Factors contributing to students' satisfaction in online learning: A proposed framework for CLIL classes

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ABSTRACT

This research explores the factors contributing to students' satisfaction in online learning, particularly in Content and Language Integrated Learning (CLIL) classes. Through a literature review, three primary factors were identified as crucial determinants of student satisfaction: online self-efficacy, self-regulated learning, and online interaction. Online self-efficacy encompasses students' confidence in their abilities to complete online courses, communicate with peers and instructors, and manage course technologies. Self-regulated learning strategies, such as strategic planning, time management, and help-seeking, positively influence both student satisfaction and academic achievement. The quality and type of online interactions, including teacher-student, student-student, and student-content interactions, significantly impact satisfaction levels. The findings suggest that effective online learning environments should foster student engagement through quality interactions, provide adequate technological support, and promote self-directed learning strategies. The research also highlights the importance of classroom climate and online learning in enhancing student satisfaction. Educational institutions should prioritize enhancing the quality of online interactions, training educators in effective online teaching practices, and expanding technological resources to better meet student needs. Future research should employ mixed methods to gain deeper insights into student experiences and satisfaction, contributing to a comprehensive understanding of online learning dynamics.

Keywords: Student Satisfaction; Online Self-Efficacy; Self-Regulated Learning; Online Interaction; CLIL Classes.

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INTRODUCTION

Online learning provides flexibility for both teachers and students because it can be done at any time and from anywhere. It became more approachable in terms of technology, finances, and operational efficiency as information and communication technologies have continued to progress. Despite all of the obstacles have been encountered, online learning is anticipated to be the most favoured learning option by 2025 (Dinh & Nguyen, 2022; Palvia et al., 2018). Application of online learning technology not only enhances teaching and learning efficiency but also compensates for weaknesses in traditional education. In other words, online learning offers pupils with a conducive environment for learning. It provides repeated exposure to learning activities at the student's own tempo and is not confined to physical classrooms. Individualized learning enables pupils to change from passive acquiescence to more active

self-directed learning (Shih et al., 2013). Current research has examined the adoption of online learning in EFL contexts. Take an example, during the last Covid-19 outbreaks, a huge research development was explored on the implementation of force online learning in various EFL classes (Al-Amin et al., 2021; Dewi, 2021; Irfan et al., 2020; Lei & So, 2021; ÖZIŞIK, 2021; Reguera & Lopez, 2021; Teng et al., 2023; Toquero, 2020).

To have an effective online learning in EFL context, teachers need to take into consideration a number of critical needs, including the following: developing appropriate instructional materials, maximizing the benefits of learning, inspiring students to learn, assisting students with their questions, and educating students to become independent learners for a lifetime learning (Alkodimi & Al-Ahdal, 2022). To be independent learners, learning a new language involves a variety of complicated mental processes, such as aptitude, self-confidence, self-efficacy, variable levels of motivation, various cognitive strategies adopted by learners, and a great lot of other elements (Basereh & Pishkar, 2016). Specifically, when the teaching and learning process was structured in an online CLIL-oriented classes, the problems might become twice for students since the learning objectives were both language acquisition and subject learning. CLIL, or Content and Language Integrated Learning, refers to an umbrella word that encompasses the process of learning a content-based subject through the medium of a foreign language as well as the process of learning a foreign language by studying a content- based subject (Coyle et al., 2010; Mehisto et al., 2008). Students are able to acquire not just a second language or foreign language but also knowledge on a subject that is completely new to them through the adoption of CLIL.

The study examines the implementation and outcomes of online CLIL-oriented classes for Medical School students, as reported in previous studies. They were requested to study both English and content knowledge in their lectures using an online platform such as e-learning (MOODLE), Zoom meeting and WhatsApp group. The courses were offered synchronously (using video conference) and asynchronously (using e-learning platform). While some of the studies on online learning focused on the establishment of a technology acceptance model (Alfadda & Mahdi, 2021; Haghighi et al., 2019) others focused on online learning satisfaction, a significant component that defines the success or failure of online programs notably for online language acquisition. This focus on satisfaction is supported by the findings of Alqurashi (2019), Bodnar et al. (2016) and Estelami (2012). They stated that learner satisfaction is one of the key drivers of the success of online learning deployment. Many research revealed some elements associated to student satisfaction. Elshami et al. (2021) revealed that communication and flexibility were considered as the most essential variables in students' general satisfaction. Meanwhile, concerns with technology prompted a reduction in the amount of satisfaction felt by students. According to the findings of Baber (2020), the factors include interaction in the classroom, student motivation, course structure, instructor knowledge, and facilitation are having a beneficial influence on the perceived learning outcome of students as well as student satisfaction. Previously, Kuo et al. (2014) evaluated indicators of student satisfaction in online education courses, including interaction, internet self-efficacy, and self- managed learning. Learner–instructor contact as well as learner–content was proven to be a major predictor of total student satisfaction. Internet self-efficacy and self-regulated learning were not a significant indicator for student satisfaction. In the same topic, Alqurashi (2019) studied how elements such as learner–content interaction (LCI), learner–instructor interaction (LII), learner–learner interaction (LLI), and online learning self-efficacy (OLSE) can influence a student's degree of satisfaction and perceived learning. According to the findings of the research, OLSE was the strongest and most important predictor of perceived learning, whereas LCI was revealed to be the strongest and most significant predictor of student satisfaction. Based on that previous research, evaluating several factors to connect student satisfaction in online learning environment.

Surprisingly, few studies deal with online CLIL-oriented classes in EFL settings, especially in higher education in Indonesia. Therefore, to fill the void, this research aims to highlight some possible factors contributing to students' satisfaction in online learning in accordance with preceding literature and previous studies. To facilitate effective online learning, it is necessary to consider these factors that contribute to learner satisfaction.

METHOD

This research used a literature review approach, collecting secondary data from papers and journals related to the research topic. A literature review provides a framework for assessing new and previous findings and identifying advances through a comprehensive review and interpretation of related literature. The process involves identifying research questions by systematically searching and analyzing relevant literature (Fink, 2019). The method used in the literature review is a systematic approach to analyzing data. The research articles focused on Randomized Controlled Trials (RCTs) and experimental research results in English. The articles selected were original empirical studies that included abstracts, introductions, methods, results, and discussions. This approach combines information from research with findings from real observations or experiments, allowing researchers to gain in-depth insights into specific issues and uncover trends or gaps in the existing literature(Mohajan, 2018).

The literature search strategy utilized available databases, including Taylor and Francis and Google Scholar. The keywords employed for article identification were student satisfaction, online learning, factors affecting, and CLIL. The researcher employed "AND" as the Boolean operator. The utilization of the Boolean operator "AND" aimed to combine different concepts and aspects as search keywords to narrow the scope of retrieved documents.

Inclusion data to determine the criteria for literature review materials¸, namely: 1) Full-text articles in English, 2) Research articles published from 2019 to 2024, 3) Randomized Controlled Trials (RCT) research design articles and experimental research, 4) Open Access. The exclusion data are: 1) sources from books, proceedings, and review articles, 2) Articles published over the last 5 years / before 2019, and 3) Articles in other languages. 4) The article only contains part of the abstract or part of the text. To maintain the quality of the literature review, the authors refer to ethical considerations, namely avoiding duplication publication, avoiding plagiarism, transparency, and ensuring accuracy.

The literature search conducted for this study employed a comprehensive approach, utilizing two prominent international databases: Scopus and Taylor and Francis. These databases were chosen for their extensive coverage of academic publications across various disciplines. The initial search, guided by carefully selected keywords, yielded a substantial pool of 114 articles. This initial collection was refined to focus on recent and relevant research by applying specific criteria. Notably, 88 articles were published within the last five years (2019-2024), including up-to-date information and contemporary perspectives. Additionally, all selected articles were in English, facilitating a more consistent analysis and interpretation of the findings. Further examination of the search results revealed important characteristics of the collected literature. Out of the 114 articles, 86 were identified as research and experimental studies, indicating a strong emphasis on empirical evidence within the selected pool. This focus on research-based articles enhances the reliability and validity of the potential findings derived from this literature review. Moreover, 37 of the articles were open access, which not only increases the accessibility of the research but also potentially broadens its impact and dissemination within the academic community. However, it is worth noting that despite the initial yield of 114 articles, only 37 were ultimately classified as both research-based and experimental. This discrepancy suggests that a significant portion of the initially identified literature may consist of theoretical works, reviews, or other non-empirical studies, which could limit the depth of evidence-based insights available on the topic under investigation.
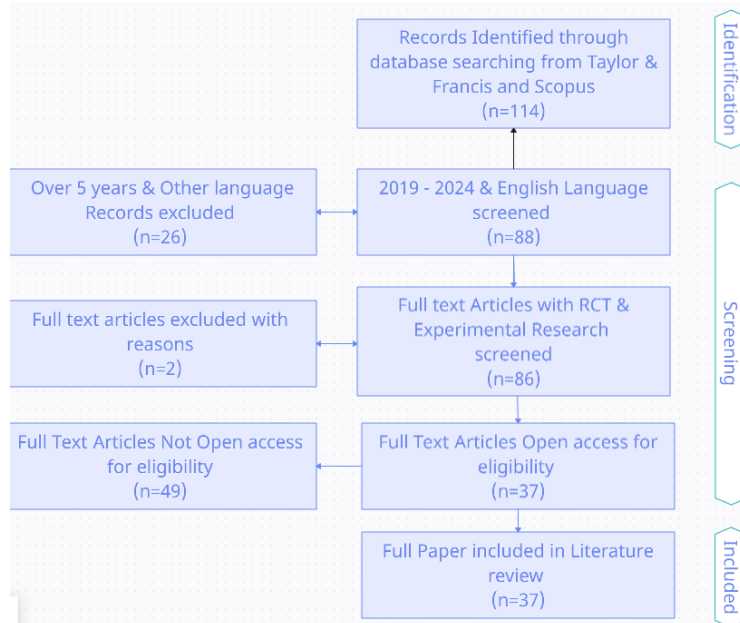
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Figure 1. Literature Review protocol

Data analysis in this research uses thematic analysis. The thematic analysis of this document identified several key themes that influence student satisfaction with online learning in Content and Language Integrated Learning (CLIL) classes. The first theme is online self-efficacy, wherein students' confidence in managing online tasks contributes to learning satisfaction. The second theme, self-regulated learning, demonstrated that time management and self-directed learning strategies improved academic outcomes. The quality of online interactions, including those between students and content, instructors and fellow students, was also a significant determinant of satisfaction. Furthermore, adequate technological support was shown to enhance the accessibility and efficiency of online learning. Finally, a positive classroom climate fosters a supportive learning environment, thereby increasing student engagement and overall satisfaction. This analysis underscores the importance of these factors in designing an effective online learning environment. This approach also enables researchers to analyze numerous elements influencing student satisfaction in online learning, such as the interaction between students and content and the quality of technological support. By comprehending these factors, research can substantially contribute to enhancing the quality of online education and providing improved learning outcomes for students.

RESULTS AND DISCUSSION

Exploring Student Satisfaction and Frameworks in Online Learning

Student satisfaction in online learning is described as the level of happiness students have about their educational experiences, which is vital for assessing the quality of online education (Gachigi et al., 2023). This satisfaction is determined by numerous aspects, including the manner of course delivery, interaction among learners, and the perceived value of the education obtained (Marmon et al., 2014; Palmer & Holt, 2009). An effective approach for evaluating student satisfaction requires the use of satisfaction measures, which are measurement instruments designed to measure this satisfaction and uncover factors such as learner-content interaction and the level of technological support (Kuo et al., 2013). The framework also emphasizes the importance of blended learning, which blends online and

face-to-face interactions to promote student engagement and satisfaction (Roff, 2018). Research indicates that effective online learning environments should encourage a sense of belonging and set clear expectations for success, as these components greatly contribute to learner satisfaction (Palmer & Holt, 2009). Ultimately, understanding and assessing student satisfaction through these frameworks can lead to enhanced educational outcomes and a more successful online learning experience (Gachigi et al., 2023; Kuo et al., 2013)

These are factors that affect student happiness in an online learning environment. It includes three essential components: the nature of online interactions, self-regulated learning, and online self-efficacy. This research is meant to explain the impact of these elements on students' views and overall satisfaction with their online education experience.
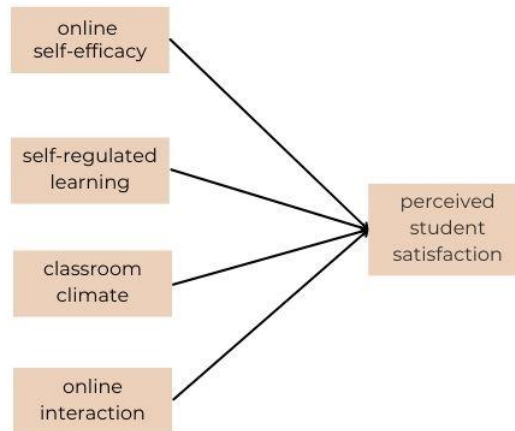

Figure 2. Proposes framework of factors contributing to students perceived satisfaction in online CLIL classes

Based on the data above we can infer that these aspects jointly influence student satisfaction. Higher online self-efficacy often leads to increased confidence in navigating and mastering online tools and platforms. Self-regulated learning stresses students' ability to effectively manage their learning process, which improves the sense of achievement and happiness. Meanwhile, solid online interactions build a sense of community and support, which is vital for a great online learning experience. Collectively, these aspects relate to influence students' overall happiness with online learning.

Student Satisfaction in Online Learning

Student satisfaction in online learning is a term that's that includes multiple factors that influence the educational experience. It is primarily characterized by the amount to which students believe their online learning environment fulfills their educational requirements and anticipations. Essential elements influencing student happiness encompass learner motivation, interaction, and engagement, which are vital for cultivating a favorable online learning experience (Hettiarachchi et al., 2021; Rajabalee & Santally, 2021). The standard of the e learning system, encompassing service quality and the proactive involvement of educators, significantly impacts satisfaction levels (Keržič et al., 2021). The interaction among learners, instructors, and content is crucial in assessing satisfaction, with learner-content interaction being especially significant (Kuo et al., 2013). The shift to online education during the COVID-19 epidemic underscored the necessity of modifying evaluation techniques and offering sufficient instructor support to uphold satisfaction levels (Giray, 2021). Additionally, the accessibility of online learning is frequently mentioned as a factor contributing to pleasure, while lack of interaction may result in unhappiness (Cole et al., 2014). The expectation-confirmation model posits that cognitive stress as well as the effectiveness of the online platform play a crucial role for affecting satisfaction, with greater cognitive load

potentially lowering satisfaction levels (Cheng et al., 2023). Moreover, students' assessments of their abilities and the learning environment influence their overall satisfaction, suggesting that self-assessment and acceptance of the virtual environment are critical aspects (Herrador-Alcaide et al., 2019). Student satisfaction in online learning is influenced by a complex interplay of motivational, interactional, and systemic elements that affect the educational experience and outcomes.

Current Research of Students' Satisfaction in Online Learning

Current research on students' satisfaction in online learning highlights several key factors influencing their experiences, as evidenced by multiple studies conducted during and after the COVID-19 pandemic. A study focusing on international students in Chinese universities developed an International Student Satisfaction Index Model (ISSM), identifying interaction as a crucial factor affecting satisfaction in online courses. This model, validated through empirical data, underscores the importance of interaction in enhancing international students' retention and satisfaction with online learning (Wang et al., 2024). Similarly, research conducted across Welsh higher education institutions identified both facilitators and barriers to online learning satisfaction, with students expressing concerns about community loss, wellbeing, and isolation, despite overall satisfaction with the quality of online learning (Brown et al., 2023) Another study using the expectation-confirmation model found that high cognitive load negatively impacts students' perceived usefulness and satisfaction with online collaborative learning, suggesting that managing cognitive load is essential for improving satisfaction (Cheng et al., 2023). Furthermore, a cross-group comparison study revealed that academic emotions and self-regulated learning mediate the relationship between interaction and satisfaction, with differences noted between high school and college students (Wu et al., 2023). Lastly, research on Chinese college students using the Community of Inquiry framework found that teaching and cognitive presence significantly enhance satisfaction through self-regulated learning, while social presence did not have the same effect (Zhang et al., 2023). Collectively, these studies emphasize the multifaceted nature of online learning satisfaction, highlighting the roles of interaction, cognitive load, emotional states, and self-regulation in shaping students' experiences.

Factors Contributing to Students Satisfaction

Student satisfaction is vital in higher education, serving as a significant indicator of the institution's success and a sign of good student outcomes. High levels of student satisfaction are related with better engagement, when students become more active participants in their study. This engagement leads to deeper learning, encouraging critical thinking, problem-solving, and communication skills that are crucial for success in today's competitive job environment. To achieve this, it is necessary to know that there are several factors that affect the level of student satisfaction during their study period, such as:

Online Self-Efficacy

Student satisfaction in online learning settings is determined by a complex interplay of elements, with online self-efficacy playing a vital role. Online self-efficacy, which incorporates students' confidence in their abilities to finish online courses, communicate with peers and instructors, and manage course technologies, is a strong predictor of learning pleasure (Shen et al., 2013). The transition to online learning during the COVID-19 pandemic underlined the relevance of self-efficacy, as students with higher online learning self-efficacy expressed better happiness with their e-learning experiences (Aldhahi et al., 2022). This self-efficacy is diverse, involving elements such as time management, technology use, and learning practices, all of which contribute to students' overall satisfaction (Aldhahi et al., 2022; Shen

et al., 2013). Additionally, the quality of online interactions, particularly learner-content and learner-instructor interactions, greatly increases satisfaction, with learner-content interaction being the best predictor (Kuo et al., 2013; Kuo et al., 2014). The role of psychological demands, such as autonomy, relatedness, and competence, further highlights the need of a supportive online learning environment that supports collective efficacy and engagement (Tilak et al., 2022). Moreover, instructor-related characteristics, including educational assistance and presence are significant, as they demonstrate the highest impact values in boosting student satisfaction (Kim & Park, 2023). The combination of social and motivational aspects, such as social presence and perceived task value, also adds to satisfaction, underlining the necessity for a well-rounded approach to online education (Lin et al., 2008). Overall, this research suggests that increasing online self-efficacy, improving interaction quality, and addressing psychological and social requirements are critical techniques for increasing student happiness in online learning environments.

Self-Regulated Learning

Students' satisfaction in self-regulated learning (SRL) environments is influenced by a variety of factors. Self-regulated learning practices, such as strategic planning, time management, environment structuring, and help-seeking, have been demonstrated to positively improve both student happiness and academic achievement, particularly in online learning contexts like MOOCs (Dinh & Phuong, 2024). Additionally, motivation plays a vital role, with intrinsic motivation being a major predictor of e-learners' satisfaction and perceived learning results, while extrinsic motivation affects SRL but not directly the learning outcomes (Eom, 2019). The mix of self-regulation and external constraints, such as instructor support and course design, also strongly effects students' satisfaction and learning approaches, meaning that a balanced approach can lead to deeper learning and higher satisfaction (de la Fuente et al., 2020). Furthermore, indicators such as internet self-efficacy and the quantity of time spent online are crucial, with males expressing higher satisfaction levels in online learning environments (Bećirović et al., 2022). The influence theory highlights cognitive and motivational aspects, autonomy support, and feedback as essential factors determining SRL, highlighting the necessity for interactive and supportive online environments (Dong et al., 2024). Moreover, the sense of learning environment, including teacher support and task orientation, is critical for effective SRL implementation (Lim & Yeo, 2019). In the context of university education, teacher-student discussion, student dialogue, and course design are essential in determining satisfaction and learning outcomes, underlining the necessity of well-structured courses and active engagement (Eom & Ashill, 2016). These findings collectively show that boosting SRL methods, developing internal drive, and maintaining supportive learning environments are crucial to improve student happiness in online education contexts.

Online Interaction

Students' satisfaction with online learning is determined by a range of aspects, primarily focusing around the quality and type of interactions they experience. Several studies show the value of several forms of connection, such as teacher-student, student-student, and student-content interactions, in boosting satisfaction levels. For instance, the perceived quality of teacher-student and student-student interactions greatly impacts international students' satisfaction in higher education settings, underlining the necessity for good communication and engagement in online courses (Wang et al., 2024). Similarly, in the context of English as a Foreign Language (EFL) courses, student-instructor and student-technology interactions are identified as the strongest predictors of satisfaction, suggesting that the role of technology and instructor engagement is crucial in online learning environments (Amoush & Mizher, 2023). Furthermore, the interaction between students and

content, as well as the built environment enabling these interactions, are crucial in determining satisfaction and perceived learning results, as proven by studies conducted in diverse educational settings (Ab Rahman et al., 2022; Cao, 2022). The mediating impact of academic sentiments, such as enjoyment and boredom, also plays a big part in how interactions effect satisfaction, with self-regulated learning being a notable factor among high school students (Wu et al., 2023). Additionally, aspects such as parent-child interactions and positive coping strategies have been shown to link favorably with online learning pleasure, demonstrating that external support networks and personal coping mechanisms can enhance the online learning experience (Wen et al., 2024). Moreover, self-efficacy and self-regulated learning are recognized as major factors to satisfaction, with students who are more self-directed and confident in employing the internet reporting higher satisfaction levels (Alić Topić, 2022; Bećirović et al., 2022). Overall, this research together underlines the complex character of student happiness in online learning, where interaction quality, emotional engagement, personal traits, and external support systems all play vital roles.

Classroom Climates

Student satisfaction in both classroom climate and online learning settings is influenced by a range of factors, as shown by recent studies. In the context of online learning, instructor-related aspects such as instructional assistance, technological credibility, and perceived presence have been identified as having the biggest effect size on student satisfaction (Kim & Park, 2023). Similarly, course structure, learner interaction, and instructor presence are essential in affecting perceived learning and satisfaction, with student involvement functioning as a mediator (Shin & Sok, 2023). The transition to online learning during the COVID-19 pandemic has underlined the relevance of technology, communication, course content, and motivation, but the quick shift from traditional to online classes did not significantly alter satisfaction in some contexts (Thanh et al., 2024). Psychological aspects, instructional materials, access to technology, and teacher qualities also play substantial roles in e-learner satisfaction (Islam et al., 2023).

In medical education, familiarity with online teaching methodologies, interactive approaches, and personal workspace availability contribute favourably to satisfaction, whereas technological challenges subtract from it (Çakmakkaya et al., 2024). Furthermore, student engagement, driven by course content and online interactions, is vital for satisfaction and academic efficacy, but its impact differs across different countries (Nia et al., 2023). The function of classroom interaction, including learner-learner, learner-instructor, and learner-content transfers, is also significant, affecting the relationship between satisfaction and perceived learning (Lin & Wang, 2024). Additionally, parent-child interactions and good coping strategies have been demonstrated to positively link with online learning pleasure, demonstrating that external support networks are equally important (Wen et al., 2024). Overall, these studies collectively underscore the varied character of student happiness, underlining the importance of instructor presence, course structure, engagement, and external assistance in both online and hybrid learning environments.

CONCLUSION

The research on student satisfaction in online learning reveals some shortcomings that require addressing. Firstly, the dependence on self-reported data can create bias, as students may overstate their satisfaction levels due to social desirability or lack of critical reflection on their experiences. Additionally, the diversity of online learning settings and student demographics limits the generalizability of findings. Different institutions may employ varying technologies and educational methodologies, resulting to conflicting outcomes across investigations. Furthermore, the immediate transition to online learning during the

COVID-19 epidemic may have affected student expectations and experiences.

For better future research, it is vital to employ a mixed-methods approach that blends quantitative surveys with qualitative interviews or focus groups. This would provide a more advanced knowledge of student experiences and satisfaction levels. Moreover, longitudinal studies might be undertaken to evaluate changes in satisfaction over time, particularly as students get more accustomed with the methods of online education. Researchers should also investigate the impact of specific characteristics such as course design, instructor engagement, and technology support on student satisfaction to construct a more comprehensive framework.

In terms of practical proposals, educational institutions should prioritize enhancing the quality of online interactions among students and teachers. This could involve training educators in successful online teaching practices and developing a feeling of community inside virtual classrooms. Additionally, expanding technological assistance and resources may reduce problems linked to platform accessibility, consequently raising overall satisfaction. Institutions should also routinely collect feedback from students to identify areas for improvement and change their online learning environments accordingly, ensuring that they match the shifting demands of learners in a digital context.

CONFLICS OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

AUTHOR CONTRIBUTIONS

Khoriyah.: Conceptualization (lead), methodology (lead), writing – original draft (lead), review (supporting), securing funding. Sholahuddin, M.F.T.: Conceptualization (supporting), methodology (supporting), writing – original draft (supporting), review (lead), editing (lead). Ananta, B.D.B.: Conceptualization (supporting), methodology (supporting), writing – original draft (supporting), review (lead), editing (lead).

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