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Technology in education : What can we learn from Finland ?

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Abstract

This paper is a follow up from a previously published article titled : “Cross-Cultural Language Exchange Through E-Learning with iPads : A Case Study Between Australian and Japanese High School Students”. That article reported on the learning goals and outcomes of 12 high school students in Australia and 37 students in Matsuyama, Japan who participated in a cross-cultural, collaborative, e-learning project involving the exchange of eBooks and videos over the course of 5 intervals in one academic year. However, this article reports on post lessons learned after completion of that project and suggests ways that pedagogy can be enriched through the addition of ICT and mobile devices in education. This study pays particular attention to the world-renowned educational system of Finland where the author was lucky enough to visit in the summer of 2018. Data was collected from the initial collaborative e-learning project and also from the recent trip to Finland through interviews with teachers and educators highly trained with the integration of ICT in education. This data suggests that the addition of educational technology in supplementary projects cannot only improve cognitive skills like reasoning, attention and problem-solving but can also equip students with additional non cognitive skills like motivation, collaborative learning and creativity which are all deemed vital aspects for future careers. This study discusses results of the initial project and compares them to findings and observations recorded in classrooms at the school and tertiary level in Finland.

ICT in education

In the context of ICT education, Japan's Ministry of Education, Culture, Sports, Science and Technology (hereafter, MEXT) has recently published education policies on the promotion and facilitation of teaching with and learning with technology at elementary, lower secondary and upper secondary schools (Tsuchiya, 2015; Lander, 2018). In April 2016, MEXT announced a plan for the promotion of 'digitization of education' in schools in Japan. This announcement emphasized that school students in Japan should be encouraged to consider what matters in their learning settings, collaborate with others, struggle with the creation of new values, and work better to find and solve problems using ICT with computers and other devices such as iPads and PC tablets. The prime goal of this drive was to motivate students and to keep up with other developed nations, such as Finland where the use of such tools is already well established. However, unfortunately several reports suggest (Gobel & Kano, 2014; Lockley, 2011; Cote & Milliner, 2017; Funamori, 2017) that Japanese students and their level of ICT digital literacy at the school and university level seem to be well below the international standard.

Digital literacy in Japan

Despite Japan possessing a relatively high-tech image as a highly modernized nation, when it comes to digital literacy rates in the younger generation the reality is quite different. According to Cote and Milliner (2016, 2017) who conducted studies to assess digital literacy rates at the university level in Japan, many students have far lower digital skills than expected. Their first study (2016) discovered that digital literacy rates of university students at a private school in Tokyo were low and the majority of students could not complete simple tasks such as adding attachments to emails, or adjusting file sizes of large files (Cote & Milliner, 2016). Their

second study (2017) remarked that "students appear to be very interested in improving their digital literacy in higher educational settings" (2017, p. 189) and set about conducting training sessions for students to better prepare them for year-long study abroad trips in Australia. In a similar report, the Organization for Economic Co-operation and Development (OECD, 2015) released a critical statement on the digital literacy of Japanese youth, claiming that only 25% of the younger generation in Japan aged between 16-25 possessed basic computer skills (2015, Cote & Milliner, 2017). According to that study, "one of the explanations for their shortcomings is that schools are not responding to the aforementioned mandates by MEXT to carry our ICT training" (2017, p. 189). Further studies also suggest that many Japanese high-schools are not using ICT in classes (Gobel & Kano, 2014 ; Lockley, 2011 ; Murray & Blyth, 2011) which could result in lower than anticipated digital literacy results at the higher education level.

The initial study

The initial study for which this paper is based on was conducted from October 2016, to September, 2017 called : "Cross-cultural language exchange through e-learning with iPads". The project involved the researcher visiting Ehime University Fuzoku High School in Matsuyama (愛媛大学附属高等学校) on several occasions to provide practical workshops for students and ICT support in making digital material. The project involved a group of 37 students in Matsuyama creating eBooks and videos about local and national cultural themes and exchanging them with a group of 12 students in a small private school in Western Australia. The project was led by the main researcher and supported by the local head of English department at the school.

All digital material was made in groups of 4 or 5 students with several hand-picked iPad applications and exchanged online via a password protected private

group on Vimeo, a well-known video-sharing service. Students used these tools to create videos that introduced local and national culture items in English while their partner school did the same, but in Japanese. Students in both Matsuyama and Australia were given full access to the videos and eBooks and asked to comment on them following each exchange. According to the Australian working with children protocol, no facial pictures or videos were allowed to be exchanged during the project. After completion of the project, a group video-conference was arranged whereby all students and teachers involved met online and discussed the outcomes of the project. This video conference gave a final chance for all the students to meet face to face online.

Results

Table 1. Responses received from four students

Q4. How do you think creating the eBooks helped you learn English/Japanese, if at all ?

Q. 4	**Students from Australia**
S1	"I thought that the video assessments were a great learning tool compared to just writing and memorising it. One of my favourite parts was seeing their videos or them commenting on ours. I would love to do this again soon."
S2	"I feel like I underestimated how difficult it would be to learn the Japanese language. As difficult as it was, I found it enjoyable and challenging and somehow I surprised myself managing to get through the semester. Making the videos was quite funny and fun and I really enjoyed the Skype call and getting to meet them (the students in Japan) face to face."
Q4.	**Students from Japan**
S3	"I enjoyed making the transcripts for the videos we made together. For me, this was a large part of the learning process. Without this project, we would just be doing our English homework without interaction as normal."
S4	"Taking part in this project was not just like a normal class, we had to find out for ourselves, then think of the English introductions we wanted to say for each video. I think my English level improved a lot thanks to this."

After completion of the project in the summer of 2017, both students in Australia and Japan were asked to give their opinion on their involvement in the project and comment on what they had learnt (Table 1.). Almost all comments

received highlighted the enjoyment both groups of students had in using iPads to make digital materials for exchange. Not only were cognitive skills such as improved language ability, problem-solving, awareness of their local culture and national identity acquired but also non-cognitive skills such as group work awareness, interpersonal interaction, motivation, self-efficacy and effort were all noted as indirect results of the project. In short, this study indicated that e-learning, cross-cultural projects involving iPads can be highly beneficial to learners if conducted in a well-organized manner. Technology in this case helped to enhance the learning experience and motivate students to learn and broaden their international horizons. Using the current global trends and fascination of the role technology can play in education is something that many other countries around the world are currently trying to accomplish. Finland is globally recognized as one of the front runners in this objective. The next section of this paper will discuss similarities regarding the concept of technology in education and specifically language education in Finland, one of the most admired education systems in the world.

Education Reform in Finland

Recent School reform created several conditions that helped Finland become a strong academic performing country (Sahlberg, 2011), including mandatory school counselling, student guidance and teacher training. Morgan (2014) mentions that one of the reasons the education system in Finland became to be so well-regarded is because of the teacher training programme. Teachers in Finland have to endure a thorough teacher training programme. According to Thomas, (2013) in Finland "teaching is a highly sought-after career ; teachers are universally respected, paid well, and are all educated to Master's degree level. They are trusted to do a good job… and the trust pays off" (2013, p. 43). Morgan follows this up by noting how this could also be related to the freedom aspect that teachers are given in schools.

"Because teachers are so well prepared, they enjoy more autonomy to teach the way they feel students will most benefit. This freedom makes the teaching profession in Finland enjoyable, thus making it one of the most satisfying jobs in the country."

(2014, p. 454)

Teachers in Finland, it seems have more freedom to teach the way they want and not be pressured by local and national educational boards which is often the case in Japan. Another fundamental difference between the general educational system in Finland and Japan is the topic of student assessment through testing.

Testing

The topic of "testing" in Finland is not an issue as Finnish schools do not employ census-based standardized tests in schools. According to Sahlberg, (2015) there are 4 reasons for this.

1. Education policy in Finland gives high priority to "personalized learning and creative teaching as important components of schooling." (p. 123) Instead of focusing on test accuracy particular attention is given to students' respective characteristics and their individual abilities.
2. Education developers in Finland have a tendency to prioritize the three components of curriculum development, teaching, and learning. "Student assessment in Finnish schools is embedded in teaching and learning processes and is thereby used to improve both teachers' and students' work in school." (p. 124)
3. Establishing student cognitive progress is considered a responsibility of the school and not 'of external assessments or assessors.'
4. Although student assessment in schools is "based mostly on the principle of

> diversified evidence, individual test-based performance is evident, although not the entirety of student evaluation. Municipalities in the country continually "design their quality assurance practices according to each schools' needs and aspirations". (p. 123)

Although most forms of testing in Finnish schools is unheard of, schools do recognize issues that are closely connected to main stream testing in school education. Sahlberg, (2010) highlights several issues that are foreseen as problematic from the Finnish education point of view. These problems, according to teachers include "narrowing curriculum, teaching to the test, and unhealthy competition among schools and teachers." This is all in contrast to the situation in Japan where student assessment is based for the most part entirely on test scores and individual accuracy within those tests.

Testing in Japan

School ranking in relation to test results is a big issue in Japan. This will not come as a surprise to most readers of this paper, but schools throughout the country are ranked according to student test scores within those schools (Tsukada, 1988). This statement is true for almost all forms of schooling, from primary, elementary level, junior high and high school. Arguably the most quintessential test of all in the Japanese schooling system is the National Centre Test, or the センター試験 (*Sentaa Shiken*) the university entrance exam which is conducted on the 3rd weekend of January each year. Test results in all subjects (six subjects and 30 academic disciplines) determine which university individual test takers can enter, upon which further university individual tests are often necessary. To say that teachers "teach to the test" in Japan is an understatement and something that rings true for almost all lines of school assessment in the country. There are thousands of

"*yobikou*" (予備校), or cram schools nationwide whose primary purpose is exactly that, "to teach to the test". Students who pay to go to these schools study in cramped spaces, receiving tuition and support from experts who know the test each individual is aiming for well. Most of these cram schools focus on university entrance exams (Tsukada, 1988), but many others also offer 'tuition', or a safe study environment for students who wish to enter other forms of schools be it high school, or professional training colleges (*senmon gakkou*).

Emphasis of Technology in Educational reforms

This is in accordance with curriculum reform which commenced at the end of 2014 in Finland. The new curriculum emphasises 21st century skills, like critical and creative thinking skills and collaborative modes of studying. "ICT is seen as having an important role in supporting and developing these skills" (Vahtivuori-Hänninen & Kynälsahti, 2016, p. 241). The inclusion of the technology aspect in these reforms is similar to that of those in Japan in 2016.

Vahtivuori-Hänninen & Kynälsahti, (2016) claim that communication technologies and the world of media are ubiquitous in Finnish society, the same assumption can also be said for Japan where smartphone ownership is near 100% in university age groups (Cote et al, 2014). Apparently, media culture in Finland becomes an established part of children's lives from the age of seven or eight, where children use a range of social networking services and mobile devices for various tasks including taking pictures, listening to music, watching TV and playing games. They argue that the main reason these social media services and network communities are so popular among children is their ease of use, with little, or no technical know-how necessary to use them efficiently. In their opinion "anyone can be an active agent, or player on the net, not merely a consumer or user of services and material produced by others" (2016, p. 244). They introduce the

word “produsage” which they incur means something that users create themselves, or in collaboration with friends which they work together with to produce and create content that reflects their interests.

The educational reform report produced in 2016 stated that there were four key elements for the introduction of ICT in schools in Finland. Vahtivuori-Hänninen & Kynälsahti (2016) claim that there were several reasons for introducing ICT in education.

The use of ICT in educational settings should :

1. Develop learning, master, and learning environments
2. Support pupil growth
3. Support the needs of teachers and teaching
4. Support the needs of society and working life

This educational reform was endorsed by the Finnish Ministry of Education with the prime intention of providing “Finnish schools with practical models and innovative teaching practices for using ICT” (2016, p. 241). The project also aimed to produce new knowledge and know-how for schools about the latest developments in ICTs to promote the educational use of ICT in multi-dimensional ways.

Finland

One year after the completion of this project I was lucky enough to visit Finland for a conference[1] on Computer Aided Language Learning and four schools at the primary, high school and tertiary level. During the conference period, organizers invited attendees to participate in a school visit that showcased various

1) EUROCALL 2019 Jyvaskyla University, Finland August 22-25th, 2018

uses of technology within the school. I took part in this school visit, and through local contacts, arranged a further 3 school visits, to a neighbouring high school and two universities in Helsinki.

The first two schools visited were in the town of Jyväskylä, about 300 km north of Helsinki, the capital in the south. Both were schools affiliated with the local university (Jyväskylä University) faculty of education and regularly hosted visitors to the school who were either attendees at a conference, or educators interested in the Finnish School system. The first school visited was the primary school where I was one of a group of 18 people from 8 different countries visiting the school that day. We were split into two groups and guided around the entire school observing two English lessons adjacent to each other for 35 minutes. The first lesson observed was a primary, grade 4 class where students were all 10, or 11 years old, the equivalent of grade 5, or 6 in Japan. The second class observed was a 2nd grade class where students were 7, or 8 years old. Due to restrictions of this paper just the first class will be described.

Visible Differences in Schooling environment

On first impressions, I noticed several major differences between the average classroom layout of an equivalent grade class in Japan. Firstly, the desk arrangements were very different to that of Japan. There were 28 students in the class, arranged in groups of four all sitting at mobile desks with swivel chairs and not the traditional classroom layout that is so common in Japan. The second contrast was the layout of the classroom and the direction of which the desks were facing. Unlike in a typical Japanese classroom where the teacher would stand at the front and all desks would face the teacher and the teacher's desk, in this Finnish classroom there seemed to be two fronts to the class. One wall had a large, 120×80 inch digital screen connected to the teacher pc, while another wall had a

Picture 1. Teacher's desk in primary school

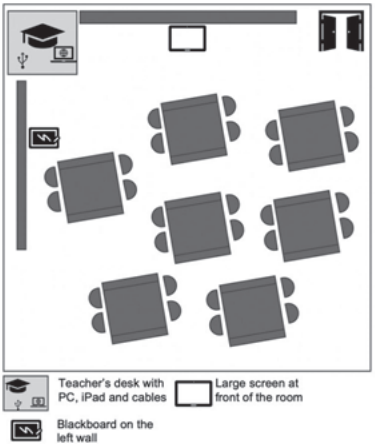

Figure 1. Layout of classroom in Finland

blackboard. The main focus of the students seemed to be on the digital screen (Figure 1.). The teacher seemed to be continuously moving around the room helping students, giving instructions and never appeared to be sitting at her desk.

Technology in the classroom

This is another component of the classroom in Finland that appeared to be in contrast to that of Japan. The main focus of the teacher and the students appeared to be on the digital screen and not on the blackboard. On completion of the class, the teacher gave all visitors permission to walk around the class and take pictures of things freely. During this time, we could see that the teacher's desk consisted of three main hardware components, a pc connected to the screen, a digital overhead projector with camera which was also connected to the screen and a teacher iPad with cables, *see picture 1 above*. On further questioning, it was apparent that these three components were common in all classrooms in this school and most schools in the country.

iPads in class

Another impressive component of this class observation was the use of iPads by the students. There were two occasions during the class in which the teacher instructed students to use the iPads. The first occasion involved vocabulary review of the words introduced in class from the previous week using a tool called Quizlet. On receiving an iPad each from the teacher, students diligently started up their devices and used the camera function on the back to access the link the teacher had displayed on the screen via a QR code. At this point there was a notable change in atmosphere and the volume of sound echoed the student's excitement at using the devices. All students seemed to know how to use the devices and from the expression on their faces you could see the delight they had in using them. Without much instruction all students worked together in pairs on the task at hand, vocabulary review with Quizlet. The second occasion involved listening to sound files from a section of the textbook. Students again accessed this via a saved bookmark and diligently worked in pairs through the material for about 5 minutes.

Post class discussions

After completion of the class all visitors were given the opportunity to ask the teacher questions about anything they had observed, or any related questions about foreign language teaching in Finland. This session lasted for approximately 35 mins and was attended by all the visitors and the two Finnish, English teachers. This discussion was recorded, with prior permission and took place in the same classroom. The following section in this paper will discuss some of the main points raised from this qualitative data collection.

Recorded Interview

The discussion commenced with the teachers giving a summary of the teacher training programme in Finland. The discussion was recorded and transcribed. Certain areas of the transcript will be highlighted below. T1 and T2 refer to teachers one and two, while P1, P2 refers to the corresponding participant number who asked the question or began the discussion.

T1 : A few years ago, we decided that we have to follow the progress in ICT. About 6 years ago (2012) we got our first iPads. We started with two sets of 30 iPads, and now (2018) we have over 300.

From this remark we can see that this school received their first iPads in 2012, two years after their initial release. The teacher then commented on what software they use to manage digital material created by students.

T1 : We also started last year with "Google Suite for Education" because we noticed that they (Ss) don't all have their own iPads. We have to keep student created digital material. Now we are learning about the Cloud service ... we are teaching the children how to sign in and how to save all their work on the Drive.
P1 : I see. So, do all the students have an email address ?
T1 : Yes, they all have their own email address. They start from 7, when they come to school. They have to have their own passwords and email addresses as soon as they learn to read.

These points indicate that teachers are well trained in ICT and teach digital literacy from a far younger age in Finland than in Japan. Points raised by Cote and

Milliner (2016) suggested that digital literacy rates in Japanese students were low, while Gobel and Kano suggested that this could be because many students were not using computers in schools (2014).

English outside the classroom

P3 : Do they have much exposure to English outside the classroom ?

T1 : Well all the Finnish TV programmes, the American or British TV series are subtitled, so they hear it a lot.

T2 : Well, for example from games (online and TV game consoles) there is a lot of exposure. Last year I had a 3rd grade class and you could really see the difference in English level between those students who do and those who don't play games.

This is another area that is very different to Japan. Although video streaming tools like *Netflix*, *Hulu* and *Amazon Prime TV* are available in Japan for the most part, most TV shows in Japan are broadcast in Japanese and most, if not all TV games are available in Japanese. Students here have a lot less exposure to English than students in Finland.

Use of iPads in other classes

P2 : Are the iPads used in all classes, or only in language classes ?

T1 : All classes. We have 300 iPads and 400 children in this school. So, we nearly have one device per student.

P2 : Was there trouble getting other teachers to use them ?

T1 : Yes. But, I have been teaching our teachers and help out with training. However, most of our teachers are eager to learn and use them. First the students got the iPads and started learning with them and then the

teachers said "well, we want one too". Then the teachers got iPads and when they got them, they started to learn. We try to train the teachers how to use them.

This point indicates the professional development aspect of learning with technology and honing the skills of current teachers at the school. The teacher here mentions that "most of our teachers are eager", which shows that there is a general understanding that teachers have for the benefit they can provide students.

Digital Textbooks

T2 : In Finland most of the textbooks are written by teachers. According to our contracts, we are required to do some element of research and development. We need to do something to develop our work, our choice has been to be involved in the book writing process.

P2 : This is very interesting. I come from Italy and Italy like many other countries, is in the huge English market place of the big multi-national publishers. So, I was wondering that you are speaking of something which is outside of this. You are speaking of textbooks which are published and produced here. Are you ?

T2 : Yes. There are two major publishing companies for school books in the country. There used to be more, but some members dropped out. Now the tendency is towards digital materials. The one you were observing in my lesson, we do have the paper copy of the book, but we also have a digital book, which is totally online. The schools can buy either, the paper book, or the digital book. We did have a trial in our classes last year where we did both. However, when we don't have one-to-one devices that can be a

problem.

T1：The tendency is definitely to produce more and more online material and there is always some online material for kids to practice when they are at home.

According to T2 there is a tendency in Finland now to produce more digital materials which in turn can be accessed via tablet computers. If students have access to digital content, they in theory, should have more contact with the material outside of class.

Digital or Analogue ?

P3：I noticed that the students in class today liked writing in the book. I mean you（the teacher）got them（the students）to write the answer in the book. Even I like doing that.

T2：Yes. Everybody likes doing that. You have to remember that devices are nice, but they are not the whole picture. The personal communication, the work crafts and working with your hands is also very important. Perhaps for those who observed my class you saw the table with class crafts outside in the corridor ? There was this "city plan". We built that last year with my 5th grade students when we were practicing with the city words. We really do crafts in language classes, lots of 'hands-on' things. They（the students）like working with iPads. You can see the eagerness when they go to get them, they are like, running to get them. But they get tired of them. Language is not only about technology, it is much more. It（language）is about culture, it's about communication, meeting one another. This is a nice help, but it's not everything.

Too much of a good thing is not good. Technology is no exception. Both the teacher above and the participant in this section of the discussion mentioned the enthusiasm that developed when students were instructed to use the iPads. However, the teacher here states that although it has its uses and can help students in many ways, it is not everything and its use should be limited.

High School class observations

The second school observed was a high school second grade class where students were 16 or 17 years old. This school visit was arranged privately and somewhat last minute which provided a more natural observation session as the teacher had very little prior warning about visitors and time to prepare. In a similar manner to the primary school class observed several days previously, there was also a large digital screen of 120 × 80 inches attached to the wall at the front of the class connected to the teacher PC. All desks faced this screen which had a blackboard adjacent to it.

Rather than iPads, like in the primary school class, the main form of technology instruction in this case was via laptop computers. There were two occasions when the teacher of this class instructed students to use computers. On the first occasion the teacher directed students to get out their computers to listen to audio files from a digital version of the book. This instruction was conducted simply by the command : *"now, please listen to tracks 3-12 in the book and complete the questions"*. At this point, all students in the class pulled out their PCs with headphones and diligently progressed through the tasks individually. This task continued for about 15 minutes before answers were revealed and explained on the board. The nature in which students enthusiastically progressed through their tasks online was impressive. However, the most profound thing of all was that the entire class seemed to be working independently and autonomously together in pairs

until instructed to do otherwise. Technology and the use of computers in class, for this group at least, was second nature and when instructed to do so students completed tasks without issue.

University visits

This sentiment seemed to extend to the tertiary level too. Several days after visiting the school I visited two tertiary institutions in the Helsinki area, *Aalto University* and the *University of Helsinki*. Aalto University is named after the Finnish architect Alvar Aalto (1898-1976) and has a student number of around 20,000 making it the second largest university in Finland. According to the Times Higher Education (THE) website (timeshighereducation.com) Aalto University is ranked 181st in the world. The University of Helsinki established in 1640 is Finland's highest regarded university and according to THE it has a global ranking of 99th place. In both institutions I was given a campus tour and short demonstration of ICT usage in their respective foreign language departments.

Both institutions had very modern facilities from the fully automated library system where you could borrow and return books via barcodes and sensors on the doors, to digital screens and interactive boards everywhere. There seemed to be an abundance of computers, free for use by both students and staff. In fact, both universities seem to realize the need for smartphone devices as there were free charging points (Picture 2) all over campus. In Aalto University I was guided around a series of student self-access spots all over campus which students could freely use for group discussions, or self-learning. These spots could be rented free of charge via an inhouse smartphone app, (picture 3-5, below).

Picture 2. Free charging point at Aalto University

Picture 3. App for Self-Study Room Space

Picture 4. Self-Access room for student use

Picture 5. Group discussion Booth

Teacher Professional Development

According to Sahlberg (2015), employment contracts of all Finnish teachers' state that there are three mandatory professional development days per year which all teachers in all levels must participate in. More than often, such sessions are offered by the local education authorities at little, or no expense. Teachers in Finland are encouraged and provided with plenty opportunity year-round to attend such sessions. During my visit to Finland, in the summer of 2018 I was lucky enough to attend one such session at Aalto University. The session focused on the use of ICT in education. Teachers attending the session were from all levels and ranks of schools from primary to tertiary level and from all areas of the country. There was a very relaxed feel about the workshop which was actually held in a warehouse managed by a drama group affiliated with the university. Teachers were chatty, relaxed and it seemed, more than willing to learn from and help each other.

Teacher Education

The workshop was well attended by teachers of all levels. Jenset et al (2018) state that more attention needs to be given to teacher education in practice, or training of teachers in improving pedagogy. They conducted a study on three countries identified as "high-performers", according to the jurisdictions of PISA (the Programme for International Student Assessment) which Finland repeatedly scores high in. These countries were identified as Finland, Norway and the US, or specifically schools in California. In their report they discuss that a study based in the US concluded that "21st-century classrooms require turning teacher education 'upside down' so that practice becomes the base for learning to teach" (NCATE, 2010, p. ii) ; in Jenset et al, 2018, p. 184). The point here is that

rather than simply teaching theory to teachers in their educational training, they (teachers) should be given chances to focus more on practice, i. e. use what they have learnt to teach students as a part of their training. With regards to the element of technology, if conducted in an optimal way e-Learning projects like the one discussed in this paper can provide students with authentic language and cultural exchange with fellow students thousands of miles away. Rather than learning about such projects teachers should be given the devices that can make this happen and learn how to use them. As John Dewey once said "learn by doing", this paper is suggesting that teachers and students can improve on digital literacy and the wide range of afore mentioned cognitive and non-cognitive skills through projects like this one.

Internationalisation in Schools

According to de Wit (2016) one of the most commonly used definitions of internationalisation is the one by Knight 'the process of integrating an international, inter-cultural or global dimension into the purpose, functions and delivery of post-secondary education has revised.' (2008, p. 48). Although this definition is widely respected it does not reflect on the current debate of what the outcomes of that process should be. It is generally realised internationalisation can be categorised into two forms. Knight states that these are 'internationalisation abroad and internationalisation at home' (Knight, 2008 ; De Wit, 2016). Internationalisation abroad according to Knight is the formal understanding of educational institutions across borders, 'including circulation of students, faculty, scholars and programmes'. In such cases sister schools and exchange programmes are set up that involve students visiting countries abroad. However, the setting up of such programmes is often troublesome, time-consuming and costly for all involved. Internationalisation at home on the other hand, refers to 'curriculum-oriented activities that help students

develop international understanding and intercultural skills that prepare students to be active in a much more globalised world'（O'Dowd, 2016, p. 71） through online sources without travelling to actual locations abroad.

Online Intercultural Exchange

According to De Wit（2016） there has been a shift in the focus of internationalisation strategies in recent years from 'abroad' to more of a focus on 'at home'. O'Dowd（2016） calls this current trend 'online intercultural exchange'. Examples of this can include any form or digital exchange with sister schools, or exchange partners abroad via video-conferencing, emails, or the internet. With the addition of tablet computers in 2010 it has become cheaper to equip schools and students with high-end devices which can be used to help internationalise schools through online exchange like that in the initial project described in this paper. Fuzoku high school in Matsuyama purchased 120 4th generation iPads in the summer of 2014 with the assistance of a MEXT grant through their Super Global High School（SGHS） recently awarded status. The AJF project that was conducted from 2016 to 2017 is a prime example of online intercultural exchange and has shown the benefit such projects can provide.

Conclusions

Results of the original study clearly indicate the benefit that a well-organized and conducted e-learning cultural exchange can provide. Projects like this can be a very positive learning experience for students. However, from this project several other indirect conclusions can be drawn. Firstly, this study has shown that there is very little "training" for the teachers involved here. In fact, students similarly were only given very brief hands-on workshops where basic functions and samples were shown. For the most part, students learnt how to use the tools to make their digital

materials by themselves. All digital material was created independently. With relation to this study and that of Jenset et al, their point is that there should be an emphasis on “practise-based” teacher training in order for changes and improvements to be met. They state that “efforts to tie preparation more closely to practice can have a significant impact on student learning” (Jenset et al, 2018, p. 184). In short, teachers need more training in practice to become better teachers and the impact on the student will be significant. This sentiment is more evident when it comes to the ever evolving and changing world of educational technologies. However, in my opinion the biggest hurdle here is to persuade teachers to use the technology. If this can be done, then the potential for change is huge.

The discussions with school teachers, university professors and educators met with in Finland indicate that technology in education has played a large part in the successes of education reform in Finland. However, as was indicated by one of the class teachers in the discussion, technology alone is not the answer to success. It is clear from this visit to Finland that a lot of money is spent on equipping schools with the most up to date technologies, but more importantly these technologies must be understood and used effectively for any change and progress to be met. Technology in Finland has worked, and therefore it can work in Japan, too.

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