〔Article〕

Preparing for Society 5.0: Podcasting with Children

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Abstract

More and more citizens are now expected to be able to learn and use so called 21st century skills than ever before. And while Japan makes moves towards realising a new social paradigm known as Society 5.0, the reality in schools is that Japan lags behind other OECD countries in ICT use, both by the general populace as a whole and in schools. This paper describes the development of events which provide opportunities for children to use technological resources to develop English language skills by making podcasts. Primary school pupils and university students worked together in these events, which delivered a high level of satisfaction among pupils. Survey results indicate that the pupils demonstrated an openness and willingness to engage with the linguistic and technological resources which they will need in the future.

Background

In the modern world, digital technologies are developing with what appears to be an ever-increasing rapidity, requiring citizens to be able to adapt to new ways of working, interacting and learning. Those emerging into the workplace now are expected to demonstrate awareness of and ability in what have come to be known as 21st century skills–such as ICT skills which demonstrate digital literacy, critical thinking, global awareness, intercultural understanding, collaboration, citizenship, effective communication skills and more. This new paradigm has led researchers to reconsider what pedagogical approaches are most appropriate in the 21st century (e.g. Beetham & Sharpe, 2013; Voogt, *et. al.*, 2013).

In response to the changing social and educational dynamics witnessed, Japan is now positing a concept known as Society 5.0, which envisages humans as being on the cusp of a great paradigm shift representing a fifth age or era (the previous four being the hunter gatherer society; agricultural society; industrial society after the industrial revolution; and the current information society), in which emergent concepts and technologies such as artificial intelligence, robotics, the internet of things and distributed ledger technology are expected to be deployed to enhance society as a whole (Keidanren, 2018). The Japanese government has presented a definition of 'a human-centred society that balances economic advancement with the resolution of social problems through a system that highly integrates cyberspace and physical space' (Cabinet Office, n.d.).

The Ministry of Education, Culture, Sport, Science and Technology (MEXT) also suggests achieving Society 5.0 will necessitate a transformation in the way learning is done. They envisage it in this way:

Table 1. Forms of learning in Society 5.0

Current school system	→	Society 5.0 schools（age of "learning"）
Schools with one-size-fits-all classes	→	Sites of learning where individuals learn according to their own pace, ability and interests, while steadily attaining fundamental academic abilities such as reading comprehension
Studying in groups based on school-year/grade-level	→	Expansion of learning beyond grade levels to include more collaborative learning in mixed-age, mixed-grade groups based on level of attainment, subject matter, etc.
Studying in school classrooms	→	Diverse learning programs that also utilize universities, research institutes, corporations, NPOs, education/culture/sports facilities, and so on

Source: Adapted from MEXT, 2018

Even before this was being posited as a goal by various institutions of the Japanese government and business groups, ICT skills had emerged as one of the most important of the 21st century skills to be developed. Yet OECD statistics suggest that Japan faces a number of issues regarding the use of technology in education. While Japan has the highest levels of literacy and numeracy on the OECD Survey of Adult Skills（PIAAC）, it lags behind several other countries in digital literacy at all age levels（OECD, 2018）. Schools typically have fewer computers per student（OECD, 2012）, and among those surveyed Japanese pupils had the lowest index of ICT use out of school for doing schoolwork, and the second lowest index of ICT use in school（OECD, 2018）.

If financial resources exist, providing ICT resources in education is arguably one of the easier things to accomplish, and it is relatively simple thing to measure such things as numbers of computers, access to the internet and various platforms for taking advantage of developments in the digital age. However, mere access to ICT related infrastructure does not necessarily lead to effective use of that infrastructure or the development of ICT skills. Japan also has a higher than average percentage of teachers who feel they need ICT training（OECD, 2018）, suggesting that there is still some way to go before the benefits of ICT use in education can be realised to achieve the kinds of goals envisaged by Society 5.0.

This paper describes an initial attempt to address the new paradigm facing education in the 21st century through the establishment of educational events for children which incorporate many of the ideas put forward by MEXT in Table 1, using an emerging technology-podcasting.

Podcasting Technology

Podcasting is similar to a number of other forms of transmitting audio and video digital works, such as television, radio and various platforms supported by the internet. What makes a podcast essentially different from other transmissions is the ease with which a podcast can now be produced and transmitted by even amateurs, and the fact that the internet is required only to access and retrieve the podcast. Once it has been downloaded from the website which hosts it to an appropriate device（computer, smartphone, tablet, etc.）, a podcast can be freely consumed anywhere with no need to connect to the internet. This has given rise to a boom in the production and consumption of podcasts in recent years. Edison Research estimates that over 50% of the population of the USA have listened to a podcast at least once, and that approximately one third of the population listen to

podcasts monthly（Edison Research, 2019）.

One of the most powerful aspects of podcasting technology is that it gives individual producers and listeners greater control over the kinds of media they engage with and the way in which they engage. In the specific case of assisting in English language learning, listeners can start, stop, pause, rewind or replay podcasts in full or part at will, giving them the power to control their listening environment, rather than relying on a teacher. This may allow for greater individual autonomy in learning and, as Kavaliauskiene and Anusiene（2009）have noted, may alleviate the sense of intimidation or anxiety students often feel when asked to provide answers to listening activities on the spot in front of their peers in the classroom.

For student-producers, also, there are possibilities that the freedom to make mistakes in their spoken English, in the knowledge that they can be erased and re-recorded, may engender a sense of confidence in their efforts and pride in the final version of work they are able to produce.

While podcasting is a relatively new technology, efforts to use and assess it in education have been undertaken for more than a decade. Most studies into the use of podcasts, whether in education in general or in second language learning have met with positive responses from educators and learners. Various benefits of podcasting, from the ability review or prepare for lectures, to cognitive and affective factors, to improvements in listening comprehension and writing, to enhanced motivation have been identified in the literature （Parsons, 2019）.

The technology needed for people other than media professionals to create podcasts is now reasonably mature and stable. The basic hardware（recording devices, microphones, cameras, etc.）required to record the raw data to be used in podcasts has become relatively inexpensive in comparison to even a few years ago（although high-end equipment continues to be cost prohibitive for many in educational environments）. Additionally, audio and video editing software and applications are now readily accessible to most. While some professional level software applications are quite expensive, cheaper or free alternatives are now also available. In fact, a typical smartphone now contains many of the capabilities necessary to record, edit and export audio and video in formats which can be easily shared with collaborators and consumers. All of which means that producing podcasts is no longer solely in the purview of professional media producers. It is a technology accessible to all.

The Project

Taking the above background into consideration, a project was conceived to introduce podcasting technology to children and to teach them how to create original podcasts in a foreign language: English. In line with the recommendations from MEXT in Table 1, this project brings together primary school pupils and university students in 'collaborative learning in mixed-age, mixed-grade groups', in events that introduce pupils to emergent technologies, and simultaneously encourage them to express themselves, in English, in a format that is conducive to mass-communication.

University students, with greater knowledge and more highly developed digital skills as well as more advanced English language skills, assisted primary school children to write, record, edit and produce English language podcasts, using technological assets not readily available to them in their

school environment.

　This reflects a socio-cultural educational approach supported by research and practice. The Zone of Proximal Development (ZPD) is a concept developed by the Russian developmental psychologist, Lev Vygotsky, in the first half of the 20th century (Vygotsky, 1978). In education, the ZPD represents the difference between what a child is able to do or accomplish on their own, and what they can do or accomplish with the aid of a more skilled person, often an adult or teacher, but also possibly a peer. Directed application of educational practice to help learners develop their knowledge, abilities and skills through the ZPD is also known as 'scaffolding', a process in which learners are given appropriate support to achieve goals, and as goals are achieved the scaffolding is either gradually removed or replaced with new scaffolding to assist in achieving newer, more advanced goals.

The process for creating these events was as follows:

Prior to the Event:

1. With the assistance of many staff members of Hannan University, the use of a location conducive to creating podcasts with children, and access to personal computers for the use of each child was acquired.
2. Negotiations with primary schools in the vicinity of Hannan University resulted in approval to invite children to participate in the events.
3. The children applied to join the event and wrote a description of what they would like to express to the world in Japanese.
4. The Japanese scripts were translated into English, which was then returned to the children with a sample recording. The children were encouraged to practice reading this aloud prior to the event.

At the event:

1. The children were introduced to their student mentors.
2. A short lecture and practical demonstration/workshop on how to use the audio editing software was provided to the children.
3. Children and students worked together to further develop the English scripts.
4. The children practiced reciting their English scripts, with guidance and feedback from the students to ensure their pronunciation, intonation and timing were appropriate to express the meaning of their script.
5. When the students considered the children were adequately prepared, they retired to a quiet location to record.
6. Together the children and the students fashioned the recorded work into a podcast, which included stings and background music as desired.
7. The completed podcasts were saved and presented to the researcher.
8. The children completed a short reflective survey (see addendum).
9. After final post-production by the researcher, the completed podcasts were returned to the

children, who then had an opportunity to review them with their parents or guardians before deciding whether they would like the podcasts to be uploaded to a dedicated website. (http://juepod.libsyn.com/).

Survey Results

This event has been run twice, in February and July of 2019, with a small number of primary school pupils. A survey to assess children's attitudes to the event was administered at the conclusion of each event. The survey consisted of 10 questions based a five-point Likert scale and one short open-ended question (Question 5) which asked pupils about their satisfaction and enjoyment of the event and their interest in doing something similar again. In order to make the survey as simple as possible for young pupils, the Likert scales were represented by smiley-face icons. The degree of agreement with a question was indicated by circling or colouring-in the face (a broad smile; a small smile; a neutral face; a slightly unhappy face; a very unhappy face) that best represented their feelings. All questions were posed in Japanese (see addendum). The results of the survey are presented in Table 2 (English translation by the researcher).

Table 2. Results of Survey

		😊	🙂	😐	🙁	😞
1	How much did you enjoy the event today?	13	1	2		
2	How well were you able to use English?	6	3	4	3	
3	Did you enjoy practicing with the university students?	13	2			
4	How much effort did you put into using English?	8	7		1	
6	Were you able to use the Adobe Audition application with ease?	8	4	4		
7	Did you enjoy making an audio podcast?	10	6			
8	Were you able to create a good podcast?	10	4	2		
9	As a result of this event, are you more interested in learning English?	14	2			
10	As a result of this event, would you like to make more podcasts?	12	1	3		
11	Would you like to participate in more events like this?	12	3	1		

A cursory view of Table 2 reveals a high degree of satisfaction with the event among the pupils across all questions.

From the perspective of language learning, it is gratifying to note that all pupils felt more interested in learning English as a result of participating in the event. The results for Question 2, 'How well were you able to use English?' are a little more ambiguous. The children are all beginner-learners of English, and fully aware that they lack the linguistic skills to carry out a normal conversation in English, which no doubt has affected this result. It should be recognised that it will be difficult for young children to realistically assess their capabilities in relation the amount of learning they have done. The responses to Question 4, 'How much effort did you put into using English?' are perhaps more reflective of the actual situation, with 15 of 16 children happy or very happy with their effort.

From the perspective of developing digital literacy, it is again gratifying that all 16 of the pupils said they enjoyed the process of making a podcast, and that 13 said they would like to make more podcasts. The technical requirements of making these podcasts are not simple. The application used, Adobe Audition, is professional level audio editing software, and can appear daunting at first glance. This may explain the slightly lower than average responses to Question 6, 'Were you able to use the Adobe Audition application with ease?' However, the quality of the completed products showed that almost all students had been able to use the software to at least the degree of complexity of creating a complete podcast, which incorporated introductory and closing stings (short pieces of music or sound which introduce or separate sections of a podcast or radio transmission), the recordings of their own voice, background music and other stings that they may have felt were necessary. It is quite an achievement to be able to achieve this degree of mastery in a single day. The responses to Question 8, 'Were you able to create a good podcast?' indicate a reasonable degree of satisfaction with the completed podcast, which perhaps shows that the pupils were in actuality more in control of the editing software than they may have felt.

It was also particularly interesting to note that the pupils greatly enjoyed interacting with university students in this setting (Question 3), suggesting possible future lines of praxis and research.

The one open-ended question asked the pupils if they had any other comments they would like to make about the event. The majority of pupils responded simply that 'It was fun', or 楽しかった in Japanese, again reflecting that from the viewpoint of participant satisfaction, the event was a success. However, one pupil wrote, 大変だった, a vague comment, which may mean that the event was very difficult, or that it was very surprising in some way.

Discussion

This paper has described the development and execution of an event designed to give young Japanese learners exposure to the English language in practice and technological resources.

It must be noted, however, that the number of children participating in the events represents a small sample, and the study should be repeated on a larger scale, if possible. The children were young, with very limited linguistic skills in English. It may be that such an event is more appropriate for older learners, and this ought to be investigated.

Additionally, the survey questions regarding pupils use of the English language were difficult to interpret. Asking young children to assess the quality of their English use may have been beyond their ability to answer with nuance. These questions ought to be refined.

Finally, that 15 of the 16 pupils indicated an interest in participating in similar events seems to indicate that they are open to the prospect of developing the kind of 21st century skills which will be required of them as they grow and develop into adults. The challenge before educators, policy makers and guardians alike is to provide children with the resources and opportunities to take advantage of all that Society 5.0 is likely to offer them.

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Addendum

当てはまる絵を○で囲んで，または塗ってください。

1. 今日はどのぐらい楽しかったですか。

2. 英語できれいに話せましたか。

3. 学生と一緒に練習するのはよかったですか。

4. 英語を使うためにはどのぐらい頑張りましたか。

5. 今日の一番楽しかったことは何でしたか。

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6. Adobe の Audition を簡単に使えましたか。

7. 音声作品を作成するのは楽しかったですか。

8. 最後に自分の作品はうまくできましたか。

9. 今日のイベントに参加したから，もっと英語を学びたいですか。

10. 今日のイベントに参加したから，もっとポッドキャストを作成したいですか。

11. もしも機会があれば，またこのようなイベントに参加したいですか。

English Translation:

Circle or colour-in the picture that indicates your opinion
 1. How much did you enjoy the event today?
 2. How well were you able to use English?
 3. Did you enjoy practicing with the university students?
 4. How much effort did you put into using English?
 5. What was the most enjoyable thing today?

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 6. Were you able to use the Adobe Audition application with ease?
 7. Did you enjoy making an audio podcast?
 8. Were you able to create a good podcast?
 9. As a result of this event, are you more interested in learning English?
10. As a result of this event, would you like to make more podcasts?
11. Would you like to participate in more events like this?