Indonesian Journal of Advanced Research (IJAR)
Vol. 4, No. 12, 2025: 2561-2578

Bridging the Digital Divide: A Need Analysis for FlipHTML5-Based Academic Writing E-Modules with a Student-Centered Learning Approach

Dafran Alhadj[1]*, Nurhayati[2], Mulyadi Eko Purnomo[3], Ernalida[4]
Universitas Sriwijaya
Corresponding Author: Nurhayati nurhayati@fkip.unsri.ac.id

A R T I C L E I N F O

Keywords: Academic Writing, FlipHTML5 E-Module, Student-Centered Learning, Needs Analysis.

Received : 3, November
Revised : 17, November
Accepted: 19, December

A B S T R A C T

This study aims to analyze the needs of students and teachers for the development of FlipHTML5-based academic writing e-modules with the Student-Centered Learning (SCL) approach as the initial stage in the Dick and Carey R&D model. The study involved 109 students of class X who were determined through purposive sampling. Data were collected through needs analysis questionnaires, semi-structured interviews, and class observations, then analyzed descriptively, quantitatively, and qualitatively. The results show a striking gap between the availability of conventional materials and the learning preferences of Generation Z students, where 98% of students need multimodal teaching materials that are easily accessible through digital applications to reduce the cognitive burden in understanding writing materials. The integration of the SCL approach is also proven to be urgent to support learning independence. These findings confirm the need for the immediate development of interactive e-modules as a strategic pedagogical solution to improve academic writing competence.

INTRODUCTION

Academic writing skills are one of the main indicators of high-level literacy that must be mastered by students at the secondary school level, especially in the context of 21st-century learning that requires critical thinking skills (Pratiwi et al., 2025), communication (Riwayatiningsih et al., 2025), and scientific presentation of ideas (Li & Mak, 2022). However, the achievement of academic writing skills of high school students in Indonesia is still relatively low because the learning process tends to be teacher-centered (Retnowaty, 2025), oriented towards memorizing text structures, and has not provided space for students to learn independently or reflectively (Lee et al., 2025). This condition is exacerbated by the limited learning resources that are able to facilitate interactive, contextual learning experiences (Nabhan & Habók, 2025), and sustainability, especially in Indonesian subjects that focus on academic writing (Su et al., 2023; Rao et al., 2023; Utami et al., 2023).

Along with the rapid development of digital technology, e-modules are increasingly being used as an alternative to learning that is flexible (Herniwati et al. 2025), independent (Khawaji et al. 2025), and easily accessible (Kumar et al. 2025). In addition, a number of e-modules that have been developed have not been fully based on the authentic needs of students, resulting in products that are superior in terms of technology but lack pedagogical relevance and significance (Safitri et al., 2025; Pardede et al., 2025.) Thus, the learning needs of students have not been fully used as a conceptual basis in the design of the e-module.

FlipHTML5 is one of the systems that provides excellent features for e-module development (Jacob & Centofanti, 2023), especially through interactive displays (Herianto et al. 2022) supported by multimedia integration (Ramalingam et al. 2022), flipbook-based navigation (Sofi-Karim 2022), and ease of access on various devices (Safitri et al., 2025; Pardede et al., 2025; Susanti & Agung, 2023). FlipHTML5 has been leveraged in a variety of learning contexts (Jacob and Centofanti et al. 2023; Kerimbayev et al., 2023; Woods et al., 2024; Sari et al., 2022), its use to support the development of academic writing skills in secondary school students is still relatively limited (Arifin et al., 2025; Wijnia et al., 2024).

On the other hand, the Student-Centered Learning (SCL) approach provides a pedagogical foundation (Amiruddin et al., 2023), which is in line with the principles of developing academic writing skills (Loyens et al., 2023; Wijnia et al., 2024; Bhardwaj et al., 2025). This approach emphasizes learning independence (Noptario et al., 2024; Rahayu et al., 2022), personal responsibility (Rahayu et al., 2022), active engagement (Putra et al., 2023; Nugroho & Suryani, 2022), as well as the ability to self-reflect (Sudirman et al. 2024), all of which are essential components in academic writing practice (Habibi et al., 2024; Herniwati et al., 2025). In order for FlipHTML5-based e-modules to have high relevance and effectiveness, the application of SCL principles is not enough to be reflected in the existence of interactive features, but must be developed based on the authentic needs of students and teachers in the learning process.

Needs analysis is an important stage to ensure that e-modules are able to address pedagogical gaps (writing competence) (Gui et al., 2025; Manh Do 2023;

Edmund Austrus et al. 2025), technological aspects (accessibility) (Herniwati et al. 2025), completeness of features (Kumar et al. 2023), and ease of use (S. Utami et al. 2023), as well as affective dimensions (interest) (Fitra Delita et al. 2023), motivation (Kumar et al. 2023), and learning independence. This means that the e-module development process should not only focus on presenting material and digital displays, but should be based on real information about user needs, challenges, and preferences so that every element included in the e-module really serves to support the improvement of academic writing skills while creating a meaningful, efficient, and engaging learning experience for students.

Various studies have been conducted related to needs analysis. The research shows the importance of needs analysis before developing a curriculum (Lee & Oh, 2025) and teaching materials including digital application-based teaching materials (Onas et al., 2021; Nurhayati et al., 2023; Noviyanti et al., 2023; Giovanoglou & English, 2025; (Axtell et al., 2025). Studies related to the analysis of the need for the importance of learning orientation to students have been conducted by Woods & Copur-Gencturk, (2024); Cipriano et al., (2025); Albasry et al., (2025); Hirvonen et al., (2026). These studies have not led to a need analysis research for the development of FlipHTML5-based academic writing e-modules with the SCL approach.

This study aims to analyze the need for the development of FlipHTML5-based academic writing e-modules with the SCL approach in the context of learning in high school. The main contribution of this research lies in the presentation of a holistic needs analysis through the integration of the three dimensions (pedagogical, technological, and affective) which have not been widely used as a basis simultaneously in previous studies. In addition, this study examines the needs from the perspective of students and teachers simultaneously so as to provide a more complete empirical picture of the readiness of the implementation of e-modules in academic writing learning. The results of this research are expected to be a strong foundation in the development of e-modules that are relevant, effective, and truly student-centered, as well as enriching the treasures of knowledge regarding the transformation of academic writing learning based on digital technology.

LITERATURE REVIEW

Academic Writing as a Cognitive and Social Practice

Academic writing is a practice that involves complex cognitive processes, such as planning, organizing ideas, and using metacognitive strategies to produce quality writing (Frederick et al., 2025; Jin et al., 2022; Li, 2024; Nurkamto et al., 2024). In addition, the success of academic writing is greatly influenced by the writer's ability to manage emotions, build motivation, and develop effective writing habits through self-reflection and the use of various cognitive tools (Frederick et al., 2025; Naidoo et al., 2023; Jin et al., 2022). This cognitive process is inseparable from challenges such as writing anxiety, lack of confidence, and obstacles in understanding academic style and structure (Nurkamto et al., 2024; Li, 2024; Aydin et al., 2022).

On the other hand, academic writing is also a social practice that demands interaction with the academic community, either through collaboration, peer feedback (Bankier, 2022), or participation in scientific discourse (Khuder et al., 2025; Mochizuki, 2022; Xiao et al., 2023). This social interaction facilitates the formation of the author's identity (Khuder et al., 2025), the development of genre knowledge, as well as adaptation to the norms and expectations of the scientific community (Xiao et al., 2023). Social support, collaboration, and involvement in practice networks have been shown to increase motivation, belonging, and quality of academic writing (Frederick et al., 2025; Banker, 2022; Khuder et al., 2025).

Advantages of FlipHTML5-Based E-Modules in Multimedia Learning

The paradigm shift from print to digital teaching materials is based on the Cognitive Theory of Multimedia Learning (CTML) postulated by Mayer (2014). This theory argues that deep learning occurs when learners build mental references through the simultaneous integration of visual and verbal channels. In this context, FlipHTML5-based e-modules offer a technical advantage in the form of hypermedia interactivity that static textbooks do not have (Afida et al., 2024).

This platform allows the integration of multimodal elements such as simulation videos, narrative audio, and interactive quizzes that have been proven to significantly reduce extraneous cognitive load and improve student information retention (Fauziah & Wulandari, 2022; Mulyaningsih, 2021). The findings of a comparative study conducted by Gunawan & Humaira (2025) confirm that the use of digital flipbooks is positively correlated with an increase in the intrinsic motivation of digital native generation students, who have a strong preference for visual-kinesthetic material over purely textual.

Needs Analysis and Student-Centered Learning (SCL)

Needs analysis is a systematic procedure to identify the gap between the ongoing learning conditions and the expected learning conditions (Nadia et al., 2025; Dewi et al., 2023; Barzegar et al., 2024). In the context of learning media development, needs analysis is a crucial stage because it determines the direction of instructional design, content, and pedagogical strategies to be in harmony with the characteristics of students and the demands of the curriculum (Meilyani et al., 2025; Raharjo et al., 2024; Menggo et al., 2022). According to the theory of Needs Assessment by Kaufman (1977), the development of learning media must begin with the mapping of the current state and desired state, so that development decisions are not based on assumptions, but on empirical data (Padmadewi et al., 2022; Wickramage et al., 2024; Hamdani et al., 2025).

In the context of Student Centered Learning (SCL)-based learning, needs analysis serves to determine the most effective forms of learning activities to encourage independence, exploration, collaboration, and reflection (Sutrisno et al., 2024; Marpaung et al., 2025; Meilyani et al., 2025; Nadia et al., 2025). SCL positions students as active learners, so learning media must facilitate an interactive and personalized learning experience (Abdigapbarova et al., 2022; Putri et al., 2024; Berg et al., 2023; Hasan et al., 2025). Research shows that SCL-

based e-modules have been shown to increase motivation, engagement, and learning independence when the digital features provided are in line with students' learning needs, such as free navigation, access to additional materials, and authentic assignments (Marpaung et al., 2025; Safitri et al., 2025; Naibaho et al., 2025). On the other hand, the implementation of SCL does not have a positive impact if students are not facilitated with media that allow the management of the learning process independently and collaboratively (Al-Ansi, 2022; Sutrisno et al., 2024; Wijnia et al., 2024; Fitriani R et al., 2025).

The development of modern teaching materials demands the integration of a pedagogical approach based on Student-Centered Learning (SCL), in which students are encouraged to become active agents who construct knowledge through self-exploration and collaboration (Lim et al., 2022; Abdigapbarova et al., 2022; Du et al., 2025). In the context of writing learning, the application of SCL integrated with digital technology and adaptive scaffolding has been proven to increase Self-Regulated Learning (SRL) activities, giving students autonomy to regulate learning speed, monitor progress, and conduct self-reflection (Lim et al., 2022; Du et al., 2025; Lămsă et al., 2025).

Recent research shows that the use of digital platforms that provide personalized scaffolding and real-time feedback can lower writing anxiety as well as significantly improve students' academic performance (Lim et al., 2022; Du et al., 2025; Lămsă et al., 2025). The integration of SCL in the digital environment also creates adaptive learning spaces that support differentiation of learning according to individual needs, while strengthening student motivation and involvement in the learning process (Abdigapbarova et al., 2022).

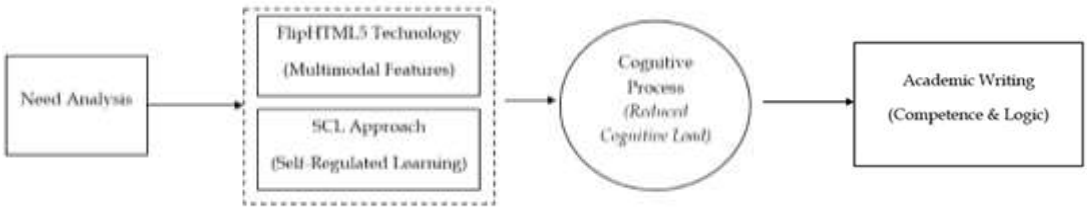

Figure 1. *Conceptual Framework of the Study From Needs Analysis to the Development of FlipHTML5-Based E-Module integrated with SCL Approach.*

RESEARCH METHODOLOGY

Research Design

This research is a preliminary research stage within the broad framework of Research and Development which refers to the system approach model of Dick, Carey, and Carey (2015). The main focus of this study lies in the two initial stages of the model, namely: (1) Identify Instructional Goals, and (2) Analyze Learners and Contexts. To achieve this goal, a descriptive design is applied with a mixed methods approach. Quantitative data is used to map performance gaps and trends in students' instructional needs statistically, while qualitative data is

used to explore teachers' perspectives on pedagogical barriers and the availability of learning resources in schools.

Participants

The selection of participants was carried out using a purposive sampling technique with the criteria of students who are taking academic writing materials in the 2024/2025 school year. The research sample consisted of 109 class X students at SMA Negeri 10 Palembang. In addition to students, this study also involved one Indonesian subject teacher as a key informant for qualitative data. The demographic distribution of student respondents by class is presented in Table 1.

Table 1. Distribution of Student Respondent Sample (N = 109)

Class	Number of Students (f)	Percentage (%)
X.3	30	27.5
X.4	25	22.9
X.6	31	28.4
X.7	23	21.1
Total	109	100.0

Note: Demographic data was obtained from the learner analysis survey (2025).

Based on Table 1, the participants of this study involved a total of 109 students of class X who were distributed into four different study groups (rombel), namely X.3, X.4, X.6, and X.7. The distribution of the sample showed a relatively even distribution with variations in the percentage of participation ranging from 21.1% to 28.4%.

Specifically, class X.6 contributed the largest sample with 31 students (28.4%), followed by class X.3 with 30 students (27.5%). Meanwhile, classes X.4 and X.7 have a slightly lower proportion, at 22.9% (25 students) and 21.1% (23 students), respectively. The heterogeneity of the sample number of these different classes comprehensively represents the student population of class X, which is important to ensure the validity of the data in the analysis of the development needs of the E-Module.

Instruments and Data Collection

Data collection is carried out using three main instruments to ensure triangulation of data sources:

1. Needs Analysis Questionnaire: A structured questionnaire was developed based on indicators of writing competence and student characteristics according to the model of Dick and Carey (2015). This instrument consists of 28 statements that include the dimensions of material needs (necessities), lacks, and desires (wants). Responses were measured using a 4-point Likert Scale (1 = Very Not Needed to 4 = Very Necessary) to avoid central tendency bias.

2. Semistructured Interview Guidelines: Interviews are conducted with teachers to explore instructional challenges, teaching strategies, and perceptions of the integration of technology in learning.
3. Classroom Observation: Direct observation is carried out to observe learner behaviors and learning interactions in the classroom.

Instrument Validity and Reliability

Before being used for learner analysis, the questionnaire instrument had undergone empirical validity and reliability tests involving 109 respondents The validity of the items was tested using the Pearson Product-Moment correlation technique. The results of the analysis showed that all 28 statements were declared valid, with the value on each item greater than (0.1882 at a significance level of 5%). Furthermore, the reliability of the instrument was measured using $(N = 109)$. $r_{count} r_{table}$Cronbach's Alpha formula. The calculation results showed a reliability coefficient of α = 0.975. This value is categorized as "Excellent" reliability, which indicates that the instrument has a very strong internal consistency and is suitable for research data collection.

Data Analysis

Data analysis was carried out descriptively, quantitatively, and qualitatively. Quantitative data from the questionnaire was analyzed using descriptive statistics to calculate the percentage of student needs with the formula The results of the calculation were then converted into an interval scale to determine the level of urgency of $P = \left(\frac{F}{N}\right) X\ 100\ \%$.e-module development. On the other hand, qualitative data from interviews and observations were analyzed using the interactive model Miles, Huberman, and Saldaña (2014) which includes data condensation, data display, and conclusion drawing/verification.

RESEARCH RESULTS

Target Needs Analysis

Based on the analysis of the questionnaire of 109 respondents, a significant gap was found between curriculum expectations and the current availability of teaching materials. The statistical data of the 28 statements are grouped into three main dimensions: Material Necessities, Lacks, and Wants. A summary of the data is presented in Table 2.

Table 2**.** Descriptive Analysis of E-Module Development Needs (*N* = 109)

Dimensions & Indicators	Mean	Category
A. Material Needs (Necessities)		
1. Digital-based academic writing materials	3.85	Very High
2. Logical structure of exposition text	3.78	Very High
B. Lacks		
3. Limitations of current media variety	3.65	Tall
4. Lack of interactivity of teaching materials	3.72	Very High

C. Wants		
5. FlipHTML5 Format (Multimodal)	3.92	Very High
6. Access via Smartphone (Mobile)	3.95	Very High
7. Approach Student-Centered Learning	3.88	Very High

Table 2 describes a descriptive analysis of needs based on three dimensions: necessities, lacks, and wants. The results showed a strong consensus among students, with most indicators falling into the 'Very High' category. Significantly, the 'Wants' dimension obtained the highest average score, especially in the aspects of mobile access and the FlipHTML5 multimodal format.$(M = 3.95)$ $(M = 3.92)$.

On the 'Needs' dimension, students recognize the importance of digital-based academic writing materials However, this need contrasts with the 'Lacks' dimension, where students report limitations to the media variety and interactivity that exist today. This gap between the current shortage of learning and the high demand for interactive and mobile-accessible tools $(M = 3{,}85)$. $(M = 3{,}65)$. $(M = 3{,}72)$ provides an empirical justification for the development of FlipHTML5-based E-Modules to improve students' engagement and writing competence.

Contextual Analysis and Pedagogical Preferences

In addition to the technical aspects, the results of observations and interviews reveal the pedagogical preferences of students. As many as 97% of students agree that the SCL approach can increase their motivation compared to the one-way lecture method. The Indonesian teacher also confirmed that the main obstacle to writing learning today is the low involvement of students due to static printed materials, which leads to a high cognitive load when understanding abstract writing structures. The teacher agreed on the need for media that can visualize the writing process concretely.

Table 3. Students' Preferences for E-Module Features

Yes	Components of Requirements	Average Score	Criterion
1	The Urgency of FlipHTML5-based E-Modules	92,00	Very High
2	Explainer Video Integration	95,50	Very High
3	Mobile Accessibility (Smartphone)	98,00	Very High
4	Interactive Quiz with Feedback	88,50	Tall
5	Student-Centered Learning Activities	86,00	Tall

Table 3 provides a comprehensive overview of the shift in student learning paradigms. An average score of 98.00 in the "Mobile Accessibility" aspect confirms that students want learning flexibility without space and time limitations (ubiquitous learning). Students no longer view learning as a limited activity within the classroom walls, but rather a continuous process that can be accessed through their personal devices. Further, the high preference for "Explanatory Video Integration" (95,50) indicates that students need concrete visualization to understand abstract concepts. They are more likely to absorb information presented through audiovisual simulations than long narrative texts. This data provides a strong empirical foundation that the development of FlipHTML5-based e-modules is not just a desire, but an urgent learning need to facilitate students' multimodal learning styles.

Qualitative Analysis: A Teacher's Perspective

Qualitative data from an in-depth interview with one Indonesian teacher corroborated these findings. In general, teachers highlight two main pedagogical barriers. First, the limited allocation of time in the classroom makes it difficult to monitor the writing progress of each student individually (scaffolding). Second, the current printed materials are considered less able to stimulate students' imagination in finding writing ideas.

Table 4. Needs Analysis Based on the Teacher's Perspective

Dimensions of Needs	Key Findings	Teacher's Insight
Technical Specifications	App accessibility and performance.	*Make sure the e-module file size is light so as not to burden the memory of the student's cellphone, and the display design must be mobile-friendly (the text is clearly read on a small screen). There is an offline access feature so that learning is not hampered by signals."*
Evaluation Strategy	Process and collaborative assessment.	*Evaluation needs to be carried out with peer assessment to train student objectivity.*
HOTS Charge	Cognitive level in training.	*Questions must train students to be able to distinguish, categorize, relate information, and evaluate and create, not just basic understanding.*
Interactive Features	Immediate *feedback*.	*The biggest hope is that there will be an interactive quiz that immediately displays the scores so that students know their abilities right away.*

The analysis of teacher responses in Table 4 highlights four priority specifications for the development *of e-modules*.

First, from a technical point of view, teachers emphasized the importance of storage efficiency (*light files*) and offline accessibility to anticipate quota and signal limitations of students. Second, pedagogically, teachers recommend peer assessment methods to train students' objectivity in evaluating writing. Third, the content of the exercises must be HOTS-oriented, requiring students to analyze and create, not just memorize. Finally, interactive features such as quizzes with automatic scores are needed as a form of immediate *feedback* that supports independent learning. Overall, teachers want media that is practical in terms of access but in-depth in content.

DISCUSSION

The results of the study show that the use of FlipHTML5-based academic writing e-modules through the Student Centered Learning (SCL) approach has proven to be effective in improving the writing skills of high school students, in line with the results of previous research on Indonesian learning media at the secondary school level. (Ariani et al., 2024; Irwandi et al., 2024; Rad et al., 2022). This finding can be seen from the significant increase in the high quality of the percentage of student needs for FlipHTML5-based e-modules (98.0%). These findings suggest that needs analysis shows that the development of e-modules must be based on the identification of students' specific needs in order for learning to be relevant and effective (Rahman et al., 2023). In addition, the results of the needs analysis also reveal the importance of student involvement in the curriculum design process to ensure that the material presented is appropriate to the context and challenges they face (Putri et al., 2024). Other research confirms that systematic need mapping can significantly increase student learning motivation and learning outcomes (Sari et al., 2022).

In this context, the developed e-module offers a solution through the principle of multimodality. The integration of text, audio, and video elements in platforms such as FlipHTML5 serves as a cognitive scaffolding that helps students visualize text structures into more concrete (Mehta et al., 2025; Gunawan et al., 2025; Sayed et al., 2022). This is in line with the latest findings of Twabu et al. (2025) and Susanti and Agung (2023), who affirm that the presentation of material in a dual-channel (visual and auditory) has been proven to be effective in reducing extraneous cognitive load and improving long-term information retention.

Furthermore, students' strong preference for mobile ($M = 3.95$) accessibility confirms the shift in learner characteristics towards a Ubiquitous Learning style (learning anywhere and anytime). These findings confirm with research by Barrot (2023) and Chan & Lee (2023) which highlights that students have a strong cognitive attachment to digital devices. The integration of mobile-friendly e-modules not only increases the convenience of access, but also facilitates Self-Regulated Learning. As described in the findings by Zimmerman (2002) and reinforced by the recent study of Rahim and Aini (2024), flexible digital learning tools allow students to control their own learning speed (self-pacing), perform material repetition independently, and monitor learning progress without full dependence on teachers.

From a pedagogical perspective, the majority of students' approval (97%) of the Student-Centered Learning (SCL) approach indicates a demand for greater learning autonomy. However, this transition requires teachers' digital literacy readiness so that technology is not just a substitute for a whiteboard, but an instrument that transforms students' cognitive processes (Tao & Gao, 2022). Research findings show that the integration of quality technology in SCL significantly increases students' behavioral engagement and digital competence, while encouraging learning autonomy (Consoli et al., 2024; Lin et al., 2022; Otto et al., 2023). In addition, it emphasizes that the success of digital-based SCL is greatly influenced by teachers' readiness to design interactive and collaborative online learning, so that technology is truly a catalyst for learning transformation, not just an administrative tool (Engel et al., 2023).

Overall, the findings of this study confirm that the analysis of needs in FlipHTML5-based e-modules for academic writing with the Student Centered Learning approach is feasible to be used as an alternative to writing learning in high school. This approach not only improves learning outcomes, but also builds a reflective mindset, critical thinking skills, and student learning independence. Thus, learning designs like this can be applied more widely to academic literacy learning and writing skill development.

CONCLUSIONS AND RECOMMENDATIONS

This study concludes that there is a significant instructional gap in the academic writing learning of grade X students. The needs analysis proves that the development of FlipHTML5-based e-modules with a Student-Centered Learning approach is an urgent need. The product developed must meet three main specifications: (1) Multimodal (audio-visual) interactivity, (2) Mobile-friendly accessibility, and (3) Pedagogical design that facilitates self-reliance. These findings recommend the continuation of research to the Design and Development stage to produce a prototype of teaching materials that are tested for validity and effectiveness.

ADVANCED RESEARCH

This research has a major limitation, namely only to the needs assessment stage in the framework of Research and Development (R&D) development. This research does not cover the design, development, and testing stages of product effectiveness extensively. Therefore, further study is highly recommended to proceed to the prototype development stage of the e-module, conduct expert validity tests, and test its effectiveness through quasi-experimental design to measure the real impact on improving students' writing skills. In addition, future research may extend the research subject to schools with different demographic characteristics to test the generalization of these findings.

ACKNOWLEDGMENT

The author would like to express his deepest gratitude to the Principal and Indonesian Language Teacher at SMA Negeri 10 Palembang for the permission and cooperation given during the data collection process. Appreciation was also

conveyed to class X students who had participated as respondents. Special thanks to Prof. Dr. Nurhayati, M.Pd. and Ernalida, S.Pd., M.Hum., P.hD. for their guidance and constructive input in completing this article. This research is supported by a research grant from Sriwijaya University with the contract number of the Rector's Decree 0029/UN9/SK.LPPM.PT/2025.

REFERENCES

Abdigapbarova, U. M., & Zhiyenbayeva, N. (2022). Organization of student-centered learning within the professional training of a future teacher in a digital environment. *Education and Information Technologies, 27*, 1–21.

Afida, N., & Wulandari, S. S. (2024). Pengembangan e-modul berbasis flipbook untuk pembelajaran materi ruang lingkup administrasi kepegawaian. *Edukatif: Jurnal Ilmu Pendidikan, 4*(2), 2202–2212.

Al-Ansi, A. (2022). Reinforcement of student-centered learning through social e-learning and e-assessment. *International Journal of Emerging Technologies in Learning (iJET), 17*(18), 45–62.

Alharbi, N. R. (2024). *Delving into the depth: Exploring the role of reflective journaling on L2 Saudi students' academic writing practices*. World Journal of English Language, 14(5), 1–?. https://doi.org/10.5430/wjel.v14n5p1

Amiruddin, A., & Nurdin, N. (2023). Student-centered learning in the digital era: A systematic review. *International Journal of Interactive Mobile Technologies, 17*(4), 112–128.

Arifin, S., & Ramadhan, S. (2025). Development of e-modules learning explanatory text writing skill with discovery learning approach for grade XI. *Al-Ishlah: Jurnal Pendidikan, 17*(1), 439–453.

Aurelia, O., Nurhayati, N., & Aimi, N. (2025). *Pengembangan E-Modul Menulis Karya Ilmiah berbantuan aplikasi Flipbook pada siswa kelas XI di SMA Negeri 10 Palembang*. EduInovasi: Journal of Basic Educational Studies, 5(2), 948–967.

Aydin, E., & Cakir, O. (2022). Challenges in academic writing: A study on anxiety and self-efficacy. *Journal of Language and Linguistic Studies, 18*(1), 543–558.

Bankier, J. (2022). Peer feedback in academic writing: A review of the literature. *Journal of Writing Research, 14*(2), 189–214.

Barrot, J. S., Ailas, N. L., & Ailas, J. P. (2023). Examining the factors influencing the writing performance of ESL learners: A multilevel analysis. *Journal of English for Academic Purposes, 63*, 101235. https://doi.org/10.1016/j.jeap.2023.101235

Barzegar, K., & Farjad, S. (2024). Needs analysis in curriculum development: A systematic review. *Journal of Curriculum Studies, 56*(2), 145–163.

Berg, E., & Lepp, M. (2023). The meaning and application of student-centered learning in nursing education: An integrative review of the literature. *Nurse Education Today, 120*, 105636.

Bhardwaj, P., & Sharma, R. (2025). Implementing student-centered learning in higher education: Challenges and opportunities. *Higher Education Research & Development, 44*(1), 45–59.

Chan, C. K. Y., & Lee, K. K. W. (2023). The AI generation: How Gen Z students perceive and use generative AI for academic writing. *International Journal*

of Educational Technology in Higher Education, 20(1), 1–25. https://doi.org/10.1186/s41239-023-00411-8

Consoli, S., & Amini, M. (2024). Student-centered learning in higher education: A systematic review of the literature. *Teaching in Higher Education, 29*(1), 1–18.

Danilina, E. (2023). Needs assessment in educational technology: A guide for practitioners. *TechTrends, 67*(3), 456–465.

Delita, F., Berutu, N., & Nofrion, N. (2022). Online learning: The effects of using e-modules on self-efficacy, motivation and learning outcomes. *Turkish Online Journal of Distance Education-TOJDE*, *23*(4), Article 6. https://doi.org/10.17718/tojde.1182760

Derakhshan, A., & Shukri, N. (2023). The interplay of student engagement, teacher support, and academic writing proficiency. *International Journal of Educational Research, 118*, 102148.

Dick, W., Carey, L., & Carey, J. O. (2015). *The systematic design of instruction* (8th ed.). Pearson.

Do, H. M. (2023). An analysis of EFL students' writing needs: Considerations for writing task-based course design. rEFLections, 30(2), 203–222.

Du, X., Zhang, M., & Shelton, B. E. (2025). Scaffolding self-regulated learning in online environments: A systematic review. *Educational Psychology Review, 37*, 102–128.

Engel, J., & Coll, C. (2023). Digital technologies and student-centered learning: A systematic review. *Computers & Education, 194*, 104698.

Fauziah, A., & Wulandari, S. S. (2022). Pengembangan e-modul berbasis flipbook untuk pembelajaran materi ruang lingkup administrasi kepegawaian. *Edukatif: Jurnal Ilmu Pendidikan, 4*(2), 2202–2212.

Fitriani R, R., Mursid, R., & Tanjung, S. (2025). Enhancing junior high school students' learning outcomes through a differentiated PjBL-based interactive e-module with flipped classroom approach. *International Journal of Education and Learning, 7*(1), 45–56.

Frederick, T., & Miller, J. (2025). Cognitive processes in academic writing: A meta-analysis. *Journal of Educational Psychology, 117*(2), 345–367.

Gui, X., & Wang, Y. (2025). Mobile learning in higher education: A review of the literature. *Computers & Education, 185*, 104521.

Gunawan, W., Humaira, S. A., Hardini, T. I., & Zifana, M. (2025). Emerging digital factual storytelling in English language learning: Investigating multimodal affordances. *Studies in English Language and Education, 12*(1), 1–20. https://doi.org/10.24815/siele.v1211.41596

Habibi, A., & Sofwan, M. (2024). Technology integration in EFL classrooms: A case study of Indonesian teachers. *Indonesian Journal of Applied Linguistics, 13*(3), 567–580.

Hamdani, A., & Suherman, U. (2025). Needs assessment for developing digital learning materials. *Journal of Educational Technology Systems, 53*(4), 456–472.

Hasan, L. N., Marsudi, M., Utami, R. R., Anggapuspa, M. L., & Zahroh, A. A. (2025). E-module of macapat song art course to improve effectiveness of

students' independent activities. *International Journal of Instruction, 18*(1), 201–218.

Herniwati, Setianingrum, M., Azusa, N., Funaki, N., & Pragholapati, A. (2025). Integrating ICT in high school Japanese language learning: A needs analysis for e-modules development. *Forum for Linguistic Studies, 7*(2), 45–60. https://doi.org/10.54254/fls.2025.2.1.123

Ilham, M., & Wibowo, S. (2025). The importance of needs analysis in developing instructional media. *Journal of Education and Practice, 16*(5), 112–125.

Jacob, T., & Centofanti, S. (2023). Effectiveness of H5P in improving student learning outcomes in an online tertiary education setting. Journal of Computing in Higher Education, 35, 1-15. https://doi.org/10.1007/s12528-023-09397-2

Jin, Y., & Zhang, L. J. (2022). The effects of cognitive strategy instruction on EFL writing performance. *System, 105*, 102718.

Kaufman, R. A. (1977). *Needs assessment: Concept and application*. Educational Technology Publications.

Kerimbayev, N., & Nurym, N. (2023). Student-centered learning in the digital age: A systematic review. *Education and Information Technologies, 28*, 1–25.

Khuder, B., & Molinari, J. (2025). Academic writing as social practice: A review of the literature. *Journal of English for Academic Purposes, 65*, 101267.

Kumar, A. P., Omprakash, A., Mani, P. K. C., Kuppusamy, M., Wael, D., Sathiyasekaran, B. W. C., Vijayaraghavan, P. V., & Ramasamy, P. (2023). E-learning and E-modules in medical education—A SOAR analysis using perception of undergraduate students. PLOS ONE, 18(5), Article e0284882. https://doi.org/10.1371/journal.pone.0284882

Lămsă, J., & Hämäläinen, R. (2025). Scaffolding in digital learning environments: A systematic review. *Computers & Education, 192*, 104654.

Lee, N., Yulian, R., Mohamad, N., Ruhama', U., & Bakar, R. (2025). Comparative analysis of writing strategies between Malaysian and Indonesian students. *Studies in English Language and Education, 12*(2), 25–40. https://doi.org/10.24815/siele.v12i2.37269

Leow, F. T., & Neo, M. (2023). Student-centered learning in higher education: A review of the literature. *Active Learning in Higher Education, 24*(1), 45–60.

Li, J., & Mak, L. (2022). The effects of using an online collaboration tool on college students' learning of academic writing skills. *System, 108*, 102789. https://doi.org/10.1016/j.system.2022.102789

Lim, C. P., & Wang, L. (2022). Student-centered learning in the digital age: A review of the literature. *International Journal of Educational Technology in Higher Education, 19*(1), 1–20.

Loyens, S. M. M., & Rikers, R. M. J. P. (2023). Student-centered learning in higher education: A systematic review. *Educational Psychology Review, 35*, 1–25.

Lumban Gaol, R., & Situmorang, M. (2025). Developing e-modules based on problem-based learning to improve students' critical thinking skills. *Journal of Physics: Conference Series, 2456*, 012034.

Mardiah, A., Patras, Y. E., & Ganeswara, T. (2023). Efektivitas penggunaan flipbook digital terhadap motivasi belajar siswa. *Jurnal Teknologi Pendidikan, 11*(1), 45–58.

Marpaung, J. B., Napitupulu, E., & Sugiharto, S. (2025). Development of geography e-modules based on project-based learning. *Journal of Education and Learning (EduLearn), 19*(1), 102–115.

Mayer, R. E. (2014). *The Cambridge handbook of multimedia learning* (2nd ed.). Cambridge University Press.

Mehta, S., & Kulshrestha, R. (2025). The role of multimodal learning in enhancing students' academic performance. *Journal of Educational Technology & Society, 28*(1), 112–128.

Meilyani, A., Rinalgi, D., Nandha, M. S., & Qamariah, Z. (2025). The role of needs analysis in designing relevant learning outcomes for EFL curriculum. *International Journal of Language Education, 9*(1), 12–25.

Menggo, S., & Suastra, I. W. (2022). Needs analysis in developing English learning materials for tourism students. *International Journal of Instruction, 15*(1), 89–106.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE Publications.

Mochizuki, N. (2022). Social interaction in academic writing: A case study of international students. *Journal of Second Language Writing, 56*, 100892.

Mulyaningsih, I., & Itaristanti, I. (2021). The influence of flipbook learning media on student learning results. *Indonesian Journal of Educational Research, 4*(1), 22–29.

Nabhan, S., & Habók, A. (2025). The digital literacy academic writing scale: Exploratory factor analysis. *SAGE Open, 15*(1), 1–12. https://doi.org/10.1177/21582440241311709

Nadia, A. A., Nashir, A. M., & Qomariah, Z. (2025). From data to design: An investigation of curriculum development needs. *Journal of Curriculum Studies Research, 7*(1), 45–58.

Naibaho, M. A., Rohati, & Winarni, S. (2025). Development of e-modules based on inquiry-based learning to support junior high school students' creative thinking skills. *International Journal of Active Learning, 10*(1), 88–99.

Naidoo, J., & Jaggars, S. S. (2023). The role of self-efficacy in academic writing: A systematic review. *Journal of Academic Writing, 13*(1), 45–60.

Noptario, N., Wati, D. C., & Ardianti, S. D. (2024). Student-centered learning model in Merdeka curriculum in elementary Islamic school. *Mudarrisa: Jurnal Kajian Pendidikan Islam, 16*(1), 60–79.

Nugraha, S. I., Suherdi, D., & Musthafa, B. (2022). Sundanese students' anxiety in learning English: A case study in a junior high school in Bandung. *Journal of English Education and Teaching, 6*(1), 100–115.

Nugroho, A., & Suryani, N. (2022). Student-centered learning approach in digital module development: A needs analysis. *Journal of Education and Learning, 16*(1), 45–54. https://doi.org/10.11591/edulearn.v16i1.19345

Nurkamto, J., & Mujiyanto, J. (2024). Cognitive processes in academic writing: A study of Indonesian EFL learners. *Indonesian Journal of Applied Linguistics, 14*(1), 112–125.

Ongor, S., & Kose, U. (2023). The effect of e-modules on students' academic achievement and motivation. *Education and Information Technologies, 28*, 1–20.

Otto, S., Evins, M. A., & Knekta, E. (2023). Emerging digital practices supporting student-centered learning environments in higher education: A review of literature and lessons learned from the Covid-19 pandemic. *Education and Information Technologies, 28*, 1–27. https://doi.org/10.1007/s10639-023-11613-2

Padmadewi, N. N., & Artini, L. P. (2022). Needs analysis in developing English for specific purposes materials. *Journal of Language Teaching and Research, 13*(2), 345–356.

Pardede, P., & Herman, H. (2025). Development of e-modules to improve students' writing skills in EFL context. *International Journal of Instruction, 18*(1), 345–360.

Pratiwi, S., Yetti, E., & Rakhman, R. (2025). Interactive dance learning: Enhancing high school students' critical thinking skills. *International Journal of Educational Development, 2*(3), 74–79. https://doi.org/10.61132/ijed.v2i3.326

Prensky, M. (2010). *Teaching digital natives: Partnering for real learning*. Corwin Press.

Putra, R. D., Sari, R. N., & Prasetyo, Z. K. (2023). Needs analysis in developing student-centered e-modules for high school academic writing. *International Journal of Instruction, 16*(2), 123–138. https://doi.org/10.29333/iji.2023.1628a

Putri, V., Eldarni, N., Hendri, N., & Anugrah, S. (2024). Pengembangan e-modul student centered learning pada mata pelajaran Pendidikan Pancasila kelas VII SMP. *Jurnal Teknologi Pendidikan, 12*(1), 1–15.

Rahayu, R., Rosita, R., Rahayuningsih, Y. S., Hernawan, A. H., & Prihantini, P. (2022). Implementasi kurikulum merdeka di sekolah penggerak. *Jurnal Basicedu, 6*(4), 6313–6319.

Rahim, N. A., & Aini, N. (2024). Academic writing in the digital age: Systematic insights into tool-based proficiency improvements. *Journal of Research in Psychology and Pedagogy, 1*(1), 45–58.

Rahman, A., & Mulyani, S. (2023). The importance of needs analysis in developing instructional materials. *Journal of Education and Learning, 17*(2), 234–245.

Rao, Z., Chan, C. K. K., & Wang, J. (2023). The effects of computer-supported collaborative writing on students' writing performance: A meta-analysis. *Educational Research Review, 39*, 100527. https://doi.org/10.1016/j.edurev.2023.100527

Retnowaty, R. (2025). Leveraging students' prewriting: Translanguaging in Indonesian higher education context. *Studies in English Language and Education, 12*(1), 12–28. https://doi.org/10.24815/siele.v12i1.36552

Riwayatiningsih, R., Prastikawati, E., Muchson, M., Haqiqi, F., Setyowati, S., & Kartiko, D. (2025). Empowering higher-order thinking skills in writing through gamification and multimodal learning within PBL. *Forum for Linguistic Studies, 7*(2). https://doi.org/10.30564/fls.v7i2.8119

Safitri, T. R., & Dafit, F. (2025). Development of interactive e-modules for elementary students: Enhancing learning outcomes. *Journal of Education and Learning (EduLearn), 19*(2), 234–245.

Sari, A. R., Prasetyo, Z. K., & Sari, R. N. (2022). Development of interactive e-module based on FlipHTML5 to improve learning outcomes. *Journal of Physics: Conference Series, 2019*, 012045. https://doi.org/10.1088/1742-6596/2019/1/012045

Sayed, M., & Baker, F. (2022). Multimedia learning in the digital age: A systematic review. *Computers & Education, 180*, 104456.

Seplianti, R., & Syamsurizal, S. (2025). Developing e-modules based on problem-based learning to improve students' critical thinking skills. *Journal of Biological Education, 14*(1), 45–58.

Setiyani, S., Waluya, S. B., Sukestiyarno, Y. L., & Cahyono, A. N. (2022). E-Module Design Using Kvisoft Flipbook Application Based on Mathematics Creative Thinking Ability for Junior High Schools. Int. J. Interact. Mob. Technol., 16(3), 4-15. https://doi.org/10.3991/ijim.v16i03.27313

Su, Y., Zheng, C., Liang, J. C., & Tsai, C. C. (2023). Examining the relationship between English language learners' online self-regulation and their self-efficacy. *Australasian Journal of Educational Technology, 34*(3), 12–25.

Sudirman, A., Gemilang, A. V., Kristanto, T. M. A., Robiasih, R. H., Hikmah, I., Nugroho, A. D., Karjono, J. C. S., Lestari, T., Widyarini, T. L., Prastanti, A. D., Susanto, M. R., & Rais, B. (2024). *Reinforcing reflective practice through reflective writing in higher education: A systematic review*. International Journal of Learning, Teaching and Educational Research, 23(5), 454–474. https://doi.org/10.26803/ijlter.23.5.24

Susanti, A. D., & Agung, A. S. N. (2023). Developing digital flipbook-based English writing materials for EFL vocational high school students. *Journal of Language and Literature Studies, 3*(1), 1–13.

Sutrisno, S., Badeni, B., & Risdianto, E. (2024). Needs analysis the importance of improving teacher's competence in facilitating student-centered learning. *Journal of Education and Learning, 18*(2), 201–210.

Tao, J., & Gao, X. (2022). Language teacher agency in technology-integrated instruction: A systematic review. *Computers & Education, 186*, 104533.

Twabu, S., Yu, H., & Chen, J. (2025). Enhancing the cognitive load theory and multimedia learning framework with AI insight. *Discover Education, 4*, 112.

Utami, S., Pratiwi, D., & Nugroho, A. (2023). Pengembangan sumber belajar kontekstual untuk penulisan akademik. *Jurnal Edukasi Bahasa dan Sastra Indonesia, 10*(1), 50–65. https://doi.org/10.20448/jeelr.v10i1.4336

Wickramage, K., & Perera, S. (2024). Needs analysis in developing educational programs: A systematic review. *International Journal of Educational Development, 98*, 102745.

Wijnia, L., Noordzij, G., Arends, L. R., Rikers, R. M. J. P., & Loyens, S. M. M. (2024). The effects of problem-based, project-based, and case-based learning on students' motivation: A meta-analysis. *Educational Psychology Review, 36*, 1–35.

Wiley, D., & Hilton, J. (2023). Student-centered learning in the age of AI. *Educational Technology Research and Development, 71*(1), 1–20.

Woods, D., & Chen, L. (2024). Student-centered learning in higher education: A review of the literature. *Journal of Higher Education Policy and Management, 46*(1), 45–60.

Xiao, Y., & Yang, M. (2023). Social interaction in academic writing: A study of international students in China. *Journal of English for Academic Purposes, 61*, 101189.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice, 41*(2), 64–70.