

Bridging the Gap: EFL Lecturers' Familiarity and Knowledge of Technology in Language Teachings

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Abstract

The rapid growth of digital technology has significantly influenced the landscape of higher education, including English as a Foreign Language (EFL) instruction. However, many lecturers still struggle to integrate technology effectively into their pedagogy. This study investigates EFL lecturers' technological familiarity and knowledge in a maritime higher education context, aiming to identify their level of technological competence and the underlying factors influencing technology use in teaching. Employing a quantitative research design, data were collected through a questionnaire administered to 15 lecturers from a maritime higher education institution in Indonesia. The findings revealed that lecturers possess moderate familiarity with digital tools such as learning management systems and video conferencing platforms. However, their pedagogical integration of technology remains limited, with most using it mainly for material delivery rather than interactive or student-centered learning. The analysis indicates that the lecturers' technological knowledge (TK) has not yet been sufficiently linked with pedagogical (PK) and content knowledge (CK), as conceptualized in the Technological Pedagogical and Content Knowledge (TPACK) framework. Barriers such as insufficient infrastructure, lack of institutional support, and limited digital pedagogical understanding were found to hinder optimal technology integration. The study suggests that sustainable professional development programs focusing on digital pedagogy and contextualized training are essential to enhance lecturers' competence in integrating technology for effective EFL instruction in maritime education.

Keywords: *Technological Knowledge; TPACK; EFL Lecturers; Maritime Education; Technology Integration.*

INTRODUCTION

In the 21st century, technology has become an inseparable element of education, influencing not only how teachers teach but also how learners construct and access knowledge. The advancement of digital technologies has redefined pedagogical approaches, particularly in English as a Foreign Language (EFL) education, where interaction, communication, and authentic exposure are crucial. The integration of technology in EFL teaching offers new opportunities for enhancing engagement, creativity, and collaboration, yet it simultaneously presents challenges for educators who must adapt to fast-evolving digital environments. In higher education contexts, especially those with vocational orientations such as maritime

schools, technology integration requires a specific set of competencies that go beyond general teaching skills.

Mishra and Koehler (2006) proposed the Technological Pedagogical Content Knowledge (TPACK) framework, which emphasizes that effective teaching with technology relies on the interplay among three domains: technology, pedagogy, and content. This model provides a comprehensive understanding of how teachers must not only be familiar with technological tools but also know how to integrate them meaningfully into their pedagogical practices. While the TPACK framework has been widely discussed and applied in general EFL settings, its implementation in specialized fields such as maritime education remains underexplored. This is particularly important since maritime English, as a subdiscipline of English for Specific Purposes (ESP), requires contextualized teaching materials and often involves simulation-based learning supported by technological media.

In the context of EFL education, technological knowledge plays a crucial role in enabling lecturers to design communicative and interactive classrooms. Digital platforms such as Google Classroom, Moodle, and Edmodo facilitate material distribution and assessment, while interactive tools like Kahoot, Quizizz, and Padlet enhance learner engagement. Beyond these, the use of authentic multimedia materials such as videos, podcasts, and virtual simulations, provides learners with rich exposure to English in real-world contexts. Yet, the extent to which lecturers are familiar with and knowledgeable about such tools remains inconsistent. Some may use technology only for administrative convenience, such as uploading assignments, rather than for pedagogical enrichment. This inconsistency points to a subtle but significant issue: being *familiar* with technology does not necessarily equate to *knowing* how to use it effectively in language teaching.

Previous studies in EFL and teacher education have underscored this distinction. For example, Chai et al. (2013) and Koh, Chai, and Tsai (2014) observed that many teachers possess basic operational knowledge of technology but lack the pedagogical insight to integrate it meaningfully into teaching and learning processes. Similarly, research by Rahimi and Pourshahbaz (2019) revealed that while most teachers express positive attitudes toward technology use, their actual classroom practices often remain traditional. These findings suggest that the challenge lies not in technological access but in the transformation of teaching beliefs and competencies. In other words, technological familiarity represents only a surface-level comfort with digital tools, whereas technological knowledge involves the deeper pedagogical and conceptual understanding required for effective technology-enhanced instruction.

Within Indonesia's higher education context, particularly in maritime polytechnics, the integration of technology in EFL classrooms is still developing. Maritime schools are unique environments that emphasize discipline, technical skill, and international communication competence. English, as the language of maritime communication, holds a central position in preparing cadets for global operations. However, teaching maritime English effectively demands not only linguistic competence but also technological adaptability. Lecturers are expected to employ technology to simulate authentic communication scenarios, such as radio exchanges, navigation briefings, and shipboard interactions. Despite the growing recognition of these needs, many maritime institutions continue to rely on conventional materials

and limited digital engagement, indicating a mismatch between technological advancement and pedagogical application.

This situation raises an important question regarding the readiness and capacity of EFL lecturers in maritime higher education to utilize technology effectively. Their level of technological familiarity, how well they recognize, operate, and adapt to digital tools serves as the foundation for developing deeper technological knowledge. However, without sufficient understanding of pedagogical principles underpinning technology use, such familiarity may remain superficial. Lecturers might know how to use a platform like Zoom or Moodle, yet lack the ability to design interactive tasks or assessment models that align with communicative learning outcomes. Hence, it becomes essential to examine how lecturers perceive their own technological familiarity and knowledge, and how these two constructs relate in the context of professional teaching practice.

Beyond pedagogical implications, the technological readiness of lecturers also affects institutional quality assurance and accreditation processes. In many maritime polytechnics, digital competence is increasingly recognized as a key indicator of teaching quality. The implementation of blended learning, online assessment systems, and virtual maritime simulations requires lecturers who are not only open to innovation but also capable of aligning technology use with learning objectives. Therefore, examining lecturers' technological familiarity and knowledge can provide valuable insights for curriculum planners, institutional leaders, and policymakers seeking to enhance the effectiveness of technology integration in higher education. In addition, generational and experiential factors may also influence how lecturers perceive and use technology. Younger lecturers, often digital natives, may exhibit higher levels of comfort with emerging tools but may lack the pedagogical maturity to integrate them effectively. Conversely, senior lecturers with rich teaching experience may possess strong pedagogical insights but show reluctance or uncertainty in adopting new technologies. These dynamics further complicate the picture of technological readiness among educators and warrant closer investigation to inform more targeted professional development initiatives.

Ultimately, this study aims to shed light on how EFL lecturers perceive and navigate the technological landscape in their teaching practices, revealing implicit challenges and opportunities for growth. Through this investigation, it is hoped that both individual lecturers and institutions may gain a clearer understanding of the pathways needed to strengthen technology-enhanced language teaching in Indonesia's maritime higher education sector.

REVIEW OF LITERATURE

Technology Integration in Language Education

Technology has become a central component of modern education, reshaping how knowledge is accessed, delivered, and constructed. The emergence of digital tools has transformed the educational landscape from teacher-centered instruction to more learner-centered, collaborative, and interactive modes of learning. In the context of English as a Foreign Language (EFL), technology integration facilitates access to authentic linguistic input, encourages real-time interaction beyond classroom boundaries, and supports learner autonomy in constructing meaning and developing communicative competence.

According to Warschauer (2002), technology enables language learners to participate in authentic communicative situations that mirror real-world interaction, fostering both linguistic proficiency and intercultural awareness. Chapelle (2009) further emphasizes that digital media provide multimodal input combining text, sound, and visuals that enriches the language learning process and compensates for the limited exposure typical of EFL environments. In the same line, Kern (2014) notes that technology transforms the very nature of literacy in language education, expanding it from print-based skills to include multimodal, digital, and intercultural literacies.

Moreover, the integration of technology allows instructors to personalize learning according to individual learner needs. Adaptive systems such as intelligent tutoring programs or data-driven feedback applications enable teachers to monitor learner progress and provide timely support (Reinders & Benson, 2017). In this sense, technology not only supplements traditional teaching but also redefines the pedagogical relationship between teachers and students. The teacher's role evolves from that of a transmitter of knowledge to a facilitator or learning designer who curates meaningful digital experiences.

However, effective technology integration does not happen automatically. As Beatty (2013) and Hubbard (2017) caution, technological tools must serve pedagogical purposes rather than dictate them. The success of technology-enhanced learning depends on how well teachers align tools with instructional objectives, language skills, and learner characteristics. Without clear pedagogical rationales, technology use risks becoming superficial employed merely for convenience or novelty. This view is echoed by Stockwell (2020), who warns that "technology should not lead pedagogy, but pedagogy should inform technology use."

In the Indonesian higher education context, technology integration has gained momentum in recent years, particularly after the COVID-19 pandemic accelerated the adoption of online learning. Studies by Kurniawan et al. (2021) and Sari et al. (2022) show that Indonesian EFL lecturers increasingly rely on platforms like Google Classroom, Zoom, and Moodle for instruction and assessment. Yet, while these tools enhance access and flexibility, many lecturers still use them for conventional purposes, such as uploading materials or assigning tasks, rather than for fostering collaboration and interaction. This pattern indicates that the potential of technology is not fully realized, often due to limited pedagogical knowledge or insufficient institutional support.

Overall, technology integration in language education represents a transformative opportunity that can enrich EFL instruction and prepare learners for global communication. Nevertheless, the effectiveness of such integration largely depends on the teacher's familiarity with technology and their knowledge of how to employ it pedagogically. As Mishra and Koehler (2006) and Chai et al. (2013) have argued, teachers' technological understanding must go beyond operational skills it must be anchored in pedagogical reasoning and content expertise. Thus, investigating how EFL lecturers perceive and apply technology, particularly in specialized contexts such as maritime higher education, becomes essential to understanding the broader dynamics of digital transformation in language learning.

Technological Familiarity and Technological Knowledge (Expanded)

The rapid advancement of educational technology has led to an important distinction between technological familiarity and technological knowledge, two concepts that are closely related but not identical. Understanding this distinction is essential for analyzing teachers' and lecturers' readiness to integrate technology in teaching and learning processes.

Technological familiarity refers to the degree of exposure, comfort, and awareness that educators have toward various digital tools and applications. It involves the ability to recognize and operate basic functions of technology for instance, knowing how to use PowerPoint, join a Zoom meeting, upload files to a Learning Management System (LMS), or create digital quizzes using tools such as Kahoot or Quizizz. As defined by Teo (2011), familiarity represents an *awareness-based competence* that arises from personal experience rather than formal training. It typically includes skills such as navigating digital interfaces, identifying software features, and maintaining a positive disposition toward technology use.

In the context of EFL teaching, this distinction is particularly significant. Many teachers demonstrate high technological familiarity they can use digital devices, multimedia, and online communication platforms yet they often lack the pedagogical and reflective understanding required for meaningful technology integration (Rahimi & Pourshahbaz, 2019). In other words, being familiar with technology does not automatically translate into pedagogical competence. For instance, an EFL lecturer may be able to play a YouTube video in class (familiarity), but designing a pre-viewing, while-viewing, and post-viewing activity to build listening and speaking skills requires technological knowledge that is pedagogically informed.

Research in educational technology consistently supports this distinction. Ertmer and Ottenbreit-Leftwich (2010) emphasize that teachers' first-order barriers (such as lack of equipment or access) and second-order barriers (such as lack of confidence or pedagogical understanding) jointly affect technology integration. While many teachers today no longer face the first-order barriers, second-order barriers particularly limited technological knowledge remain prevalent. Similarly, Sang et al. (2010) found that teachers who report high familiarity with technology often underperform in designing pedagogically effective digital lessons, suggesting that surface-level comfort does not equate to professional competence.

Chai et al., (2013) further clarified that technological knowledge should not be seen as a static set of skills but as a dynamic construct that evolves alongside technology itself. This means educators must continuously update their understanding to remain effective in digital environments. From this perspective, professional development in technology should focus not only on tool training but also on fostering a reflective mindset that connects technology, pedagogy, and content knowledge.

These patterns point to a competency gap between technological familiarity and technological knowledge a gap that is often implicit rather than openly acknowledged. Lecturers may perceive themselves as technologically competent because they can operate digital tools, but without pedagogical insight, the full potential of technology remains untapped. Mishra and Koehler's (2006) TPACK framework reinforces this by positioning technological knowledge as one component that must interact with pedagogical and content knowledge to achieve meaningful learning experiences. Without this integration, technology risks being used merely as an accessory rather than as a transformative learning medium.

Moreover, familiarity and knowledge differ in how they are acquired. Familiarity often develops informally through personal exploration and exposure. Teachers become familiar with tools through trial and error, peer sharing, or necessity for instance, adapting quickly during the pandemic to use online learning platforms. Knowledge, on the other hand, tends to require deliberate reflection, training, and pedagogical experimentation. According to Koehler and Mishra (2009), professional knowledge of technology is constructed through continuous interaction among practice, theory, and context. It is not only about knowing how to use a particular software but about understanding how digital tools can transform instruction and assessment.

In practical terms, technological familiarity is observable in actions such as logging into an LMS, sharing content, or communicating via email, while technological knowledge manifests in decisions such as selecting an appropriate online platform for collaborative writing, integrating multimodal tasks for vocabulary development, or using analytics tools to monitor learner progress. These competencies require different cognitive and reflective levels.

In maritime higher education, this distinction becomes even more crucial. Maritime English teaching often involves simulation, safety communication, and authentic scenario-based activities. Lecturers who are merely familiar with digital tools may use PowerPoint or video clips in class, but those with strong technological knowledge can design interactive simulations that mirror shipboard communication, enhancing both language and technical competence. Hence, understanding how lecturers perceive and apply their technological familiarity and knowledge provides insights into their readiness to embrace technology-enhanced language instruction.

METHOD

This study employed a quantitative descriptive approach to investigate EFL lecturers' familiarity and knowledge of technology in a maritime higher education context. The quantitative method was considered appropriate to obtain measurable data and to identify possible gaps between technological familiarity and pedagogical knowledge.

The participants were 15 EFL lecturers teaching at a maritime polytechnic in Indonesia. They were selected through purposive sampling because they actively integrate, or are expected to integrate, technology in their English teaching practices. This selection allowed for focused insights into the challenges and readiness of lecturers in a specialized educational setting.

Data were collected using a questionnaire adapted from previous studies on teachers' technological competence and the TPACK framework (Mishra & Koehler, 2006; Schmidt et al., 2009). The questionnaire consisted of three parts: (1) demographic information, (2) items measuring technological familiarity, and (3) items measuring technological knowledge. A five-point Likert scale was used to assess respondents' levels of agreement.

The instrument's validity was ensured through expert review by two specialists in educational technology, while reliability was confirmed through a pilot test showing Cronbach's Alpha coefficients above 0.80 for both constructs, indicating high internal consistency. Data were analyzed using descriptive statistics (mean scores and standard deviations) to determine the levels of familiarity and

knowledge, and to identify the gap between them. The findings were further interpreted to highlight lecturers' technological readiness and areas requiring professional development.

RESULTS

Descriptive statistical analysis was conducted to determine the mean and standard deviation of lecturers' responses on five key indicators of technological familiarity and knowledge. The results are summarized as follows:

Table 1. Result of Questionnaire

Item	Mean	SD	Interpretation
I understand that technology includes both digital and non-digital tools for teaching and learning.	3.25	0.96	Moderate
I can differentiate between instructional technologies and general technologies.	2.75	0.50	Moderate–Low
I am familiar with online learning platforms such as Google Classroom or Moodle.	3.50	1.00	Moderate–High
I know how to use video conferencing tools (e.g., Zoom, Microsoft Teams) effectively.	3.50	1.00	Moderate–High
I have used digital content creation tools (e.g., Canva, Padlet, Kahoot) in my teaching.	3.00	0.82	Moderate

The mean scores range from 2.75 to 3.50, indicating a moderate level of technological familiarity and knowledge among the lecturers. The highest mean values (3.50) were recorded for familiarity with online learning platforms and video conferencing tools, suggesting that these technologies are the most commonly used and most accessible in the lecturers' professional context. The relatively lower mean scores on understanding the scope of technology (3.25) and differentiating instructional from general technologies (2.75) imply that conceptual and pedagogical understanding of technology remains limited.

These results suggest that while the lecturers demonstrate operational familiarity with commonly used tools, their deeper conceptual knowledge particularly the ability to select, evaluate, and integrate technologies pedagogically is still developing. This aligns with Rahimi and Pourshahbaz's (2019) finding that teachers' familiarity with tools does not always correspond to their pedagogical knowledge about how technology can support learning outcomes.

Discussion

The findings of this study provide valuable insight into the current state of technological knowledge among EFL lecturers in maritime higher education. While the results indicate that lecturers possess moderate familiarity with technology, this familiarity does not fully translate into a deep pedagogical understanding of how technology can enhance teaching and learning. The lecturers demonstrate operational competence, they can use tools such as Zoom, Google Classroom, and

multimedia presentation software. But they often struggle to integrate these technologies into their pedagogical strategies in a way that supports student-centered learning or promotes higher-order thinking. This discussion aims to unpack the implications of these findings through a critical examination of the lecturers' technological practices, the theoretical perspectives of TPACK and digital pedagogy, and the contextual realities of maritime education.

The Nature of Technological Knowledge in EFL Teaching

Technological knowledge (TK) encompasses the ability to understand, operate, and manipulate technologies effectively. In the context of EFL education, this involves more than just technical fluency; it requires the ability to align technology use with pedagogical and linguistic objectives (Mishra & Koehler, 2006). The lecturers in this study exhibit a working knowledge of commonly used educational technologies, mainly those required for content delivery and classroom management. Their mean scores show that they are relatively confident in using digital learning platforms and communication tools. However, the lower scores in conceptual understanding suggest that their grasp of technology's educational affordances remains surface-level.

This pattern is not unique to maritime EFL contexts. As several studies (e.g., Tondeur et al., 2017; Rahimi & Pourshahbaz, 2019) have pointed out, teachers often acquire familiarity with technology through necessity. For example, during the rapid shift to online learning during the pandemic rather than through systematic professional development. Consequently, their technological knowledge tends to remain instrumental rather than integrative. They know *how* to use the tools, but not necessarily *why* or *when* to use them for meaningful learning outcomes. In this study, the lecturers' focus on using technology for presentations, online submissions, and administrative tasks reflects this instrumental approach.

The findings can be better understood using the TPACK framework (Technological Pedagogical and Content Knowledge), which emphasizes the intersection between technology, pedagogy, and subject matter expertise (Mishra & Koehler, 2006; Koehler & Mishra, 2009). TPACK proposes that effective teaching with technology requires teachers to integrate these domains dynamically, understanding how technology can support specific pedagogical goals and disciplinary content.

In this study, the lecturers' responses suggest that their technological knowledge (TK) is present but isolated. Their pedagogical knowledge (PK) particularly regarding communicative, task-based, or learner-centered language teaching seems to operate independently from their technology use. This disconnection leads to what Koehler and Mishra (2009) describe as "technology substitution," where digital tools merely replace traditional ones without transforming the learning experience. For instance, PowerPoint may replace the whiteboard, or online quizzes may substitute printed worksheets, but the core pedagogy remains unchanged.

To move beyond substitution, lecturers must develop Technological Pedagogical Knowledge (TPK) and TPACK, where they can critically evaluate how specific technologies afford different types of learning. For example, using breakout rooms in Zoom could facilitate communicative interaction a crucial aspect of language learning if used with proper task design. However, this requires understanding both the technology and its pedagogical potential. The lecturers'

moderate scores and qualitative responses indicate that they have not yet fully internalized this synthesis.

Contextual Realities of Maritime Higher Education

Maritime higher education presents unique challenges and opportunities for technology integration. English teaching in maritime settings often involves technical vocabulary, authentic communication scenarios, and simulation-based tasks (e.g., radio communication, onboard instructions, or maritime safety drills). Digital technologies such as virtual simulators, interactive multimedia, or scenario-based e-learning platforms could be powerful tools for enhancing these competencies. However, the lecturers' limited pedagogical application of technology indicates that these affordances remain largely untapped.

This aligns with previous studies in domain-specific English teaching, such as English for Specific Purposes (ESP), where instructors often struggle to align linguistic objectives with technical content (Basturkmen, 2010). In the maritime context, this challenge is compounded by the scarcity of digital learning resources tailored to maritime communication. Consequently, lecturers tend to adapt general-purpose tools rather than design or use context-specific technologies, which restricts the effectiveness of their teaching.

Moreover, institutional policies in maritime education often prioritize technical training over pedagogical development, assuming that language instruction is supplementary to core maritime competencies. This structural imbalance may explain why lecturers receive minimal training in educational technology and rely heavily on self-learning or informal peer support. Such findings underscore the need for institutional reforms that recognize language education as an integral component of professional maritime competence, supported by adequate digital infrastructure and pedagogical training.

Ertmer (1999) distinguishes between first-order and second-order barriers to technology integration. First-order barriers include external factors such as lack of infrastructure, unstable internet connections, or insufficient institutional support. These were indeed mentioned by some participants in this study, who cited limited access to reliable facilities as an obstacle to using digital platforms effectively.

However, what seems more pressing in this context are second-order barriers internal factors such as teachers' beliefs, confidence, and pedagogical orientations (Ertmer & Ottenbreit-Leftwich, 2010). The lecturers' tendency to use technology primarily for content delivery indicates a belief that technology serves as an enhancement tool rather than as a pedagogical medium. This perception limits the potential of digital technologies to support inquiry-based, collaborative, or reflective learning. Overcoming these barriers requires professional development that targets not just technical skills but also pedagogical transformation.

Another crucial factor influencing technological knowledge and application is the institutional and cultural environment. In many Indonesian higher education institutions, particularly specialized ones like maritime polytechnics, there remains a hierarchical and exam-oriented educational culture. Lecturers often feel constrained by standardized curricula, heavy teaching loads, and limited decision-making autonomy. These systemic constraints discourage innovation and experimentation with new teaching methods, including technology integration.

Moreover, institutional digital transformation policies often focus on administrative efficiency rather than pedagogical enhancement. While online learning platforms and digital reporting systems are implemented, support for developing digital pedagogy is frequently overlooked. Without clear pedagogical guidelines and incentives, lecturers may perceive technology as an additional burden rather than an enabler of meaningful learning. Institutional leadership, therefore, plays a pivotal role in shaping a culture that values experimentation, provides adequate resources, and rewards innovation in technology-enhanced teaching.

Reflection on Teacher Professional Development

The findings suggest that traditional models of professional development such as short workshops or one-time seminars are insufficient for developing deep technological-pedagogical competence. Teachers need sustained, practice-based, and collaborative learning experiences that allow them to experiment, reflect, and adapt technology to their teaching contexts (Koh et al., 2014). Programs based on the TPACK framework, for example, have proven effective in helping teachers conceptualize how technology intersects with pedagogy and content through hands-on design activities (Harris et al., 2009).

In the case of maritime EFL lecturers, professional development should not only introduce digital tools but also focus on designing technology-enhanced learning that simulates authentic maritime communication. For instance, lecturers could use virtual bridge simulators or online maritime radio platforms to create immersive language-learning tasks. Peer mentoring programs could also foster knowledge exchange among lecturers, promoting a culture of innovation and reflective practice. By cultivating a collaborative digital pedagogy community, institutions can bridge the gap between technological familiarity and pedagogical integration.

The moderate level of technological familiarity found in this study is consistent with previous research in EFL and teacher education contexts across Asia. For example, Rahimi and Pourshahbaz (2019) found that Iranian EFL teachers showed high confidence in using ICT tools but limited understanding of how to integrate them pedagogically. Similarly, Tondeur et al. (2017) and Chai et al. (2016) emphasized that teachers' technology use often reflects external demands rather than internal pedagogical vision. These studies echo the present findings, suggesting that teacher education programs worldwide must evolve from teaching digital tools to cultivating digital pedagogy.

However, the context of maritime education adds a unique perspective. Unlike general EFL teaching, maritime English requires technical precision, situational awareness, and communication under pressure competencies that lend themselves well to simulation-based learning. The absence of strong technological-pedagogical knowledge among lecturers thus represents not only a pedagogical limitation but also a missed opportunity to align technology with the authentic communicative demands of the maritime profession. This underscores the urgency for a domain-sensitive TPACK model that reflects the specific needs of maritime English teaching. The results of this study invite a broader reflection on what it means to teach with technology in the 21st century. Effective technology integration requires a shift from tool-centered thinking to pedagogy-centered thinking. As Laurillard (2012) argues, technology should not be seen as an end in itself but as a medium for realizing specific

learning goals. For EFL lecturers, this means designing learning experiences where technology mediates interaction, reflection, and collaboration not merely delivers content.

To achieve this shift, teachers must cultivate technological pedagogical reasoning the ability to justify pedagogical choices involving technology based on learning theories and contextual constraints. This reasoning enables teachers to move fluidly between technological and pedagogical considerations, making informed decisions about how, when, and why to use technology. Such professional vision is essential for lecturers in maritime education, where communication competence is inseparable from technical performance and safety-critical decision-making.

CONCLUSION

This study explored EFL lecturers' technological familiarity and knowledge in maritime higher education. The results showed that most lecturers have moderate familiarity with using technology for teaching, particularly in operating digital tools such as online learning platforms and video conferencing applications. However, their understanding of how technology can be meaningfully integrated into pedagogy remains limited. They tend to use technology mainly for delivering materials rather than designing interactive or student-centered learning experiences. These findings suggest that lecturers' technological knowledge is still at the operational level. While they can use technology confidently, they have not yet fully developed the ability to connect it with pedagogical and content knowledge, as emphasized in Mishra and Koehler's TPACK framework. This indicates that technology is often used as a substitute for traditional methods rather than as a transformative tool that supports communication, collaboration, and problem-solving in language learning.

The challenges faced by lecturers are influenced by both external and internal factors. Limited infrastructure, unstable internet connections, and minimal institutional support still hinder technology use. At the same time, lecturers' teaching beliefs and lack of pedagogical vision also limit their ability to integrate technology creatively. In maritime education, where English is closely tied to technical communication and safety procedures, such limitations reduce the potential of digital tools to enhance authentic, simulation-based learning.

Therefore, it is essential for maritime higher education institutions to provide continuous professional development focused on digital pedagogy, not just technical training. Lecturers need opportunities to collaborate, reflect, and experiment with technology in ways that fit their teaching context. With stronger institutional support and targeted training, lecturers can move from simply *using* technology to *teaching through* technology creating learning experiences that are engaging, relevant, and responsive to the demands of the digital maritime world.

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