An Investigation into the Perceptions of Japanese University Educators on the Use of ICT in an EFL Tertiary Setting

Matthew Caldwell (mattinhannan2@gmail.com)
Hannan University, Japan

Abstract

Promotion of the use of Information and Communications Technology (ICT) in Japanese education by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) has continued over the last two decades with national strategies such as *e-Japan Strategy*, *New IT Reform Strategy*, and *e-Japan strategy 2015*. However, a cursory browse through reports from organizations such as the Organisation for Economic Co-operation and Development (OECD) reveals that Japan still lags behind other countries in the uptake of ICT in education. Why is this? Is it in some way due to a lack of interest from teachers? This study sought to determine what role university educators saw for ICT, as well as the factors influencing the use of ICT in university EFL classrooms. Educator perceptions were investigated through the qualitative method of four separate semi-structured interviews, which provided data that was then coded for analysis purposes. Educators noted the potential of technology to promote independent learning and student engagement. Factors such as leadership support, improved ICT infrastructure, and the educator's own desire to use ICT were seen as influencing the use of ICT. Teachers' beliefs, traditional teaching methods, and cultural issues were identified as barriers to ICT integration in classrooms. The need for ICT training, especially pedagogical, also emerged.

Keywords: Integrating ICT, Japanese universities, Teachers, EFL.

Introduction

Information Technology (IT) originally referred to computers and associated hardware such as disk drives and printers. The 'C' was added in the late 1990s to account for the influence of the communication aspect of technology (UNESCO, 2010). This communication element was driven by the development of the Internet, which provided the platform for email and mobile technologies (Unwin, 2007). The term *transformational* has been used by Beetham and Sharpe (2007, p. xvi) to describe the potential effect of ICT integration on teaching and learning. Citing the example of a young boy who dislikes study, is low on self-esteem and possesses few skills, the authors claim the technology can gather the content he finds interesting, conform to the demands of the younger generations, and "respond to individual needs of pace and level". Japan would seem to be in a strong position to make the most of the potential that ICT offers as it has the world's second-highest number of both fixed broadband and mobile broadband subscriptions (OECD, 2019). Furthermore, the World Economic Forum's Network

Readiness Index (NRI), an index that measures a country's ability to make the most of opportunities arising from ICT, places Japan 10th in the world (WEF, 2016). Yet when it comes to utilising technology in education, figures show that Japan lags behind other countries with just one computer available for every four 15-year-old students, slightly better than the OECD average of 5:1 (OECD, 2015), and a ranking of 37th place among 139 countries for internet access in schools. To better understand why tertiary institutions in Japan have not made use of ICT to transform teaching and learning, as Beetham and Sharpe claim it can, this study investigates the perceptions of tertiary EFL (English as a Foreign Language) educators regarding the use of ICT for study purposes.

Review of Literature

Among the factors noted in the literature as influencing educators' use of technology in classrooms are; teacher beliefs, teacher change, availability of professional development, self-efficacy, teaching styles, and cultural considerations. These factors are discussed in brief here.

Pajares (1992) believes that educational beliefs are related to a teacher's belief in his or her confidence to affect a student's performance, and also notes that beliefs are filters that inform teachers regarding instruction and decisions about curriculums. Turner, Christensen, & Meyer (2009) add that beliefs represent an individual's subjective knowledge. Although research shows that teachers with constructivist beliefs are more likely to try and integrate technology into their teaching (Higgins & Moseley, 2001; Sang et al., 2011; Hermans et al., 2008), there is also research to show that holding constructivist beliefs about teaching does not guarantee that technology use will be constructivist in nature (Teo et al., 2008). A study from Levin and Wadmany (2006, p. 172) supports this view and notes that it is more likely that teachers' beliefs on teaching and classroom practices involving technology exist on a continuum in which "teaching as transmission" is located at one end, with "teaching as facilitating knowledge reconstruction" located on the opposite end.

The ability of a teacher to change his or her teaching practices is identified by Ertmore and Ottenbreit-Leftwich (2010) as a key variable influencing integration of technology. They give a number of reasons to explain teachers' reluctance to introduce technology to their teaching, including a lack of relevant knowledge, low self-efficacy, and existing belief systems. Galanouli et al. (2004, p. 66) state that "resisting change is a state of mind for many teachers and one of the most difficult barriers to the effective integration of ICT to conquer". One of the consequences of this unwillingness to change is that when teachers are obliged to use ICT, it is often part of curricula featuring more open-ended learning styles, which require different instruction methods; yet in many cases, teachers persist with traditional instruction methods (Cullingford & Haq, 2009).

Wood and Bandura (1989) state that having a successful experience makes it more likely that teachers will have higher self-efficacy, and that a bad experience leads to lower self-efficacy. Studies have shown that the degree to which a teacher is confident in using technology helps to predict how successful attempts at integrating ICT into learning will be (Hatlevik & Hatlevik, 2018; Kusano et al., 2013; Moreira et al., 2018; Ha & Lee, 2019). Training in the use of ICT for study purposes should help teachers become more confident and Schrum and Levin (2013) note that teachers have voiced the need for

professional development if they are to successfully integrate technology into their teaching. Levels of support within the school, together with the amount of access to ICT resources are cited as being critical to technology integration (Al-Ruz & Khassawneh, 2011; Preston et al., 2000; Castaño-Muñoz et al., 2018).

Teaching styles can also be said to affect the degree to which teachers use technology in the classroom. The *transmissionist* learning model sees "the teacher as the source of knowledge and the students as passive recipients of knowledge" (Teo et al., 2008, p. 165). This is in contrast to a constructivist style of teaching, which emphasizes student-centred learning that promotes independent learning and student meaning-making (Teo et al., 2008). Evidence from the literature indicates that the dominant teaching style in Japan is a transmission-style and Aoki (2010) cites results from a University of Tokyo study which found that 82% of classes were lecture-based, and only 30% of the respondents said that they had opportunities to make comments in class. Hayashi and Cherry (2004) point out that in Japanese collectivist classrooms there is a focus on the teacher transmitting information to the students in a lecturing style, with few opportunities for students to express their opinions. Mima (2003, p. 266) declares that:

> In conventional Japanese education, the curriculum is largely designed for fact-based, exam-oriented learning. In this learning process standard textbooks are used to facilitate the hierarchical flow of information from 'knowers' to 'nonknowers' and this one-way flow has been implemented in the name of improving efficiency of education.

Robertson et al. (2004) inform us that learning with ICT necessitates using more open-ended aspects of learning, thus the difficulties of trying to integrate ICT into Japanese classrooms, where the transmissionist teaching style is more prevalent, becomes apparent.

Yoshida and Bachnik (2003, p. 43) claim that another hindrance to the implementation of ICT in Japanese higher education arises from the priority that Japanese universities place on institutional rather than specialist-based criteria. The authors point out that universities often choose to ignore the fact that faculty members need certain skills to implement IT. Thus, it is not uncommon to see chairpersons of university committees, who have been charged with promoting the integration of ICT into university classrooms, lacking even rudimentary ICT skills, "because they were appointed by criteria for seniority rather than skills".

Method

Objective

The purpose of this study was to add to the literature on issues related to the use of ICT by educators in EFL classrooms at Japanese universities. This was achieved by seeking the opinions of university educators in relation to the use of technology to teach and learn English. More specifically, the objective was to gain a better understanding of what university educators felt the role of ICT was in EFL classrooms, and their opinions on the factors influencing its use. This objective led to the formation of the following research question:

With regards to the use of ICT for EFL learning purposes, what are the perceptions of Japanese university educators on:
(a) the role of ICT
(b) the factors influencing the use of ICT

Research Design

The author has worked as an EFL instructor at a number of Japanese universities, thus providing opportunities to observe how each institution approaches the use of ICT in their classrooms, as well as the chance to discuss the use of ICT in classes with other instructors. It was felt that a series of semi-structured interviews with university educators would be the best way to attain the objectives of the research. Mackey and Gass (2016) note that in the qualitative research approach, existing situations are observed, and questions start to emanate, leading to the formation of a hypothesis. Semi-structured interviews use questions that are standardised and help to ensure that information from different interviews is complete and consistent (Harrell and Bradley, 2009).

The sample for the semi-structured interviews consisted of four educators, all-male and employed at Japanese universities. They are identified as Interviewee 1 (hereafter "I1"), Interviewee 2 (I2), Interviewee 3 (I3), and Interviewee 4 (I4). Apart from I4, who is chief of the ICT department at a university and works in an administrative role, all are full-time members of faculty at different private universities in western Japan. I1 is a native English-speaking professor and teaches English to students majoring in English (his students use an iPad in most classes). I2 is also a native English-speaking professor and teaches English to students majoring in business. He sits on the university ICT committee. I3 is a professor at a university of technology and a native speaker of Japanese. He teaches English to students majoring in technology. The educators were also asked to complete a pre-interview questionnaire containing straightforward questions one week before the interview to save time. The interviews each lasted approximately thirty-five minutes and were conducted in the participants' offices. All interviews were recorded with an IC recorder and transcribed.

Data Analysis

To analyse the data, what Marshall and Rossman (2014, p. 214) term "thematic memos" were created. These helped group together thoughts about how a story emerged or revealed a sentiment that the respondent seemed to be expressing. In addition, it is easier to identify patterns and themes in the data, which Patton, 2002 (cited in Teddlie and Tashakkori, 2009, p. 251) describes as a pattern of inductive analysis.

Findings and Analysis

The findings revealed that research participants felt that using technology in classrooms could be beneficial both in terms of pedagogical and learning management uses. They also identified challenges in trying to implement ICT in their classes. It

emerged that multiple sources were driving the integration of ICT at their institutions and that cultural issues also influenced ICT integration in Japanese university classrooms.

Advantages of Integrating ICT

Independent learning

The capacity of technology to facilitate independent learning was identified in the interviews, with I3 stating that in addition to pedagogical purposes, his Moodle is used as a Learning Management System (LMS). Regarding activities not completed in class, he stated,

> *"I would just leave it to them to finish outside class. And then I can concentrate more on what I want to do. That's a good use of learning management."*

I1 also feels that technology can support independent learning, as can be seen from his comment regarding how students use their iPads.

> *"We just need to show them in class, and they can do it on their own – fantastic!"*

Majumdar (2006) claims that learners appreciate ICT for this kind of flexibility in relation to time, space and place.

Student engagement

There was some consensus among the professors on the potential for ICT to engage students in learning and I3 commented,

> *"Engagement is the name of the game."*

I2 concurred with this and indicated that there was plenty of engagement from his students when using the vocabulary learning app *Quizlet*,

> *"Oh, they enjoyed it, and there is a lot of chatter going on, comparing with each other. There are certain races, little competitions you can do, and they enjoyed it, it's clear."*

Reading (2008, p. 6) recommends teachers use an Engagement Measurement Plan for students involved in tasks that integrate technology. Doing so would help teachers recognise the contributions that the use of ICT has made to learning.

Although the professors had positive views on the degree to which use of ICT could engage students, they were more circumspect about the value of ICT in promoting motivation to learn. When asked if student use of ICT improved motivation, I2 replied,

> *"It's hard to say."*

His students are required to use apps on their smartphones to study vocabulary before coming to class but rarely do it. He revealed plans to use the inbuilt monitoring function on the apps to check whether students had studied the vocabulary before class, with task completion earning extra points for students. He stated,

> *"I need to find another way to hook them. And I think it might have to become a bit of a bait and switch."*

This comment suggests that he believes an extrinsic form of motivation is necessary. I3 also acknowledged the failure of ICT to motivate some of his students.

> *"Some have motivational problems…… and are not concerned about it at all."*

Challenges to Integrating ICT

Participants expressed views that indicate they believe there are a number of factors that can negatively influence teacher uptake of ICT in the classroom.

Teacher reluctance

I1 cited age and teaching styles as reasons why teachers in his university might not want to implement ICT.

> *"We have a teacher who is sixty-seven. It's different for such teachers. Their whole idea of what happens in the classroom is totally different. It's probably lectured based."*

I2 revealed that there are some teachers at his university who have no interest in using technology, either due to a lack of knowledge, or an unwillingness to change.

> *"We have got people who have never opened email for example, or barely open it. And then there are people, who have developed their own teaching style. And they are happy with that. This is human nature; people often don't want to change. They want to keep what they are doing".*

Cox et al. (1999) (cited in Bingimlas, 2009. p. 239) note that teachers are unlikely to use new technologies if they perceive there is nothing wrong with their existing teaching. They also state that teachers who oppose change are not rejecting the need for change but often lack the knowledge that would help them see the benefits of change. This is supported by Bingimlas (2009) who says that teacher reluctance to change is often as a result of teachers lacking expertise as well as both time and technical support. He suggests that more effective faculty development might be one way to address this problem.

Insufficient training for ICT

There were diverging views among the professors regarding training to help integrate ICT into teaching practices. I1's comments suggest that he does not see a pressing need for training in how to integrate ICT into teaching practice. Regarding his university's use of iPads, he claimed,

> *"Teachers know how to teach, so this is just another tool."*

I3 felt that he received adequate support from his university to help him with queries about technology. Regarding pedagogical training from the university on the use of ICT, he stated that it was up to the teachers themselves to attain this and then pass it onto colleagues.

> *"I think that is more of our responsibility, going to those 'Gakkais' -* (research meetings and conferences)*, and study associations. We then feed it back into the school, among English teachers."*

I2 was critical of the Professional Development available at his university, and related that he was unhappy with the status quo. In his capacity as a member of the ICT committee, he had suggested to the university that teacher trainers be introduced.

"Why can't we have genuine informed people, teacher trainers, basically, come in and watch our classes and give us real feedback?"

The diversity of opinions in relation to the issue of ICT training suggests that reaching a consensus on effective training is difficult.

A comment made by I3 reflected the degree to which self-efficacy can influence teacher uptake of technology. He noted that teachers are often put off using Computer Aided Language Learning (CALL) rooms at his university because the equipment looks so complicated.

"You have four or five monitors in front of you, you never know which one is showing what! There are so many gadgets, two or three keyboards!"

Time constraints

Literature provides many references to indicate that teachers feel a lack of time is a hindrance to the integration of ICT by teachers (Almekhlafi and Almeqdadi, 2010; BECTA, 2004; Dawson, 2012). This was also evident in comments made by all three of the professors, where they indicated that a lack of time and the pressure of other commitments influenced the degree to which teachers might use ICT. I3 mentioned that even though he shared a manual for his Moodle with colleagues, they did not use it. Explaining why they did not use it, he stated,

"Maybe they already have too many things to do!"

I2 also spoke about the difficulty of finding time to undergo ICT training. Like I3, he chooses to attend conferences and presentations for professional development purposes. However, he pointed out that these are often held after work or at the weekend.

"When you have to do these things in the evening and at the weekend, it's hard."

I1 also suggested that he was too busy to attend ICT training.

"We could do more, but we are all doing our own research and we are also involved with improving the existing system."

Connectivity problems

Problems related to gaining access to the internet were evident from comments made by some of the participants. In I2's case, he expressed frustration in relation to insufficient data on students' smartphone subscriptions.

"We have that situation towards the end of the month, where students have some trouble with their data plans, they are getting near to the end of it and then suddenly, their providers turn the tap off."

The fact that students have to use their own data to access the Internet raises questions about the availability of Wi-Fi and, I4, the ICT administrator acknowledged this.

"There are a number of places (on campus) where there are problems when we have a lot of students connecting to the Wi-Fi at the same time."

Oriaku (2008) warns that colleges already struggling to pay for updating of computer systems often cannot afford the extra costs involved in trying to provide the tools necessary to make maximum use of emerging technologies. I2 made reference to this problem of high costs and revealed that the ICT committee was currently considering a new Wi-Fi system.

> *"It's a problematic issue, because to update everything to a Wi-Fi strength to what is required is enormously expensive."*

Multiple Sources Instigating Integration of ICT

A noteworthy aspect to emerge from the research was the multifarious nature of sources leading to the integration of ICT in Japanese universities. One of these is leadership, and I1 cited the importance of the role university leaders play in integrating ICT.

> *"So, a lot of it has to come from the top down, too. Because if it's not there, there's nothing you can do.'"*

This is supported by claims from Dexter (2008, p. 543), who argues that effective leadership for technology in a school "is a significant predictor of its use by teachers and students." In contrast to this view, comments from I3 seem to indicate that his own desire to leverage ICT to support his teaching and student learning, rather than an institutional push, are what motivate him to use ICT. Similarly, while I2 did not refer to any curricular demands that he should use technology in his classes, his position on the ICT committee at his university may have prompted him to try integrating ICT more into his teaching practices.

When asked about the degree to which the university was following the Ministry of Education directives with regard to ICT integration, I4 stated that the main directive from the Ministry concerned *Active Learning* and merely suggested that the university promote it through using ICT. He stressed that while they had made attempts to do this, it was still very much up to teachers themselves to decide on whether they use technology or not.

The participants also noted that students' preference for using smartphones was also contributing to the use of technology for learning. I4 referred to a phrase that has become ubiquitous among students,

> *"Sumafon de sumasu"*,

which loosely translates as, *"Your smartphone can do it all!"* The phrase expresses the sentiment that one's smartphone is almighty, all-powerful, and can be used for any task. He revealed that the university ICT support desk frequently receives queries from students who have completed reports on their smartphones in the *Notes* function and want to know how they can get the data off the phone so that they can submit the work. I1 also recognised the fact that students were very comfortable with the digital world, claiming,

> *"The current generation, they don't know life outside of this stuff!"*

I3 also noted that students were much more comfortable using smartphones, rather than computers.

> *"Instead of being able to use computers adroitly, they are used to using mobile phones, their fingers are good. It's (smartphone) part of their life."*

Cultural Factors Influencing Use of ICT

The impact of cultural issues on the usage of ICT was also conspicuous in the findings. How these issues might affect the integration of ICT into teaching practices is discussed here.

Mistrust of technology

The influence of classroom norms on student beliefs about the use of technology in the class came to light when I2 spoke about an incident that took place at a teacher training university where he works part-time. He recalled the negative reaction students had towards a student who was using her smartphone to look at some cues as she gave a presentation. Her classmates felt that she had erred in using her smartphone during class.

> *"They (the students) had a sort of blanket mentality that it's not okay to use a phone in the classroom."*

I2 expressed uncertainty as to why students reacted in this way, but it is possible that their attitudes were tied into a mistrust of technology in an educational context. Morrone (2012) claims such beliefs are common in Japan and present a major obstacle to the integration of ICT in Japanese classrooms. He cites the fact that many schools refuse to allow the use of calculators in Japan as an example of this mistrust. Such mind-sets perceive the use of technology in the classroom almost akin to cheating and make integration of technology more difficult. This case highlights the need for educators to be alert to cultural issues that may influence how students interact with technology in classrooms.

Composition of committees at Japanese universities

It was noted previously that integration of ICT at Japanese universities is often hindered by an emphasis on institutional values, rather than specialist skills when appointing people to committees charged with overseeing administrative and educational matters (Yoshida & Bachnik, 2003). This is reflected in a comment I2 makes about his appointment to the ICT committee.

> *"The fact that I am on the committee, I think that's probably down to a cultural thing, the Japanese thing of where everybody has to do something, everybody has to do their fair share".*

Whilst he was happy to serve on the ICT committee, I2 felt that others may have been more qualified to do so. He added that others on the committee knew even less than he did about computers. Deeply embedded practices such as this work against innovation and make ICT integration even more difficult.

Discussion

With regard to the first part of the research question and the role of ICT, while the findings reveal that educators believe ICT can positively contribute to student learning, the degree to which it does so is less clear. I1 expressed positive views about the role ICT played in his classes and felt that it helped with student autonomy, as students were able

to learn on their own. His positive attitude towards technology was likely influenced by school management supportive of ICT and school policy that requires all students to use iPads. In addition to its usefulness for pedagogical purposes, I3 also felt that using the learning management capabilities of ICT helped support students through independent learning. It could be argued that utilizing LMS in this way is somewhat limited use of ICT and fails to realize the potential of ICT to change learning. The literature contains references which caution against an over-emphasis on the technology being used, with De Boer (2013) warning that the use of technology in second language learning places too much focus on the technology tools aiding learning, and not enough on the process through which a language is learned via the help of technology. Hardman (2019) notes that while studies have shown technology on its own has no significant impact on student achievement, attainment can be positively influenced by the use of ICT, depending on the pedagogical practices of teachers. In other words, it is how technology is used and designed that determines whether or not the use of ICT will help improve learning outcomes. This serves to highlight the need for ICT training, especially training for pedagogical uses of ICT.

While I2 could see how ICT could engage his students, he was doubtful of its capacity to motivate them. The difficulties involved in trying to foster independent learning was highlighted by I2's comment that he was hoping to use extrinsic forms of motivation to encourage his students to complete vocabulary learning activities with their smartphones before coming to class. Ushioda (2013) argues for a different stance, in this case, claiming that internalised motivation for independent learning can be increased by giving students more autonomy, flexibility, and choices. For students with low motivation, I2's "carrot" approach of using the awarding of points may serve to motivate students when introducing new technology, at least until they can better understand the intrinsic value of what they are studying. Giving students more freedom to choose how they use their smartphones to learn English when they have understood the intrinsic value of such methods could increase their motivation to study even further. In a study of EFL learners in Spain, Kopinska (2017) notes that the use of ICT when learning a language contributes to a sense of fun and innovation and can be important in sustaining the motivation of learners, especially those with less well-developed English language skills.

With respect to the second part of the research question and identifying the factors which influence educators' use of ICT, the findings pointed to a number of issues. Among these, a reluctance by teachers to change their teaching style was noted by the professors as one of the challenges to integrating ICT into education. Many teachers may be reluctant to try using technology because of the fear that they will look like a novice in front of students if they cannot use the technology correctly or if something goes wrong. This fear may be more pronounced in Japan where a transmissionist teaching style views the teacher as the possessor of knowledge, charged with passing this knowledge onto students. Morrone (2012) adds that teachers in Japan often foster a dependency-type relationship with students, where the student cannot manage without the guidance of the teacher. These factors make introducing ICT into classrooms less straightforward and as such, it is not hard to imagine why teachers might be less willing to attempt to integrate ICT in such cases.

The absence of training emerged as a potential barrier to integrating ICT, and while both I2 and I3 expressed a willingness to undergo ICT training, as full-time members of faculty, they have the option to ask the university to fund any courses they wish to join.

Part-time teachers, however, do not have this option, despite being heavily relied upon at Japanese universities. Nagatomo (2012) reveals that part-time teachers make up almost 57% of the teaching population at Japanese universities. I4, the university ICT chief, alluded to the difficulties of arranging training for part-time teachers due to the fact many part-teachers work at a different university every day. They would effectively need to run the same course five times to cover all the part-time teachers that work from Monday to Friday. Apart from the obvious practical difficulties involved in arranging this, financial considerations would most likely render it unworkable.

Time constraints were also mentioned by the professors as an obstacle to attending ICT training sessions. One suggestion that might ameliorate both the problems of finding extra time to attend ICT training and also for training for busy part-time teachers is to arrange attendance in an online course, as suggested by Frederick et al. (2006). The diverse nature of courses taught at university is also referenced by Lockley (2013) as contributing to the difficulties in arranging appropriate ICT training for teachers. Putting additional resources into Faculty Development (FD) could also help universities to tackle this problem.

The role of leadership in integrating ICT was raised by I1, who felt that ICT integration was impossible without it. While literature does reference the importance of leadership when implementing ICT (Chen et al., 2013; Schiller, 2002), it also notes both the need for consensus among teachers about how best to integrate ICT into teaching, as well as the importance of teacher autonomy. In their research on how schools can successfully utilize professional development for technology integration, Schrum and Levin (2013, p. 37) noted that the teachers they interviewed all worked in schools where "the principles of distributed leadership" were practiced. Distributed leadership is "characterised as a form of collective leadership" where teachers develop their skills working together (Harris & Muijis, 2004, p. 28). Furthermore, in a study that sought to determine factors influencing teachers' intentions to integrate smartphones in language lessons, O' Neill et al. (2018), found that the degree to which teachers were influenced by self-efficacy and autonomy to use smartphones in their lessons depended on how familiar the teachers were with these devices. To this end, the authors cited recommendations from Zhao and Frank (2003, p. 108) that schools take an evolutionary rather than a revolutionary stance when trying to promote the use of technology in the classroom. That is, rather than prescribing what technology teachers use (a top-down approach), that it would be better to let teachers become more comfortable with using devices, perhaps even for personal purposes, and then have them decide themselves how they might apply their use to classroom learning situations.

The situation for the other professors was different and it appeared their efforts at integrating ICT derived from their initiative. Comments made by I4 in relation to directives on the use of ICT from the Ministry of Education suggested that the degree to which government policy is instigating ICT integration at the tertiary level is rather limited. This is confirmed by Narita (2003), who notes that in contrast to primary and secondary schools, where the Ministry of Education has much more direct influence, government influence on higher education is less direct and universities have a lot more leeway in how they choose to integrate ICT in the classroom.

Limitations and recommendations for further research

The study has a number of limitations, the most significant being the small sample size (N = 4). In addition, all four educators work in universities situated in the same geographical location in western Japan. This limits the degree to which the findings can be generalised. Further research should try to increase sample sizes. Research into teacher perceptions on integrating ICT into their teaching might also try to adopt a mixed-methods approach. An initial quantitative study with a larger sample size could be used to identify issues concerning the integration of ICT in EFL classes at the tertiary level, with a subsequent qualitative study delving deeper into issues raised.

Conclusion

The potential for increased engagement and more independent learning among their students were identified by the teachers in this study as possible merits of integrating ICT into their teaching practice. However, maximizing the potential of ICT to realize those aims is not straightforward. The barriers educators face when trying to make this integration successful are multi-faceted, including financial, pedagogical, and cultural. Teachers can take students to the "technology well", but they need assistance in showing the students how to drink from this well. If universities in Japan wish to overcome these barriers, training in the practical and pedagogical use of ICT is essential to ensure that students can become engaged in their learning, thus becoming both more autonomous, and motivated to learn.

References

Almekhlafi, A. G. & Almeqdadi, F. A. (2010). Teachers' perceptions of technology integration in the United Arab Emirates school classrooms. *Educational Technology and Society, (12)*, 165–175. http://www.ifets.info/journals/13_1/ 16.pdf

Al-ruz, J. A. & Khasawneh, S. (2011). Jordanian pre-service teachers' and technology integration: A human resource development approach. *Educational Technology and Society. (14),* pp.77-87.

Aoki, K. (2010). The Use of ICT and e-Learning in Higher Education in Japan. *World Academy of Science, Engineering and Technology. (42)*, 854-858. http://waset. org/publications/8572/the-use-of-ict-and-e-learning-in-higher-education-in-japan

BECTA (2004) (British Educational Communications and Technology Agency). A review of the research literature on barriers to the uptake of ICT by teachers. Retrieved from BECTA website: https://core.ac.uk/download/pdf/4151892.pdf? repositoryId=161

Beetham, H. & Sharpe, R. (2007). *Rethinking Pedagogy for a Digital Age: Designing and delivering*. Oxon: Routledge, Taylor and Francis

Bingimlas, K.A. (2009). Barriers to the Successful Integration of ICT in Teaching and Learning Environments: A Review of the Literature. *Eurasia Journal of Mathematics, Science & Technology Education, 5* (3), 235–245.

Castaño-Muñoz, J, Kalz, M., Kreijns, K. & Punie, Y. (2018). Who is taking MOOCs for teachers' professional development on the use of ICT? A cross-sectional study from Spain, *Technology, Pedagogy and Education*, *(27)*,5, 607–624, DOI: 10.1080/1475939X.2018.1528997

Chen, Y. S., Chen, Y. H., Wu, S. J. & Tang, F. K. (2013). Leadership for Sustaining Pedagogical Innovations in ICT Implementation: A case study of a Taiwanese vocational high school. *International Association for Development of the Information Society.*

Cox, M., Preston, C., & Cox, K. (1999). *What factors support or prevent teachers from using ICT in their classrooms?* Paper presented at the British Educational Research Association Annual Conference. http://leeds.ac.uk/educol/documents/ 00001304.htm

Cullingford, C. & Haq, N. (2009). *Monitoring Change in Education: Computers, Schools and Students: The Effects of Technology*. Routledge: Abingdon, GB

Dawson, K. (2012). Using Action Research Projects to Examine Teacher Technology Integration Practices. *Journal of Digital Learning in Teacher Education, (28)* 3, 117-123. http://dx.doi.org/10.1080/21532974.2012.10784689

De Boer, M. (2013). Revising English education at the university level. In Sonda. N. and Krause, A. (Eds.), *JALT2012 Conference Proceedings*. Tokyo: JALT jalt-publications.org/files/pdf-article/jalt2012-issues-profession.pdf

Dexter, S. (2008). Leadership for IT in schools. In J. Voogt and G. Knezek (Eds.), *International handbook of information technology in primary and secondary education* (543–554). New York: Springer.

Ertmer. P.A. & Ottenbreit-Leftwich, A.T. (2010). Teacher Technology Change', *Journal of Research on Technology in Education.* 42 (3), 255–284.

Frederick, G. R., Schweizer, H. & Lowe, R., (2006). After the in-service course: Challenges of technology integration. *Computers in the Schools, (23)*,73–84. http://epublications.marquette.edu/cgi/viewcontent.cgi?article=1100&context=e du_fac

Galanouli D., Murphy C. & Gardner J. (2004). Teachers' perceptions of the effectiveness of ICT-competence training. *Computers & Education (43),* 63–79. https://doi.org/ 10.1016/j.compedu.2003.12.005

Ha, C. & Lee, S.Y. (2019). Elementary teachers' beliefs and perspectives related to smart learning in South Korea. *Smart Learning Environments, (6)*, 3. doi.org/10.1186/ s40561-019-0082-5

Hardman J. (2019). Towards a pedagogical model of teaching with ICTs for mathematics attainment in primary school: A review of studies 2008–2018. *Heliyon, 5*(5), e01726. doi:10.1016/j.heliyon.2019.e01726

Harrell, M.C. & Bradley, M.A. (2009). Data Collection Methods: Semi-Structured Interviews and Focus Groups, *RAND Corporation and National Defence Research Institute*, Santa Monica, CA. http://www.rand.org/pubs/ technical_reports/TR718

Harris, A. & Muijis, D. (2004). *Improving schools through leadership*. O.U.P., Berkshire

Hatlevik, I. & Hatlevik, O. E. (2018). Examining the Relationship Between Teachers' ICT Self-Efficacy for Educational Purposes, Collegial Collaboration, Lack of Facilitation and the Use of ICT in Teaching Practice. *Front Psychol. 9*, 935. doi: 10.3389/fpsyg.2018.00935

Hayashi, M. and Cherry, D. (2004). Japanese students' learning style preferences in the EFL classroom. *Bulletin of Hokuriku University, 28*, 83-93.

Hermans, R., Tondeur, J., van Braak, J., & Valcke, M. (2008). The impact of primary school teachers' educational beliefs on the classroom use of computers. *Computers & Education*, *51*,1499–1509. doi.org/10.1016/j.compedu.2008.02.001

Higgins S. & Moseley D. (2001). Teachers' thinking about information and communications technology and learning: beliefs and outcomes. *Teacher Development (5)*,191–210. https://www.learntechlib.org/p/94354/.

Kopinska, M. (2017). The use of information and communication technologies in the foreign language classroom: students' attitudes, motivation and L2 selves. *PhD Dissertation*. Vitoria-Gasteiz, 2017. http://hdl.handle.net/10810/25049

Lockley, T. (2013). Answers to Outstanding Questions about Japanese Student ICT Competencies and a Glance into a Mobile Future, *The Asia-Pacific Education Researcher (22),* 4, 603–617. http://link.springer.com/article/10.1007%2Fs 40299-013-0063-3

Kusano, K., Frederiksen, S., Jones, L., Kobayashi, M., Mukoyama, Y., Yamagishi, T., ...& Ishizuka, H. (2013). The effects of ICT environment on teachers' attitudes and technology integration in Japan and the U., Jou*rnal of Information Technology Education, 12*, 1–43 http://jite.org/documents/Vol12/JITEv12IIP p029-043Kusano1210.pdf

Levin, T., & Wadmany, R. (2006). Teachers' Beliefs and Practices in Technology-based Classrooms: A Developmental View. *Journal of Research on Technology in Education, 39*(2), 157-181.

Mackey, A. & Gass, S. M. (2016). *Second Language Research: Methodology and Design*. (2nd ed). Routledge: New York

Majumdar, S. (2006). Emerging trends in ICT for education & training. http://www. unevoc.unesco.org/fileadmin/up/emergingtrendsinictforeducationandtraining.pdf

Marshall, C. & Rossmann, G.B. (2014). *Designing Qualitative Research*, Singapore: Sage Publications

Mima, N. (2003). Online technology is not enough: Transforming the teacher-student learning process, in Bachnik, J. M. (ed.) (2003) *Roadblocks on the information highway*. Oxford: Lexington, 265–279.

Moreira, F., Pereira, C. S., Durão, N. & Ferreira, M. J. (2018). A comparative study about mobile learning in Iberian Peninsula Universities: Are Professors Ready? *Telematics and Informatics*. *35*(4), 979–992. https://doi.org/10.1016/j.tele.2017. 09.010.

Morrone, M. H. (2012). Social and cultural impediments to the adoption of ICT for language learning in Japan, *Proceedings from the International Conference "ICT for Language Learning"* 5th edition. Florence, Italy. http://conference.pixelonline. net/ICT4LL2012/common/download/Paper_pdf/373-MEL10-FP-Morrone-ICT2012.pdf

Nagatomo, D.H. (2012). *Exploring Japanese University English Teachers' Professional Identity*. Multilingual Matters: UK

Narita, M. (2003). Barriers to Educational Use of the Internet in a Japanese University. in Bachnik, J. M. (ed) (2003). *Roadblocks on the information highway*. Oxford: Lexington Books, 171-180.

OECD (2015). Students, Computers and Learning: Making the Connection, PISA, OECD Publishing [Online]. http://www.oecd.org/pisa/keyfindings/PISA-2012-students-computers-japan.pdf

OECD (2019). Total fixed and wireless broadband subscriptions by country. Retrieved from OECD Broadband Portal www.oecd.org/sti/broadband/oecdbroad [e1]bandportal.htm

O'Neill, S., Kreijns, K. & Vermeulen, M. (2018). Factors influencing teachers' intentions to integrate smartphones in language lessons. *The JALT CALL Journal*, *14* (2), 91-117.

Oriaku, N. (2008). The Challenges And Opportunities Of Wireless Technologies In The Classroom: Related Standards And Regulations. *College Teaching Methods & Styles Journal*, April, 2008. http://www.cluteinstitute.com/ojs/index.php/CTMS/article/download/5545/5628Walery

Pajares, M. (1992). Teacher's beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62*(3), 307–332.

Preston, C., Cox, M., & Cox, K. (2000). Teachers as innovators in learning: What motivates teachers to use ICT. *Proceedings of British Educational Research Association Annual Conference*, University of Sussex, Brighton, 2-5 September 1999. http://www.leeds.ac.uk/educol/documents/00001329

Reading, C. (2008). Recognising and measuring engagement in ICT-rich learning environments. In *Australian Computers in Education Conference (1),* Presented at the ACEC2008, Canberra. http://acce.edu.au/sites/acce.edu.au/files/archived_papers/conf_P_926_engagement.pdf

Robertson, S. L., Shortis, T., Todman, N., John, P., & Dale, R. (2004). ICT in the Classroom: The Pedagogical Challenge of Respatialisation and Reregulation. In Olssen, M. (ed.) *Culture and Learning: Access and Opportunity in the Curriculum*. Connecticut: The Greenwood Press

Sang, G., Valcke, M., Braak, J., Tondeur, J. & Zhu, C., (2011). Predicting ICT integration into classroom teaching in Chinese primary schools: Exploring the complex interplay of teacher-related variables. *Journal of Computer Assisted Learning, (27),* 160–172. https://www.learntechlib.org/p/53468/

Schiller, J. (2002). Interventions by school leaders in effective implementation of information and communications technology: perceptions of Australian principals, *Journal of Information Technology for Teacher Education,* 11:3, 289-301, DOI: 10.1080/14759390200200138

Schrum, L. & Levin, B. (2013). Lessons Learned from Exemplary Schools, *Tech trends: Linking Research & Practice To Improve Learning, 57*, 1, 38–42. Retrieved from http://search.proquest.com/openview/3c15935d5c14163bb0268f35abd0422d/1?pq-origsite=gscholar&cbl=40581

Teddlie, C. & Tashakkori, A. (2009). *Foundations of Mixed Methods Research*, Singapore: Sage Publications

Teo, T., Chai, C. S., Hung, D. and Lee, C. B., (2008). Beliefs about teaching and uses of technology among pre-service teachers. *Asia-Pacific Journal of Teacher Education, (36)*, 163-174. https://www.researchgate.net/publication/232893563_Beliefs_about_teaching_and_uses_of_technology_among_pre-service_teachers

Turner, J. C., Christensen, A., & Meyer, D. K. (2009). Teachers' beliefs about student learning and motivation. In L. J. Saha, & A. G. Dworkin (Eds.). *International*

hand- book of research on teachers and teaching (pp. 361–71). New York, NY: Springer.

UNESCO (2010). ICT Transforming Education: A Regional Guide. http://unesdoc.unesco.org/images/0018/001892/189216e.pdf

Unwin, A. (2007). 'The professionalism of the higher education teacher: what's ICT got to do with it? *Teaching in Higher Education, 12*, (3), 295-308. http://unesdoc.unesco.org/images/0021/002162/216284E.pdf

Ushioda, E. (2013). Motivation Matters in Mobile Language Learning: A Brief Commentary. *Language Learning and Technology. (17)* 3. 1–5. http://llt.msu.edu/issues/october2013/v17n3.pdf

WEF (2016) (World Economic Forum) 'Country Highlights' *Global Information Technology Report* 2015, World Economic Forum. http://reports.weforum.org/global-information-technology-report-2015/country-highlights/

Wood, R. & Bandura, A. (1989). Impacts of conception of ability on self-regulatory mechanisms and complex decision making. *Journal of Personality and Social Psychology, (56)*, 407–415. http://dx.doi.org/10.1037/0022-3514.56.3.407

Yoshida, A. & Bachnik, J.M. (2003). A nationwide assessment of IT implementation in higher education, In Bachnik, J. (ed.) (2003) *Roadblocks on the Information Highway: The IT Revolution and Japanese Education*. Maryland: Lexington Books, 25–60

Zhao, Y. & Frank, K. A. (2003). Factors affecting technology uses in schools: An ecological perspective. *American Educational Research Journal, 40*(4), 807–840. doi.org/10.3102/00028312040004807