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Designing and Evaluating an Ethnopedagogy- Based Flipped-SRL Framework for Developing EAP Reading Materials for Management Students

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Abstract. This research is driven by the need to improve learning quality in higher education to be flexible, interactive, and with a student-centered approach in the digital era. This research aims is to design and evaluate English for Academic Purposes (EAP) reading materials integrated with Ethnopedagogy-Based Flipped Learning (FL) and the Self-Regulated Learning (SRL) model in a small group trial through an e-learning platform. Ethnopedagogy-based learning materials support the model in enhancing academic literacy for management students in higher education. It used the Research and Development (R&D) method which includes needs analysis, model design, learning tool development, validity and practicality evaluation. The results showed that the developed reading material and learning model are valid, practical, and relevant, as demonstrated by expert validation, instrument validity and reliability tests as part of small group trials. The e-learning-based FL-SRL integration produced a learning structure that aligns with the three phases of SRL, where forethought, performance, and self-reflection can facilitate active engagement, self-reflection, and independent learning for students. The novelty of this research is that it systematically integrates ethnopedagogy, FL and SRL into one integrated framework for developing EAP reading materials for management students. Overall, this development provides contribution in practical direction for students, educators and curriculum developers in designing learning

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experiences contextually and responsively for the student-centered challenges of 21st-century learning. It shows that there is strong potential when looking to integrate EAP reading material into the FL-SRL model to foster contextual and sustainable learning in higher education.

Keywords: academic reading; English for academic purposes; ethnopedology; flipped learning; self-regulated learning

1. Introduction

Academic reading skills are a key competency for higher education students (Dardjito et al., 2023). This competency is particularly fitting for those in management study programs that require an in-depth understanding of scientific texts, business reports, and research articles. According to Allehyani (2025) and Nejadghanbar et al. (2022), various studies show that most students often face challenges comprehending English academic texts due to limited vocabulary, limited reading strategies, and a lack of independent learning. This situation demands the development of learning materials which integrate learning models that are more relevant, structured, and encourage active student engagement (Aliyu et al., 2023).

According to Hussain et al. (2020) and Samaila et al (2025), FL has emerged as an innovative learning strategy recognized for increasing student participation and creating space for analysis-based activities in the classroom. This model is even more powerful when integrated with SRL strategies, which emphasize the students' ability to plan, monitor, and evaluate their learning process independently (Chen & Hung, 2025). Öztürk and Çakıroğlu (2021a) and Wang (2023) agree that this integration is believed to improve the quality of EAP learning, particularly in mastering academic reading skills. In the context of EAP in academic reading, there remains limited attention on how FL can serve as a framework for developing systematic learning materials.

This gap allows this research to position FL, integrated with SRL, not only as a learning delivery model but also as a design framework for developing EAP reading materials. Advances in educational technology have opened the opportunity to develop contextual, interactive, and easily accessible digital learning materials through e-learning platforms (Jeffery et al., 2021). The literature remains limited in developing and testing EAP reading materials explicitly designed for FL-SRL integration for management students of higher education in Indonesia. There has been limited research to this effect in the context of this study (Knežević et al., 2020).

Several researchers have examined the effectiveness of FL in language education (Jiang et al., 2020), While others have focused on Self-Regulated Learning (SRL)-based interventions to enhance students' English language learning achievement (Deng et al., 2022; Alfahid et al., 2025), some articles focus on the systematic review of FL-SRL implementation and its combination in EFL learning (Öztürk & Çakıroğlu, 2021; Yoon et al., 2021). However, these studies generally focus on implementing learning models rather than on the systematic design and

development of EAP materials tailored to the needs of specific disciplines, especially in relation to management study programs. Furthermore, to date, no research has integrated the FL-SRL framework in the development of EAP reading materials in online learning environments. The integration of ethnopedagogy to bring local cultural values into EAP materials in higher education has had very limited attention in Indonesian education. Therefore, there is a clear research gap regarding the combination of FL, SRL, and the development of contextual material with ethnopedagogy in the context of EAP reading material for management students. This development approach is in line with the policy of the regional Education Office, which emphasizes the involvement of regional languages and cultures in the learning process as part of strengthening educational practices.

This article is an R&D study focused on the small group trial phase prior to its implementation on a larger class scale. According to Binuya et al. (2022), predictive validity in R&D measures how well early decision tools correlate with clinical success, highlighting the importance of managing this validity to improve productivity and reduce costly failures. Through small group trials, this study evaluates how students understand the material, respond to the learning activities, and demonstrate SRL skills in the online learning context.

This research is significant on several levels. First, it makes a theoretical contribution by offering an integrative framework of FL-SRL specifically applied to the development of EAP reading materials. Second, it makes a pedagogical contribution by proposing a material design that EAP lecturers can implement to enhance students' learning independence and engagement with online learning. Third, it provides a contextual contribution by broadening the understanding of SRL-based learning innovations and FL in higher education in Indonesia, including potential integration with local values and ethnopedagogy approaches.

This research was conducted using the small group trial phase as the first step to evaluate the effectiveness of the learning materials and learning model before implementing them on a large scale. This is also supported by Kunselman (2024), in that small-scale trials are important for testing procedures, recruitment, and intervention delivery before committing to full-scale studies. In addition, Zhang et al. (2023) also claim that formative evaluations in education involve ongoing assessment to provide feedback for improving the learning process.

The purpose of this research is to evaluate the validity level of ethnopedology-based EAP reading materials developed through the integration of FL-SRL based on expert assessments and assess the practicality of the materials when implemented in small group trials on management study program students. The findings from this initial trial serve as a foundation for further big class design and the development of the learning materials. This article specifically reports on the formative design and validation stages of the R&D process, including expert reviews and small group trials. The research question stages have been formulated into the following research questions:

- a. To what extent is the developed ethnopedagogy-based Flipped-SRL EAP reading materials valid based on expert judgment?
- b. How practical are the developed materials when implemented in small group trials with management students?

2. Literature Review

2.1 English for Academic Purposes (EAP) Reading in Higher Education

EAP reading is generally understood as a high-level academic skill that requires the integration of linguistic abilities, cognitive strategies, and critical thinking (Gui et al., 2021), as well as the ability to interpret arguments, evaluate evidence, and synthesize information from various academic sources (Karakoç et al., 2023). However, most studies still position it as a learning outcome, rather than as the operational basis for designing and developing the reading materials.

In the context of management study programs, EAP learning is generally oriented towards specific academic genres such as research articles, business reports, and case analyses, each of which has its own distinctive rhetorical patterns and discourse structures. Several studies emphasize the importance of a genre-based approach to help students understand the communicative purposes and academic conventions of these texts (Ye, 2020). Additionally, EAP learning becomes more meaningful when the materials are contextually designed according to the needs of specific disciplines (Knežević et al., 2020).

Several studies have shown that students still face difficulties reading English academic texts, especially in terms of discourse complexity, vocabulary load, and limited reading strategies. This underscores the importance of self-monitoring and self-evaluation processes in EAP reading (Eriksson, 2023). Previous research has not systematically integrated these self-regulation processes into the design of contextualized and discipline-based EAP reading materials. This study fills this gap by positioning the FL-SRL framework as a foundation for developing structured and contextualized EAP reading materials (Leites et al., 2024).

2.2 Flipped Learning Model for Language and EAP Learning

The FL model is positioned in the literature as a pedagogical approach that restructures language learning by moving the introduction of basic material to the pre-class phase and focusing face-to-face time on higher-order cognitive activities. According to Bauer-Ramazani et al. (2016), through the FL model, students independently study the basic material before class through videos, digital modules, or interactive learning resources to complete the higher-level analysis, conceptual application, and problem-solving. Although FL has been reported to have positive impacts on various language skills, including reading and writing, most research still emphasizes classroom implementation. The role of FL as a systematic design framework for EAP material development has not yet been critically examined.

As stated by Samiei and Ebadi (2021) and Yulian (2021), in the EAP context, FL plays a crucial role in facilitating academic reading skills, strategies, learning text structure and vocabulary before entering the classroom. This allows face-to-face

sessions to focus on critical discussions, academic text analysis, and information synthesis exercises (Pragg, 2025). However, Jaritngarm (2025) points out that while there are numerous studies demonstrating its effectiveness, implementing FL in the EAP context still faces challenges, such as a low motivation for independent learning and limited integration with SRL strategies. There have been no studies that have examined how FL can guide the creation of EAP reading materials specifically designed for management students in Indonesian higher education. Most studies focus on classroom implementation rather than on the development of learning materials that inherently support the FL cycle. This gap suggests the need for a learning model that not only reverses the classroom structure but also systematically builds the students' self-regulation learning skills.

2.3 Integration of Self-Regulated Learning (SRL) in Flipped and E-Learning Environments

As highlighted by Zimmerman (2002), the integration of SRL into FL and e-learning environments is crucial for enhancing the effectiveness of learning EAP. SRL emphasizes the students' ability to plan, monitor, and evaluate the learning processes, making it relevant for students to learn the material independently before class (Chou & Zou, 2020).

In the context of FL, learning success is largely determined by the extent to which students can independently manage the learning process, including planning study time, maintaining internal motivation, and implementing effective cognitive and metacognitive strategies (Aprianto et al., 2020). Without an adequate SRL capacity, students tend to encounter difficulties when following the independent learning path, such as delays in completing the pre-lecture material, a lack of understanding the monitoring, and an inability to address learning obstacles proactively (Chou & Zou, 2020). Furthermore, van Alten et al. (2021) agree that the shift in responsibility to student-centered learning by preparing for the FL environment increases the need for SRL to achieve optimal learning outcomes.

According to Efklides (2011), in e-learning, SRL becomes increasingly important because digital environments offer flexibility but also present challenges, such as distraction, low accountability, and a lack of direct learning support. In addition, Ferraz and Santos (2021) claim that students with strong SRL skills tend to be more successful in online learning, including academic reading comprehension. However, there remains a research gap regarding how SRL strategies can be systematically integrated into FL designs, especially in the development of EAP learning materials. This gap highlights the need for learning models that not only provide digital materials but also develop pedagogically to support student self-regulation through ongoing basis. There is limited research on how SRL strategies, such as goal setting, monitoring, and self-evaluation, can be purposefully integrated into EAP reading materials for higher education.

2.4 Research and Development Approach (R&D) and Small Group Trial in Material Development

The R&D approach is a methodological framework widely used in the development of learning materials, especially when the research objective is not only to produce a product but also to ensure its validity, practicality, and effectiveness. In the context of developing EAP learning materials based on FL-SRL, the R&D approach allows researchers to design, evaluate, and refine the materials through systematic stages. One important stage in R&D is the small group trial, which serves as an initial test to assess how well the learning product can be understood, applied, and accepted by end users before being implemented at scale (Ryeznic et al., 2025).

Small group trials provide a space to detect errors, discrepancies in difficulty levels, and technical issues in the e-learning implementation. According to Rom and McTague (2020), small group stages also allow for the evaluation of the students' interactions with the material including how they demonstrate self-regulation when accessing digital content and completing pre-class assignments. Very limited research incorporates ethnopedagogical considerations within R&D-based material development in higher education. The findings from this stage are crucial as a basis for refining the material before entering large group trials. Although this methodology has been widely used, there is limited research applying it specifically to the development of FL-SRL-based EAP reading materials for management students.

In summary, the literature review provides the theoretical basis for this research's conceptual model which uses the FL and SRL frameworks to develop EAP reading materials and guide the research's methodological design through the R&D approach and formative evaluation. This study offers a different conceptual contribution by positioning the FL-SRL framework as the foundation for the design and development of EAP reading materials. In this approach, SRL is operationalized as a material design principle through pre-class scaffolding, task sequencing, and reflective prompts systematically integrated within the FL cycle.

This study expands the role of FL-SRL from being an instructional model to a framework for developing EAP reading material-based R&D in higher education. This model establishes a clear connection between the theoretical basis, the material development process, and the research procedures applied in this study. Thus, the FL-SRL framework not only shapes the design of the learning interventions but also becomes the basis for selecting texts, designing reading tasks, and developing academic activity flows that support independent, reflective, and contextual EAP reading for learning.

3. Research Methodology

3.1 Research Design

This research uses a Research and Development (R&D) approach to produce learning materials in the form of a product, implemented within a flipped Self-Regulated learning model integrated with e-learning (Kossen & Ooi, 2021). The primary focus of this research's material development is on the Research and

Development (R&D) approach, which was chosen because this study focuses on the design and initial validation of learning products. This article specifically reports on the design, expert validation, and small group trial stages in the ADDIE model, while the broad implementation and summative evaluation stages are beyond the scope of this study.

The research stages in this research consist of five main steps according to the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). This paper only discusses two stages: (1) the design stage and (2) the development stage, which includes model development, expert validation, and a small group trial with management students in higher education.

3.2 Research Subjects and Participants

The primary subjects of this study were undergraduate students enrolled in the Management Study Program who served as the main users of the developed FL-SRL integrated EAP reading materials. These students were selected because of their direct involvement in the online learning activities and their consistent engagement with the Learning Management System (LMS), which provided authentic data for evaluating both model functionality and its pedagogical impact.

All participants were given an explanation and informed consent, and it was confirmed that this learning activity was part of research that would be published in an international journal. Fifteen students from among the seventh semester participants from the 2022/2023 academic year were chosen through purposive sampling. This selection was based on the students' TOEFL proficiency levels obtained prior to the study. The sample consisted of five students in the low-proficiency category, five in the medium-proficiency category, and five in the high-proficiency category. This distribution ensured that the research outcomes reflected a range of English language abilities. This study also involved expert validators. The experts were comprised of individuals with doctoral and professorial qualifications which contributed solely to evaluating the clarity, accuracy, instructional alignment, and SRL integration of the developed instruments and materials.

3.3 Research Procedures

The main methodological stages of this research consist of two main steps, namely the design and development stages as explained below:

3.3.1 Design Phase

This stage aims to produce a conceptual design encompassing two main focuses: (1) designing learning materials and (2) designing learning models relevant to the learning needs of higher education institutions, particularly in Indonesia. These two aspects are designed in an integrated manner and support each other within a single development pathway. The steps taken include:

Learning Material Design Framework:

1. Identification of learning material needs is carried out based on the results of an analysis of the students' actual needs and the characteristics of e-learning.
2. Development of the learning materials including the preparation of reading texts, learning videos, SRL learning instruments, practice questions, and reading materials for discussion, tailored to the Semester Learning Plan to align with the course learning outcomes.
3. Determination of the material's readability level was carried out using the N+1 approach with a sample size of 15 students for a formative trial. This is to evaluate the material's initial practicality and acceptability, not to produce statistical generalizations.
4. Material sources selected from academically validated mass media with high relevance to the context of management and economics learning in Indonesia.
5. Integration of ethnopedagogical values applied in each reading material, emphasizing emerging economic issues in the South Sumatra region and the national economic context, ensuring that the material is not only academic but also contextual and contains local cultural content.

Learning Model Design Framework:

1. Identify the model components by reviewing FL theory, SRL strategies, and e-learning design principles.
2. Design a conceptual model structure that includes input, process, and output components.
3. Preparation of a model flow diagram (blueprint) that describes the integration between the FL stages and SRL phase such as forethought, performance, self-reflection.
4. Design e-learning learning activities consisting of three main stages:
 - a) SRL-based pre-class activities (learning planning and preparation through online modules and pre-face-to-face exercises).
 - b) In-class activities (collaborative activities and problem-based learning discussions).
 - c) Post-class activities (self-reflection and independent assessment).

3.3.2 Development Phase

This stage aims to implement the design results into a tangible product and to test its feasibility and practicality through a series of validation processes and limited trials. The steps taken in this development stage include:

1. **Preparation of Prototype Model**
The model prototype is designed in the form of a learning guide and e-learning based media integrated with the SRL strategy and FL approach.
2. **Preparation of Test Questionnaire Instruments (for Experts and Students)**
The instrument is designed to assess the validity, practicality, and acceptability aspects of the learning model from the perspective of experts and students.
3. **Validation of the Test Questionnaire Instrument by a Language Expert**
Validation was carried out by three linguists to ensure the language clarity, readability, and appropriateness of the academic terminology in the research instrument.

4. Revision of the Test Questionnaire Instrument

Instrument improvements were made based on the results of the validation by linguists before being used in the data collection process.

5. Validation of Materials and Learning Model by Experts

This process was carried out by three material and learning model experts who have doctoral and professorial qualifications from various universities in Indonesia to assess the quality of the content, model structure, and its pedagogical suitability.

6. Revision of Learning Materials and Model

The validation results were used to improve the content, learning flow, and e-learning features so then the model is more valid and practical to use.

7. Small Group Trial

The trial was conducted on small groups of students with varying English language abilities (low, medium, and high English Proficiency scores) to assess the acceptability and practicality of the learning model.

8. Analysis of Trial Results (Validity and Reliability)

The trial data was analyzed quantitatively and qualitatively to determine the validity, reliability, and feasibility of the model before applying it on a wider scale.

4. Result and Findings

4.1 Design Results

At this stage, the initial design consists of two main components, the learning materials and the learning model. The learning materials include contextual reading texts, learning videos, SRL instruments, practice questions, and discussion texts aligned with the Semester Learning Plan. Meanwhile, the learning model is structured based on the three main stages of FL, pre-class, in-class, and post-class, which is systematically integrated with the three phases of SRL of forethought, performance, and self-reflection.

This research was designed to support the implementation of the FL-SRL model in requiring several materials to support the learning process. The materials prepared in this research include SRL instructions which consist of pre-class and post-class, text materials for pre-class and in-class activities, and learning videos used as media for the pre-class. This material preparation aims to ensure that students actively participate, engage in self-reflection, and follow the learning flow designed in the FL-SRL model.

4.2 Development Results

The implementation focused on designing an FL model based on the higher education e-learning platform as the primary medium for presenting the learning materials and fostering learning interactions. The e-learning platform was chosen because it provides various supporting features, such as a learning management system (LMS), discussion forums, uploading learning videos, and online assessment facilities that enable independent and interactive learning. At this stage, the learning design was systematically developed to consider student-centered learning needs, course characteristics, and the integration activity of pre-class, in-class, and post-class. The organization of the learning materials was

structured in a modular format that supports independent and collaborative learning. Each unit within the learning module was uploaded to the higher education e-learning platform before the course began. Figure 1 shows the e-learning interface used in the implementation of the FL-SRL-based EAP reading materials. The display shows a structured learning flow that includes pre-class materials such as video and text, in-class practice activities and discussions, and post-learning reflections (SRL pre, in class, and post).

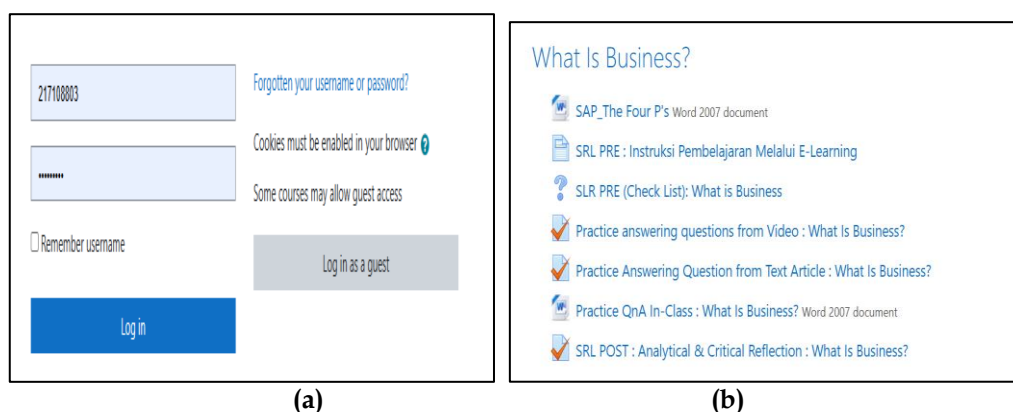


Figure 1: Higher Education of E-Learning: (a) External Interface of the Higher Education E-Learning Platform; (b) Learning Material Display

The next stage developed a questionnaire instrument to assess the design effectiveness and applicability of the learning materials and learning model implemented. The quality of an instrument can be assessed through four main aspects, namely relevance, representativeness, specificity, and clarity, which ensure that each item truly reflects the construction being measured precisely and meaningfully. This questionnaire aims to measure the students' perceptions of the content, appearance, ease of use, and benefits of FL-SRL-based learning. This instrument was validated by linguists and learning experts to ensure the clarity, consistency, and suitability of the indicators used.

The results of this validation will serve as the basis for revisions and refinements in the next stage before conducting a comprehensive field trial. At this stage, the questionnaire instrument was divided into the Instrument Content Validation (ICV) Questionnaire for Learning Materials for Experts, the Instrument Content Validation (ICV) Questionnaire for Learning Materials for Students, and Instrument Content Validation (ICV) Questionnaire for Learning Models for Experts, and Instrument Content Validation (ICV) Questionnaire for Learning Models for Students. Each questionnaire item was given a score on a Linkert scale from 1 to 4 based on the criteria in **Table 1** below:

Table 1 : Questionnaire Validation Criteria Aspects

Validation Aspects	Definition
Relevance	The extent to which the instrument items align with the constructs they are intended to measure.
Representativeness	The extent to which the items reflect the domain or construct, not just a small part.
Specificity	The extent to which the items have a clear focus, neither too general nor too broad.
Clarity	The extent to which the item wording is clear, easy to understand, and unambiguous.

4.3 Validation Results

Validation was conducted through expert assessments involving linguists to assess the feasibility of the research instrument, as well as experts in the materials and learning model to assess the suitability of the content, structure, and pedagogical design of the resulting model. The results of this validation will serve as the basis for revising and refining the model and learning materials before they are implemented in a limited trial.

4.3.1 Results of the CVR (Content Validity Ratio) Calculation

Validation of the questionnaire instrument was conducted to ensure that all question items had appropriate content and language clarity before being used in the collection of data. The Content Validity Ratio (CVR) model establishes the criteria used for assessing the relevance of the instrument items based on expert opinion and also provides critical values for determining the appropriateness of each item. This validation process involved three linguists competent in academic linguistics. Each questionnaire item was assessed using a Likert scale of 1–4, ranging from “not relevant” to “very relevant.” To assess the validity of each item, the Item Content Validity Index (I-CVI) was calculated which indicates the proportion of experts who considered the item valid. Items with an I-CVI ≥ 0.78 were considered very valid, while items with lower scores were revised or deleted.

Table 2: Validation Aspects of the Questionnaire Criteria

Validation Sheet	Retained	Revised	Removed	Question
Learning Materials for Experts	7	2	0	9
Learning Materials for Students	8	10	0	18
Learning Models for Experts	2	9	0	11
Learning Models for Students	7	11	0	18

Table 2 shows the validation results of the questionnaire instrument regarding the learning materials and model. Based on the calculation of the Content Validity Ratio (CVR) for the questionnaire instrument on learning materials from the perspective of experts, out of 9 questions asked, 7 items were retained and 2 items were revised. For the questionnaire instrument on learning materials for students, out of 18 questions, 8 items were retained and 10 items were revised to provide methodological clarity regarding possible causes of the invalidity of the instrument items. Meanwhile, for the questionnaire instrument on the learning

models, out of 11 questions assessed, 2 items were retained and 9 items were revised, while for the questionnaire instrument for students, out of 18 questions assessed, 7 items were retained and 11 items were revised. No items were removed from the instrument. These results indicate that the questionnaire instrument on materials and learning models has adequate content validity. However, several aspects still need to be refined to enhance pedagogical suitability and user acceptability.

4.3.2 Instrument Validity and Reliability Test Results

After being validated by experts, the research instruments were tested for validity and reliability to ensure they gave consistent and accurate measurements. Validity testing assessed the extent to which the instruments such as practicality questionnaires and student responses reflected the constructs being measured, including model practicality, material acceptability, and FL-SRL design effectiveness. Reliability testing assessed data consistency to ensure stable and reliable measurement results.

4.3.3 Learning Materials Validity Test Results

This section presents the results of the validity test conducted regarding the learning material instruments used in the study. The correlation values and significance levels of each item serve as the basis for determining the instrument's validity, as shown in **Table 3**.

Table 3: Validity Test Results for the Learning Materials

Question Number	Validation parameter	Total	Question Number	Validation parameter	Total
Quest-1	Pearson Correlation	.732**	Quest-11	Pearson Correlation	0.366
	Sig. (2-tailed)	0.002		Sig. (2-tailed)	0.180
	N	15		N	15
Quest-2	Pearson Correlation	.817**	Quest-12	Pearson Correlation	.794**
	Sig. (2-tailed)	0.000		Sig. (2-tailed)	0.000
	N	15		N	15
Quest-3	Pearson Correlation	.715**	Quest-13	Pearson Correlation	.741**
	Sig. (2-tailed)	0.003		Sig. (2-tailed)	0.002
	N	15		N	15
Quest-4	Pearson Correlation	.840**	Quest-14	Pearson Correlation	.732**
	Sig. (2-tailed)	0.000		Sig. (2-tailed)	0.002
	N	15		N	15
Quest-5	Pearson Correlation	.817**	Quest-15	Pearson Correlation	.715**
	Sig. (2-tailed)	0.000		Sig. (2-tailed)	0.003
	N	15		N	15
Quest-6	Pearson Correlation	.667**	Quest-16	Pearson Correlation	.817**
	Sig. (2-tailed)	0.007		Sig. (2-tailed)	0.000
	N	15		N	15
Quest-7	Pearson Correlation	.610*	Quest-17	Pearson Correlation	.794**
	Sig. (2-tailed)	0.016		Sig. (2-tailed)	0.000
	N	15		N	15
Quest-8	Pearson Correlation	.667**	Quest-18	Pearson Correlation	.665**
	Sig. (2-tailed)	0.007		Sig. (2-tailed)	0.007
	N	15		N	15
Quest-9	Pearson Correlation	.857**	MA Total	Pearson Correlation	1

	Sig. (2-tailed)	0.000
	N	15
Quest-10	Pearson Correlation	.791**
	Sig. (2-tailed)	0.000
	N	15

	Sig. (2-tailed)	
	N	15

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The results of the validity testing of the learning material show that regarding the 18 questions tested using Pearson correlation with 15 respondents, most of the items have significant correlation values at the confidence levels of 0.01 (**) and 0.05 (*), which means that they are valid. The correlation values range from 0.610 to 0.857, indicating a strong relationship between each question item and the total score. There is an exception for item number 11 which has a correlation value of 0.366 with a significance of 0.180 (>0.05), so it is declared invalid. Thus, 17 questions are suitable for use in the learning material validation instrument because they have met the validity criteria, while one item (number 11) needs to be revised or removed from the instrument.

4.3.4 Reliability Test Results of the Learning Materials

Based on the SPSS calculation results, all respondent data was recorded as valid cases ($N = 15$) with no excluded data (excluded = 0), allowing all items to be fully analyzed. The reliability test showed a Cronbach's Alpha value of 0.957 for 18 items, which falls into the category of very high reliability because it exceeds the standard threshold of 0.90. This result indicates that each component of the instrument demonstrates excellent internal consistency and can produce stable measurements when administered repeatedly. Therefore, the instrument used to evaluate the learning materials is considered highly reliable and can be confidently used to measure the intended constructs.

4.3.5 Validity Test Results for the Learning Model

Validity testing was conducted to ensure that each question in the instrument accurately and consistently measured the aspect being assessed. The testing was conducted using Pearson correlation with 15 respondents, with significance values and correlation coefficients used to determine the validity of each question.

Table 4: Validity Test Results for the Learning Model

Question Number	Validation parameter	Total
Quest-1	Pearson Correlation	.750**
	Sig. (2-tailed)	0.001
	N	15
Quest-2	Pearson Correlation	.756**
	Sig. (2-tailed)	0.001
	N	15
Quest-3	Pearson Correlation	.549*
	Sig. (2-tailed)	0.034
	N	15
Quest-4	Pearson Correlation	.725**
	Sig. (2-tailed)	0.002
	N	15
Quest-5	Pearson Correlation	.635*
	Sig. (2-tailed)	0.011
	N	15
Quest-6	Pearson Correlation	.684**
	Sig. (2-tailed)	0.005
	N	15
Quest-7	Pearson Correlation	.550*
	Sig. (2-tailed)	0.034
	N	15
Quest-8	Pearson Correlation	.763**
	Sig. (2-tailed)	0.001
	N	15
Quest-9	Pearson Correlation	.650**
	Sig. (2-tailed)	0.009
	N	15
Quest-10	Pearson Correlation	0.340
	Sig. (2-tailed)	0.216
	N	15
Quest-11	Pearson Correlation	.896**
	Sig. (2-tailed)	0.000
	N	15
Quest-12	Pearson Correlation	.802**
	Sig. (2-tailed)	0.000
	N	15
Quest-13	Pearson Correlation	.763**
	Sig. (2-tailed)	0.001
	N	15
Quest-14	Pearson Correlation	.896**
	Sig. (2-tailed)	0.000
	N	15
Quest-15	Pearson Correlation	.700**
	Sig. (2-tailed)	0.004
	N	15
Quest-16	Pearson Correlation	.684**
	Sig. (2-tailed)	0.005
	N	15
Quest-17	Pearson Correlation	.550*
	Sig. (2-tailed)	0.034
	N	15
Quest-18	Pearson Correlation	.763**
	Sig. (2-tailed)	0.001
	N	15
MO Total	Pearson Correlation	1
	Sig. (2-tailed)	
	N	15

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Based on **Table 4** showing the results of the validity test of the learning model, referring to the 18 questions analyzed using Pearson correlation according to 15 respondents, most showed significant correlation values at the 0.01 (**), and 0.05 (*) confidence levels, thus it is declared valid. The correlation values obtained were in the range of 0.550 to 0.896, which indicates a strong relationship between each question item and the overall total score. Only item number 10 had a correlation value of 0.340 with a significance level of 0.216 (>0.05). Thus, it did not meet the validity requirements. In addition, 17 questions were considered valid and worthy of being retained in the learning model validity test instrument, while item number 10 was recommended to be revised because it did not meet the established criteria.

4.3.6 Reliability Test Results for the Learning Model

Based on the SPSS reliability analysis, all 15 cases were processed as valid data with no exclusions, ensuring that the reliability calculation was performed on a complete dataset. The instrument demonstrated a Cronbach's Alpha value of 0.932 across 18 items, indicating excellent internal consistency. This high value shows that each item provides stable and reliable measurements of the key aspects such as learning model practicality, material acceptability, and positive reception. The completeness of the data and strong reliability coefficient confirm that the instrument is robust and dependable for evaluating the developed learning model.

4.4 Small Group Trial Results

This trial involved a small number of participants with characteristics like the target population of the study. During the trial, participants were asked to use the learning material and follow the developed learning model, then to provide responses via questionnaire. The data obtained from this stage was used to assess the extent to which the learning components were acceptable, easy to understand, and relevant to learning needs in the field. The questionnaire used to evaluate the learning materials for small class students was as follows for **Table 5** below:

Table 5: Student Questionnaire for Evaluating the Learning Materials

Aspect	Forethought Phase	Performance Phase	Self-Reflection Phase
Learning objectives	The content of the material is in accordance with the learning outcomes of the course.	The material supports the achievement of understanding competencies.	The SRL self-reflection questionnaire material allows students to measure their personal learning achievements.
Material	The material is accurate, up-to-date, and relevant to the students' needs.	The material is arranged systematically based on the core achievements in learning.	Learning materials (video and text) provide the opportunity to link theory with real practice.
Strategy or Activity	Practice answering questions in the form of videos and learning texts supports the students' learning readiness.	There are collaborative and analytical activities to deepen the material.	There are reflective activities, such as reflection questions and learning journals.
Media and Learning Resources	Materials are available in easily accessible formats like PDF and video.	Supporting images, tables, videos, and links improve skimming and scanning question-answering skills.	Post-class evaluation media is easy for students to use.
Student Involvement	The material encourages students to develop	Printed text material in class encourages students to actively discuss and argue.	Learning materials (video and text) increase self-confidence and

	learning strategies before class.		motivation for independent learning.
Evaluation	Pre-class practice questions according to the learning objectives.	Practice questions or assignments according to the expected competency level.	Reflective assessment that assesses the students' overall understanding.

The questionnaire is structured around the three phases of SRL, specifically forethought, performance, and self-reflection. Each aspect of the questionnaire includes learning objectives, materials, strategies or activities, media and learning resources, student engagement, and evaluation, designed to assess how the learning materials support metacognitive development and the students' independent learning abilities. Based on this structured evaluation framework, students can provide feedback on the extent to which the learning materials support the learning process in each SRL phase.

From the results of the questionnaire evaluation of 15 small class students, the average results per question item were as follows:

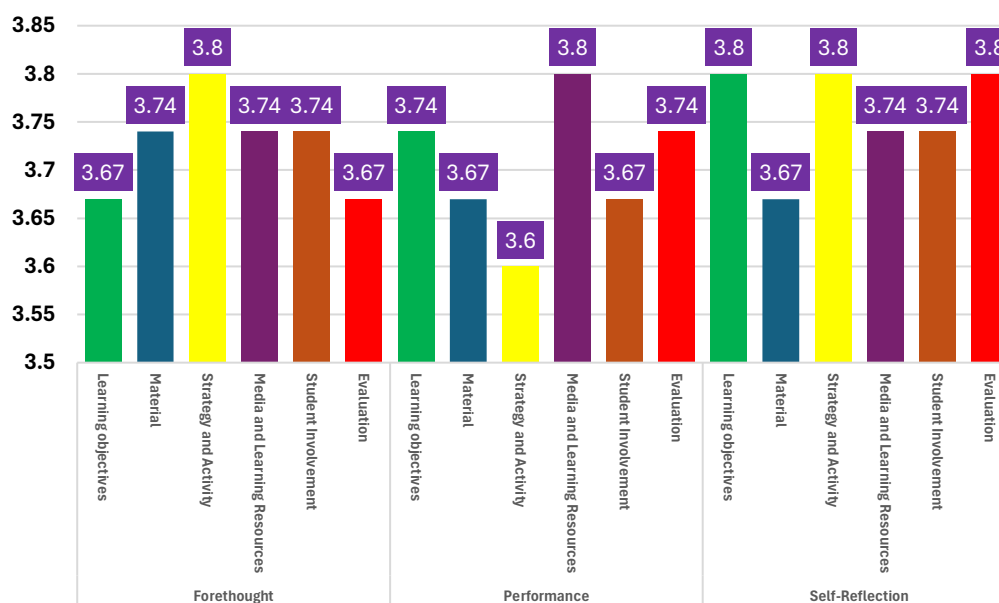


Figure 2: Score per Item in the Learning Material Questionnaire

The assessment results for the three learning phases in **Figure 2** showed that all aspects received high scores, ranging from 3.60 to 3.80, indicating that the learning model was considered both good and relevant. In the Forethought Phase, the strategies or activities aspect received the highest score (3.80), indicating the readiness and suitability of the learning strategies, while the learning objectives and evaluation or assessment received a score of 3.67. In the Performance Phase, media and learning resources received the highest score (3.80), indicating the

practicality of the media in supporting the implementation of learning, while strategies or activities received a slightly lower score (3.60). In the Self-Reflection Phase, the learning objectives, strategies or activities, and evaluation or assessment aspects all achieved a score of 3.80, indicating the good reflection skills of the participants. Overall, these results illustrate that the developed learning model has a very good level of design adequacy and relevance in each learning phase.

Table 6: Student Questionnaire for Evaluating the Learning Model

Aspect	Forethought Phase	Performance Phase	Self-Reflection Phase
Learning Objectives	Models help students understand the learning objectives before lectures.	The discussion and presentation model in class encourages the achievement of competencies according to the learning targets.	The SRL model through FL helps students evaluate their learning achievements.
Material & Content	The material provided is in accordance with the learning objectives and student needs.	The materials support class discussions and collaborative activities.	Reading text material through skimming and scanning skills encourages reflection on the students' strengths and weaknesses.
Strategies & Activities	Pre-class activities help students prepare for face-to-face meetings.	Class activities encourage active student participation.	The activity of answering questions in post-class SRL can stimulate students to self-reflect.
Media & Learning Resources	Pre-class learning media is easily accessible and relevant.	Media in the form of printed text and questions in face-to-face lectures support the student-lecturer interaction.	Evaluation media such as reflective journals are easy to use.
Student Engagement	The SRL model in pre-class activities encourages students to set personal learning goals.	The model increases student activity in discussions and assignments.	The FL-SRL model increases students' self-confidence in independent learning.
Evaluation	There is a mechanism to assess student readiness before class.	Process-based and outcome-based assessments are integrated comprehensively.	There is a reflective assessment of the student learning process.

The questionnaire in Table 6 was used to assess how the learning model supported students in the three phases of SRL. In the planning phase, the questionnaire assessed the students' readiness to understand the learning objectives. In the implementation phase, the questions highlighted how the class

activities and materials encouraged active participation. In the self-reflection phase, the questionnaire evaluated the extent to which the learning model helped students assess their achievements and enhance their learning independence through FL.

From the results of the questionnaire evaluation of 15 small class students, the average results per question item in the questionnaire were as follows:

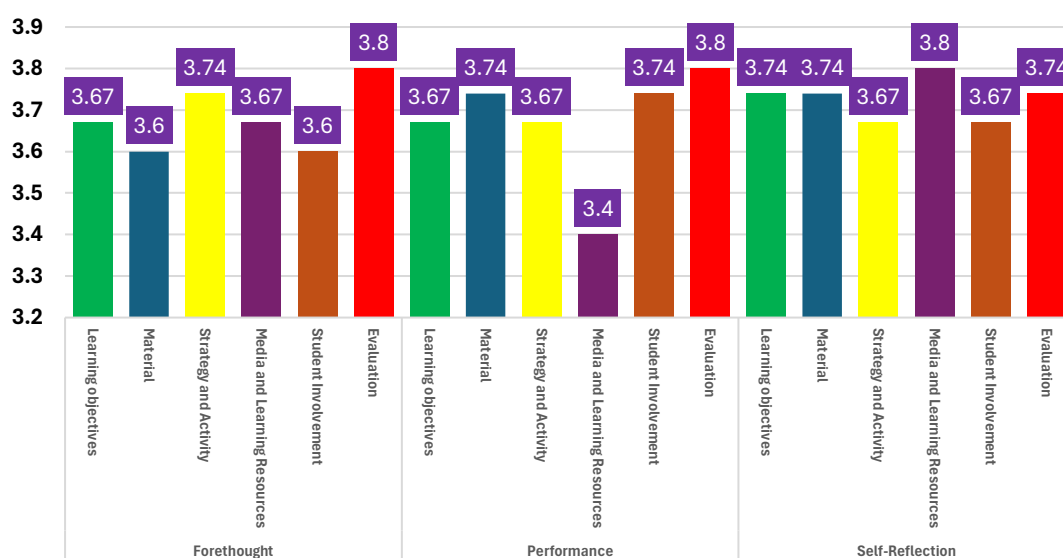


Figure 3: Score per Item in the Learning Model Questionnaire

Based on the assessment results **Figure 3** for the three learning phases, relatively high scores were obtained with a range of 3.4 to 3.8, indicating that the developed learning model is classified as good and relevant. In the Forethought Phase, the evaluation or assessment aspect obtained the highest score (3.8), indicating that the assessment mechanism is considered to have positive reception, while the material, content and student engagement had the lowest scores (3.6) but were still in the good category.

In the Performance Phase, the highest score was also found in evaluation or assessment (3.8), indicating the feasibility of assessment during the learning process, while media and learning resources obtained the lowest score (3.4), indicating the need for improvement in the use of learning media. Meanwhile, the Self-Reflection Phase showed stable results, with most aspects in the range of 3.67 until 3.8, indicating that the participants were able to reflect on the learning well. Overall, the relatively high scores indicate that each learning component has been assessed as increasingly good and relevant according to the expected objectives.

5. Discussion

5.1 Interpretation of the Design and Development Process

The design and development process of the FL-SRL model demonstrates the systematic integration of the three phases of FL, specifically pre-class, in-class, and post-class, with the three main components of self-regulation of forethought,

performance, and self-reflection, resulting in a design that encourages independent, metacognitive, and sustainable learning. This is supported by Zarouk et al. (2020). This integration is realized through the development of a Triadic Learning Integration Framework (TLIF), which connects the FL, SRL, and ethnopedagogy-based EAP reading materials as the foundation for a more contextual learning design which answers research question one. This finding is also supported by Anyichie et al. (2023). In this context, ethnopedagogy not only functions as a source of local cultural content but also as a pedagogical approach that is consciously used in the process of designing the reading materials, meaning that the selection of texts, themes, and reading activities reflects the students' cultural values, practices, and experiences.

During the implementation phase of the small group trial, this study introduced the SRL Phase Tracing technique to map the students' dynamics across the concepts of the self-regulated phases to provide an empirical picture of how self-regulation strategies unfold in the digital learning flow. These findings indicate that the FL-SRL design's effectiveness stems not only from the structural alignment between the learning phases but also from the activation of self-regulation processes that systematically unfold throughout the learning cycle, which further underpins the formulation of the learning integration framework and its pedagogical implications.

5.2 Model Validity and Practicality Discussion

The results of the I-CVI calculations, validity tests, and reliability tests indicate that all instruments used have met the eligibility standards for measuring the research constructs. The I-CVI from experts confirmed a high level of relevance for each instrument item. At the same time, the validity and reliability tests demonstrated that the instrument consistently and accurately measured aspects of practicality, model acceptability, and material quality. The results of the student assessments of the learning materials showed excellent scores in all phases of FL-SRL, indicating that the material design was feasible in facilitating readiness, engagement, and reflection on learning. The assessment of the learning model also showed positive results, where these findings align with expert testing and small group trials, both of which indicate that the FL-SRL's ethnopedagogy digital pedagogical architecture has high validity and practicality for implementation in online learning.

The integration of the FL structure, the SRL phase, and ethnopedagogy values produces a meaningful and adaptable structure, and is easy for the students to learn. In this context, ethnopedagogy serves not only as a source of cultural context when selecting EAP reading texts but also as a pedagogical consideration when designing reading activities. Thus, the validity and practicality results obtained reflect the suitability of the learning model according to the characteristics of the students' learning context. These findings align with the study by Yorganci (2025), which found that integrating FL and SRL models into a digital environment significantly increases student engagement, readiness, and learning independence in higher education. Furthermore, the development of an ethnopedagogy-based EAP digital corpus enriches the management students'

learning resources and strengthens the model's relevance in authentic and digital learning contexts.

5.3 Pedagogical Implications

The implementation of the FL-SRL model has significant pedagogical implications for learning in higher education. Most researchers agree to complete the scaffolding consistently, with studies on the FL-SRL model at the earlier levels increasing students' readiness to learn, independence, and engagement. This finding is also supported by van Alten et al. (2021), who found that in secondary education, there is a significant variation in SRL profiles that require additional scaffolding in learning engagement through the FL model. Thus, FL-SRL implementation is more readily adopted in higher education, which generally has a higher level of learning independence. At the secondary school level, it needs to be designed with more structured SRL support.

Integrating the FL-SRL model into the development of EAP reading materials strengthens the theoretical framework for SRL-based learning and provides real pedagogical implications by increasing students' independence, engagement, and learning effectiveness in online environments. Besides this, the integration of local culture-based reading materials enriches the learning context and increases the relevance of the learning experience, enabling students to understand the academic texts while developing cultural closeness with the students' social environment. Local cultural integration increases the students' perception of relevance, motivation, and emotional connection to the texts and learning activities, and their textual comprehension increases when the learning materials are culturally relevant.

This study also identified cultural relevance in the reading materials design as having a positive reception. Local cultural values can strengthen self-regulation processes and facilitate students' active participation before, during, and after learning. Schlaegel et al. (2023) also agree that enhancing learning autonomy, motivation, and metacognitive strategies are essential for lifelong learning. Overall, these pedagogical implications show that the ethnopedagogy-based FL-SRL model not only improves the quality of the learning process but also prepares students to become independent learners who are adaptive to academic and professional demands.

However, the pedagogical benefits identified remain context-specific, given that implementation occurred at the pre-class stage with a limited sample size and relatively short intervention duration. This study is positioned as being in the initial exploration phase and providing an empirical basis before broader application and testing of the model on large classes in follow-up research. The findings of this study provide a reference for curriculum developers in designing ethnopedagogy-based EAP materials integrated with FL-SRL. These results can serve as a basis for educational institutions and policymakers in developing contextually oriented online learning that supports' student SRL.

5.4 Limitations and Recommendations

5.4.1 Limitations

This research has several methodological limitations that should be considered when interpreting the findings. Implementation occurred at the pre-class level, with a relatively short intervention and a small, homogeneous sample. The findings regarding the feasibility and practicality of the FL-SRL framework and the development of EAP reading learning materials cannot yet be generalized to large classroom contexts or more diverse populations. The SRL behavioral indicators still rely on student responses and manual observations, thus not fully representing self-regulation patterns in e-learning environments. The findings of this research focus more on the design's feasibility, practicality, and the initial acceptance of the developed EAP reading materials, rather than being a comprehensive evaluation of their effectiveness or learning impact.

5.4.2 Recommendations

Consequently, further research is recommended to have a longer and larger implementation period, a more heterogeneous sample, and to integrate digital log data analysis to obtain more objective evidence on the dynamics of SRL and academic reading performance. Extension testing is also needed to re-evaluate the design adequacy of the EAP reading materials and the learning model developed for large classrooms and multicultural contexts to ensure the model's stability. The last recommendation is that lecturers, educational institutions, and study programs that wish to implement the ethnopedagogy-based FL-SRL model adapt the design of EAP reading materials to the local cultural context, improving the students' digital learning system readiness.

6. Conclusion

This research contributes to the development of EAP reading materials through the application of an integrated ethnopedagogy-based FL-SRL framework to online learning in higher education. The results indicate that the developed materials have a high level of validity based on expert assessment and demonstrate good practicality when implemented in a small-group trial with management students. These findings directly address the research question regarding the feasibility and initial implementation of FL-SRL-based EAP materials.

The alignment between the FL phase and SRL cycle was shown to support and strengthen the students' self-regulation and learning engagement when comprehending academic texts. The integration of ethnopedagogy also enriches learning by linking academic content to the students' cultural contexts, contributing to strengthening the metacognitive aspects of the academic reading process. Practically, this research provides a reference for the lecturers and learning material developers who are designing contextual EAP materials that support SRL in e-learning environments. Further research with a broader scale and evaluation design is needed to test the model's sustainability and adaptability across various learning contexts.

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