Introducing Change to Japanese Universities: Digital vs Paper Assignments

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ABSTRACT

The COVID-19 pandemic made an unprecidented impact on tertiary education in Japan, where many classes were suddenly moved to online, digital spaces. This sudden and major transition caused stress and confusion amongst both teachers and students, but this study hopes to explore the potential benefits that could be gained from continuing to use the new skills aquired by stakeholders during this turbulent time. While there is a wide range of contemporary literature on the pandemic's impact on instructional technology, this paper hopes to explore a very specific aspect of tertiary education, namely how projects were assigned, submitted, and graded both before and during the pandemic; it then goes on to examine the thoughts and experiences of both educators and students in the hope of discovering if preferences lie with traditional "paper" assignments or the "digital" methods adopted during the pandemic. The data was collected from existing studies, as well as quantitative data drawn from a small scale questionnaire of around 50 university students in Japan, as well as qualitative data from two key informants, who have decades of combined experience teaching at university level in Japan. The findings pointed to there being some noticeable benefits to continuing to use this digitial technology to assign/collect projects, for both teachers and students, however serious concerns were also raised, such as security and the importance of adequate training. This study aims to further the conversation on how instructuional technology is implimented, and how it can be used to its fullest potential in not only Japan, but around the world.

Keywords: Instructional technology; 4IR; higher education; higher education Japan; e-learning

1. Introduction

The COVID-19 pandemic had a huge impact on tertiary education in Japan, the effects of which are still reverberating throughout the community. During the pandemic, a number of states of emergency were announced (Cabinet Public Affairs Office, 2020) which forced many universities across the country to alter their teaching methods, as classes were moved from the campus to online learning platforms (Cohen, 2020). This led to a generation of university students and teachers needing to climb a steep learning curve and familiarize themselves with a wide range of instructional technologies, such as video conferencing, online learning platforms, digitizing materials, Video Based Learning (hereon referred to as VBL), and the normalization of smartphones being used as viable platforms for studying.

This study hopes to explore the potential benefits of continuing these practices, with a particular focus on how projects at Japanese universities were distributed, collected, and graded. It will be argued that for many, the traditional method of handing out and collecting physical paper assignments was superseded by digital assignments during the pandemic, and continuing with this digital approach has inherent benefits for both the teachers and the students.

2. Methodology

This study will explore existing studies on the topic of instructional technology, and will triangulate this collated data with both qualitative and quantitative primary research. The qualitative data was collected from long-form, semistructured interviews with two key informants in this area, which will be quoted from and referenced throughout this study. The quantitative data was collected from an online survey (distributed via Google Docs), which was completed by 56 English as a Foriegn Language (hereon referred to as EFL) students from a private university in Japan.

Details of the interviews and interviewees will be explored in the following "Interview Protocol" and "Profile of Key Informants" sections of this paper. These interviews were conducted via Zoom, which not only allowed for greater flexibility in regards to finding an appropriate time to conduct the interviews, it also allowed for both the audio and visual aspects of these interviews to be recorded and stored; these digital video files were then uploaded to YouTube as "Unlisted" videos, allowing only those with a direct link to view them. This helped maintain the anonymity of the interviewees, which was assured for ethical considerations. The video link was then shared with the corresponding interviewee, which gave them a chance to request any edits or changes (no such requests were made). An additional benefit of uploading the file to YouTube was that the auto-generated subtitles could be downloaded; these were then edited, checked, and formatted into verbatim transcripts (see Appendices 1 and 2). Japanese terms were italicized and translated into English. Repeated words, grammatical mistakes or colloquial speech found in the transcripts were left unedited, to ensure transparency and accuracy, and any edits made to quotes used within the main body of this paper were clearly marked with square brackets.

These interviews were subject to a small amount of numerical and data analysis, such as a tally of key points that mapped the interviews' overall stance on digital and paper assignments, but the fundamental approach to this qualitative research was thematic analysis, which was recorded via codes and logbooks, and this data was exported to Microsoft Excel for easier sorting and comparison using the "Extract Function" of the program, DocTools.

The second prong of the primary research consisted of a simple questionnaire that was completed by 56 tertiary level students at a private university in Japan. The questionnaire consisted of 2 questions to gain simple demographic information (gender and grade at university), and a further 4 questions to gauge students' thoughts on submitting work digitally. The questionnaire ended with 2 open questions that allowed for the collection of some qualitative data:

> "What advantages (if any) are there to submitting printed/paper projects? (Please answer in English or Japanese)"
> "What advantages (if any) are there to submitting digital projects? (Please answer in English or Japanese)"

To avoid confusion brought about by the language barrier of Japanese students answering a questionnaire in a second language, the respondents were allowed to type their answers in either English or Japanese. Any Japanese quotes used in this paper will be represented by an English translation, but the original Japanese text will be kept, along with all of the other information from the questionnaires (see Appendix 3).

Two key informants were chosen as this allowed for the collection of in-depth qualitative data, that was mined from long form interviews. Having more than a single key informant allowed for the data to be compared and contrasted, which could then be triangulated with the existing literature in this field. While a higher yield of key informants may have unearthed more data,

as this particular demographic was so niche and narrow (EFL/ESL Tertiary Educators based in Japan who had taught before, during, and after the states of emergency during the COVID-19 pandemic), it did not seem counterintuitive to have such a focused selection of interviewees to collect data from, as "[t]he number of potential key informants depends on the topic, the existing structures in the community, and the size of the community." (Muellman et al, 2021)

3. Literature Review

A large component of this study will be discovering and examining existing studies within this field, and then triangulating these findings with the aforementioned qualitative and quantitative data that was collected. In the hopes of retaining a tight focus, these texts will all be concerned with educational innovation and digital technology; while many texts are referenced in this study, 5 in particular were heavily influential, so these alone will be explored in depth here. Furthermore, as this topic is concerned with innovation and modern technology, all of the texts were published within the past decade so the views, findings, and data represented in these studies should still be considered contemporary. While Moore's Law of exponential technology growth occurring every two years has faced scrutiny in recent years, with there now being "more complex dynamics [...] at play" (Burg & Ausubel, 2021), it is still the case that technology that was once considered groundbreaking may well be obsolete today; therefore, in an attempt to maintain accuracy and relevancy, the texts explored here are all written within a decade of this study.

The first text, *Liberating Learning: Educational change as social movement* written by Rincón-Gallardo in 2019 explores alternative methods in approaching education, and how reforming learning environments so that they are more efficient for more people, is a communal act; one which involves a wide range of stakeholders, including educational leaders, teachers, parents, wider communities, state institutions, and the students. Perhaps the most direct link between Rincón-Gallardo's writing and this study is that educational change is often brought about via large social movements, which may well be encouraged by unpredictable and unprecedented events. That being said, the book explains how many educational institutions are often reluctant to adapt or change, and inflexibility and snapping back to the norm is often central to the fabric of educational institutions. Rincón-Gallardo highlights that any change must have noticeable and tangible benefits, otherwise it may well be doomed to fail:

> "[A] successful paradigm must stimulate the transformation of entire educational systems. In other words, a new paradigm should offer solutions at both the micro-levels of classroom practice, and school organization and at the macro-levels of policy development and organizational management." (Rincón-Gallardo, 2019, p.44)

In the case of instructional technology being implemented in Japanese universities during the states of emergency, it had the micro-level benefits of solving the immediate problem of students not being able to physically attend classes, and the macro-level implications include the technology being adopted by university departments for meetings, training, file sharing, or curriculum management. While the scope of potential benefits is very wide, in an attempt to retain clarity, the focus of this study will remain on the distribution, collection, and grading of projects at Japanese universities.

It would be very difficult to explore the world of instructional technology and not include the writings of Klaus Schwab, who has written two fundamental texts in this area, his 2016 text *The Fourth Industrial Revolution* and *COVID-19: The Great Reset* which was co-written with Theirry Malleret in 2020. The Fourth Industrial Revolution (hereon referred to as 4IR) refers to the normalization of technology use in modern times, and the potential benefits and dangers this rapidly evolving technology could have in the future:

"The fundamental and global nature of this revolution means it will affect and be influenced by all countries, economies, sectors and people. It is, therefore, critical that we invest attention and energy in multistakeholder cooperation across academic, social, political, national and industry boundaries. These interactions and collaborations are needed to create positive, common and hope-filled narratives, enabling individuals and groups from all parts of the world to participate in, and benefit from, the ongoing transformations." (Schwab, 2016, p.4)

Schwab explores the responsibility we all have in making sure that this technology is utilized correctly; in regards to university education, it is extremely important that students are given an education that will be functional in the working environment into which they will be graduating.

COVID-19: The Great Reset looks specifically at how the pandemic caused an influx of technology into a wide range of working environments and communities, and how, through necessity, this technology was used. Many educators were forced to familiarize themselves with new technologies and teaching methods during the pandemic, and studying the potential benefits of continuing to utilize these practices is central to this study.

A text that looks at assessment strategies through the lens of 4IR is *Teaching and Assessment skills needed by 21st-century teachers: Embracing the Fourth Industrial Revolution,* by Septimi Kitta and Jaquiline Amani, which is a chapter in a text edited by Jayaluxmi Naidoo titled *Teaching and Learning in the 21st Century: Embracing the Fourth Industrial Revolution.* The chapter looks at how educators must adapt and evolve to keep their assessment strategies inline within an educational environment that is becoming more dependent on technology; it also argues that assessment must be parallel with the skills students will need once they graduate. This study will also look at the inherent benefits of using technology for assessments, and the responsibility on teachers to ensure their approaches are contemporary and beneficial to the students they are teaching.

The last text explored here is less concerned with technology implementation and more focused on the process of brining about shifts in curriculums. *Strategic Curriculum Change: Global Trends in Universities* by Blackmore and Kandiko, was first published in 2012. Although it cannot speak to the impact of the pandemic, nor respond to Schwab's writings on 4IR, it can highlight the potential problems in attempting to introduce curriculum changes, and resistance these changes may face. For this study, the chapter titled *Assessment in curriculum change* will be particularly useful, as it clearly states the importance of effective and suitable assessment strategies, and how central these methods are to a supportive and effective learning environment.

Interview Protocol:
The purpose of these interviews was to get the expert opinion and professional experience of two key informants; as this study was focusing on a very specific corner of this field, namely the ways in which projects are assigned, collected, and graded, questions were necessary to help keep the interviews focused and on topic. However, the interviewees were encouraged to explore any relevant tangents that the researcher may not have accounted for. This meant that a semi-structured interview was best suited to this study, as it allowed for flexibility whilst also ensuring that the data collected was relevant. This was deemed the most suitable approach as "[t]he overall purpose of using semistructured interviews for data collection is to gather information from key informants who have personal experiences, attitudes, perceptions and beliefs related to the topic of interest." (DeJonckheere & Vaughn, 2019)

An interview protocol (see Appendix 4) was sent to the interviewees three days before their respective interviews, allowing them to raise any concerns or request edits (no such requests were made). The majority of the questions were open-ended, and allowed for a wide scope in regards to potential answers. The interviewees were also encouraged to expand on their answers, allowing for another opportunity to collect qualitative data.

Profile of key informants:
The qualitative data collected for this study was gathered from two independent sources, who will be referred to throughout this study simply as "Teacher 1" and "Teacher 2." To ensure the interviewees felt comfortable sharing their honest opinions and accurate descriptions of their experiences, they were both assured of their anonymity. This step was taken so that no repercussions could befall the interviewees if their respective institutions, colleagues, or peers felt displeased in any way with the information they provided. However, to maintain a level of transparency, below is a profile of each of the key informants, which gives details alluding to their expertise and connection to this topic, while not compromising their anonymity.

Teacher 1:
Position: Tenured Foreign Language Professor

Institution Type: Public University in Japan

Years of Experience: Over a decade teaching in Japan

Education Level: Master's Degree (currently enrolled in a doctorate program)

Teacher 2:
Position: Full-time Foreign Language Professor (annual rolling contract)

Institution Type: Public University in Japan

Years of Experience: Over a decade teaching in Japan

Education Level: Master's Degree (currently enrolled in a doctorate program)

4. Data Analysis

4.1. Qualitative Data from the Interviews

Each of the verbatim transcripts were subjected to a tally of key quotes that was divided into 4 distinct categories:

- Benefits of Digital
- Drawbacks of Digital
- Benefits of Paper
- Drawbacks of Paper

These categories were deemed broad enough to encompass a wide range of comments, but distinct enough from each so that there was no cross over in their assigned categories. In regards to Teacher 1's tally (see Appendix 5), he seemed to be largely favourable of digital projects (see figure 1), with 13 noted benefits and 7 drawbacks. He was less favourable of paper assignments, noting just 1 benefit, however only 3 drawbacks were recorded for this method.
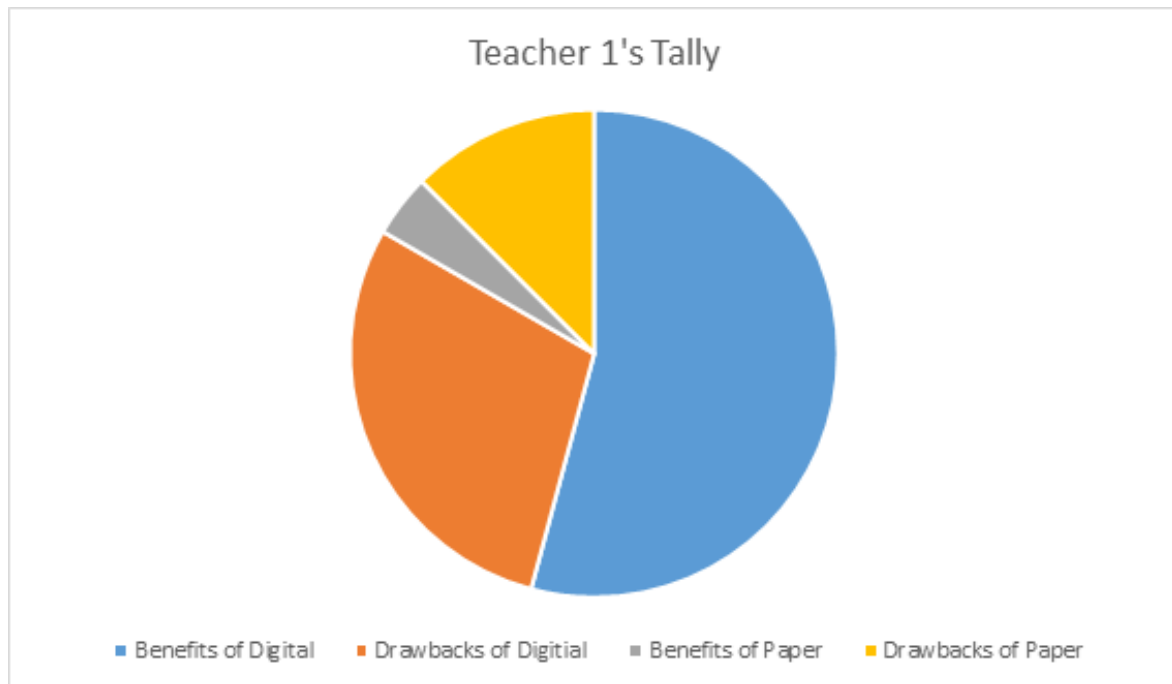
Figure 1. Teacher 1's Tally

This could point to Teacher 1 having more of a focus on digital projects rather than paper projects, and accounts for their being more cases of both benefits and drawbacks of digital assignments than paper ones.

Teacher 2's tally (see Appendix 6) showed a much more clear cut preference for digital technology, noting just 4 drawbacks and an overwhelming 17 benefits (see figure 2). Like Teacher 1 however, he had few comments about paper assignments, mentioning just 2 drawbacks and 2 benefits. Again, this could speak to the interviewee's preference for digital assignments, but it could also be an indication that the interview could have been more balanced, and it could be considered an oversight of this study that focus was not pulled towards paper assignments to balance the responses.
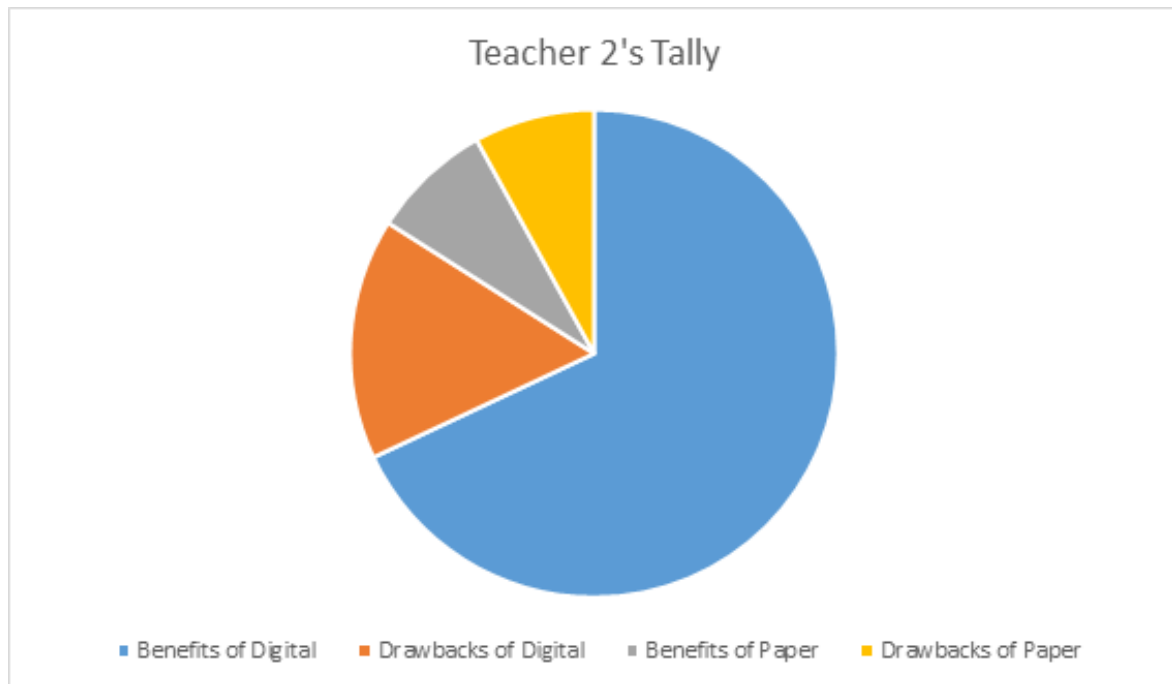
Figure 2. Teacher 2's Tally

As will be explored in the Findings section of this study, Teacher 2 mentioned a number of practical ways in which he has personally implemented the use of more digital technologies in his classes.

4.2. Quantitative Data from the Questionnaires

The questionnaire began with simple demographic information, which allowed for comparative studies between each demographic group, see Figure 3. Furthermore, it also alluded to how representative the data was for the larger field of study. The collected data was from 56 respondents, of which 16.4% were first year students, 34.5% were second year students, 18.2% were third year students, and 29.1% were fourth year students. This shows that the data is rather balanced in regards to the age and grades of the students, however, one respondent (or 1.8% of respondents) identified as a "6th year student" which could be due to studying abroad and/or deferring their studies, but as an option to supply more information was not given, these details cannot be known for sure, which was a clear oversight in the formatting of the questionnaire.

What grade/year of university are you in?
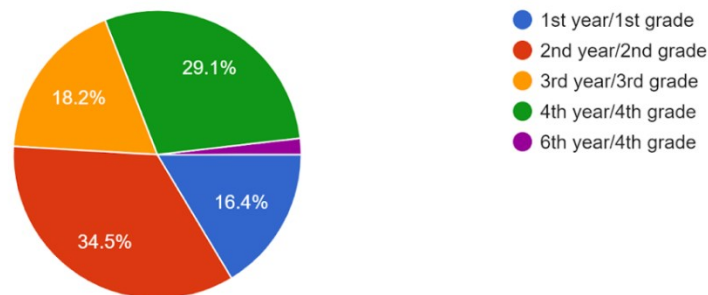55 responses

Figure 3. Grade/Year of participants

While the grades were relatively balanced, the interviewees were also asked about the gender they associate with, with options including "Male" "Female" and "Prefer not to say" (see figure 4). This showed that the respondents overwhelmingly identified with being female, with just 16.4%, or just 9 respondents, stating they identified as male.
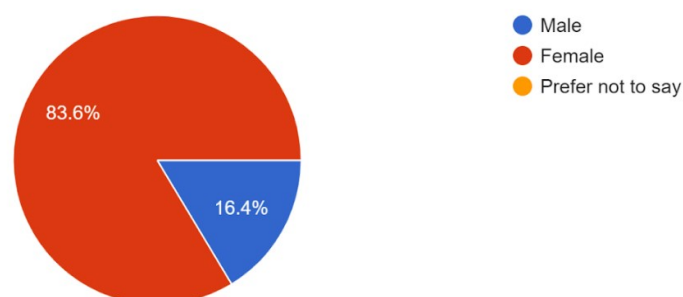
Gender
55 responses

Figure 4. Gender of participants

When asked how they submitted projects both before and after the COVID-19 pandemic, there was a notable shift, with just 18.5% stating that they always submitted work digitally before the pandemic (see Figure 5.), to a convincing majority of 60% of respondents stating that they always submitted work digitally during the pandemic (see Figure 6.). As will be explored in the following section of this study, this is inline with the qualitative data gained from the key informants' interviews.

BEFORE the COVID-19 pandemic, how often did you submit your projects digitally?
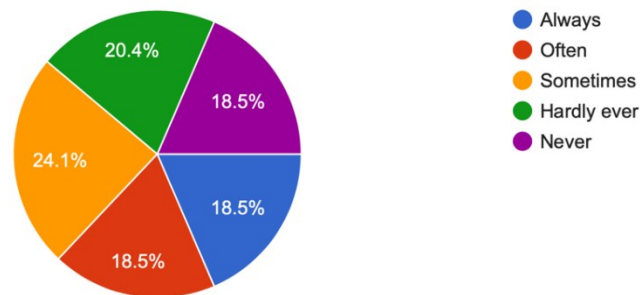54 responses

Figure 5. How projects were submitted before the pandemic

DURING the COVID-19 pandemic, how often did you submit your projects digitally?
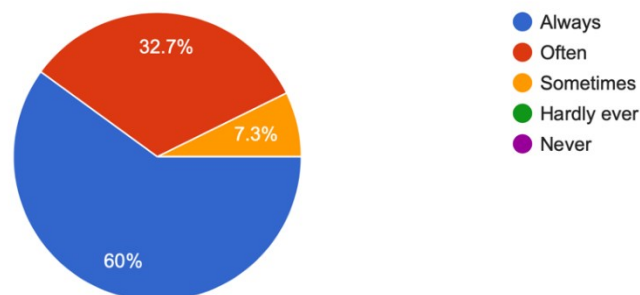55 responses

Figure 6. How projects were submitted during the pandemic

The questionnaire respondents were then asked their opinion regarding the convenience of submitting work digitally, with the question "Submitting work is more convenient for me" for which they could respond choosing from 5 options, similar in structure to a Likert scale, with the options Strongly disagree, Disagree, Neutral, Agree, Strongly Agree. The responses were mostly positive (see figure 7), with 74.6% of the respondents agreeing to some extent, 16.4% remaining neutral, and only 18.2% disagreeing on some level. As will be explored in the following section, this again confirms the opinions of the key informants:

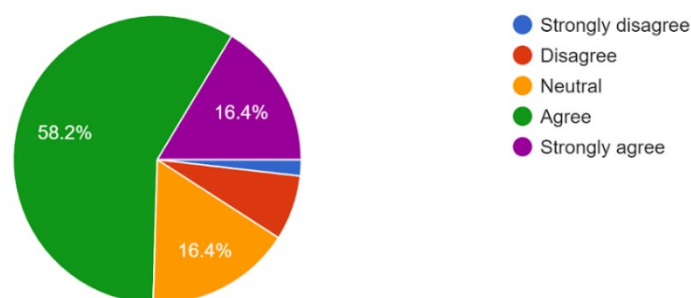Submitting digital work is more convenient for me.
55 responses

Figure 7. Students' thoughts on submitting digital work

The questionnaire closed with two open questions that allowed respondents to share their thoughts on the advantages of paper assignments and digital assignments. Potential benefits of paper assignments gathered 32 responses, and potential benefits of digital assignments gained 38 responses, some of which will be quoted directly in the following sections. To avoid confusion or misunderstanding, the respondents were allowed to respond in either English or Japanese. Japanese quotes used in this paper will be translated into English, but the original Japanese will be available in Appendix 3 to ensure transparency.

5. Findings

The interviewees were both asked what teaching approaches they favoured before the pandemic, and while they both used a variety of techniques, they both stated they were commonly using tactile worksheets and printouts (hereon referred to as paper projects). Teacher 1 stated that "pre-pandemic I was pretty paper based" (line 28) and when asked how much of his work was paper based prior to the pandemic, Teacher 2 responded by saying "a lot of it was." (line 24). However, both interviewees also stated that even before online learning platforms were implemented due to the pandemic, they were already favouring digital technologies to distribute materials, with Teacher 2 referring to software such as Dropbox and Airdop, for which he could distribute materials and collect them directly from his students without the need of printing out materials and physically distributing them:

> "I was using paper-based assignments basically as little as possible." (lines 27-28)
> Teacher 1 was also using existing software, in his case he favoured Blogger, which again allowed for the distribution and collection of materials.

Both interviewees also created their own solutions to use more digital technology in their classrooms before the pandemic; teacher 2 created a simple program that would "collate all the comments from everyone [...] into a spreadsheet and then I would extract all the comments" (lines 40-42). Teacher 1 said that "for the last 10 years or so I've had [...] a website [...] to post things electronically." (lines 32-33). This allowed his students to access and download any materials they may need for the course. This shows that even before online learning platforms and other instructional technology became mandatory, bother Teacher 1 and Teacher 2 were

augmenting their teaching approaches with the digital technology available to them, and in some cases creating their own tools (be that a sorting program or a website).

So while paper assignments were perhaps the norm before the pandemic in Japanese HEIs, it is worth noting that both interviewees were already experimenting with instructional technology and may therefore have been better equipped to deal with the huge pedagogical shift that many universities in Japan would face in the spring of 2020.

But even with this familiarity with technology, both teachers also noted the difficulty in mastering online learning platforms for fully digital classes:

> "The learning curve was crazy at the beginning [...] we had a couple [of] months to [...] teach ourselves […] Teams especially I felt like took a long time to pick up." (Teacher 1, Lines 71-73)

Teacher 1 points out that he was expected to familiarize himself with this technology (Microsoft Teams), and the university was not forthcoming with training to help make the teachers (and students) more comfortable with their chosen educational platforms, a sentiment shared by Teacher 2, who was also expected to use Microsoft Teams, and discovered how to use some of its features independently:

> "I noticed after the first couple of weeks with Teams [...] they had an [...] Assignments feature. Our university didn't really tell us about that, I just kind of found it on my own." (Teacher 2, Lines 53-55)

Here both the interviewees are pointing to the initial introduction of this technology being marred by a lack of training or orientation. While it may seem redundant to state, without proper training and orientation programs, it is almost inevitable that problems will arise when a new technology becomes central to curriculum changes or altered teaching approaches. Unfortunately, the pandemic was not an isolated incident in which Japanese teachers experienced a severe lack of resources to master digital technology; in a wide-ranging study conducted in 2020, it was noted that Japan had one of the poorest records in regards to teachers having the time to familiarize themselves with instructional technology:

> "On average across OECD countries, about 60% of 15-year-old students are enrolled in schools whose principals consider that teachers have sufficient time to prepare lessons integrating digital devices, ranging from close to 90% in the four Chinese provinces to little more that 10% in Japan." (Reimers & Schleicher, 2020, p.25)

While the study by Reimers and Schelicher was referring to middle-schools, it could well speak to the overall culture regarding education in Japan, as both Teacher 1 and Teacher 2 noted difficulties in using this technology for the first time (dispite their familiarity with other instructional technology), due to a lack of training. Therefore, the problems associated with using this technology may not be the fault of the technology, but the culture in which it is implemented; so to ensure its continued success, not only does the technology need to become more accessible, but the culture into which it is introduced must become more accepting, as "the problem of changing pedagogy at scale is seen not only as technical but, more importantly, a cultural project." (Rincón-Gallardo, 2019, p.54)

So while it could be argued that training is vital to ensure new approaches are successful, it is equally as important to look at the type of training teachers receive, as being familiar with a technology does not equate to being able to use it to its fullest potential.

> "It is important to note that teachers' technological skills do not always translate into the effective use at a pedagogical level in secondary settings. Yet, much of the CPD around technology tends to focus on improving skills, thus is disconnected from

'methods courses' and how technology can be effectively implemented into the classroom." (Williams, 2020, p.69)

Here Williams is pointing to the phenomenon of teachers being shown a technology, and *how* to use it, which may help solve technical issues that may arise. However, they are not being shown *why* to use it, and the benefits (which we will soon explore) may go undiscovered. Stakeholders should be made fully aware of the benefits inherent with the use of this instructional technology, and be informed of tangible ways in which it could improve their working lives. While both of the interviewees taught themselves to use this instructional technology in an effective way, there is no guarantee that others will be able to do the same.

As we have explored, the time and energy given to familiarizing stakeholders with vital instructional technology is extremely important. Another consideration that is central to this study, is how important assessment strategies are as "the 21st-century skills require assessment practices which not only reveal how and what students know through paper-pencil medium but also assisst the application of acquired competences in their work and life." (Kitta & Amani, 2021, p.98). As Kitta and Amani point out, assessment is not just about checking the base knowledge or memory of students, but instead should encourag growth in them. One of the biggest benefits of redesigning assessment strategies and teaching approaches, so that they are infused with the technology used during the pandemic, would be that it would holistically equip students with the skills that would benefit them after graduation, as technology is likely to become more central to their daily lives and "the ability to anticipate future employment trends and needs in terms of knowledge and skills required to adapt becomes even more critical" (Schwab, 2016, p.41); so it could be argued tertiary education teachers have a responsibility to craft assessments that will best serve their students for their uncertain future.

It is important to state that Kitta and Amani are not calling for technology to replace existing approaches altogether, and the technology should be used as an enhancement to the learning environment, and not a complete pedagogical shift as "the use of multiple assessment tools will bring complementary data for reasoned decisions about what and how students learn." (Kitta & Amani, 2021, p.98)

This hybrid approach was supported by the interviewees, with Teacher 2 pointing out that in other classes, the more traditional method of distributing and collecting materials was still in use:

> "[I]t seems like, looking at other classes, they still do a lot of paper-based assignments. Maybe they're more used to that it's more comfortable for them." (Teacher 2, lines 102-104)

Familiarity and ease of use were also benefits stated by the students who completed the questionnaire, with comments including "It's really simple and easy to submit. For me, it's a little difficult to use a computer," and "There is no digital problem." There is a danger that needlessly implementing technology may seem aimless at best and frustrating at worst; if paper projects suffice, why should they be replaced? Again, one of the key components of introducing change is that stakeholders must be shown the benefits that they will enjoy due to this change. In absence of the pandemic, this change may have been brought about more smoothly following Kurt Lewin's Management Model (see Figure 8), which many consider to be "providing the solid basis on which change management has developed." (Cummings et al, 2015)
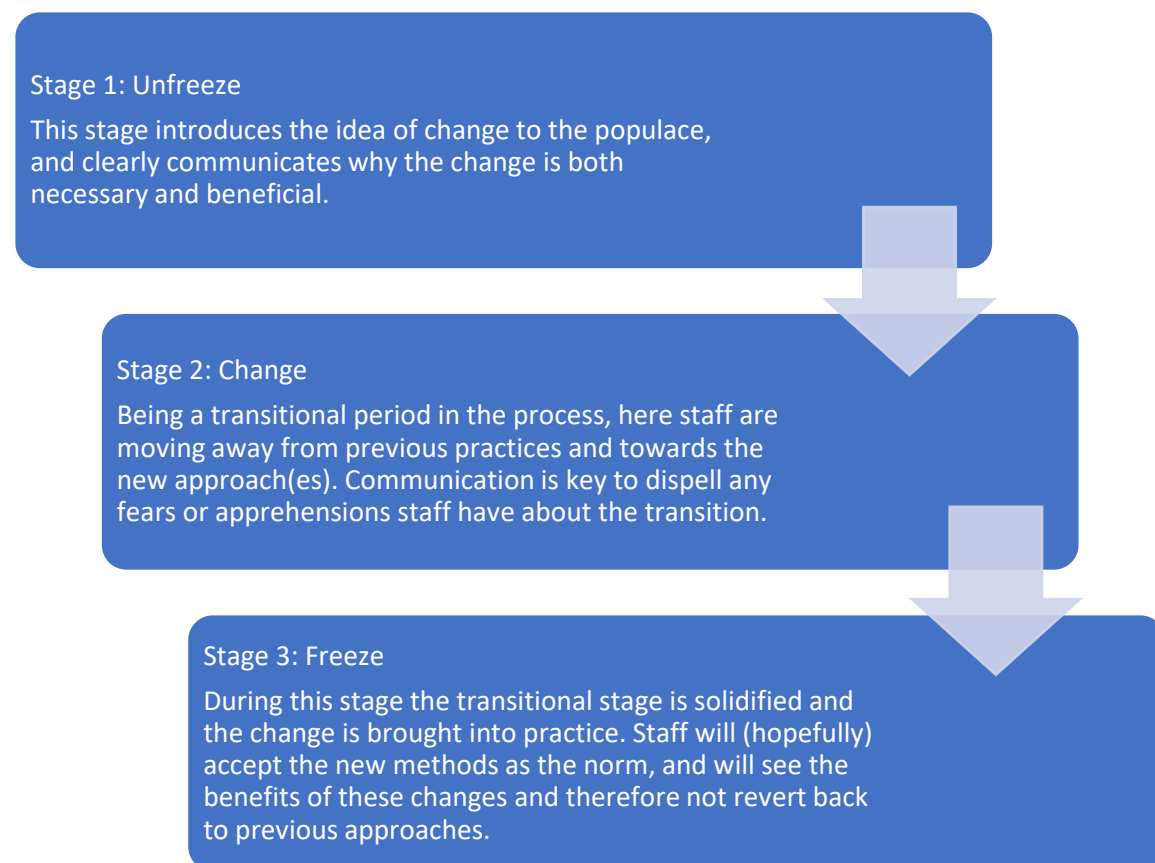
Stage 1: Unfreeze

This stage introduces the idea of change to the populace, and clearly communicates why the change is both necessary and beneficial.

Stage 2: Change

Being a transitional period in the process, here staff are moving away from previous practices and towards the new approach(es). Communication is key to dispell any fears or apprehensions staff have about the transition.

Stage 3: Freeze

During this stage the transitional stage is solidified and the change is brought into practice. Staff will (hopefully) accept the new methods as the norm, and will see the benefits of these changes and therefore not revert back to previous approaches.

Figure 8. Lewin's Management Model

However, the pandemic was such an unprecedented event, the sudden shift in educational practices meant that stages 1 and 2 occurred almost simultaneously, as teachers were introduced to online learning platforms shortly before they were forced to adopt them. As there was not time enough to clearly communicate to staff the benefits inherent in this technology, or the opportunity to address any concerns they may have had, for those who did not independently discover these benefits, stage 3 of Lewin's model did not truly materialize, and they reverted back to the previous approaches they were more familiar with.

The opinion of the key informants did deviate from each other somewhat in regards to who they think is responsible for the acquisition of skills to use this technology correctly; Teacher 2 thought that for the act of accessing projects digitally, it should be the students themselves who should take responsibility in regards to familiarizing themselves with the necessary technology:

> "At the college level I think they should be responsible for themselves […] it's pretty straightforward and it's pretty basic […] they just get the assignment, it comes straight to them, they get notified […] it's nothing too advanced." (Teacher 2, lines 118-122)

Teacher 1 on the other hand thought that teachers should have the necessary skills to assist students, and that universities "definitely need […] better teacher education" (Teacher 1, Line 221). With this orientation, Teacher 1 agreed with Teacher 2 that the technology is not too difficult to master and "with good training it's not that hard to pick up." (Teacher 1, line 245)

So, while the introduction of this technology was rushed and, in many cases, stressful (Shoji, 2020), it could be seen as doubly impressive that the key informants, the students who partook in the questionnaire, and much of the supporting literature speak to the ways in which this technology can improve tertiary education in Japan.

5.1. Benefits of Digital Projects

Both of the key informants highlighted a number of practical ways in which online learning platforms benefited their teaching environment. Teacher 1 stated that it was not only easier for students to submit their work, it was also much "easier for them to read my comments" (Teacher 1, line 91). Both interviewees also felt that the overall technical skills of the students improved during this period, as Teacher 2 observed that "students' tech skills have gotten much, much better than they were previously." (Teacher 2, lines 84-85). Teacher 2 also found that the continued use of this technology in his classroom, even after it was no longer mandatory, led to more student autonomy, and uploading slideshows to Microsoft Teams allows students to view them at their own pace, as students engage with the martials at "different paces." (Teacher 2, line 185)

The data collected from the questionnaire also pointed to assignments being more easily distributed, submitted, and graded as major benefits to the students, as one student noted "We can submit quickly compared to paper projects, results of the project is also fast." Of the 38 responses, 25 spoke to the ease of submission and how it can be done from any location, and at any time (before the deadline). Other benefits the students spoke of was that they could "copy and paste the references of data" or that "the number of characters can be displayed automatically" helping them stick to any wordcounts; this shows that it was not only the teachers, but students too, who independently found benefits to these digital platforms that helped in completing projects.

The benefits were not only seen by the students, but the teachers as well. Both of the key informants mentioned the increased ease of distributing materials, but perhaps the largest similarity between the two informants was their comments on grading, and how it has become easier, quicker, and more accurate due to the introduction of this technology. As Teacher 2 states, "when it comes time to grade it's all in front of you" (Teacher 2, lines 167-168), as any assignments that have been distributed and graded via the online learning platform (in this case Microsoft Teams), can automatically combine those individual projects and "gives you an Excel file […] spreadsheet of all the grades […] lined up ready for you to do the final grading." (Teacher 1, lines 95-96)

Another practical application of this technology that Teacher 1 felt was a huge benefit was the ease and accuracy of plagiarism checkers, to ensure the students' work is truly their own:

> "I get an electronic copy I can just paste that into a plagiarism checker and then immediately know if it's original or not […] [for] a paper copy that would be really tough to do." (Teacher 1, lines 140-142)

While the technology does not eliminate the need for grading or plagiarism checks, it does make that process much simpler for teachers. In short, this technology may not technically lower the number of tasks a teacher needs to accomplish, it does however have the potential to alleviate the workload somewhat, but making these tasks much easier and swifter.

5.2. Concerns of Digital Projects

While the interviews and questionnaires are mostly positive in regards to the adoption of digital assignments, there were some very serious concerns that were raised that should be addressed. Teacher 1 was keen to point out that privacy issues are a real concern for online learning platforms, and ill-educated staff may well inadvertently add to this problem.

> "[W]e have to be really careful about privacy issues […] I'm sure that there was tons of […] data that was accidentally leaked during the pandemic. A lot of teachers have a

lot of access to private data so I think […] people need to be really aware of how dangerous it is for that information to get out." (Teacher 1, lines 251-255)

Teacher 1 went on to say that training could be used to stop this from happening, as teachers can be educated on the weight of responsibility they have in handling so much private information, as well as working practices they should follow to avoid such leaks of information happening, all of which could "fall under teacher training." (Teacher 1, line 256)

Both interviewees also spoke about technical issues, which may not be solvable through training alone. Both teachers highlighted problems with hardware that could curb the accessibility of these digital materials, as Teacher 2 pointed out, in a household with different people attempting to access online materials at the same time, perhaps on an "old router" (Teacher 2, line 80), may mean "they couldn't get online" (Teacher 2, line 79). Teacher 1 also highlighted how the equipment students had available to them may limit their access to these digital materials, and as "this tech is expensive" (Teacher 1, lines 156-157), the socio-economic status of a student may well influence their accessibility to a tertiary education is this technology is fully adopted.

5.3. Recommendations

To ensure this technology is used to its fullest potential, it is essential that both teachers and students receive adequate training; this training should include the basic knowledge necessary to operate the online learning platforms, but as Williams stated, it is equally important to highlight why this technology should be utilized, and clearly show what tangible benefits can be enjoyed by its implication.

The second point that needs to be addressed is that these benefits can only be enjoyed if the technology is accessible and available to all of the students (and teachers). Teacher 1 stated that his university offered tablets to students without adequate computers, and this is one solution that could be investigated. Another option may be adapting lessons and teaching materials so that they are better suited to smartphones, as this is a platform that the vast majority of Japanese university students will have access too, with 98.8% of high school students already being in possession of a smartphone (Sugiyama, 2022). Furthermore, studies have shown the benefits of using smartphones as a learning platform (Rafidah et. al, 2020).

This paper would argue that with suitable training and steps towards guaranteeing accessibility, the benefits listed by the key informants, the existing literature, and the students who participated in the questionnaires could well come into fruition. While technology could not (and possible should not) replace all current teaching practices in Japanese universities, they can be used alongside existing approaches, to make life easier for both teachers and students.

6. Conclusion

The pandemic was clearly a disruptive and traumatic event, with school closures, states of emergency and distance learning all causing great stress to university students in Japan (Hirano et al, 2022). However, it is possible to view the pandemic as a rude awakening for educational institutes, which may well have been falling behind the pace of technological progress, and not providing an education that was sufficient in such a transformative time:

> "In stark contrast with the fast-paced spread and growth of digital technologies for learning, the basic grammar of schooling has remained practically stable for over a century." (Rincón-Gallardo, 2019, p.20)

Through adding an element of instability in the form of a global pandemic, universities in Japan (and around the world) were forced to adapt; traditional methods were replaced or altered extremely quickly, and the technology, which Rincón-Gallardo may argue was being underutilized before the pandemic, became the very tool that made the continuation of tertiary education possibly. It could therefore be argued that the pandemic became a catalyst for the adoption and implementation of online and digital learning.

This sudden implementation of instructional technology may well have involved a steep learning curve, but this paper has shown that there are benefits inherent in the usage of such technology. Looking at the very specific case of how assignments are distributed, collected, and graded shows that both students and educators are in agreement that while there are some benefits to using the "traditional" paper method (including familiarity or immediacy), the general feelings in tertiary education in Japan seems to be that digital technology can continue to enhance tertiary learning environments, even after their use is not mandated by pandemic driven states of emergency.

It is therefore imperative that assessment strategies be viewed through a suitable lens, as not being merely a tool to gauge a students understanding of a particular topic, but a method to support and encourage the students' continued development, as "[a]ssessment is a vitally important aspect [to curriculum change] because of its influence on the ways in which students approach learning." (Blackmore & Kandiko, 2012, p.92) The method of assessment applied to any particular learning environment will have a big influence on how the students approach the subject, so it is therefore very important to ensure that the learning environment is effective and beneficial in the long-term. If assessment is implemented to merely check knowledge, students may simply learn the necessary information to pass the course, instead of actually acquiring knowledge and skills that will remain with them in the future.

While the theory behind curriculum change and the increased use of technology in regards to assessment may be well founded, putting it into practise may be more difficult. Teachers may have the power to implement changes to their own classes, and it could be argued that they have a responsibility to do so, as "teachers need to be agents of innovation because technology keeps on changing." (Kitta & Amani, 2021, p.95) However, long lasting and widespread change cannot be brought about by individuals, a united community with a shared ideal is far more effective, which means the responsibility should be shared with the educational leadership:

> "The low level of alignment between assessment theory and practise is [...] not solely the responsibility of the individual staff members, although they are undoubtedly key agents of change in this process, but also of institutions and the higher education sector as a whole." (Blackmore & Kandiko, 2012, p.93)

This means that for this technology to be introduced and implemented, there must be a concerted effort from all stakeholders. Furthermore, if it is truly to work alongside existing practices and bring forth the benefits explored in this paper, it is essential that it is used effectively, and that these benefits are made apparent to those that adopt these methods.

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Appendix

Appendix 1: Teacher 1 Verbatim Transcript
For the full transcript follow the link below:
http://www.sb-publishing.com/wp-content/uploads/2022/08/HPEM7023-T1.docx

Appendix 2: Teacher 2 Verbatim Transcript
For the full transcript follow the link below:
http://www.sb-publishing.com/wp-content/uploads/2022/08/HPEM7023-t2.docx

Appendix 3: Details of Questionnaire Responses
Follow the below link for the full raw data from the questionnaires:
http://www.sb-publishing.com/wp-content/uploads/2022/08/Online-learning-Questionnaire.csv

Appendix 4: Interview Protocol sent to interviewees prior to the interview:
- How were assignments distributed to and collected from students prior to the COVID-19 pandemic?
- How were these pre-pandemic projects graded? How did the students receive their grades/feedback?
- Did either of these methods change during the pandemic? If so, please describe the new method(s) adopted for distributing, collecting, and grading projects.
- Do you think your students would prefer "paper" assignments or "digital" assignments? Why do you think so?
- Do you think there are inherent benefits or drawbacks to setting, collecting, and grading digital assignments?
- For technology to be better utilized in the classroom, what steps do you think need to be prioritized?

Appendix 5: Tally for Teacher 1
Follow the link below for the full details of Teacher 1's tally:
http://www.sb-publishing.com/wp-content/uploads/2022/08/HPEM7023-T1-Tally.docx

Appendix 6: Tally for Teacher 2
Follow the link below for the full details of Teacher 1's tally:
http://www.sb-publishing.com/wp-content/uploads/2022/08/HPEM7023-T2-Tally.docx