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VALIDATION OF THE ADAPTED MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE (MSLQ) FOR ONLINE LEARNING: INSIGHTS FROM EXPERTS REVIEWS

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Abstract:

Adapting Adapting the Motivated Strategies for Learning Questionnaire (MSLQ) for online learning environments is essential to ensure its relevance and accuracy in assessing students' motivation and self-regulated learning (SRL) strategies in digital contexts. The MSLQ has been widely used in traditional learning settings. However, the rapid growth of online education necessitates its contextual refinement. The main objective of this study was to adapt and validate the MSLQ to suit online learning environments, ensuring that its terminology, structure, and constructs accurately reflect the digital learning experience. This study employed a three-phase expert validation process involving content analysis to adapt the MSLQ. Three experts in Information Technology, Language Education, and Content Creator were engaged to review and evaluate the modified questionnaire. The phases included preparation of the adapted instrument, evaluation through expert discussions, and implementation of feedback. Key constructs such as "class," "teacher," and "discussion" were modified to reflect online learning terminology (e.g., "learning management system," "instructor," "forum"), and each modification was reviewed for contextual appropriateness. The results revealed significant consensus among experts on the importance of using context-specific terminology and providing clear operational definitions to ensure the instrument's clarity and applicability. However, some terms, such as "online readings" and "online discussion," prompted critical feedback,

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highlighting the balance needed between specificity and generalizability. Final adaptations were made based on expert input, resulting in a more refined and validated MSLQ suited for online learning contexts. The refined MSLQ offers a practical and contextually appropriate tool for assessing SRL and motivation in online settings, with future studies recommended to expand expert involvement and conduct longitudinal testing to strengthen its predictive value and generalizability.

Keywords:

Online Learning Environments, Motivated Strategies for Learning Questionnaire (MSLQ), Expert Validation, Self-regulated Learning, Digital Education

Introduction

Adapting the Motivated Strategies for Learning Questionnaire (MSLQ) for online learning environments is a complex task that necessitates a deep understanding of the questionnaire's components and their effective translation into the digital realm. The MSLQ, developed by Pintrich and colleagues, is a well-established tool designed to evaluate students' motivation and self-regulated learning strategies (Credé & Phillips, 2011). It comprises various subscales that explore different facets of learning, including motivation, cognitive strategies, and metacognitive strategies. When adapting the MSLQ for online learning, it is crucial to consider how these subscales can be applied and understood within the context of virtual education.

An essential consideration in this adaptation process is students' self-regulated learning (SRL) and self-efficacy toward online learning, as emphasized in a study by (Omar et al., 2021). This study highlights the importance of comprehending how students regulate their learning in an online setting and their confidence in succeeding in such an environment, which is vital for tailoring the MSLQ to effectively capture these dimensions. Additionally, research by (Di et al., 2022) stresses the significance of metacognitive strategies and self-efficacy concerning academic achievements, indicating their substantial impact on students' learning outcomes in online environments. Moreover, (Wang et al., 2022) emphasize the importance of adapting and validating instruments like the MSLQ in diverse cultural contexts, such as the Chinese educational setting. This highlights the necessity of considering cultural nuances and specificities when modifying the questionnaire for online learning environments in various cultural settings. Additionally, the work by (Ramírez et al., 2022) on adapting the MSLQ to the Spanish university context and analyzing gender differences in self-regulated learning provides insights into tailoring the questionnaire to specific educational contexts and student demographics.

In the realm of online collaborative learning, (Jeremić et al., 2012) emphasize the use of the MSLQ to measure students' motivational orientations and learning strategies, indicating its relevance in assessing collaborative learning dynamics in virtual settings. Furthermore, (Vliet et al., 2015) highlight how flipped-class pedagogy enhances student metacognition and collaborative learning strategies, showcasing the MSLQ's potential to capture the impact of innovative teaching approaches on students' learning behaviors in online environments. This paper aims to thoroughly explore how the MSLQ can be adapted for online learning with expert validation. By combining insights from different studies and expert input, seeks to make the MSLQ more effective in understanding how students learn and engage in digital education.

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Through careful methods and discussions, the goal is to improve assessment tools for online learning, leading to better educational practices and outcomes.

Literature Review

In adapting and rephrasing the Motivated Strategies for Learning Questionnaire (MSLQ) content to suit online learning environments, it is crucial to consider various factors that influence self-regulated learning (SRL) and student engagement in digital educational settings. The MSLQ, a well-established tool for assessing students' motivational orientations and learning strategies, can be tailored to better align with the unique demands and dynamics of online learning platforms (Soemantri et al., 2018). Online learning environments present distinct challenges and opportunities compared to traditional face-to-face settings, necessitating a nuanced approach to measuring and enhancing students' self-regulated learning behaviors (Clayton et al., 2010). One key aspect to consider when adapting the MSLQ for online learning is the impact of self-assessment on self-regulated learning and self-efficacy. Research has shown that self-assessment can significantly influence students' self-regulatory processes and beliefs in online educational contexts (Panadero et al., 2017). By incorporating elements of self-assessment within the MSLQ framework, educators can promote a more reflective and proactive approach to learning among online learners, fostering a deeper sense of self-efficacy and motivation. Moreover, the relationship between motivation, learning strategies, and the choice of learning environment (traditional vs. online) highlights the importance of aligning assessment tools like the MSLQ with the specific context in which they are used (Clayton et al., 2010). Adapting the MSLQ to capture the nuances of online learning modalities can provide valuable insights into how students navigate digital platforms, engage with course materials, and interact with instructors and peers in virtual settings.

In online learning environments, the concept of social presence plays a significant role in shaping students' learning experiences and outcomes (Kehrwald, 2008). Understanding how to cultivate social presence in digital spaces is essential for promoting a sense of community and connectedness among online learners, which can positively impact their motivation and engagement. By integrating measures of social presence within the MSLQ framework, educators can assess the extent to which students feel connected and supported in online learning environments. Furthermore, the challenges and benefits of learning English in the 21st century, particularly online, highlight the importance of creating a motivating learning environment that fosters critical thinking, analytical skills, and social interaction (Krishan et al., 2020). By incorporating elements that promote language learning and communication skills within the MSLQ, educators can tailor assessments to address the specific needs of language learners in online contexts, enhancing their overall learning experience. Instructional support and learner-instructor interaction are critical factors influencing perceived learning outcomes in online learning environments (Kang & Im, 2013). By including measures of instructional support and interaction quality within the MSLQ, educators can gain insights into how these factors impact students' engagement, motivation, and self-regulated learning behaviors in digital educational settings. The development of tools like the Online Self-Regulated Learning Questionnaire (OSLQ) highlights the growing need for specialized instruments that assess self-regulated learning strategies in online and blended learning environments (Araka et al., 2020). By integrating components of the OSLQ with the MSLQ, educators can create a comprehensive assessment tool that captures the unique aspects of self-regulated learning in digital contexts, providing a more holistic view of students' learning processes and outcomes.

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Incorporating elements of social learning environments into online learning can help mitigate feelings of isolation and enhance students' sense of connection and engagement (Raspopović et al., 2017). By adapting the MSLQ to include social learning and collaboration measures, educators can better understand how social interactions influence students' motivation, self-regulated learning, and overall academic performance online. The psychometric properties of the MSLQ make it a valuable instrument for assessing self-regulated learning strategies in various educational contexts, including adult distance education in China (Ying & Wang, 2021). By validating and adapting the MSLQ for specific cultural and educational settings, educators can ensure that the questionnaire remains relevant and effective in capturing students' motivational orientations and learning behaviours in diverse online learning environments. Moreover, the impact of persuasive SMS on students' self-regulated learning highlights the potential for integrating technology-driven interventions to enhance students' motivation and engagement in online learning (Goh et al., 2011). By incorporating elements of technology-mediated support within the MSLQ framework, educators can explore innovative ways to promote self-regulated learning behaviours and academic success in digital educational settings. In conclusion, adapting and rephrasing the Motivated Strategies for Learning Questionnaire (MSLQ) content to suit online learning environments requires a nuanced understanding of digital educational platforms' unique challenges and opportunities. By integrating insights from research on self-regulated learning, social presence, instructional support, and technology-mediated interventions, educators can tailor the MSLQ to effectively assess and enhance students' motivation, self-regulated learning strategies, and overall academic success in online settings.

Methodology

The validation process for the Motivated Strategies for Learning Questionnaire (MSLQ), which influences students' learning experiences, involved three experts. These experts are in the fields of Information Technology, Language, and Education. One of the experts was a senior lecturer at the Research Center for Human-Technology Learning Interaction. His research interests include E-learning Technology and Multimedia Applications. Another expert was an Associate Professor at the Center for Teaching and Learning Innovation, specializing in sustainable learning strategies for English as a Second Language and the last expert is a senior lecturer at the STEM Education Center specializing in young adult education. The expertise and scholarly contributions of these selected experts are closely related to the research study. Therefore, their validation and perspectives are highly valuable in the development of an accurate and reliable instrument. Table 1 shows the experts' profile.

Table 1: Experts Profile

No	Position	Affiliated Institution	Field of Expertise	Research Interest
1.	Senior Lecturer	Research Center for Human-Technology Learning Interaction	Information Technology	E-learning Technology, Multimedia Applications
2.	Associate Professor	Center for Teaching and Learning Innovation	Language (TESL)	Sustainable learning strategies for ESL
3.	Senior Lecturer	STEM Education Center	Education (Young Adult Education)	STEM Education, Young Adult Learning

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Validating the MSLQ involves three phases, which include the content analysis method. Content analysis is a fundamental qualitative research method that systematically analyzes text data to identify patterns, themes, and meanings (Shelley & Krippendorff, 1984). Figure 1 shows the overall process of expert validation in this study.

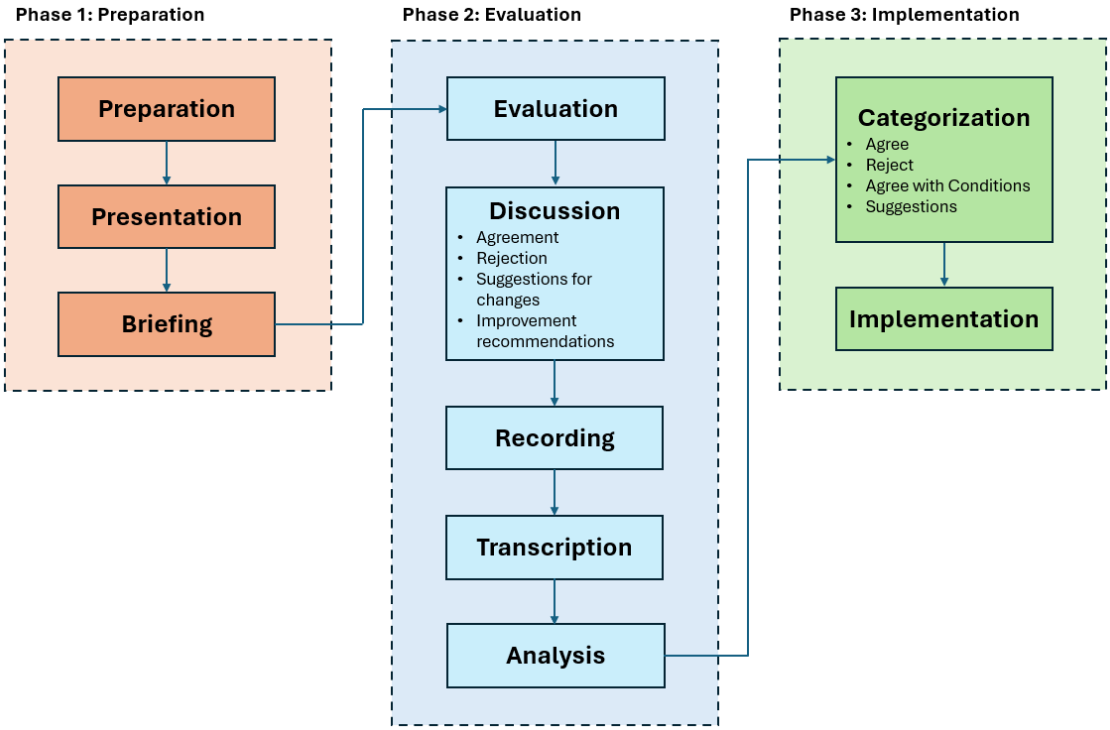

Figure 1: The Overall Process of The Expert Validation

Phase 1: Preparation

In the preparation phase, the researcher prepares the modified Motivated Strategies for Learning Questionnaire (MSLQ) instrument, revising the original to suit online learning environments' specific contexts and requirements. Following the preparation, the researcher presents the modified MSLQ to experts. These experts are carefully briefed on the instrument, ensuring they fully understand its structure, purpose, and intended modifications. This briefing sets the stage for a thorough evaluation and provides the experts with the necessary context to assess the instrument effectively.

Phase 2: Evaluation

The Evaluation Phase involves the experts' detailed assessment of the modified MSLQ. The experts evaluate the instrument's impact on learning experiences and the principles of persuasion incorporated within it. This phase includes a discussion session where the experts express their responses to each instrument component. They may show agreement or rejection or offer suggestions for changes and improvement recommendations. All feedback and discussions during this phase are meticulously recorded to ensure no valuable input is lost. Subsequently, these audio recordings are transcribed into text, considering voice intonation and emphasis, to capture the nuances of the experts' feedback accurately.

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Phase 3: Implementation

In the Implementation Phase, the transcribed feedback is categorized into four distinct response types: agreement, rejection, agreement with conditions, and suggestions. Table 2 summarizes the expert feedback categories used in the study. This categorization helps in systematically addressing each type of feedback. The researcher then integrates this expert feedback into the MSLQ instrument. Agreements indicate parts of the instrument that are validated as effective, rejections highlight areas needing reconsideration or removal, conditional agreements point to aspects that require modifications based on certain conditions, and suggestions provide new ideas for enhancement. This structured approach ensures that the final instrument is accurate, reliable, and well-suited for assessing motivated strategies in online learning environments.

Table 2: Feedback Categories Used in The Study

Feedback Categories	Interpretation
Agree	Positive feedback indicates that the expert agrees with the information presented without needing any changes.
Reject	Negative feedback indicates that the expert disagrees and rejects the information presented without needing any changes.
Agree with conditions	Positive feedback indicates that the expert agrees but provides additional comments.
Suggestions	New suggestions need to be added to the existing information.

Result and Discussion

The expert feedback on the modified Motivated Strategies for Learning Questionnaire (MSLQ) offers invaluable insights into the refinement of this instrument for its application in online learning environments. With the rise of digital education platforms and the increasing prevalence of remote learning, the need for tailored assessment tools that accurately capture the nuances of online learning experiences has become paramount. The contributions from three domain experts stress the significance of context-specific terminology, operational definitions, and the accurate portrayal of academic realities within the MSLQ framework. Table 3 shows the summary of experts' feedback.

Table 3: Summary of Experts' Feedback

Original Term	Modified Term	Expert Response	Result
Class	Online class environment	**Expert 1:** *"This term is okay, but if you're using UKMFolio as a case study, the Learning Management System term might be more appropriate."*	**Agree with conditions** If UKMFolio is used as the e-learning platform, it is more appropriate to replace "Class" with "Learning Management System" to accurately describe its role and functionality.
		Expert 2: *"You can use 'Online Learning Management' but include an*	**Agree with conditions** Need to include an operational definition that not only refers to UKMFolio but also considers

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		operational definition that OLM refers to all online learning."	WhatsApp/Zoom/Email/MSTeam applications. The sample data should include online learning.
		Expert 3: *"This is okay."*	**Agree**
Class	Online class	**Expert 1:** *"Ok"*	**Agree**
		Expert 2: *"This seems confusing with an online course."*	**Reject** Need to differentiate between "online class" and "online course". Expert 2 recommends using the more general term "online course".
		Expert 3: *"Better to use one term, online course, but if questions relate to within-class situations, an online class is also suitable."*	**Agree with conditions** Using both terms online class and online course is confusing. Expert 3 suggests using the "online course" term. However, if questions focus on within-class situations, "online class" is more suitable.
Teacher	Instructor	**Expert 1:** *"Can"*	**Agree**
		Expert 2: *"Correct"*	**Agree**
		Expert 3: *"Yes, can"*	**Agree**
Class notes	Notes	**Expert 1:** *"This is okay"*	**Agree**
		Expert 2: *"Can"*	**Agree**
		Expert 3: *"Yes, correct"*	**Agree**
Lectures	Online lectures	**Expert 1:** *"This is also okay"*	**Agree**
		Expert 2: *"No problem"*	**Agree**
		Expert 3: *"Ok"*	**Agree**
Readings	Online readings	**Expert 1:** *"Wrong. Students can access various reading materials, such as in the library."*	**Reject** Retain the term 'Readings'. Although the class is conducted online, it does not necessarily imply that students cannot access reading

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			materials from alternative sources.
		Expert 2: *"Ok"*	**Agree**
		Expert 3: *"Can"*	**Agree**
Discussion	Online discussion	**Expert 1:** *"Can."*	**Agree**
		Expert 2: *"No problem"*	**Agree**
		Expert 3: *"This term is not okay. Look back at UKMFolio; we use the term forum."*	**Reject** Expert 3 recommends using the term "forum" instead of "online discussion" because students are already familiar with this term in UKMFolio, which might reduce confusion among them.

The expert feedback received during the validation process greatly enhanced the adaptation of the Motivated Strategies for Learning Questionnaire (MSLQ) for online learning environments. Each expert provided critical insights, underscoring the necessity of context-specific adjustments to ensure the instrument's accuracy and effectiveness. This feedback is instrumental in highlighting areas where the MSLQ can be improved to better capture the nuances of online learning.

The first expert, a Senior Lecturer at the Research Center for Human-Technology Learning Interaction with expertise in Information Technology, emphasized the importance of aligning course selection with students' academic backgrounds. This recommendation is pivotal because it acknowledges the diversity of online courses and the need for precise terminology. By suggesting using "Learning Management System" instead of "Online Learning Environment" when referring to UKMFolio, the expert emphasizes the necessity of using terms that accurately reflect the digital tools students interact with. However, while this suggestion enhances clarity for users of UKMFolio, it may limit the questionnaire's applicability across other platforms if not generalized appropriately.

The second expert, an Associate Professor at the Center for Teaching and Learning Innovation specializing in Language (TESL), focused on clarifying terminology within the MSLQ. Her expertise in language education and learning strategies is evident in her recommendation to distinguish between "Online Class" and "Online Course." The preference for "Online Course" for its broader and more inclusive connotation is well-founded, given the varied nature of online learning experiences. Additionally, her suggestion to provide operational definitions for terms like "appropriate ways" by offering alternatives such as "if I study more strategically" enhances the instrument's clarity. This focus on precise language is crucial for ensuring that students fully understand the questionnaire items. Nonetheless, overly specific definitions might not encompass all student experiences, which could impact the generalizability of the instrument.

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The third expert, a Senior Lecturer at the STEM Education Center specializing in Young Adult Education, provided practical recommendations regarding course assignments. Her observation that most assignments are predetermined by educational institutions and not optional is a critical insight that aligns the questionnaire with the reality of online learning environments. This suggestion to modify questions to reflect this reality ensures the MSLQ accurately represents students' experiences. Furthermore, her recommendation to use the term "forum" instead of "digital discussion" is practical, considering students' familiarity with this term in UKMFolio. While this enhances usability within this specific context, it may again limit the questionnaire's broader applicability if not carefully managed.

In conclusion, the expert feedback provided a comprehensive evaluation of the modified MSLQ, emphasizing the importance of context-specific terminology, clear operational definitions, and an accurate reflection of assignment structures in online learning environments. Implementing these suggestions will undoubtedly enhance the MSLQ's accuracy, relevance, and usability, making it a more effective tool for assessing motivated strategies in online learning contexts. However, the critical discussion also underscores potential challenges in balancing specificity with generalizability. Ensuring that the MSLQ remains broadly applicable while incorporating context-specific insights is a delicate task that requires ongoing refinement and validation across diverse online learning environments. The selected experts' diverse expertise and scholarly contributions ensured a well-rounded validation process, significantly improving the MSLQ's adaptation to online learning settings. However, further research and testing across different platforms and student demographics will be essential to confirm the instrument's robustness and versatility in varied educational contexts.

For the final summary, the validation process with experts began by identifying key terms relevant to learning environments. Next, these terms were modified to fit the context of online learning. Experts then reviewed the modified terms and provided feedback on their appropriateness. Based on this feedback, further refinements were made to ensure clarity and relevance. The table below summarizes the original terms, their modified versions, expert responses, and the final decisions.

Table 4: Result Analysis Summary

Original Term	Modified Term	Expert 1 Response	Expert 2 Response	Expert 3 Response	Final Decision
Class	Online class environment	Agree with conditions	Agree with conditions	Agree	If using UKMFolio, replace "Class" with "Learning Management System" and include an operational definition.
Class	Online class	Agree	Reject	Agree with conditions	Use "online course" or "online class" depending on the context.
Teacher	Instructor	Agree	Agree	Agree	Use "Instructor".

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Class notes	Notes	Agree	Agree	Agree	Use "Notes".
Lectures	Online lectures	Agree	Agree	Agree	Use "Online lectures".
Readings	Online readings	Reject	Agree	Agree	Retain "Readings".
Discussion	Online discussion	Agree	Agree	Reject	Use "forum" in the context of UKMFolio.

Conclusion

The validation process of the Motivated Strategies for Learning Questionnaire (MSLQ), involving three experts from diverse fields, has provided valuable insights into refining this instrument for application in online learning environments. The feedback and recommendations offered by these experts emphasize the importance of context-specific terminology, clear operational definitions, and an accurate portrayal of academic realities within the MSLQ framework. The experts' emphasis on selecting appropriate terminology and providing clear definitions reflects a deep understanding of the multifaceted nature of online learning environments. By implementing these insights, the MSLQ can be refined to better capture students' nuanced experiences in online learning contexts, thereby improving its utility for assessing and enhancing motivated learning strategies. This critical discussion highlights the importance of expert validation in developing educational instruments that accurately reflect the complexities of contemporary learning environments, ensuring they are both practical and effective for their intended purpose.

Future studies could further enhance the MSLQ by incorporating additional feedback from a larger and more diverse group of experts. This could include psychology, educational technology, and instructional design experts, providing a broader range of perspectives on refining the questionnaire for online learning environments. Additionally, longitudinal studies could be conducted to evaluate the effectiveness of the refined MSLQ in predicting academic outcomes and informing instructional interventions in online education. By continually refining and validating the MSLQ in collaboration with experts and stakeholders, researchers can ensure that it remains a valuable tool for assessing and enhancing motivated learning strategies in the evolving landscape of digital education.

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