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A DESIGN-BASED INSTRUCTIONAL MODULE INTEGRATING MOTIVATION AND SELF-REGULATED LEARNING IN EFL LEARNING CONTEXTS

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ABSTRACT

This study addresses the persistent challenge of low and unstable motivation and underdeveloped learning strategies among first-year EFL students in regional Indonesian higher education contexts, where limited academic support and low-resource conditions often hinder the development of learner autonomy. In response, it aimed to develop and validate a Motivation and Learning Strategies Module (MLSM) integrating Self-Determination Theory (SDT), the ARCS motivational model, and Self-Regulated Learning (SRL) principles. A Research and Development (R&D) design adapted from Borg and Gall and Dick and Carey models was employed, combined with a mixed-methods pre–post evaluation approach. The participants were 24 first-year EFL students, along with three expert validators and six students for qualitative feedback. Data were collected through motivation and learning strategy questionnaires, validation rubrics, reflective interviews, and open-ended responses. Quantitative data were analyzed using descriptive statistics and paired-samples t-tests, while qualitative data were analyzed using thematic analysis. The findings showed no statistically significant difference between pre-test and post-test scores of motivation and learning strategies ($p > .05$), indicating no significant short-term improvement. However, qualitative results revealed increased learner awareness of motivation, improved self-management, greater engagement, and emerging self-regulated learning behaviors. Expert and student evaluations further indicated that the module was highly feasible, relevant, and contextually appropriate for EFL instruction in low-resource settings. The study develops a context-sensitive instructional module integrating SDT, ARCS, and SRL into a unified framework for EFL learning. It suggests that while the MLSM does not produce immediate measurable gains in motivation, it facilitates reflective learning processes and supports the development of learner autonomy. Practically, the module offers an adaptable instructional resource for EFL educators in low-resource higher education contexts seeking to strengthen motivational and strategic learning support.

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INTRODUCTION

Motivation and learning strategies are widely recognized as central determinants of students' academic persistence, engagement, and success in higher education, particularly in English as a Foreign Language (EFL) contexts. However, sustaining motivation and developing effective learning strategies remain persistent challenges, especially for first-year students transitioning into more autonomous learning environments. In Southeast Asia, including Indonesia, regional and low-resource universities frequently serve students from socioeconomically disadvantaged backgrounds whose access to academic support, technological infrastructure, and linguistic exposure is limited (Phyo & Ilie, 2025; Wanti et al., 2022). Such constraints often weaken academic self-efficacy and reduce opportunities for explicit strategy instruction. Consequently, learners often rely on external motivators such as grades and deadlines, which may hinder the development of sustained engagement and self-regulated learning behaviors (Aditia & Széll, 2025; Janah et al., 2022; Noori et al., 2025; Rizki et al., 2022).

To address these challenges, this study conceptualizes motivation and learning as an integrated motivational–regulatory system, drawing on Self-Determination Theory (SDT), the ARCS model, and Self-Regulated Learning (SRL). In educational psychology and applied linguistics, motivation is increasingly conceptualized not as a fixed trait but as a dynamic process shaped by psychological needs, instructional design, and sociocultural environment. Self-Determination Theory (SDT) explains motivation along a continuum from amotivation to intrinsic motivation and posits that individuals thrive when their needs for autonomy, competence, and relatedness are fulfilled (Deci & Ryan, 2000; Ryan & Deci, 2020). Autonomy-supportive teaching practices have been shown to enhance intrinsic motivation, persistence, and language performance, while controlling environments may suppress learners' sense of agency (Alharfi & Alamer, 2025; Alrabai & Alamer, 2024; Namaziandost et al., 2024; Van Den Berghe et al., 2014; Wang et al., 2022; Yang et al., 2022). Evidence from higher education in the Asia-Pacific region further confirms SDT's relevance for EFL contexts. For instance, Nga (2023) found that autonomy-supportive lecturer–student interaction significantly predicted engagement and satisfaction in Vietnamese universities, while Kim (2024) reported that intrinsic motivation driven by self-autonomy strongly influenced Korean university students' classroom motivation. These findings underscore that motivational quality, rather than motivational quantity alone, determines sustained engagement in language learning.

While SDT explains why learners become motivated, instructional design frameworks explain how to systematically foster motivation in practice. Keller's (2010) Attention, Relevance, Confidence, and Satisfaction (ARCS) model offers a structured approach for embedding motivational principles into instructional materials. Empirical studies demonstrate that when teaching captures learners' attention, connects tasks to personal goals, builds confidence through structured scaffolding, and provides meaningful satisfaction through feedback, student engagement significantly improves (Fang et al., 2024; Song & Lai, 2024). Motivational design has also shown relevance in digital and AI-mediated environments, where structured scaffolding enhances learners' confidence and satisfaction (Ma & Chen, 2025). In Indonesian higher education, ARCS-based instruction has improved both motivation and listening proficiency, highlighting the importance of systematic motivational planning in local contexts (Lestari, 2021). Such findings suggest that motivational support must be intentionally designed rather than assumed to emerge spontaneously.

Complementing SDT and ARCS, Self-Regulated Learning (SRL) explains how motivation is translated into strategic learning behavior. SRL involves cyclical processes of planning, monitoring, and evaluating learning activities (Panadero, 2017; Zimmerman, 2000). Self-regulated learners actively set goals, manage time, apply strategies, and reflect on outcomes. Empirical syntheses show that SRL interventions consistently enhance academic

performance across disciplines (Theobald, 2021; Xu et al., 2023). In EFL settings, explicit instruction in SRL strategies promotes learner autonomy and reduces dependence on teacher-centered approaches (H. Kim & Cho, 2014; Teng, 2024). Moreover, motivation and SRL operate synergistically; motivational beliefs influence strategy use, and effective strategy use reinforces motivational confidence (Tareen, 2023; Xu et al., 2023).

Recent Indonesian studies highlight similar dynamics. Jaya (2025), examining EFL academic writing in Indonesian universities, found that motivation, time management, and metacognitive strategies function as interconnected components of self-regulated learning, collectively enhancing writing performance. However, reliance on extrinsic drivers such as grades and deadlines remains prevalent, indicating uneven motivational quality. These findings align with broader evidence that motivation and strategy use must develop simultaneously to produce sustainable academic improvement (Panadero, 2017; Teng, 2024; Xu et al., 2023). Taken together, SDT, ARCS, and SRL can be understood as a complementary system in which psychological needs, instructional design, and strategic learning processes interact to support sustained engagement. However, their integration into practical instructional materials remains limited, particularly in regional Indonesian EFL contexts.

The importance of contextual adaptation is particularly salient in low-resource and regional settings. Limited access to technology, reduced exposure to English, and insufficient academic guidance may diminish learners' perceived competence and autonomy (Aditia & Széll, 2025; Han et al., 2021; Tompkins, 2022). Nevertheless, evidence indicates that when instruction incorporates culturally relevant tasks, localized examples, and reflective activities, learners demonstrate resilience and sustained engagement (Amalo & Petraki, 2024; Hoang, 2021; Li, 2021). Contextualized EFL modules implemented in Indonesian universities have shown positive effects on autonomy, critical thinking, and engagement when materials align with students' lived realities (Evenddy et al., 2024; Widora et al., 2025). Chen et al. (2024) further report that digital tools supporting vocabulary self-regulation can compensate for resource gaps, particularly for field-dependent learners. Such findings reinforce the need for instructional innovation grounded in the local context rather than imported pedagogical models.

Despite extensive research on SDT, ARCS, and SRL individually, integrated and contextually grounded applications remain limited in Indonesian EFL higher education. Many prior interventions have been conducted in urban institutions, online environments, or short-term experimental settings (Barrett et al., 2022; Wang et al., 2022). Furthermore, Indonesian EFL instruction has historically prioritized linguistic form over motivational and strategic development (Renandya & Widodo, 2016; Zein et al., 2020). Explicit training in learning strategies and self-motivation is still uncommon, particularly among first-year university students transitioning from teacher-centered secondary schooling (Lengkanawati, 2017). This pedagogical gap suggests the need for instructional materials that systematically integrate motivational design and self-regulated learning principles within authentic classroom contexts.

Research and Development (R&D) approaches offer a practical pathway for addressing this gap through systematic design, validation, and implementation. These approaches emphasize iterative design, expert validation, contextual adaptation, and empirical testing within real learning environments (Dick et al., 2015; Gall et al., 2007). Recent DBR studies highlight the importance of aligning instructional innovations with sociocultural realities to ensure feasibility and sustainability (Barrett et al., 2022; Halim et al., 2023). Dewi et al. (2022) and Resmanti et al. (2024) further argue that locally validated instructional modules can strengthen both learner autonomy and instructional relevance in Indonesian higher education. Integrating motivational design (ARCS), psychological need support (SDT), and explicit strategy training (SRL) within a single instructional module, therefore, represents a theoretically coherent and practically necessary innovation.

In response to these challenges, the present study develops and validates a Motivation and Learning Strategies Module (MLSM) for first-year EFL students in a regional Indonesian university. The module integrates motivational design and self-regulated learning strategies to address both affective and cognitive dimensions of language learning by embedding autonomy-supportive activities, structured motivational scaffolding, and explicit instruction in self-regulatory strategies within contextualized EFL materials. By employing a systematic development and validation process, this study aims to bridge theoretical insights with practical classroom application. Specifically, this study addresses two research questions: (1) To what extent is the developed Motivation and Learning Strategies Module (MLSM) valid and feasible according to expert and student evaluations? and (2) How effective is the MLSM in enhancing students' motivation and learning strategies in a regional EFL university context? The study contributes a context-sensitive instructional model and provides practical insights for integrating motivation and learning strategies in low-resource EFL higher education settings.

RESEARCH METHOD

Research Design

This study adopted a Research and Development (R&D) approach, adapted from Borg and Gall's (2007) and Dick and Carey's (2015) instructional design models, to develop, validate, and evaluate a Motivation and Learning Strategies Module (MLSM) for first-year EFL students at a regional Indonesian university. A mixed-methods approach with a pre–post evaluation design was employed to assess both the feasibility and effectiveness of the developed module. The development process followed five sequential stages: (1) needs analysis, (2) initial module design, (3) expert validation, (4) revision and refinement, and (5) classroom implementation and evaluation. Needs analysis involved surveys and classroom observations to identify students' motivational challenges and learning strategies, which informed the module design.

In the design phase, the module was structured into thematic instructional units that integrated motivational scaffolding and explicit instruction in self-regulated learning (SRL) strategies. Each unit included learning objectives, guided activities, reflective tasks, and feedback components aligned with SDT, ARCS, and SRL principles, ensuring the systematic integration of motivational and strategic instruction.

Following the initial design, the module underwent expert validation. Content and instructional design experts evaluated the module using structured validation rubrics focusing on content relevance, clarity, feasibility, and contextual appropriateness. Their quantitative ratings and qualitative feedback informed subsequent revisions. Subsequently, the module was revised based on expert recommendations before being implemented in a real classroom setting over one academic semester.

The implementation phase served as field testing, during which students engaged with the module activities as part of their regular EFL instruction. User feedback, reflections, and survey data were collected to evaluate practicality and learning impact. To assess effectiveness, the study employed a pre- and post-intervention design measuring changes in students' motivational orientation and self-regulated learning behaviors. Quantitative survey data were complemented by qualitative reflections to provide deeper insights into students' experiences with the module.

Overall, the R&D design enabled iterative refinement and empirical validation of the MLSM in its authentic instructional context, ensuring that the developed product was pedagogically sound, contextually relevant, and practically feasible for regional higher education settings.

Participants

The study involved three participant groups. First, three experts in educational psychology, instructional design, and applied linguistics conducted content validation. The second category comprises 24 first-year undergraduates in the English Education Study Program (EFL major), representing the target users of the developed module. Additionally, six students voluntarily participated in reflective interviews to provide qualitative feedback. The participants were selected using purposive sampling to ensure representation across gender, socioeconomic background, and prior learning achievement. All participants provided informed consent, consistent with the ethical standards of the host institution and international research ethics guidelines (Jazadi, 2014).

Instruments

Multiple instruments were developed and validated to triangulate data from quantitative and qualitative sources.

The first instrument was a 30-item Motivation and Learning Strategies Scale (pre–post test) measuring students' motivation and strategy use before and after implementation. Each item was rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Items were adapted from established scales aligned with SDT and SRL constructs (Panadero, 2017; Pintrich, 2004). Both positively and negatively worded items were included; negatively worded items were reverse-scored before analysis to ensure validity. The instrument's reliability was established through pilot testing (Cronbach's $\alpha = .87$ for motivation; $\alpha = .84$ for strategy use), meeting acceptable internal consistency thresholds (Tavakol & Dennick, 2011).

Second, the validation rubrics were designed for both expert evaluators and student users. The expert rubric covered content accuracy, presentation, and language clarity. The student rubric focused on (1) practicality, (2) clarity, and (3) attractiveness. Each criterion used a 5-point scale, in accordance with standard validation practices in instructional design research (Dick et al., 2015). The mean scores were classified using the following criteria: 4.21–5.00 = Very feasible; 3.41–4.20 = Feasible (minor revision); 2.61–3.40 = Less feasible (major revision); ≤ 2.60 = Not feasible.

Finally, semi-structured interviews were conducted with 6–8 randomly selected students after the course. The questions explored participants' perceptions of learning motivation, strategy awareness, challenges, and module effectiveness. Interviews were transcribed, coded thematically, and analyzed using reflexive thematic analysis (Braun & Clarke, 2021).

Data Analysis

The data were analyzed quantitatively and qualitatively. The pre- and post–test data were analyzed using descriptive and inferential statistics. Descriptive statistics (mean, standard deviation, min–max) were computed for both motivation and learning strategy dimensions. The use of normalized gain (N-Gain) was not applied in this study because Likert-scale data are ordinal and do not meet the assumptions required for gain-based calculations. To test statistical significance, paired-samples t-tests were conducted to compare pre- and post-test mean scores, with significance set at $p < .05$. Effect sizes were calculated using Cohen's d to determine the magnitude of improvement (Cohen, 2013). Normality of pre- and post-test scores was assessed using the Shapiro–Wilk test, given the small sample size ($n = 24$). The Shapiro–Wilk test was selected because it is recommended for assessing normality in small samples ($n < 50$) (Razali & Wah, 2011; Shapiro & Wilk, 1965). Where normality assumptions were not met, non-parametric alternatives were considered. Therefore, the relationship between motivational improvement and conceptual achievement was analyzed using Spearman's rank correlation coefficient. For comparison, Pearson's correlation was also computed to examine the stability of the observed relationship.

Thematic data from expert and student comments and reflective interviews were analyzed inductively. Coding followed Braun and Clarke's (2021) six-step approach: familiarization, initial coding, searching for themes, reviewing themes, defining and naming themes, and reporting. A bilingual coding approach was used to capture both English and Indonesian expressions, with iterative refinement of emerging themes. To strengthen analytical rigor, codes were iteratively compared and refined through peer debriefing sessions. To ensure reliability, triangulation across data sources (expert comments, student reflections, validation notes, and open-ended survey responses) was conducted, enhancing interpretive validity (Creswell & Guetterman, 2024).

To enhance the trustworthiness of qualitative findings, both data and investigator triangulation were applied. Coded excerpts were reviewed by a second researcher for intercoder consistency**,** and representative summaries were shared with selected participants for member checking and confirmation of intended meanings**.** This step ensured the credibility, dependability, and confirmability of the thematic interpretations.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

Overview of Motivation and Learning Strategy Scores

Quantitative analysis was conducted on 24 first-semester students enrolled in the Motivation and Learning Strategies course at a regional university in Indonesia. The analysis aimed to examine changes in students' motivation and the use of learning strategies following the module's implementation. Data were collected through pre-test and post-test questionnaires using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Table 1 presents descriptive statistics for pre-test, post-test, and final test scores.

Table 1
Descriptive statistics of pre-test, post-test, and final test (n = 24)

No.	Variable	Mean	SD	Min	Max
1.	Pre-test score	4.01	0.44	2.57	4.71
2.	Post-test score	4.06	0.32	3.59	4.73
3.	Final test score	8.50	1.65	4.55	10.00

The mean pre-test score (M = 4.01, SD = 0.44) and post-test score (M = 4.06, SD = 0.32) indicate a minimal increase of 0.05 points. This small difference suggests limited measurable change in students' motivation and learning strategies over the intervention period. The conceptual final test mean was 8.50 (SD = 1.65). Figure 1 shows similar pre- and post-test means, indicating relatively consistent levels of motivation. While this pattern may suggest stability, it should be interpreted cautiously given the limited change observed.

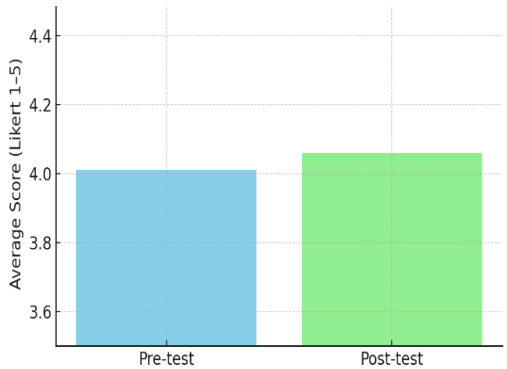

Figure 1. Comparison of mean pre-test and post-test scores

A paired-samples t-test was conducted to assess the significance of changes from pre-test to post-test scores. Results showed no statistically significant difference, $t(23) = 0.43$, $p = 0.67$, indicating that the intervention did not produce a statistically significant change in measured motivation and learning strategies.

Overall, the quantitative results indicate limited measurable change in motivation and learning strategies across the intervention period. These findings suggest that students' motivation levels remained relatively consistent, although no significant improvement was detected.

Validation Data Analysis

The validation process aimed to assess the academic, instructional, and linguistic feasibility of the motivation and learning strategies module (MLSM). Validation involved expert evaluators and student users. Each group rated items on a 5-point Likert scale (1 = strongly disagree/not feasible, 5 = strongly agree/highly feasible). The final scores were analyzed descriptively to assess overall feasibility and categorized according to Dick and Carey's (2015) material validation standards.

Table 2 summarizes expert validation results. The overall mean expert validation score was 4.66, categorized as highly feasible. Figure 2 presents a visual summary of expert validation ratings across the three assessed aspects. Content feasibility achieved the highest mean (M = 4.73), followed by presentation (M = 4.58) and language (M = 4.67). These results indicate strong perceived alignment with theoretical and instructional standards.

Table 2
Summary of expert validation scores by aspect

No.	Validation Aspect	Average Score	Feasibility Category
1.	Content Feasibility	4.73	Highly Feasible
2.	Presentation Feasibility	4.58	Highly Feasible
3.	Language and Academic Linguistic Feasibility	4.67	Highly Feasible
4.	Overall Average	4.66	Highly Feasible

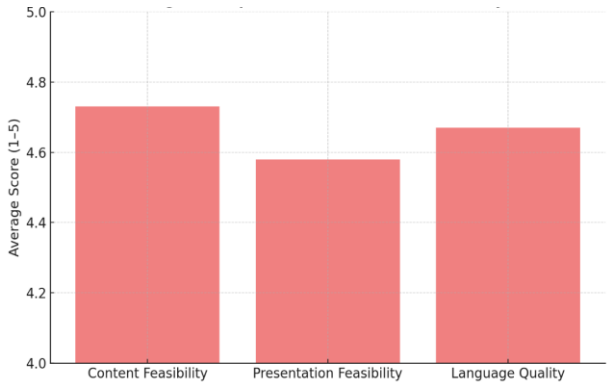

Figure 2. Expert validation ratings across aspects

Qualitative feedback from experts supported the quantitative validation results, highlighting the module's logical structure, contextual relevance, and balance between academic rigor and readability. Minor suggestions included adding a glossary for technical terms and integrating additional locally contextual examples.

Student validation results are summarized in Table 3, and Figure 3 provides a visual representation. The average student validation score was 4.47, categorized as highly feasible. Practicality obtained the highest mean score (M = 4.51), indicating that students perceived the

module as easy to use in both classroom and independent learning contexts. Clarity scored 4.44, suggesting that explanations and examples were generally understandable, including for students with lower English proficiency. Attractiveness scored 4.47, indicating that the design, visuals, and reflective activities were perceived as engaging and relevant.

Table 3
Summary of student validation scores by aspect

No.	User Validation Aspect	Average Score	Category
1.	Practicality of Use	4.51	Highly Feasible
2.	Clarity of Material and Guidance	4.44	Highly Feasible
3.	Visual Appeal and Relevance	4.47	Highly Feasible
4.	Overall Average	4.47	Highly Feasible

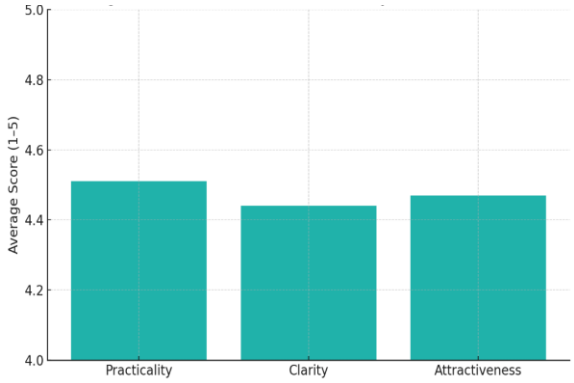

Figure 3. Student validation ratings across aspects

Students' qualitative comments provided additional support for these quantitative findings. The module improved their awareness of time management and independent learning. Students also noted that the language and examples were accessible and that the design encouraged greater participation in class activities. The combined validation mean for experts (4.66) and students (4.47) was 4.56, categorized as Highly Feasible (see Figure 4). Both groups rated the module consistently highly across all validation aspects, with experts emphasizing theoretical and linguistic accuracy and students highlighting practical usability and engagement. This convergence indicates that the module is perceived as both pedagogically sound and practically usable.

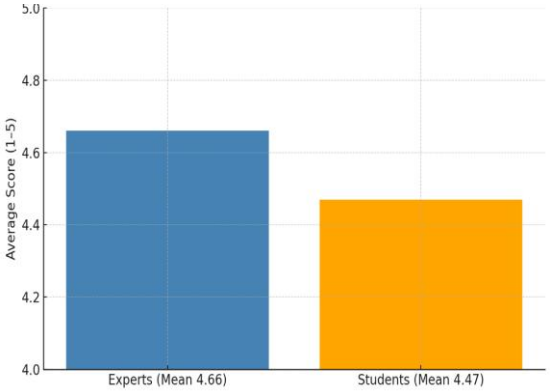

Figure 4. Comparison of expert and student validation results

Overall, expert and student evaluations consistently indicate high perceived feasibility across content, presentation, and usability dimensions. These findings suggest that the module is appropriate for classroom implementation, although further testing in broader contexts is needed to confirm its wider applicability.

Thematic Analysis

The qualitative phase of this study explored changes in motivational perceptions, awareness of self-regulated learning, and user experiences following the implementation of the Motivation and Learning Strategies Module (MLSM). Data sources included open-ended survey responses (pre- and post-course), expert and student validation comments, and reflective interviews conducted after the implementation phase. The analysis employed a bilingual coding process in which key phrases were identified, translated, and categorized into thematic patterns. Through iterative coding and cross-checking among the research team, seven dominant themes were identified: Awareness of Motivation, Self-Management and Learning Discipline, Confidence and Autonomy, Relevance to Life and Future, Emotional Engagement and Enjoyment, Barriers and Challenges, and Suggestions and Improvements. Table 4 presents the distribution of these themes across the four learning stages (Pre, Post, Validation, and Interview).

Table 4
Comparative thematic distribution per data source

No.	Theme	Pre	Post	Validation	Interview
1.	Awareness of Motivation	41	26	12	30
2.	Self-Management & Learning Discipline	5	11	10	10
3.	Confidence & Autonomy	4	6	5	7
4.	Relevance to Life and Future	7	9	18	23
5.	Emotional Engagement & Enjoyment	9	17	10	15
6.	Barriers and Challenges	34	10	20	10
7.	Suggestions and Improvements	0	3	25	5

As shown, students' early reflections in the pre-course phase were dominated by awareness of motivation (41%) and barriers and challenges (34%). These responses reflect initial uncertainty, limited language confidence, and reliance on external motivation. Several students described their experiences in similar ways:

"I feel nervous speaking English because I don't know if my grammar is right."

"Sometimes I want to study, but I don't know how to start or what strategy to use."

During the post-course stage, there was a marked shift in thematic prominence. Emotional engagement and enjoyment (17%) and self-management and learning discipline (11%) became more frequent, indicating increased awareness of time management, participation, and self-monitoring strategies. Representative excerpts include:

"I learned to make my own schedule for English practice."

"The group activities helped me enjoy learning more, not just worry about grades."

While the quantitative findings indicated limited measurable change, these qualitative patterns suggest perceived development in students' engagement and self-regulatory awareness.

The validation phase brought a different perspective, combining positive evaluations with constructive suggestions. Experts emphasized the module's contextual fit and design clarity, while students focused on its accessibility and real-life relevance. Feedback also highlighted

areas for improvement, including enhancing interactivity and simplifying language to improve usability. Selected validation remarks include:

> "The module's structure is clear, but some tasks could include more local examples to make it relatable." (Expert validator)
>
> "The bilingual instructions really help, especially for students who are still adjusting to English-only classes." (Student validator)

In the final stage, reflective interviews revealed deeper self-awareness and future orientation. Students described a shift from primarily instrumental to more personally meaningful motivations, recognizing English learning as a personal and professional necessity. The most salient themes were awareness of motivation (30%) and relevance to life and future (23%). Illustrative comments include:

> "At first, I studied English just to pass the course, but now I want to improve for my future job."
>
> "I realize English is important not only for exams but also to connect with people and express my ideas."
>
> "This module made me think about why I learn, not only what I learn."

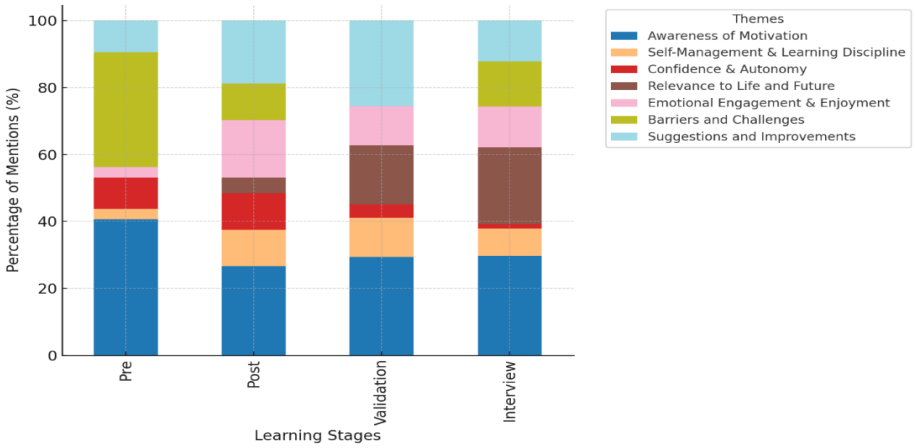

Figure 5. Evolution for Themes across Learning Stages

The overall progression of these themes (see Figure 5) suggests a shift from problem-focused reflections toward greater awareness and engagement. However, these changes should be interpreted cautiously, as they reflect self-reported perceptions rather than statistically significant quantitative improvements.

Discussion

The present study aimed to develop, validate, and evaluate a Motivation and Learning Strategies Module (MLSM) for first-year EFL students at a regional Indonesian university by integrating principles from Self-Determination Theory (SDT), the ARCS Model, and Self-Regulated Learning (SRL). Quantitative findings revealed no statistically significant difference between pre-test and post-test motivation scores, indicating limited measurable change in students' motivation and learning strategy use following the implementation of the module. Although students' motivation levels remained relatively high throughout the intervention period, these findings should be interpreted cautiously, particularly within regional and low-resource contexts where access to academic support, technological resources, and motivational scaffolding is often limited. Rather than demonstrating substantial improvement, the findings suggest that the module may have helped maintain students' motivation during their transition into more autonomous learning environments.

The qualitative findings complemented the quantitative results by revealing perceived changes in students' reflective awareness, enjoyment, and self-regulated learning practices.

Students reported greater awareness of time management, learning discipline, and personal learning goals after participating in the course. These findings suggest that the module may have supported the development of reflective and self-regulatory learning processes, even though these changes were not strongly reflected in the quantitative measures. From a design and development perspective, the findings further indicate that iterative processes of contextual adaptation, validation, and implementation can produce pedagogically feasible instructional materials. The high validation scores from both expert evaluators and student users support the principles of instructional design that emphasize ecological validity and iterative refinement within authentic learning contexts (Barrett et al., 2022; Dick et al., 2015). This suggests that contextually grounded instructional design may help bridge theoretical frameworks and classroom practice in resource-constrained EFL settings.

From the perspective of Self-Determination Theory, the relatively stable motivation levels may reflect the maintenance of autonomy, competence, and relatedness rather than substantial motivational growth (Ryan & Deci, 2020). However, this interpretation should be approached with caution, as the absence of statistically significant gains does not necessarily indicate a strong intervention effect. Nevertheless, students' reflective responses suggest emerging developments in self-management, time discipline, and learning awareness. The reflective journaling, goal-setting, and self-evaluation activities embedded within the module may have facilitated metacognitive regulation processes, which are central to self-regulated learning theory (Panadero, 2017; Zimmerman, 2000). These findings support the view that motivational and self-regulatory processes operate interactively, particularly in learning environments that encourage reflection and learner autonomy.

This study also contributes to motivational learning research by demonstrating the potential integration of SDT, ARCS, and SRL within a contextually responsive instructional framework. Previous studies have largely examined these frameworks separately or within digitally intensive and urban educational settings (Ma & Chen, 2025; Song & Lai, 2024). In contrast, the present study implemented the integrated framework in a regional and resource-limited higher education context. Although the measurable impact remained limited, the findings suggest that such integration may support students' reflective awareness and self-management practices under contextual constraints. The high validation scores from experts and students (M = 4.56 overall) further indicate that the MLSM achieved both pedagogical feasibility and theoretical alignment. These findings are consistent with previous studies reporting that culturally contextualized instructional materials can enhance learner engagement and autonomy in Indonesian EFL settings (Asi et al., 2022; Evenddy et al., 2024).

The divergence between the quantitative and qualitative findings should also be considered carefully. While the quantitative analysis showed relatively stable motivation scores, qualitative responses indicated perceived improvements in engagement, self-awareness, and learning discipline. This pattern suggests that some learning changes may have occurred at reflective or perceptual levels that were not fully captured through short-term quantitative measurement. Similar findings have been reported in previous research, indicating that the development of self-regulated learning processes does not always correspond directly with immediate performance outcomes (Zhang & Zou, 2024). It is therefore possible that the MLSM functions more effectively as a supportive tool for promoting early reflective and self-regulatory awareness rather than producing immediate measurable changes in motivation.

From a practical perspective, the MLSM provides a structured framework for integrating motivational support and learning-strategy instruction into EFL classrooms. Its modular structure allows adaptation across different instructional settings, including teacher-led, blended, and low-resource learning environments. The inclusion of localized content and contextualized activities may help students connect learning tasks with their lived experiences, thereby supporting engagement and participation without requiring substantial curricular

redesign (Amalo & Petraki, 2024; Renandya & Widodo, 2016). At the same time, the findings suggest that the impact of such interventions is likely gradual and context-dependent, requiring sustained implementation and active teacher facilitation to support long-term motivational and self-regulatory development.

The integration of SDT, ARCS, and SRL can therefore be understood as a complementary instructional framework in which psychological needs, motivational design, and strategic learning processes interact to support learner engagement. Within this framework, ARCS contributes instructional structure, SDT supports psychological engagement, and SRL facilitates strategic and reflective learning processes. Together, these elements may encourage greater learner autonomy and engagement, particularly in resource-limited EFL contexts (Khabar et al., 2025; Teng, 2024). However, the extent to which these processes translate into measurable outcomes may depend on contextual, instructional, and implementation-related factors.

Nevertheless, this study has several limitations. The relatively small sample size (n = 24) and the single-institution setting limit the generalizability of the findings. In addition, the use of self-report instruments may not fully capture subtle or long-term changes in motivation and in the use of learning strategies. Future studies should involve larger participant groups, multi-site implementation, and longitudinal designs to examine the sustainability of motivational and self-regulatory development over time. The use of complementary data sources, such as learning analytics, classroom observation, or reflective portfolios, may also provide richer insights into the interaction between motivation and self-regulated learning processes. This study highlights the potential of integrating SDT, ARCS, and SRL principles within a contextualized instructional framework for EFL higher education. Although the findings indicate limited measurable improvement in motivation scores, the MLSM was perceived as pedagogically feasible and supportive of students' reflective awareness and self-regulated learning practices. Therefore, the module should be understood as a supportive and context-sensitive instructional tool rather than a definitive solution for improving motivation and self-regulated learning in EFL contexts.

CONCLUSION

This study developed and validated a Motivation and Learning Strategies Module (MLSM) integrating Self-Determination Theory (SDT), the ARCS model, and Self-Regulated Learning (SRL) principles for use in a regional Indonesian EFL higher education context.. Using a mixed-method validation design that combined expert review, student evaluation, and pre–post quantitative analysis, the research indicated the module's high pedagogical feasibility, theoretical alignment, and contextual relevance.

Quantitative findings showed no statistically significant improvement in students' motivation and learning strategies, suggesting limited measurable change over the intervention period. In contrast, qualitative findings indicated perceived improvements in learners' self-awareness, engagement, and use of learning strategies. Taken together, these results suggest that the module may support reflective and self-regulatory processes, although its measurable impact remains limited.

Theoretically, this study suggests that integrating SDT, ARCS, and SRL can provide a coherent framework to support motivation and self-regulated learning in context-sensitive instructional design. Pedagogically, the module offers a practical approach for incorporating goal-setting, reflective activities, and structured motivational support into EFL instruction, particularly for first-year students in low-resource contexts. However, its use should be viewed as a supportive tool rather than a guaranteed means of improving measurable outcomes.

Several limitations should be acknowledged. The small sample size (n = 24), the absence of a control group, and the reliance on self-report measures limit the generalizability and

sensitivity of the findings. Future research should involve larger and more diverse samples, incorporate control or comparison groups, and adopt longitudinal designs to examine how motivational and self-regulated learning processes develop over time. Further studies may also explore alternative measurement approaches, such as behavioral or performance-based indicators, to better capture changes in motivation and learning strategies. Overall, the MLSM represents a contextually grounded instructional resource that may support student engagement and reflective learning, particularly when implemented over sustained periods and adapted to local educational needs.

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INFORMED CONSENT STATEMENT
Participation in this study was voluntary. Prior to participation, all participants were provided with clear information regarding the study's objectives, procedures, potential risks, and anticipated benefits. Participants were assured of the confidentiality of their personal information and informed that all data collected would be used solely for research purposes. They were also informed of their right to withdraw from the study at any time without penalty. Informed consent was obtained from all participants prior to data collection.

DATA AVAILABILITY STATEMENT
The data generated and analyzed in this study are not publicly available because they contain information that could compromise participant privacy and confidentiality. Restricting public access ensures compliance with ethical research principles and applicable data protection regulations. Nevertheless, the dataset may be made available to qualified researchers upon reasonable request for verification or further analysis. Any such request will be reviewed on a case-by-case basis and will require prior approval from the appropriate institutional ethics authority.

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