The Role of CALL in Japanese Public Schools: Perspectives of Foreign and Native Teachers

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ABSTRACT

This paper combines two mixed-methods research projects in Japan that investigated the current status of technology in English as a Foreign Language (EFL) education to gain deeper insights on how and why technology is used in the Japanese public school system. The aim of these two studies was to identify the factors related to the role of Computer Assisted Language Learning (CALL) in EFL classes involving both Japanese and foreign language teachers of English. Questionnaires collected qualitative and quantitative data from 99 participants, which included 49 Japanese Teachers of English (JTEs) and 50 English Assistant Language Teachers (ALTs). The findings indicated that although JTEs had a positive attitude towards technology, external factors such as time, training, and experience resulted in a reluctance to utilize it when teaching. In response to this finding, a number of practical recommendations were developed to promote technology usage in the EFL classroom.

INTRODUCTION

In 2017, Japan was ranked 10th in the world for its development in information and communication technology (Murai, 2017). However, the proper integration and use of technological tools in mainstream education and EFL classes are considerably worse than the ranking suggests for such a high-technology society (Penn, 2017). Although there are policies in place to promote technology in education (MEXT, 2011b) and policies to promote English education, they are not always implemented to the fullest. The integration and utilization of CALL greatly depends on teachers' attitudes and personal experiences. This paper brings together two research projects that investigated the landscape of technology in Japanese EFL education to gain deeper insights into how and why technology is used in a non-English speaking monolingual public schooling system. The purpose of these mixed-methods studies was to identify the role of CALL in EFL classes involving both Japanese and foreign language teachers of English.

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CONTEXT

At the time of this study, both researchers were Assistant Language Teachers (ALTs) in public schools in Japan and completed research independently of one another, albeit with the same research questions and framework. Researcher One taught at nine different elementary and junior high schools in Oita Prefecture between 2012-2016, while Researcher Two taught at two high schools in Hiroshima Prefecture between 2011-2016. For both teachers, there was the expectation that the public-school classrooms would be equipped with modern technology that reflected their experiences of technology in education in their home countries, and Japan's global ranking in information technology (Murai, 2017). However, the reality of the teaching environments was a stark contrast to this expectation. In researchers' classrooms, blackboards, CD players, and projectors were the norm. The reality of these experiences led each researcher to consider that these were simply isolated cases and that technology was more freely available and easily accessed in other areas of Japan. Eager to investigate, the researchers sought to research the state of technology in language classrooms in other areas.

The data used in this paper was collected from two separate studies conducted by Researcher One and Researcher Two. Each researcher conducted research in the area they taught in, and the research presented here is an amalgamation of the two.

LITERATURE REVIEW

Japanese Education Policies and Technology

Since 2003 there has been a call for the normalization of CALL in education, which has aimed to fully integrate technology in education contexts so that it is simply a supporting tool in the classroom and does not take away from the content being taught (Bax, 2003). In 2011, Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) implemented new curriculum guidelines designed to improve subject areas, including English education in Japan (2011b). MEXT aimed to create global citizens with a "zest for life," which required schools to focus on enhancing their instruction and assisting students in acquiring three main competencies (2011b, p. 4). These competencies included 1), attaining fundamental knowledge and skills; 2), having the ability to think, make decisions, and express themselves while developing skills necessary for problem-solving; and 3), having a proactive attitude toward learning and developing their individuality (Yamada & Maswana, 2019). The implementation of technology was not mentioned in the New Course of Study curriculum guidelines. Even in the more detailed 2011 English education policy, technology-inclusive lessons had little instruction or guidance, for example, the word 'computer' was only mentioned once. The policy states, "…tools like computers, communication networks, and educational aids should be used effectively and the cooperation of native speakers of English should be sought" (MEXT, 2011a, p. 7). Thus policy-makers were considering technology but its scope is limited with regard to the framework of support it provides teachers in its implementation and integration.

In 2014, there were minor changes in government policy, with CALL being briefly mentioned regarding the development and preparation of ICT materials (MEXT, 2014). Three issues from this document are salient in relation to this study. First, materials development is discussed; however, the policy only mentions constructing a framework to "develop and prepare Information and Communication Technology (ICT) teaching materials for module classes" (MEXT, 2014, p. 1). Second, the policy acknowledges that elementary and lower/upper secondary teachers need to be trained, supported and empowered through

"improv[ing] teacher training program[s] and teacher employment" and "improv[ing] teacher skills" (p. 1) but it does not mention the content or focus of this training. Third, by "promoting utilization of external staff" (p. 1), the Ministry confirms the importance of ALTs in the new framework which had not been mentioned in earlier versions. However, further information and details on how these staff are to be utilised and promoted are not included. The policies put forth by MEXT show that they are striving to create learning environments that are reflective of the 21st century (MEXT, 2011c). While these policies signify progression, there are still a number of details which are missing:

- the role of ALTs
- how ALT training programs may be enriched
- details on how to bridge the gap between ALT and JTEs' ICT knowledge
- how teachers may overcome obstacles that they may face regarding the implementation of technology

Benefits of Technology in the Classroom

Regarding the integration of technology in the classroom, Warschauer and Meskill (2000) explain that technology as a resource can "better prepare students for the kinds of international cross-cultural interactions which are increasingly required for success in academic, vocational, or personal life" (p. 306). According to Patel (2014), one of the benefits of the inclusion of technology in the language classroom is that multimedia can help to provide learners with accurate and realistic representations of the target language. A benefit of digital materials and resources is that they are better able to reflect current society, culture and trends than traditionally published materials. An additional benefit of technology in the classroom is that it provides students with another source of target language knowledge and examples (Alsied & Pathan, 2013). This source of knowledge can help to relieve teachers of the pressure they might feel from being the sole source of knowledge, particularly if they are not confident or fully proficient in that language. The integration of technology may then help to transform the classroom from one which is teacher-centred to one which is learner-centred, thereby helping the students to develop their learner autonomy (Alsied & Pathan, 2013). These benefits all support the long-term goals of MEXT to create global citizens as technology presents teachers with the opportunity to bring global topics and cultures into their classrooms. Additionally, the use of technology would also help support MEXT's goal for students to develop and acquire the ability to make autonomous decisions, express themselves, and develop individuality.

Technology Barriers and Obstacles

While technology has numerous benefits, the obstacles associated with it must also be addressed to best prepare and support teachers (Angel, 2011). These obstacles include a lack of technical support, limited access to appropriate applications and resources, unreliable connectivity, and a lack of training. Almekhlafi and Almeqdadi (2010), also found that teachers reported time, curriculum, training, and technical problems as barriers to using technology in the classroom. An additional pair of obstacles are *transfer failure*, meaning the inability of teachers to transfer their CALL knowledge to the classroom, and *facility conditions*, meaning the access and availability of both equipment and technology support (Fathi & Ebadi, 2020).

Another potential barrier to the use of technology in the classroom is self-efficacy. According to Kelly (2015), factors such as lack of confidence, foresight, and experience are some of the most significant barriers that teachers must overcome. In particular, Kelly (2015)

notes that experience is directly related to self-efficacy and that "negative experiences with technology become a barrier both in the context of beliefs, and also in the teacher's ability to use technology as part of instruction" (p. 41). The impact of negative experience is also discussed by Tweed (2013), who explains the effects of low self-efficacy in teachers on the decisions they make in their classrooms. Siebert (2006, cited in Tweed, 2013) observes that low self-efficacy can lead to teachers being cynical of their own abilities, which in the case of technology can result in an avoidance of integration and utilization in the classroom.

For technology to be integrated successfully into the classroom, both the support of the teacher and a positive attitude toward these tools are required. Anything less can mean resistance toward its introduction as the teachers' values and beliefs are often transferred to the learners (Sabzian & Gilakjani, 2013). Teo (2006) confirms that the teachers' attitudes and beliefs toward technology, and their willingness to incorporate it into lessons can affect how students view and utilize it. Zhao et al. (2001) and Huang and Liaw (2005) go as far as to suggest that teachers' attitudes are the most influential factor in the integration process and the extent to which technology is implemented in the classroom. Methods that may solve issues related to teacher attitudes include increasing teacher training, providing teachers with the opportunity to become better acquainted with the technology, and allocating extra time for both of these to take place (Becker et al.; Egbert et al., 2002; 1999; Gobbo & Girardi, 2001; Mcalister et al., 2005).

Research Questions

This mixed-methods research study utilized open and closed-question questionnaires and interviews to investigate the following questions:
1. To what extent is CALL available in Japanese schools?
2. What technology is used by teachers in the classroom?
3. What is the perceived usefulness of technology in the language classroom?

METHODOLOGY

The data from two separate mixed-method studies have been combined to gain deeper insights into the extent to which technology is being used, the tools being utilized and attitudes toward inclusion. Across both studies, there were 49 JTEs and 50 ALTs.

In Research Study One, Researcher One collected responses from 44 JTEs and 30 ALTs in elementary schools in Oita Prefecture in the spring of 2015. Quantitative data was collected through closed-ended questionnaires and qualitative data through face-to-face semi-structured interviews. The questionnaires came under three broad subtitles: background information (gender, age, teaching experience, personal technology, English skills and ICT skills), school (school-owned technology, frequency of use, use of personal technology in the classroom), and technology and teaching (attitudes and opinions). For the technology and teaching section, the teachers were asked to answer statements using a six-point Likert scale. The questionnaires were available in both English and Japanese, while the interviews were conducted in English for three JTEs and three ALTs. Data was input into spreadsheets using Microsoft Excel and analyzed by the researcher.

In Research Study Two, Researcher Two collected responses from five JTEs and 20 ALTs in Hiroshima Prefecture in the spring of 2016. Participants were elementary, junior high school, and high school JTEs and ALTs in public schools. Data was collected via a questionnaire which included both closed-ended and open-ended questions; the same

questionnaire was distributed to JTEs and ALTs. Similar to Research Study One, participants were asked to respond to questions about their general teaching background and technology use, their school, and their thoughts on technology and teaching. Qualitative data were collected through open-ended questions within the questionnaire, which was the main difference between Research Study One and Research Study Two. After data was collected, it was put into Google sheets and analyzed by the researcher.

Both researchers had independently come up with similar research questions and collected similar data around the same time frame, in a similar fashion. Due to this, the researchers decided to combine their results. However, the questionnaires were not identical, so the researchers reexamined their survey questions. Questions that were similarly worded, or that asked for the same information are included in the present paper. Questions that were only present in one study, or that did not ask for similar information were discarded. Once the questionnaires from both studies were evaluated and questions were selected, the data were combined and reanalyzed.

RESULTS AND DISCUSSION

The results from the two studies will be distinguished by the terms Research Study One and Researcher One, and Research Study Two and Researcher Two.

RQ1: To What Extent is CALL Available in Japanese Schools?

The questionnaires and interviews revealed that a variety of technology was available to teachers in both elementary and high schools. This technology included: Apple iPads, personal computers, computer rooms, projectors, interactive whiteboards, WiFi, and CD players. Excluding CD players, these items have been identified by both the Ministry of Internal Affairs and Communications (MIC) and MEXT as tools that should be in all Japanese classrooms if they are to be reflective of 21st-century learning environments (MEXT, 2011c). Despite the availability of more modern technology, the most popular technology referred to by JTEs in both studies were CD players and computer rooms. Apple iPads were also popularly referred to by JTEs from Research Study One, as they had been introduced by the Oita City Board of Education in 2014 to each elementary school. However, a recurring issue was the lack of awareness of available technology. In Research Study One, for example, 19 of the 44 JTEs mentioned the availability of WiFi in their classrooms, while only six of the 30 ALTs knew that this existed. Similarly, while 41 JTEs shared that iPads were available in their schools, only eight ALTs were aware of this. In Research Study Two, ALTs also shared that there was a lack of knowledge of what technology was available, a reluctance to use the technology, and even refusals in being given access to the technology. Responses such as, "My school refuses to give me access to [technology] or thinks it will be too complicated to use in the classroom" indicate a lack of consistency in the application of technology in schools .

When the teachers were asked how often they utilized the technology that was available to them, the responses collected showed a disparity between the two different groups of teachers. In Research Study One, ALTs responded to using technology more frequently than the JTEs, with half of the elementary school ALTs stating that they 'always' or 'often' used technology when teaching English. In stark contrast, 29 of 44 JTEs stated that they 'never' or 'occasionally' used it in the same situation. In Research Study Two, none of the high school JTEs stated that they used technology 'never' or 'occasionally' but instead used it 'somewhat regularly' or 'regularly'. However, the majority of the ALTs in this study stated that they 'rarely' or 'never' use it, which implies that technology was being used when ALTs were not

present due to unknown factors. Regarding the JTEs, this inclusion of technology represents a positive move forward. Teo (2006) outlines that teachers' willingness to use technology in the classroom affects the students' perspective of the technology. In creating a 21st-century classroom, it shows that there is a willingness from Japanese teachers to use technology in their classrooms. However, it is unclear why this technology is not being used when the ALTs are present.

Concerning support, the disparity between ALTs and JTEs continued. In Research Study One, 27 JTEs stated that support was available to them to various degrees. At the time of this study, elementary schools in Oita City were assigned an ICT support technician to visit each school twice a month. In contrast, an assigned teacher in each staffroom was given supplementary ICT training to act as a supporter to other teachers between visits. The results collected from the JTEs in this study suggest that the help available to teachers was well received, although given that a third of the teachers responded more negatively, it indicates there is room for improvement. This data is also relevant in the case of ALTs, however, as Research Study Two revealed that there was a lack of ICT training available to the ALTs, a lack of ICT infrastructure for classrooms, and a lack of encouragement and support from JTEs to incorporate technology. For MEXT's long-term goals of a 21st-century classroom to be realized, consideration must be given to technology training for teachers, as technical support is one of the key obstacles to technology integration in the classroom (Angel, 2011). When the ALTs and JTEs in Research Study Two were asked to respond to the question "What would you want to learn at a technology training session for teachers?", the two groups responded differently. The ALTs were interested in the three categories (ways to implement technology in the classroom, advice on how to use specific technology, and specific tools and apps for education) while the JTEs were focused on only one of the categories (specific tools and apps for education). This data indicates that the JTEs may already feel comfortable with the other two categories, while the ALTs, who do not receive any training, were interested in all the training topics listed.

The data collected from each study shows a range of technology is available to teachers; however, there appears to be a lack of communication indicating that this information is not always widely available, particularly to ALTs. Similarly, the range and availability of technology show that this did not always equate to inclusion and use in the classroom when teaching English. In both studies, ALTs and JTEs had differing views and responses regarding the amount and the scope of technology training available to them.

RQ2: What Technology is Used by Teachers in the Classroom?

In Research Question Two, the researchers focused on technology usage, technology confidence, and desire for training. In both studies, ALTs and JTEs reported their technology usage in the classroom; examples included CD players, TVs, and projectors. Despite the widespread availability of technology in their schools (as found in RQ1), the reported use of technology was limited. For example, Researcher One found computer rooms were reported as rarely used, despite their widespread availability. Similarly, Researcher Two found that five of 20 ALTs reported not using technology at all, even though it was reported that a wide variety of technological tools were available at their school.

In both studies, the researchers included questions on the teachers' confidence in using technology. For Researcher One, the elementary school ALTs and JTEs felt very differently. While the majority of ALTs felt confident, the opposite was found for JTEs. Studies by Kelly (2015) and Tweed (2013) showed that there is a correlation between teachers' self-confidence and the inclusion of technology in the classroom. Thus, the lack of confidence felt among the JTEs may explain the absence of the variety of technology reportedly being used despite the

various tools available to them. However, given the monthly technical support available to elementary school teachers, it is unclear why some technology saw an extreme lack of use. In contrast, Researcher Two reported high levels of confidence with both the high school ALTs and JTEs. This change may be due to the JTEs having focused on their experience with CD players (and not other types of technology), which they felt confident using.

With regard to additional technology training, both studies measured teacher interest. In Research Study One, less than half of the JTEs responded that they were interested in the opportunity for more (technology) training. In a follow-up interview, a JTE who was interested in additional training said, "...it is important to use technology because children use technology better than teachers." However, given that most teachers were not interested in additional training, it is unclear whether this is due to contentment with the monthly support they currently receive or factors such as a lack of confidence. In Research Study Two, when asked about their thoughts on technology training, one ALT respondent expressed a desire for "training teachers [JTEs] about how to use and the benefits of technology." ALT respondents in this study continually raised their desire for JTEs to undergo technology training so that JTEs would not only see the benefits of using technology but also fear it less.

Despite the variety of technology available to teachers, usage in both studies was limited, and the most frequently used tools were CD players, TVs, and projectors. A disparity was found in teachers' confidence in both studies, particularly among JTEs. This result corresponds with their low interest in additional training, which indicates a relationship between confidence in their ability and a willingness to learn and improve. In comparison, the ALTs in Research Study One and all of the respondents in Research Study Two reported high confidence levels. However, it is unclear whether this confidence is about the general use of technology or the use of basic technology such as CD players and TVs. Again, the confidence levels of the teachers corresponded to their interest in additional training, with the ALTs in Research Study Two expressing a desire for technology training for their JTEs.

RQ3: What is the Perceived Usefulness of Technology in the Language Classroom?

In Research Question Three, the researchers wanted to understand the perceived usefulness of technology in the classroom. In both studies, the ALTs and JTEs responded positively to the statement, "Technology is useful for language teaching." In Research Study One, almost half of the ALTs responded with 'strongly agreed' although only six of the 44 JTEs responded similarly. In Research Study Two, however, the JTEs responded more strongly to the statement, with four of the five JTEs responding with 'very useful', while 13 of the 20 ALTs chose the same response. The results are positive; however, similar to the Japanese government identifying the importance of ICT in education in 1985 (MEXT, 2011c), this acknowledgement is not necessarily reflected in the classroom.

During the interview, the teachers were questioned about the benefits of technology in the classroom. One JTE from Research Study One said, "...my pronunciation is not so good for students so the DVD is very native for student [sic]," while another JTE said, "It is very easy to use [electronic whiteboard] and those oral textbooks [sic]." The benefits identified by the teachers are reflective of those introduced by Alsied and Pathan (2013), in that the use of technology can help to take the pressure off of language teachers as the technology provides students with another source of knowledge and interaction. These responses indicate JTEs' recognition of the benefits of technology; however, during the interviews, most respondents focused on the difficulties of using technology rather than the benefits. Such a focus suggests that negative technology experiences outweigh any positive experiences had by these teachers, which have affected their self-efficacy and so the inclusion of these tools in the classroom

(Kelly, 2015). In Research Study Two, the ALTs shared a variety of positive examples that highlighted the benefits of using technology in teaching, commenting on how "kids find it more engaging" and "different media creates more exciting classes." These benefits are echoed by Patel (2014), who outlines that one of the many advantages of technology is the positive effect it can have on motivation and learner attitude. The data collected shows that in both teaching roles, teachers are, to varying extents, able to identify the benefits of using technology in the classroom. ALTs tend to be more vocal about the benefits of technology than the JTEs, who focused more on the obstacles.

With both ALTs and JTEs acknowledging the usefulness of technology in the classroom, in Research Study One, the teachers were asked to respond to the statement, "It is too time-consuming to use technology in the classroom." There was a disparity in the responses collected, with the majority of JTEs (38) in agreement, and the majority of ALTs (25) in disagreement. These responses correspond to and offer insight into the responses given to the question in RQ1, "How often do you use technology when you teach English?" where the JTEs use of technology was considerably low. Despite JTEs and ALTs acknowledging the usefulness of technology, barriers continued to be a theme in participants' responses. A reported lack of infrastructure and lack of technical support from the teachers are in line with Fathi & Ebadi's (2020) 'facility condition' obstacles to CALL implementation.

An example of this was found in a follow-up interview with a JTE in Research Study One. The respondent explained that the fifth graders' classrooms were on both the second and third floor of the elementary school, so if teachers wished to use the interactive whiteboard, they would have to carry it up and down several flights of steps. The whiteboards the JTE referred to are often large, heavy, and secured to a wheeled frame, making them difficult to transport easily. In addition to these logistical issues, respondents added that the age of technology also contributed to the idea that technology in the classroom was time-consuming. These issues were also identified in Research Study Two where one ALT said, "[if I use technology] I end up spending the first 10-15 minutes of class trying to get the decrepit computer to cooperate with the even more decrepit projector…" This quote is indicative of how teachers in both studies felt about using technology, as tools were not always installed or easily accessible without a time-consuming set-up. Should the vision for a 21st-century classroom be realized by MEXT, these facility condition obstacles (Fathi & Ebadi, 2020) need to be overcome for teachers to experience the usefulness of technology that they can identify but not experience.

Results from Research Question Three show that teachers already believe that technology is not only useful in the language classroom but that it has benefits for students. Despite this recognition, ALTs and JTEs also acknowledge that there are barriers that limit technology implementation, such as logistical issues, time constraints, and working with outdated technology.

RECOMMENDATIONS

For the Japanese government's vision of 21st-century classrooms to be fully realized, a number of obstacles need to be addressed and overcome. In the future, a framework which empowers teachers and supports development can lead to positive outcomes for technology in the Japanese public schooling system. As expressed by MIC and MEXT (2011c), technology integrated seamlessly in classrooms should be the standard, but with informed decisions by teachers regarding the role of technology. This paper proposes that policymakers consider the realities teachers face in their daily practice if they are to meet the goals and objectives these policies prescribe. For this to happen, it is clear from the two studies that additional training

for both JTEs and ALTs is required, and ongoing technical support should be provided. Looking to the future, establishing connections and improving communication between JTEs and ALTs is necessary regarding knowledge and experience of technology and how it can be integrated and utilized in the language classroom. In this way, it is conceivable to normalize technology (Bax, 2003). Then, CALL may become an integral part of teaching and learning, creating new opportunities for learners at all levels of the Japanese public schooling system to engage with and develop their English education.

CONCLUSION AND LIMITATIONS OF THE STUDY

These two mixed-methods studies found that while there is a variety of technology tools available in Japanese public schools, CD players are the most used. While both ALTs and JTEs feel that technology is useful, several factors impede usage in the classroom which include a lack of communication between JTEs and ALTs, teacher confidence, and technical support, as well as infrastructure-related obstacles. Due to the small sample sizes in the two research studies, the results may not be generalizable. However, the studies do give insight into the status of technology in the Japanese public schooling system., which may prove beneficial to other researchers looking into the use of technology in the Japanese classroom.

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