not just a means, but a part of pedagogical design that must be integrated with the needs of students, writing theory, and the characteristics of academic genres. A good e-module not only provides information, but facilitates the thought process, guides revisions, provides examples, and connects students with real scientific contexts. Thus, the integration of multidisciplinary, multimodality, and feedback approaches in e-modules has great potential to result in more effective, reflective, and sustainable learning of scientific writing.

3. Methods

This research uses a research and development (R&D) approach with the main goal of producing learning products in the form of Multidisciplinary-Based Indonesian Interactive E-Modules that are feasible, practical, and effective to improve students' scientific writing skills. The development model used is the 4-D (Define, Design, Develop, Disseminate) model proposed by Thiagarajan et al. (1974). This model was chosen because it has systematic stages and is suitable for developing technology-based learning tools that require validity and effectiveness tests.

3.1. Define Stage

This stage aims to establish the needs and basis for product development. The activities carried out include:

1) Curriculum analysis, to identify learning outcomes of Indonesian language courses, especially the competence of writing scientific articles.
2) The analysis of student needs was carried out through observation and distribution of questionnaires to students of the English Language and English Literature Education Study Program at the State University of Medan. The results of the analysis show that students need teaching materials that are interactive, contextual, and in accordance with their scientific field.
3) Analysis of student characteristics, such as learning styles, digital literacy skills, and previous experience in writing scientific papers.
4) Formulation of learning objectives, as the basis for the preparation of content, activities, and evaluations in interactive e-modules.

The results of the define stage become the foundation for designing e-modules that are relevant, directed, and oriented to user needs.

3.2. Design Stage

At this stage, the initial design of the e-module is prepared taking into account the principles of digital learning design and the integration of multidisciplinary approaches. The steps taken include:

1. Preparation of the e-module content framework, which consists of six main parts: introduction, learning objectives, core material, cross-disciplinary scientific article examples, interactive exercises, and reflections.
2. User interface design, including visual displays, navigation, interactive icons, and multimedia integrations such as video, audio, and automated quizzes.
3. The selection of a development platform, using Flip PDF Professional and Google Classroom so that the e-module can be easily accessed both online and offline.
4. Preparation of research instruments, such as material and media expert validation sheets, student response questionnaires, and scientific writing ability tests (pre-test and post-test).

The design of the e-module follows the principle *of user-centered design*, which is oriented towards user comfort and convenience. The multidisciplinary approach is realized through the presentation of examples of scientific texts from various fields of study, such as education, economics, engineering, and literature.

3.3. Develop Stage

This stage is the process of realizing the design into an e-module product that is ready to be tested. Key activities include:

1. Prototyping of interactive e-modules, based on designs that have been approved at the previous stage.
2. Expert validation was carried out by two material experts and one media expert to assess the feasibility aspects of content, language, display, interactivity, and suitability with digital learning principles.
3. Product revisions, based on suggestions and input from validators to improve the content and appearance of the e-module.
4. The trial was limited to a small group of students to assess readability, clarity of instructions, and ease of use of e-modules.
5. A wide-ranging trial was conducted on all research samples (55 students) to measure the practicality and effectiveness of e-modules in improving scientific writing skills.

3.4. Disseminate Stage

This last stage aims to introduce and distribute e-modules to a wider range of users. Activities include:

1. Socialization of e-modules to lecturers teaching Indonesian courses at the Faculty of Languages and Arts, State University of Medan.
2. Training on the use of e-modules, so that lecturers and students can take advantage of interactive features optimally.
3. Publication of research results through national seminars and accredited journals.
4. Registration of Intellectual Property Rights (IPR) to protect digital works of development.

3.5. Population and Research Sample

The research population includes all students of the Faculty of Languages and Arts, State University of Medan who take Indonesian courses. The sample was set by purposive sampling technique, involving 55 students from the English Language Education Study Program (29

people) and English Literature (26 people). The sample criteria include active students who take Indonesian lectures and are willing to take part in all stages of the e-module trial.

3.6. Instruments and Data Analysis

The research instruments consisted of:

1. Expert validation sheets, to assess the feasibility of content and media.
2. Student response questionnaire, to assess the aspects of convenience, appearance, and relevance of e-modules.
3. Scientific writing ability tests, in the form of *pretest* and *posttest* to measure the effectiveness of e-modules.
4. Observations and short interviews, to obtain qualitative data on student experiences while using e-modules.

Quantitative data was analyzed using descriptive statistics in the form of percentages and normalized gain (N-Gain) to measure the improvement of learning outcomes. Qualitative data were analyzed by reduction, presentation, and conclusion drawing techniques (Miles & Huberman, 1994).

4. Results and Discussion

This research aims to develop a Multidisciplinary-Based Indonesian Interactive E-Module that is feasible, practical, and effective in improving students' scientific writing skills. The research process was carried out by adapting the 4-D (Define, Design, Develop, Disseminate) development model from Thiagarajan et al., (1974). The research subjects involved 55 students from the English Language and English Literature Education Study Program, Faculty of Languages and Arts, State University of Medan. Data was obtained through validation of material and media experts, student response questionnaires, and scientific writing ability pre-test tests.

4.1. Research Result

4.1.1. Defining Stage

The results of the needs analysis show that most students have difficulty in writing scientific articles. As many as 69% of students stated difficulties in determining topics and organizing ideas, while 72% of students wanted examples of scientific writing that were appropriate to their field of study. This condition shows that the Indonesian learning materials used so far are still general and less contextual to the students' scientific backgrounds.

This analysis is in line with the results of research by Yani and Primandhika (2023) which stated that students' low scientific writing skills are caused by a lack of contextual teaching materials and interesting learning media. Hence, the development of this e-module is directed to provide interactive, contextual, and adaptive learning to various disciplines.

4.1.2. Design Stage

Based on the results of the analysis, the e-module is designed with a systematic and interactive structure, consisting of six main parts: introduction, learning objectives, core material, cross-disciplinary scientific article examples, interactive exercises, and learning reflections. The design of the e-module refers to the theory of digital learning media development by Palyanti (2023) which emphasizes the integration of text, visual, and multimedia to improve interactivity and learning motivation. E-modules are developed using digital platforms such as Flip PDF Professional so that they can be accessed online and offline.

In addition, the presentation of the material is arranged with a constructivist approach (Vygotsky, 1978), which allows students to actively build knowledge through exploration and reflection. Each section comes with interactive exercises and automated feedback to reinforce understanding.

4.1.3. Research Result of Development Stage

This stage includes an expert validation process, product revision, and field trials.

1) Expert Validation Results

Validation was carried out by two subject matter experts and one media expert. The results show that:

a) Content/material eligibility: 77.5% (eligible category)
b) Media eligibility: 73.8% (eligible category)

These two results show that e-module products meet the academic and technical feasibility standards as stated by Galle et al., (1996), that a development product is said to be feasible if it obtains a minimum feasibility score of 70%.

The validators provided several suggestions for improvement, including enriching examples of scientific articles from various non-language disciplines and refining navigation to make it more user-friendly. After the revision, the e-module became more representative and easier to use.

2) Field Trial Results

The trial was conducted for 55 students through two stages: a limited trial and a broad trial. The results of the student response questionnaire can be seen in the following Table 1:

Table 1. The Results of the Student Response Questionnaire

Aspects Assessed	Average (%)	Category
Ease of understanding material	82,0	Excellent
Visual display and interactivity	80,5	Good
Relevance to the field of study	83,5	Excellent
Readability and linguistics	79,0	Good
Ability to increase motivation to learn	84,0	Excellent
Independence in learning	77,0	Good
Overall average	81,0	Excellent

The data shows that the majority of students give a positive response to the e-module. They consider the e-module attractive, easy to use, and able to help them understand the structure of scientific articles according to their scientific field. These findings are in line with the results of research by Sape & Sambara (2024) which shows that the use of interactive digital media increases students' motivation and learning independence.

3) Scientific Writing Ability Test Results

To measure the effectiveness of the e-module, pretest and posttest tests were carried out for scientific writing ability. The pre-test and post-test results for scientific writing ability are summarized in Table 2:

Table 2. Pre-test and Post-test Results of Scientific Writing Ability

Test Type	Average Score	Increased
Pre-test	68,2	-
Post-test	82,7	+14,5
N-Gain	0,45	Medium–high category

The increase in scores shows that the e-module effectively improves students' scientific writing skills, especially in the aspects of writing structure, the use of scientific language, and the development of arguments based on theory and data.

4.2. Discussion

The results of this study show that multidisciplinary-based interactive e-modules have been successfully developed and proven to be suitable for use in Indonesian learning in universities. Theoretically, these results support the view of Molenda (2003) that the development of learning media must follow systematic stages in order to produce products that are valid and in accordance with user needs.

In terms of implementation, the use of interactive e-modules supports the concept of constructivist and self-directed learning. Students not only receive passive information from lecturers, but are also active in exploring and practicing scientific writing skills independently. This is in line with research by Saragih et al. (2023) who stated that interactive and flexible digital learning media can increase student motivation, independence, and understanding of concepts.

In addition, the application of a multidisciplinary approach has proven to be relevant to overcome the constraints of student heterogeneity in higher education. Students from various study programs can learn scientific writing according to the context of their field, such as writing research reports for science students, economics articles for business students, and literature reviews for education students. This is in line with the findings of Sihotang et al., (2025) who stated that multidisciplinary-based learning improves students' critical thinking skills and academic writing skills.

Empirically, the increase in pretest-posttest scores with an N-Gain of 0.45 (medium-high category) shows the effectiveness of e-modules in improving scientific writing competence. This value also confirms that e-modules have a real impact on improving students' systematic thinking skills and academic abilities. In terms of practicality, the student response which reached 81% (the excellent category) confirmed that the e-module is easy to use, interesting, and helps them learn independently. This supports Mayer's (2005) theory, which explains that the combination of text, images, and interactivity strengthens conceptual understanding and improves knowledge retention.

The following table presents the key results of the development and evaluation process for the e-module, including details on the development model, sample size, expert validation, student responses, and effectiveness as indicated by the N-Gain value. The result for the Interdisciplinary E-Module in the Table 3.

Table 3. Summary of Development and Evaluation Results for the Interdisciplinary E-Module

Component	Key Results	Information
Development model	4D (Define, Design, Develop, Disseminate)	Thyagarajan Adaptation
Number of samples	55 students	English Education and Literature
Subject matter expert validation	77,5%	Proper
Media expert validation	73,8%	Proper
Student Response	81%	Excellent
N-Gain Value	0,45	Effective (Medium–High)
Product status	Suitable for use and ready for dissemination	

The development of this multidisciplinary-based interactive e-module has wide implications for Indonesian learning in higher education. This e-module not only improves scientific writing competence, but also encourages students to think cross-disciplinary, collaborate, and adapt to the development of modern learning technology. In addition, the results of this research can be used as a reference in the development of digital learning policies and the preparation of technology-based teaching materials in various study programs.

5. Conclusion

Based on the research findings and discussion, it can be concluded that the development of the Multidisciplinary-Based Indonesian Interactive E-Module has been successfully carried out using the systematic stages of the 4D development model (Define, Design, Develop, Disseminate). The process involved analysing student needs, designing interactive content, validating by experts, and conducting field trials. The validation results showed that the e-module met the criteria for good content, display, and interactivity, with feasibility scores of 77.5% from material experts and 73.8% from media experts, both falling within the feasible category. Student responses to the e-module were very positive, with an average score of 81%, reflecting its ease of use, attractive appearance, and relevance to students' fields of study. This indicates that the e-module successfully enhances students' motivation and fosters independent learning.

Furthermore, the effectiveness of the e-module in improving scientific writing skills was demonstrated by the significant increase in the average pretest score from 68.2 to 82.7, resulting in an N-Gain of 0.45, which places it in the medium-high effectiveness category. This shows that the e-module is effective in developing students' scientific writing competence across various study programs. Overall, the interactive e-module is found to be feasible, practical, and effective as a digital teaching tool for Indonesian language courses at universities. In addition to enhancing scientific writing skills, the e-module also supports the implementation of the Independent Learning-Independent Campus (MBKM) policy and digital transformation in higher education. The research suggests that this e-module can serve as an alternative teaching resource for lecturers, facilitate independent learning for students, and provide educational institutions with valuable insights for developing inclusive, technology-based learning policies and infrastructure. Future researchers are encouraged to expand the scope of this e-module and integrate artificial intelligence features to personalize the digital learning experience.

6. References

Alwasilah, A. C. (2008). *Filsafat bahasa dan pendidikan*. Bandung Sekolah Pascasarjana Universitas Pendidikan Indonesia Remaja Rosdakarya 2008.

Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability (Formerly: Journal of Personnel Evaluation in Education)*, *21*, 5–31.

Clark, R. C., & Mayer, R. E. (2011). *e-Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning*. Wiley.

Fiorella, L., & Mayer, R. E. (2022). 28 The Generative Activity Principle in Multimedia Learning. In *The Cambridge Handbook of Multimedia Learning*. Cambridge University Press.

Galle, M. D., Borg, W. R., & Gall, J. P. (1996). Educational research. *White Plains, NY:*

Longman.

Gaol, H. L., Frince S., M., & Wulan, E. P. S. (2025). Pengaruh Model Pembelajaran Multiliterasi Terhadap Keterampilan Menulis Karya Ilmiah Siswa Kelas XI SMA Negeri 1 Baktiraja. *Jurnal Kajian Ilmu Pendidikan (JKIP)*, *6*(1), 195–210. https://doi.org/10.55583/jkip.v6i1.1307

Hosniyeh, H. (2025). Analisis Kesulitan Mahasiswa dalam Menulis Karya Ilmiah di Program Studi Tadris Bahasa Indonesia. *Jurnal Tinta*, *7*(2), 275–289.

Hyland, K. (2019). *Second language writing*. Cambridge university press.

Jannah, T. R. (2024). *Developing an Interactive E-Module for Writing Procedure Texts Based on a Multidisciplinary Approach*. S1-Tadris Bahasa Inggris IAIN Syekh Nurjati.

Lattuca, L. R. (2001). *Creating interdisciplinarity: Interdisciplinary research and teaching among college and university faculty*. Vanderbilt university press.

Maryati, A., Suzanne, N., & Rahmawati, R. (2025). Interactive genre-based e-modules with flip pdf professional as a digital solution for teaching descriptive text. *Celtic: A Journal of Culture, English Language Teaching, Literature and Linguistics*, *12*(2), 849–867.

Mayeni, R., Amarullah, T. A. H., Vratiwi, S., Putra, D. A., Rahayu, I. D., & Hidayatullah, R. R. (2023). Pengembangan E-Modul Flipbook MKU Bahasa Indonesia Berbasis Flip PDF Professional pada Materi Menulis Karya Ilmiah untuk Mahasiswa Prodi TIK STKIP Pesisir Selatan. *SIBERNETIK: Jurnal Pendidikan Dan Pembelajaran*, *1*(1), 89–97.

Mayer, R. E. (2005). Cognitive theory of multimedia learning. *The Cambridge Handbook of Multimedia Learning*, *41*(1), 31–48.

Mayer, R. E. (2021). *Multimedia Learning*. Cambridge University Press.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook. Thousand Oaks: Sage Publication* (Vol. 17).

Molenda, M. (2003). In search of the elusive ADDIE model. *Performance Improvement*, *42*(5), 34–36. https://doi.org/10.1002/pfi.4930420508

Palyanti, M. (2023). Media pembelajaran asik dan menyenangkan untuk meningkatkan motivasi belajar mahasiswa dalam mata kuliah Bahasa Indonesia. *Attractive: Innovative Education Journal*, *5*(2), 1014–1026.

Reigeluth, C. M. (1983). Instructional design: What is it and why is it. *Instructional-Design Theories and Models: An Overview of Their Current Status*, *1*, 3–36.

Rezeki, S. G., Nasution, M. I. P., & Sundari, S. S. A. (2023). Application of E-Learning as a Learning Medium for Information Technology. *REVIEW OF MULTIDISCIPLINARY EDUCATION, CULTURE AND PEDAGOGY*, *2*(1), 1–6. https://doi.org/10.55047/romeo.v2i1.518

Sape, H., & Sambara, P. M. (2024). Penggunaan E-Modul Interaktif dalam Meningkatkan Kemampuan Literasi Siswa. *Jurnal Pendidikan Dan Pembelajaran*, *4*(2), 101–106.

Saragih, V. R., Sianipar, V. M. B., Purba, N. A., & Pane, E. P. (2023). Pengembangan E-Modul Interaktif Berbasis Etnobudaya Simalungun Untuk Meningkatkan Literasi Teknologi Mahasiswa Pada Pembelajaran Bahasa Indonesia. *Pendidikan Bahasa Indonesia Dan Sastra (Pendistra)*, *6*(2), 157–165.

Sihotang, M. W., Sinaga, S. H., & Panggabean, L. (2025). Pengaruh Media Pembelajaran Animasi Terhadap Kemampuan Menulis Teks Eksplanasi Siswa Kelas XI SMA Negeri 2 Siborongborong Tahun Pembelajaran 2023/2024: The Influence of Animated Learning Media on the Explanation Text Writing Skills of 11th Grade Students at SMA Negeri 2 Siborongborong for the 2023/2024 Academic Year. *TobaEdu: Jurnal Pendidikan Dan Pengabdian Multidisipliner*, *1*(1), 1–8.

Swales, J. M., & Feak, C. B. (2004). *Academic writing for graduate students: Essential tasks and skills* (Vol. 1). University of Michigan Press Ann Arbor, MI.

Thiagarajan, S., Semmel, D. S., & Semmel, M. I. (1974). *Instructional development for training teachers of exceptional children*. Leadership Training Institute/Special

Education, University of Minnesota.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (Vol. 86). Harvard university press.

Wahyuni, S. S., Subaweh, A. M., & Naufal, M. Z. (2023). Analysis of Moral Values in the Novel "Pudarnya Pesona Cleopatra" by Habiburrahman El-Shirazy and Its Application as Teaching Material for Analyzing the Content and Language of the Novel for 12th-Grade High School Students. *REVIEW OF MULTIDISCIPLINARY EDUCATION, CULTURE AND PEDAGOGY*, *3*(1), 47–54. https://doi.org/10.55047/romeo.v3i1.966

Yani, A. S., & Primandhika, R. B. (2023). Analisis Kesalahan Kebahasaan dalam Penulisan Karya Tulis Ilmiah. *Parole: Jurnal Pendidikan Bahasa Dan Sastra Indonesia*, *6*(2), 155–164.