

ACADEMIC WRITING NEEDS TOWARD ETHNOANDRAGOGY-BASED SELF-DIRECTED LEARNING IN HIGHER EDUCATION

INDRAWATI^{1,2} – NURHAYATI^{1*} – PURNOMO, M. E.¹ – ERNALIDA¹

¹ Faculty of Teacher Training and Education, Universitas Sriwijaya, Palembang, Indonesia.

² Faculty of Tarbiyah and Teacher Training, University Islam Negeri Raden Fatah, Palembang, Indonesia.

**Corresponding author
e-mail: nurhayati[at]fkip.unsri.ac.id*

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Abstract. Academic writing competence is an essential skill for university students, enabling them to communicate ideas effectively and participate in scholarly discourse. However, many students still encounter difficulties in organizing ideas, constructing arguments, and applying appropriate academic conventions. Therefore, the development of effective learning materials that support students' academic writing skills is an important concern in higher education. This study aims to analyze students' needs regarding the development of academic writing learning materials based on ethnoandragogy and self-directed learning using an interactive flipbook. This research employed a mixed methods design. Quantitative data were collected through a survey involving 219 undergraduate students using a Likert-scale questionnaire consisting of 13 items. The data were analyzed using descriptive statistics, reliability analysis, and Exploratory Factor Analysis (EFA). The reliability analysis showed excellent internal consistency (Cronbach's Alpha = 0.939). The EFA results revealed a four-factor structure comprising: (1) academic writing and andragogy, (2) ethnopedagogy, (3) technology integration, and (4) reflective learning, explaining 72.4% of the total variance. Model fit indices indicated an acceptable to good fit (RMSEA = 0.0769; TLI = 0.950). The qualitative findings provide deeper insights into these results by revealing that students value the practicality and accessibility of digital learning materials, prefer self-directed and flexible learning environments, and expect culturally relevant content. However, they also experience challenges related to comprehension and unequal access to digital resources, as well as the need for more interactive learning features. The integration of quantitative and qualitative findings suggests that students' learning needs are multidimensional and context-dependent. Therefore, the development of academic writing materials should not only focus on instructional content but also incorporate learner autonomy, cultural relevance, and interactive digital design. The study suggests that developing ethnoandragogy-based academic writing materials delivered through interactive flipbooks may provide a promising approach to support students' academic writing learning.

Keywords: *academic writing, digital learning, ethnoandragogy, needs analysis, self-directed learning*

Introduction

Academic writing is widely recognized as a fundamental competence in higher education, enabling students to articulate ideas, construct logical arguments, and participate in scholarly communication. Mastery of academic writing not only supports students' academic achievement but also enhances critical thinking and knowledge construction. However, despite its importance, many university students continue to face significant challenges in developing effective academic writing skills, particularly in organizing ideas, constructing coherent arguments, and applying appropriate academic conventions such as citation and referencing. Recent studies indicate that students frequently struggle with various aspects of academic writing, including argument development, coherence, and adherence to academic discourse conventions. These difficulties often stem from limited exposure to structured writing instruction,

insufficient opportunities for practice, and a lack of effective learning resources tailored to students' needs. Consequently, the development of innovative instructional strategies and learning materials that support students' academic writing development has become an important focus in higher education research.

Despite these developments, the integration of self-directed learning, culturally responsive learning approaches, and interactive digital media in academic writing instruction remains relatively limited. Existing studies have primarily focused on individual aspects of these approaches. essential to understand the use of ICTs and LKTs in the university faculties and schools where teachers are trained, as well as to assess their technological competence in order to analyse their adaptation to changes in the ICS of the twenty-first century (Gómez-Trigueros et al., 2019). The others have examined the role of self-directed learning in enhancing student autonomy (Song Hill, 2007). Similarly, effective academic writing instruction should support learner autonomy while integrating cultural values and students' digital learning preferences. Curriculum designers therefore need to develop flexible learning approaches that combine global digital developments with local cultural contexts. This holistic perspective also encourages digital literacy practices that are adaptive, inclusive, and responsive to social and cultural diversity (Asmayawati et al., 2024). However, limited studies have specifically examined how ethnoandragogy principles, self-directed learning strategies, and interactive digital media can be integrated simultaneously in academic writing instruction within higher education contexts, particularly in Indonesian universities. Furthermore, the development of such instructional materials should be grounded in empirical evidence regarding students' learning needs. Conducting a needs analysis is therefore essential to identify students' challenges, preferences, and expectations regarding academic writing learning materials (Brown and Lee, 2015).

This study contributes to the growing literature on academic writing instruction by proposing an integrated perspective that combines culturally responsive learning, self-directed learning, and interactive digital media through an ethnoandragogy framework. The present study conducted a needs analysis involving 219 university students at Universitas Islam Negeri Raden Fatah Palembang to examine their needs regarding the development of academic writing learning materials based on ethnoandragogy principles and self-directed learning strategies using an interactive flipbook format. Preliminary survey findings indicate that students show a strong need for structured academic writing materials, guidance on citation ethics, reflective learning activities, and the integration of cultural perspectives in writing instruction. In addition, students expressed strong interest in the use of interactive digital learning media that support flexible and independent learning. This issue is particularly relevant in Indonesian higher education contexts where students often learn academic writing in multicultural environments. Qualitative insights from student interviews further reveal that many students experience difficulties in generating ideas, structuring academic arguments, and applying academic writing conventions. Students also reported that learning materials connected to cultural experiences and supported by interactive digital features could significantly enhance their engagement and motivation in learning academic writing. This study aims to investigate students' needs for ethnoandragogy-based academic writing materials integrating self-directed learning through an interactive flipbook platform.

Literature review

Self-directed learning in academic writing

One approach that has gained increasing attention in recent years is self-directed learning (SDL). Self-directed learning emphasizes learners' autonomy in planning, monitoring, and evaluating their learning processes (Knowles et al., 2020). In academic writing instruction, SDL encourages students to take active responsibility for drafting, revising, and reflecting on their writing, which can significantly improve their writing competence and learning motivation. Empirical studies have shown that self-directed learning strategies can enhance students' metacognitive awareness, independent learning skills, and engagement in writing activities (Song Hill, 2007). Writing ability depends not only on language proficiency but also on the writing process, which includes pre-planning, drafting, revising, and editing. They emphasize the importance of unity and coherence of ideas within a paragraph, as well as logical relationships between sentences. With this step-by-step approach, students can develop more effective and structured academic writing skills (Oshima and Hogue, 2007).

Ethnoandragogy in higher education

In addition to learner autonomy, culturally responsive learning approaches have also become increasingly important in contemporary education. Integrating cultural values and local knowledge into learning processes can make learning experiences more meaningful and relevant for students. The concept of ethnoandragogy integrates the principles of adult learning with cultural perspectives, emphasizing the importance of learners' experiences, cultural backgrounds, and social contexts in the learning process. Through this approach, learning activities can be designed to connect academic concepts with student also served as a cultural representation through the integration of Islamic values and local wisdom (Jamali et al., 2022). Ethnoandragogy is an educational approach that emphasizes the integration of local cultural values and traditional wisdom practices into formal learning processes. Its goal is to preserve cultural heritage while supporting educational transformation relevant to local contexts. As a multidisciplinary field involving perspectives from education, anthropology, and cultural studies, ethnoandragogy emphasizes the importance of sensitivity to cultural diversity and adaptability in educational practices. This approach is particularly relevant in regions rich in local traditions, as it can serve as a vehicle for strengthening cultural identity and internalizing character values. Beyond mere cultural conservation, ethnoandragogy also plays a role in revitalizing cultural values to support the development of a civilization rooted in national identity (Suanda et al., 2024).

Interactive flipbook and digital learning

Technological advancements have further transformed learning environments in higher education. Digital learning media, including interactive e-books and flipbooks, provide flexible learning environments that allow students to access learning materials anytime and anywhere. Interactive digital materials can support independent learning by incorporating features such as quizzes, reflection prompts, and writing exercises. Previous studies suggest that interactive digital learning media can increase student engagement, improve learning outcomes, and support autonomous learning (Zhang and Yu, 2025; Alshammary and Alhalafawy, 2023; Gómez-Trigueros et al., 2019). An

interactive e-book is a type of digital book that is equipped with various multimedia elements, such as sound, video, animation, quizzes, and interactive links that enable two-way communication between the reader and the content (Keedle et al., 2024; Bedenlier et al., 2020; Koohang et al., 2009).

Materials and Methods

This study employed a mixed methods research design, combining quantitative and qualitative approaches to obtain a comprehensive understanding of students' needs regarding the development of academic writing learning materials. Mixed methods research enables researchers to integrate numerical data with in-depth qualitative insights in order to provide a more complete explanation of the research problem.

Research Design

The quantitative component focused on identifying students' learning needs through a structured survey, while the qualitative component aimed to explore students' experiences and perceptions regarding academic writing learning through interviews. The integration of both approaches allows the triangulation of data and strengthens the validity of the research findings. This study adopted an explanatory needs analysis approach, in which quantitative findings are complemented by qualitative insights to better understand students' learning needs. Needs analysis is widely used in educational research to identify learners' needs, challenges, and expectations in the learning process. According to Brown and Lee (2021), needs analysis plays a crucial role in designing effective instructional materials, as it provides empirical information about learners' learning conditions and preferences. In language education, needs analysis is commonly classified into three dimensions: (1) Target needs refer to the competencies that learners are expected to achieve in the target learning context. These needs include the knowledge and skills required to perform tasks effectively in academic or professional settings, (2) Learning needs refer to the conditions and resources required to help learners achieve their target needs. These may include learning strategies, learning materials, teaching methods, and learning environments, (3) Learner needs involve learners' preferences, motivations, and expectations in the learning process.

Participants

The participants consisted of 219 undergraduate students enrolled in an academic writing course. Purposive sampling was used to select participants with relevant learning experience. In addition to the survey participants, total of 12 participants were selected for semi-structured interviews using purposive sampling. The number of participants was determined based on data saturation, as no new themes emerged from the final interviews.

Research instruments

The study used two instruments: A Likert-scale questionnaire 1- 4 (final 13 items) and Semi-structured interviews. The questionnaire covered: academic writing competence, andragogical learning, ethnopedagogy, technology integration, reflective learning.

Data collection procedures

Data were collected in two stages. First, the survey questionnaire was distributed to 219 students through an online platform. The collected data were then compiled and prepared for statistical analysis. Second, 12 students were selected for semi-structured interviews to gain deeper insights into their experiences and perceptions regarding academic writing learning.

Data analysis

Quantitative data were analyzed using Jamovi: Descriptive statistics, Reliability analysis (Cronbach's Alpha), Exploratory Factor Analysis (EFA). EFA used: Maximum Likelihood extraction and Oblimin rotation. Assumptions were tested using: KMO and Bartlett's Test. Qualitative data were analyzed using thematic analysis. The qualitative data obtained from interviews were analyzed using thematic analysis, following the framework proposed by Braun and Clarke. The final stage of the analysis involved integrating the quantitative and qualitative findings. The survey data provided a general overview of students' learning needs, while the interview data offered deeper insights into students' experiences and perceptions. This integration allowed the researchers to develop a more comprehensive understanding of students' needs and to propose the development of ethnoandragogy-based academic writing learning materials using interactive flipbook.

Results and Discussion

Result of the Needs Analysis quantitative and qualitative. Quantitative result: descriptive, reliability, and Eksploratory Factor Analysis (EFA). Qualitative result: thematic analysis.

Quantitative data analysis

Descriptive results of the needs analysis

The survey involved 219 undergraduate students who had experience learning academic writing. The questionnaire consisted of 13 items measured using a four-point Likert scale, designed to identify student's needs related to academic writing learning materials, self-directed learning practices, cultural integration in learning, and digital learning media. The descriptive results indicate a high level of student needs ($M = 3.37$). All items scored above 3.00, indicating strong agreement. The standard deviations for all variables were relatively small average $SD = 0.439$, indicating that respondents' perceptions of these needs tended to be homogeneous. Furthermore, the relatively close mean and median values indicated a symmetrical distribution of the data. Therefore, it can be concluded that respondents' primary needs were more focused on the pedagogical aspect (andragogy), while technology was not a top priority.

Table 1. Descriptive statistic.

S	K1	K2	K3	E1	E2	E3	A1	A2	A3	T1	T2	R1	R3	T
N	219	219	219	219	219	219	219	219	219	219	219	219	219	219
Mi	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Ma	3.30	3.50	3.51	3.37	3.46	3.24	3.49	3.40	3.49	3.09	3.21	3.41	3.30	50.40
Me	3.00	4.00	4.00	3.00	3.00	3.00	4.00	3.00	4.00	3.00	3.00	3.00	3.00	50.00
SD	0.66	0.53	0.55	0.53	0.56	0.61	0.56	0.62	0.57	0.66	0.58	0.54	0.52	6.34
Min	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	18.00

Max	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	60.00
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Note: S=Statistic; Mi=Missing; Ma=Mean; Me=Median; SD=Standard Deviation; Min=Minimum; Max=Maximum; K1=KPMA1; K2=KPMA2; K3=KPMA3; E1=ETNO1; E2=ETNO2; E3=ETNO3; A1=Andragogi1; A2=Andragogi2; A3=Andragogi3; T1=Teknologi1; T2=Teknologi2; R1=Reflektif1; R3=Reflektif3; T=Total.

Reliability analysis

The reliability of the questionnaire was examined using Cronbach's Alpha to determine the internal consistency of the instrument. The analysis produced a Cronbach's Alpha coefficient of 0.939, Item-total correlations ranged from 0.594 to 0.807, indicating that all items contributed meaningfully to the construct (Table 2 and Table 3).

Table 2. Scale reliability statistics.

Category	Mean	SD	Cronbach's α
scale	3.37	0.439	0.939

Table 3. Item reliability statistics.

Category	Description			If item dropped Cronbach's α
	Mean	SD	Item-rest correlation	
KPMA1	3.30	0.663	0.617	0.938
KPMA2	3.50	0.528	0.729	0.934
KPMA3	3.51	0.545	0.759	0.933
ETNO1	3.37	0.528	0.807	0.931
ETNO2	3.46	0.560	0.726	0.934
ETNO3	3.24	0.612	0.779	0.932
Andragogi1	3.49	0.562	0.792	0.932
Andragogi2	3.40	0.616	0.774	0.932
Andragogi3	3.49	0.570	0.753	0.933
Teknologi1	3.09	0.661	0.689	0.935
Teknologi2	3.21	0.578	0.670	0.935
Reflektif1	3.41	0.537	0.594	0.938

Exploratory Factor Analysis (EFA)

Before conducting exploratory factor analysis, a data adequacy test was first conducted. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy showed a value of 0.909, indicating that the data were very suitable for factor analysis. Furthermore, the Bartlett's Test of Sphericity showed a significant value ($\chi^2 = 2117$, $df = 78$, $p < 0.001$) indicating that the correlation matrix did not form an identity matrix and that factor analysis could proceed (Table 4 and Table 5).

Table 4. Bartlett's test of sphericity.

χ^2	df	p
2117	78	<.001

Table 5. KMO Measure of sampling adequacy.

MSA	Value
Overall	0.909
KPMA1	0.927
KPMA2	0.932
KPMA3	0.936
ETNO1	0.919
ETNO2	0.952
ETNO3	0.930
Andragogi1	0.937
Andragogi2	0.957
Andragogi3	0.913
Teknologi1	0.824

Teknologi2	0.824
Reflektif1	0.850
Reflektif3	0.888

Factor structure

Exploratory factor analysis (EFA) was conducted using the Maximum Likelihood extraction method with Oblimin rotation. The EFA results yielded a four-factor solution, explaining 72.4% of the total variance: (1) Academic Writing and Andragogy (30.8%). This factor reflects the integration of writing competence with adult learning principles; (2) Ethnopedagogy (16.0%). This dimension emphasizes the importance of incorporating cultural context into learning; (3) Technology Integration (14.2%). This factor captures the role of flipbook-based digital learning; (4) Reflective Learning (11.4%). This dimension highlights the role of reflection in enhancing learning processes (Table 6).

Table 6. Summarisation.

Factor	SS Loadings	% of Variance	Cumulative %
1	4.00	30.8	30.8
2	2.09	16.0	46.8
3	1.85	14.2	61.0
4	1.48	11.4	72.4

Model fit

The resulting model demonstrated a good fit to the data. The Root Mean Square Error of Approximation (RMSEA) value of 0.0769 indicates a low level of approximation error. The Tucker-Lewis Index (TLI) value of 0.950 also indicates an acceptable to good fit (Table 7 and Table 8).

Table 7. Model fit measures.

RMSEA	RMSEA 90% CI		TLI	BIC	χ^2	Model Test	
	Lower	Upper				df	p
0.0769	0.0540	0.100	0.950	-98.9	73.5	32	<.001

Table 8. Factor loading.

Category	Factor				Uniqueness
	1	2	3	4	
KPMA1	0.722				0.42830
KPMA2	0.766				0.37050
KPMA3	0.764				0.33260
ETNO1		0.949			0.06550
ETNO2		0.501			0.39728
ETNO3		0.598			0.28740
Andragogi1	0.805				0.25991
Andragogi2	0.735				0.30898
Andragogi3	0.767				0.31909
Teknologi1			1.008		0.00500
Teknologi2			0.714		0.28411
Reflektif1				0.944	0.01927

*Note: *'Maximum likelihood' extraction method was used in combination with a 'oblimin' rotation.*

Factor loadings ranged from 0.456 to 1.008, indicating generally strong associations between items and their respective factors. Most items showed loadings above 0.50, with one item slightly below the threshold but retained due to theoretical relevance. A

loading slightly above 1.0 may indicate a Heywood case, which can occur in Maximum Likelihood estimation.

Qualitative data analysis (Thematic analysis)

The qualitative data were obtained from open-ended responses in the survey and analyzed using thematic analysis following (Braun and Clarke, 2021). The analysis involved familiarization with the data, initial coding, searching for themes, reviewing themes, defining and naming themes, and producing the report.

Findings of Thematic Analysis

Theme 1: Practicality and Accessibility of Digital Learning Materials. Students generally perceived digital learning materials, particularly e-books, as practical and easily accessible. Evidence:

“E-books help learning because they are more practical and efficient.”

(Participant 12)

“It is easy to use anytime and anywhere.”

(Participant 27)

“Using e-books makes learning more efficient because I don’t need printed materials.”

(Participant 5)

Interpretation: These responses indicate that students value flexibility and accessibility in learning materials, supporting the quantitative findings that highlight the importance of technology integration. Theme 2: Support for Independent Learning. Students emphasized that digital materials enable them to learn independently and at their own pace. Evidence:

“I can study by myself using e-books without depending on the lecturer.”

(Participant 34)

“It helps me review the material whenever I need.”

(Participant 51)

“I feel more independent when learning with digital materials.”

(Participant 9)

Interpretation: This finding aligns with the high scores in the andragogical dimension, indicating that students prefer self-directed learning environments. Theme 3: Limitations and Challenges of Digital Learning. Despite the positive responses, some students reported challenges in using digital materials. Evidence:

“Not all students can access digital materials easily.”

(Participant 66)

“Sometimes I find it difficult to understand the material from e-books.”

(Participant 73)

“Sometimes internet connection becomes a problem when accessing digital materials.”

(Participant 11)

Interpretation: This suggests that while digital learning is beneficial, issues related to accessibility and comprehension need to be addressed. This also explains why the technology dimension, although high, received relatively lower scores compared to other dimensions. Theme 4: Need for More Interactive and Engaging Materials. Students expressed the need for more interactive features in digital learning materials. Evidence:

"It would be better if the e-book had interactive features."

(Participant 88)

"Learning becomes more interesting with quizzes or exercises."

(Participant 102)

"Interactive features make learning more engaging and less boring."

(Participant 6)

Interpretation: This finding supports the integration of flipbook technology, which offers interactive elements that can enhance engagement and learning effectiveness.

Integration of quantitative and qualitative findings

The integration of quantitative and qualitative findings in this study goes beyond simple confirmation and reflects a complementary and expansion-oriented mixed-method approach. Quantitatively, the results indicate that students demonstrate high levels of need across all measured dimensions, particularly in academic writing competence and andragogical learning. However, these statistical findings alone do not fully explain the underlying reasons behind these needs. The qualitative findings provide deeper explanatory insights into these patterns. For instance, the high mean scores in the andragogical dimension are not merely indicative of preference but reflect students' actual dependence on flexible and autonomous learning environments. This is evidenced by students' expressed need to learn independently and revisit materials at their own pace. Similarly, while the technology dimension received relatively lower scores compared to other factors, the qualitative data reveal a more nuanced perspective. Students appreciate the accessibility and practicality of digital learning materials, yet they also experience challenges related to comprehension and access. This indicates that the lower quantitative scores are not a reflection of rejection but rather a signal of unmet expectations regarding the quality and usability of digital learning resources.

Furthermore, the ethnopedagogical dimension identified in the quantitative analysis is enriched by qualitative insights showing that students value culturally relevant examples that connect learning with their lived experiences. This suggests that cultural integration is not merely an abstract pedagogical concept but a practical necessity for enhancing engagement and understanding. Taken together, these findings generate a meta-inference that students' academic writing learning needs are inherently multidimensional and context-dependent. Effective instructional materials must therefore integrate structured academic guidance, learner autonomy, cultural relevance, and interactive digital features. This integrated interpretation strengthens the validity of the study and provides a comprehensive framework for designing ethnoandragogy-based academic writing materials supported by interactive flipbook technology. This integrated interpretation strengthens the validity of the study and provides a

comprehensive framework for designing ethnoandragogy-based academic writing materials supported by interactive flipbook technology.

Results and Discussion

The findings of this study highlight several important considerations for academic writing instruction in higher education. First, the results confirm that many students still require structured support in developing academic writing skills. This finding is consistent with previous studies that emphasize the importance of explicit instruction in academic writing conventions and argument development. Second, the results demonstrate that students value learning materials that allow them to take greater responsibility for their learning. This suggests that integrating self-directed learning strategies into academic writing instruction may help students develop stronger learning autonomy. This aligns with the principle of andragogy, which states that adult learners tend to be independent, goal-oriented, and require practical relevance in their learning (Knowles et al., 2020). Third, ethnopedagogical elements highlight the importance of cultural relevance in learning. However, this dimension included only two indicators, which may affect construct stability. Future studies should expand this dimension. Fourth, digital learning media, particularly flipbooks, support flexible and engaging learning environments.

The integration of cultural values into learning aligns with the principles of ethnopedagogy and culturally responsive learning, which emphasize that the learning process is more meaningful when linked to the students' experiences and cultural backgrounds. Through this approach, students not only learn technical writing but also reflect on their cultural identities in the academic process. This aligns with the concept of ethnopedagogy, which emphasizes the importance of incorporating cultural elements into the learning process to enhance student engagement and understanding. Cultural integration in academic writing learning not only enriches the content but also helps students connect academic knowledge with their experiences and cultural identities.

Conclusion

This study aimed to analyze students' needs regarding the development of academic writing learning materials based on ethnoandragogy and self-directed learning using an interactive flipbook format. The needs analysis involved 219 university students and employed a mixed methods approach, integrating quantitative survey data and qualitative interview findings. The instrument is valid and reliable, and the EFA results confirm a four-factor structure underlying students' needs. These findings provide a strong empirical basis for developing innovative academic writing materials. The reliability analysis confirmed that the questionnaire instrument has excellent internal consistency (Cronbach's Alpha=0.939). Furthermore, the Exploratory Factor Analysis (EFA) revealed four main dimensions underlying students' needs: academic writing learning needs, andragogy learning, cultural, and technological integration. The qualitative findings from the interviews further complement the quantitative results. Students reported difficulties in organizing ideas, constructing arguments, and applying academic writing conventions. They also emphasized the importance of contextual learning materials that connect academic writing tasks with real-life experiences and

cultural contexts. In addition, students expressed a preference for learning materials that support self-directed learning and provide interactive digital features.

Limitations of the study

Despite providing valuable insights into students' needs regarding academic writing learning materials, this study has several limitations that should be considered when interpreting the findings. First, the study was conducted within a single institutional context, involving 219 undergraduate students from one university. Although the sample size is sufficient for needs analysis and exploratory factor analysis, the findings may not fully represent the needs of students from other universities, academic disciplines, or educational contexts. Students' learning experiences and expectations may vary depending on institutional environments, learning cultures, and academic programs. Second, this study focused primarily on needs analysis rather than intervention or experimental evaluation. While the findings provide empirical evidence regarding students' perceived needs for academic writing learning materials, the study does not examine the actual effectiveness of the proposed learning materials. Therefore, the conclusions should be interpreted as indicative of learners' perceptions rather than evidence of instructional impact. Third, the quantitative data in this study were collected using self-reported survey responses. Self-reported data may sometimes be influenced by respondents' perceptions, expectations, or subjective interpretations of questionnaire items. Although reliability analysis indicates high internal consistency, the possibility of response bias cannot be completely eliminated. Fourth, the qualitative component of the study involved a limited number of interview participants. While the interviews provided useful insights into students' experiences and challenges in academic writing, a larger qualitative sample might have generated a wider range of perspectives.

Future research directions

Considering the limitations of this study, several directions for future research can be proposed. First, future studies could involve larger and more diverse samples from multiple universities or academic disciplines. Expanding the research context would provide a broader understanding of students' academic writing learning needs across different educational environments. Second, future research could focus on the development and experimental evaluation of ethnoandragogy-based academic writing learning materials. Experimental or quasi-experimental research designs could be used to examine whether such learning materials significantly improve students' academic writing competence, motivation, or learning autonomy. Third, further research could apply advanced statistical techniques such as Confirmatory Factor Analysis (CFA) or Structural Equation Modeling (SEM) to validate the conceptual model of students' learning needs identified in this study. Such analyses could provide stronger empirical evidence regarding the relationships among learning needs, learning strategies, and learning outcomes. Fourth, future research could explore the implementation of interactive digital learning media in academic writing instruction in more depth. For example, researchers could examine how specific digital features such as automated feedback systems, collaborative writing tools, or adaptive learning environments affect students' learning experiences and writing performance.

Pedagogical implication

The findings of this study provide several important implications for academic writing instruction in higher education. First, the results highlight the importance of providing structured instructional support for academic writing. Many students still face challenges in organizing ideas, developing arguments, and applying academic conventions. Therefore, academic writing learning materials should include clear explanations of writing structures, examples of academic texts, and guided writing activities that help students gradually develop their writing skills. Second, the findings emphasize the value of integrating self-directed learning strategies into academic writing instruction. Learning materials should encourage students to take an active role in their learning process by incorporating reflective activities, self-assessment tasks, and opportunities for independent practice. Such approaches may help students develop stronger learning autonomy and metacognitive awareness. Third, the study highlights the importance of incorporating cultural contexts in learning materials. Integrating cultural perspectives and local experiences can make academic writing tasks more meaningful and relatable for students. This approach aligns with the principles of ethnopädagogy and culturally responsive learning, which emphasize the role of learners' cultural backgrounds in the learning process. Fourth, the findings suggest that digital learning media play an increasingly important role in supporting academic writing instruction. Interactive digital platforms, such as flipbooks, provide flexible access to learning materials and allow students to engage with learning activities beyond the classroom. Features such as quizzes, reflective prompts, and writing exercises can help enhance student engagement and facilitate continuous learning. Finally, the integration of ethnoandragogy, self-directed learning, and digital learning media offers a potential framework for developing innovative academic writing learning materials. By combining these elements, educators may create learning environments that are not only academically rigorous but also culturally relevant and learner-centered. Future research could further examine the effectiveness of such learning materials through experimental or quasi-experimental studies to evaluate their impact on students' academic writing competence.

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Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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