

The Effect of Smartphone Video Camera as a Tool to Create Digital Stories for English Learning Purposes

Nicolas A. Gromik¹

¹ ICT Department, University of New England, Armidale, Australia

Correspondence: Nicolas A. Gromik, ICT Department, University of New England, NSW, Armidale, 2350, Australia. Tel: 61-74-972-1891. E-mail: ngromik@une.edu.au

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Abstract

The integration of smartphones in the language learning environment is gaining research interest. However, using a smartphone to learn to speak spontaneously has received little attention. The emergence of smartphone technology and its video recording feature are recognised as suitable learning tools. This paper reports on a case study conducted with 67 English as Foreign Language undergraduate students at Tohoku University, Japan. Students were encouraged to use their smartphone video recording feature to produce one 30-second video per week over a 12-week period addressing a teacher-selected theme. The results indicate that students were able to produce video digital stories to express their opinion regarding the teacher-selected themes, in the target language. The implications for teaching and learning clearly indicate that smartphone-based video storytelling is a relevant task for language learners who will have to become conversant with this medium of learning.

Keywords: digital storytelling, mobile-assisted language learning, smartphone-based learning, video production, English as foreign language, speaking skills

1. Introduction

Using video in the classroom has a long history, ranging from viewing third party videos (in-class, YouTube, iTunes) to reinforcing or extending learning (Barron et al., 1998; Herron et al., 2000; Merkt et al., 2011; Rosell-Aguilar, 2013), to teacher self-produced videos to explore or reflect on teaching practices (Baecher, Kung, Jewkes, & Rosalia, 2013; Halter & Levin, 2014). With online video services emerging, teachers began to explore self-produced videos to deliver video lectures, supplement or to compliment classroom content (Kay, 2012; Walls et al., 2010). Parson, Reddy, Wood and Senior (2009) reported that psychology students agreed that video podcasting was beneficial for their studies. Walls et al. (2010) report similar findings indicating that students enjoyed utilizing supplemental podcasts to extend their learning on a regular basis.

Filmmaking or video production to prepare pre-service teachers, has also received research attention (see Coniam, 2001; Jordan, 2012; Kondo, 2002). Kamhi-Stein et al. (2002) reported on language learners' use of video production and Levy and Kennedy (2005) filmed Italian language learners to enhance their reflection of their performance. The evidence is compelling, supporting the idea that language learners can get much by reflecting on their audio-visual output. Baecher et al. (2013), Green, Inan and Maushak (2014) and Halter and Levin (2014) concur that student-produced digital videos, can help learner to improve their reflective and critical thinking skills. Since students are in the role of producers, they have control over the script, story development and the content to be expressed; they are in control of language use and creativity. Until recently, teachers and students were required to use digital video camcorder which demanded significant time investment to film, edit and upload (Baepler & Reynolds, 2014; Gromik, 2006; Levy & Kennedy, 2005), with more recent technological advances and convergence, smartphones now include a digital photo and video-capturing feature, which could be utilised to record authentic digital video stories.

Emerging in 1999, Kyocera designed the first videophone (Okada, 2005, p. 56). Since the emergence of smartphone, international research concerning the integration of Mobile-Assisted Language Learning focused predominantly on vocabulary acquisition through student smartphone interaction (Stockwell, 2010; Thornton & Houser, 2005), to expose learners to grammar exercises (Zhi & Hegelheimer, 2013), or for improving listening comprehension (de la Fuente, 2014). In order to establish a new field of investigation, this paper reports on a project conducted at a Japanese university, that encouraged 67 English as a Foreign Language learners to use

their smartphone video recording feature to produce digital stories in the target language. First the literature regarding smartphone-based learning is reviewed, followed by an overview of digital video story production in language learning environment. The methodology and data collection process are discussed and lead into the result section. Finally the discussion reports on the teaching and learning outcomes, implications and limitations.

1.1 Literature Review

Smartphones have the same computational power as laptops, they have many features such as a video or audio recorder, photo camera, access to the Internet and social networking sites, amongst the other features such as calendar, calculator, phone calls, and texting. Since smartphones are portable, they reduce the need to carry a laptop, a photo camera and a digital video recorder. With the aid of their smartphone, subscribers can collect information anytime anywhere and for any purpose of their choice. As Gromik (2006, 2015) discussed, digital video recorders are useful devices for producing videos. The compactness and technology convergence smartphones provide subscribers and students with a wider range of opportunities for filming evidence that meet their needs. Increasingly, learners have access to cheaper and more computationally powerful mobile technology. Such opportunity may enable students to apply their prior knowledge, engage with visual and sensory stimulus, and to form new knowledge through social-networking, simply by documenting and communicating through their mobile device (Brown & King, 2000). As Friedman (2005) explained, mobile technology enables subscribers to have access to all the tools and information at their fingertips to construct new meaning through inquisitive and deductive reasoning in order to produce new documents or artifacts anytime, anywhere and at any-pace (Zurita & Nussbaum, 2004).

Research reporting on the use of smartphone by undergraduates at various international institutions, such as Gye (2007), Hjorth (2007), Koutropoulos, Hattem and Green (2013), McGreen and Sanchez (2005), Okabe and Ito (2005), Scifo (2009), Son (2009) and Uzunboylu, Cavus and Ercag (2009), reported positive and educationally beneficial outcomes for integrating the smartphone photo camera as a language-learning tool. For example, Uzunboylu, Cavus and Ercag (2009) investigated the benefits of integrating mobile technologies to develop undergraduates' awareness of environmental issues. Over six weeks, "students used mobile telephones to photograph local subjects, which included environmental blights and social events" (p. 4). Utilizing the smartphone photo camera feature has yielded positive results in areas such as identify-creation, content appreciation, and student collection of in situ evidence. Since participants appreciate the use of the smartphone photo camera for personal or educational purposes, it may be possible to consider the educational benefits of utilising the smartphone video recording feature.

From the research it becomes apparent that smartphone technology affords a wide range of educational benefits. For example, while researchers have commented on the beneficial engineering design (Wang & Higgins, 2005; Stockwell, 2010; Thornton & Houser, 2005), the literature on video production has been very informative to establish a research path with this new technology. As Levy and Kennedy (2005) and Gromik (2006) commented, the use of video camcorders can be cumbersome. Baepler and Taylor (2014) concur stating that with classroom video production training "we could not sacrifice too much time for in- depth technology training and because we wanted to make the project sustainable and reusable, we chose tools that were easy for the students to master" (p. 126). Based on the observations reported in the literature, smartphones were deemed to provide a more feasible and adaptable option. The portability, the opportunity to film evidence anytime anywhere, and the fact that smartphones have the capability to operate more complex software, indicated that as a learning tool it offered more affordances than barriers.

1.2 Video Camera Feature

Smartphone technology empowers owners to record events that enable them to develop an identity and a perception of the environment in which they live. For example, a study with Korean participants between 18 and 29 years of age, revealed that their collection of camera photos ranged from friendly encounters to pictures of pets (Hjorth, 2007; see also Okabe & Ito, 2005). Amongst the various features available on their cell phones, students and subscribers value the photo and video recording features and their use for reporting and sharing content over the internet (Baya'a & Daher, 2009; McNeal & van't Hooft, 2006). Thus, it is surprising that constant advances in smartphones have not promulgated a wider range of research available for the video recording feature.

In a blended learning intervention conducted at a Japanese university, Gromik (2009) engaged his students to produce smartphone video diaries to be stored on blip.tv, a video storing website. Seven advanced EFL learners used their smartphones to video record their thoughts and opinions about various topics of importance to them. They had to create one smartphone video per week and manage a subscriber's account on blip.tv. On this site

they had to write why these particular videos were of importance to them. Gromik (2009) reported that the project required students to be responsible for the activity they completed. He explained that by engaging the participants in the act of producing videos for online delivery, students would be more motivated and responsible for the content they produced. Students reported viewing their peers' smartphone video diaries, with fifty per cent of the participants explaining that viewing their peers' videos motivated them to improve the quality of their own videos. This approach provided positive evidence to support the possibility of using the cell phone video recording feature to engage students to produce audio-visual resources of importance to them.

Using online video storing websites seems to be an effective approach for students to share their videos with peers and teacher. Lys (2013) created a private YouTube channel where 12 advanced German language-learning students could store evidence of their target language oral proficiency. The tasks were scaffolded around teacher-selected topics and tasks; nonetheless students had control over the length and content of the video. The evidence indicates that these participants increased their word output from "an average of 178.00 words in T1 [to] an average of 477.33 words in T2" (p. 102). Results from the post intervention survey indicates that students believed the use of iPads and the video recording feature was a useful tool to enhance their speaking ability.

The video recording findings seem to provide positive evidence supporting the educational merit of integrating mobile devices or smartphones as a language-learning tool. Since subscribers have prior experience with recording or capturing daily life events, and they may be engaged in classroom learning activities encouraging them to record their experiences, it may be possible to explore the benefits of smartphone-based digital storytelling to promote English speaking opportunities.

1.3 Digital Video Storytelling

Digital storytelling engages learners to retrieve, consider and use a variety of resources, such as photos, hand-created artifacts, sound or music and recorded spoken narratives, to create digital art to express their opinion about a certain issue or topic (Lambert, 2002; Robin, 2009; Salpeter, 2005). Because of the involvement in researching a topic of interest to them, digital storytelling reinforces the connection between the current topic and prior knowledge as well as potentially improving recollection of the information investigated (Lowenthal & Dunlap, 2010). Digital storytelling involves, selecting, storyboarding, designing, crafting and editing a story in a convincing manner either for a specific audience or for general viewing. According to Robin (2009) proper digital storytelling adheres to the seven elements "developed by the Center for Digital Storytelling" (p. 222). The first four elements refer to the digital media aspect, recognising that digital storytellers have access to increasingly more powerfully and inexpensive computers, tablets and mobile devices to capture any audio or visual evidence either from the Internet or from their surrounding environment. The remaining three elements concern a student-centred learning approach, exploring literacy skills, and developing computer skills suitable for the 21st century digital environment (Robin, 2009). The advantage of digital storytelling, is that it provides students with the opportunity to go beyond producing written documents. Instead of participating in traditional style classes, students can explore various digital forms to produce an audio-visual artifact on an educational topic of their choice.

In educational milieu, research indicates that digital storytelling can provide students with positive learning experiences. For example, Sadik (2008) reports on a research aimed to understand both the language teacher and learner and their perceptions of the educational merits of digital storytelling. Using Windows Photo Story, in groups, students could discuss a sequence of photos to tell a story of their choice. The evidence indicated that while students were able to successfully complete the task, not all groups were able to demonstrate "clear evidence of connection between the objectives of their stories and the objectives of the subject matter, suggesting that not all the other students may learn from these stories" (p. 498). Nonetheless, the evidence revealed that the task motivated the students and increased both their computer and English communication. The findings report that while the teachers may have been technology-savvy, they needed more training to become more confident with demonstrating to their students' problem-solving skills. A more structured research aimed to improve students' ability to read Penguins' graded readers (Mokhtar et al., 2011). Mokhtar et al. (2011) demonstrated that by introducing digital storytelling, in the university English language classroom, students were able to recollect and improve upon their ability to retell a story using their own lexical items. A similar research was conducted in Iran, which aimed to improve students reading abilities through the use of digital storytelling. Razmi, Pourali and Nozad (2014) encouraged their participants to produce their narratives around the Perrine's class textbook. Students were to research, write their explanation, and develop their own storytelling strategy. The results were encouraging, as they revealed that students felt motivated and were able to improve on their English storytelling speaking skills. Digital storytelling also encouraged students to collaborate and discuss their speaking skills

(Thang et al., 2014). In a random review of various digital stories retrieved from the Internet, Porto and Belmonte (2014) concluded that digital storytelling enabled the producers to select specific images to effectively demonstrate the intended message, and also enabled them to deliver their personal experiences to a global community of viewers. Porto and Belmonte suggest that with further research it may be possible to review a large number of videos and thus begin to create a global thread between digital telling story genres and issues.

1.4 Language Learning

The language learning class “should primarily provide opportunities for learners to engage in natural interaction through the use of communicative tasks and activities” (Richards, 1990, p. 78). However, once students leave the classroom, it is important to provide them with opportunities to reuse content covered in the lessons. Mobile technology enables teachers to use theme and project-based learning, as well as provides students with the opportunities to interact with peers to create digital storytelling in the target language. Self-produced videos engage students to reflect on their speech performance, thus developing the learning mechanism to modify their output (Pica, 1987). Long (2009) also adds “that students cannot learn (as opposed to learn about) target forms and structures on demand, when and how a teacher or a textbook decree that they should, but only when they are developmentally ready to do so” (p. 378). Mobile digital storytelling enables students to consolidate their prior knowledge of the target language and demonstrate their capabilities. If they experience some challenges with their speech production, they can approach their peers for support, guidance, and to negotiate meaning.

1.5 Teacher Guidance

Week 1 is the only time during the project when the teacher monitors students’ performance. This is to ensure that all students have the skills, knowledge, and technology to complete all future video recordings successfully without any technical challenges. After the first week, the teacher provides no further training for the cell phone video recordings.

According to Richards (1990) the decision to let students be in control is neither right nor wrong, since as he states there is not one “super method” of teaching (p. 36). Instead, he advocates that teachers should be engaged to observe and reflect on learners’ behaviors and outcomes in order to determine effective teaching (p. 37). Thus, in this research, the role of the teacher is not to train students, but to observe how students interact with technology to gain control over their language performance.

2. Methodology

This research investigates the use of the smartphone video camera as a potential tool to engage Japanese second year graduate learners of English as a Foreign Language to produce digital stories. The research aims to collect data to answer the following two questions:

- 1) What type of theme did students enjoy speaking about the most?
- 2) Do students perceive some improvements with their English speaking abilities?
- 3) Do students perceive some improvements with their smartphone video recording confidence?

The first question aims to understand if particular themes engaged students to want to speak more in the target language. Research reporting on video production and digital storytelling has indicated that students enjoy and seem to perceive some educational merits (Sadik, 2008). Sadik’s (2008) participants were guided to create digital stories based on their interests and not prescribed by the teacher. Similarly, in this research, the researcher defined the themes, but it was up to the participant to define the theme and to select the topic to address this theme. Thornton and Houser (2005), Stockwell (2010) and Lys’ (2013) participants seem to concur that there are educational merits of using smartphones and text-based activities to support their learning of English lexical items. The second question aims to contribute to the discussion of students’ perceived speaking improvements. Similarly, Baepler and Reynolds (2014) report that their participants gained some confidence and perceived some degree of engagement with the use of video production to assist with writing skills development. The third question aims to ascertain if participants perceived some improvements with their confidence to use the video recording feature for learning purposes.

To achieve this objective, a case study research design is applied. Case study design is non-generalizable and promotes research that is in situ and about a current phenomenon (Yin, 2013). The findings are more reflective of the participants and their performance rather than an observation that can be generalized to a large group (Gromik, 2012). In addition, the data was collected using a mixed method. Both quantitative and qualitative data were gathered through a pre- and post-survey and non-structured interviews, all of which were conducted in English. The pre-survey conducted in the first week of the course aimed to collect demographic evidence

regarding students' smartphone history and practices. The post-survey probed into the students' perception of their experience with smartphone digital video storytelling in the target language. In addition, two non-structured interviews were conducted with willing participants to collect qualitative evidence, and aimed to provide cross-referencing with the data from the surveys. One interview was conducted half way through the research and the other was conducted at the end. By combining data sets it becomes possible to compare and contrast the evidence in order to confirm the result findings (Bryman, 2006).

2.1 Participants

Seventy Japanese second year undergraduate university learners of English as a Foreign Language participated in this research conducted over one semester. All participants were invited and were informed of their rights to withdraw any time during the research. Three students indicated that they did not want to participate in this research and their responses were removed. Fifty-nine male and eight female students from the Arts and Letters (n=25), Engineering 1 (n=11), Law (n=22) and Engineering 2 (n=9) agreed to complete both surveys and all activities. Students were on average 20 years old.

2.2 Task

Students were encouraged to use their smartphone video recording feature to produce one weekly 30-second video for 12 weeks. Students were provided with weekly themes, but were not provided with any video production training or guidance. They were in charge of managing the production, content and performance in their video. Once they completed a video, they believed was the best they could produce, they were guided to email the video to a class Yahoo! email account for storage. The participants were encouraged to view their peers' videos but not to evaluate them openly on the email account. Their decision to participate and to complete all weekly activities did not impact on their overall grades. Students were informed that participation was voluntary.

To facilitate students' production of weekly videos, a list of twelve weekly themes was provided to participants. For example, for comparative purposes the same theme is utilized at the beginning and end of the term. Golden Week, and to some extent the university summer break, are themes related to national events. Three other themes are related to in-class tasks. In addition, the themes, saving the environment and peer presentation reflection, also align with classroom activities. Other themes such as, discuss their favorite shop, painting, and invention were included to observe students' production process and filming location selection (see Table 6 for the full list).

3. Results

The data were collected and analysed with SPSS (22). First, descriptive evidence from the pre-survey was extracted to understand the students' technology experiences. Second, the descriptive evidence for the post-survey was analyzed to address the research questions.

3.1 Pre-Test

Table 1 reveals the average age at which these students accessed their first smartphone. The data indicates that the majority of the students accessed a smartphone between the age of 11 to 15 and from 16 to 19 years of age. The evidence also indicates that students are starting to have access to a smartphone from a younger age; 0 to 5 years of age (n=5) and between 6 and 10 years old (n=1).

Table 1. Phone access age

Valid	0 to 5 years of age	5	7.5	7.5
	6 to 10	1	1.5	9.0
	11 to 15	23	34.3	43.3
	16 to 19	37	55.2	98.5
	20	1	1.5	100.0
	Total	67	100.0	

The increasing number of students accessing a smartphone from a younger age, may lead to the hypothesize, that future generations of learners will have more exposure and familiarity with smartphones, thus increasing their ability to use these mobile devices effectively.

Table 2 below reveals that 95 per cent of students carry their phones everywhere with them. While the definition of everywhere is not provided, in general terms everywhere would seem to indicate that students carry their smartphones at all time during their daily routine.

Table 2. Number of students carrying their smartphone everywhere with them

	Frequency	Percent	Cumulative Percent
Valid Yes	64	95.5	95.5
No	3	4.5	100.0
Total	67	100.0	

The evidence from the Table 1 and 2 would seem to indicate that this particular group of student is comfortable and familiar with using a smartphone. Such similar access to and familiarity with would lead the researcher to assume that these students' smartphone prior experiences would not contaminate the findings. However, before accepting this assumption, understanding the feature they use most, is also of importance.

Table 3. Favorite smartphone feature

	Emailing	Calling	Photo capturing	Internet access	Note taking	Television	Music	Video recording	Watching movies
N Valid	67	67	67	67	67	67	67	67	67
Missing	0	0	0	0	0	0	0	0	0
Mean	1.96	2.07	2.42	2.51	2.85	2.97	3.30	3.30	3.70
Std. Deviation	.878	.893	.972	1.284	1.019	1.325	1.279	1.073	1.128

Participants were encouraged to indicate their favorite feature. Using a Likert-scale, students rated the feature from 1 (I like it the most) to 5 (I do not like it at all). As Table 3 above reveals, emailing is the most liked feature, with the call feature coming a close second. The video recording feature (M=3.30) is second last, compared to watching movies on a smartphone (M=3.70), which ranges between "it is ok" and "I do not like it much".

The non-structured interviews confirmed that the majority of students had more experience with the photo-taking feature (M=2.42). They reported using the photo camera to take pictures to share with their parents and friends, or to take images of meals or events, such as the New Year or the "coming of age" celebrations. In contrast, the majority of participants rated the video recording feature low, because they had not previously used it. Two students reported using the video recording feature. One used it during a ski trip, and another during a vacation in Okinawa. These two students seldom used the recording feature. Interviewees' responses suggest they were more familiar with the photo-taking feature compared to the video recording feature. Such evidence would lead the author to conclude that these particular students had limited to no prior experiences with using the video recording feature, and this would not impact on the research's goal.

3.2 Monologue Sample

Students were encouraged to produce one smartphone video per week for a period of twelve weeks. The expected video sample size was 804, however due to unforeseen events, the total amount of videos collected was 651, a return rate of 81 percent. Providing a review of all students' speaking output is beyond the scope of this paper. Nonetheless, all speech outputs were transcribed, and analyzed in terms of words spoken per seconds. Table 4 below, presents students' speaking output at the beginning and end of the term.

Table 4. Words spoken per seconds between T1 and T2

	T1 Word per second output (raw score)	T2 Word per second output (raw score)
N Valid	67	67
Missing	0	0
Mean	2.0468	2.2874

Std. Deviation	.35847	.39266
Variance	.128	.154
Minimum	1.42	1.35
Maximum	2.82	3.20

The results provided on Table 4 reveal that at the beginning of the term (T1) students spoke between 1.42 and 2.82 words per seconds over a 30 second period. At T2 students spoke between 1.35 and 3.20 words per seconds, for the same length of time; 30 seconds. Observing the mean difference, there is an 11.7 per cent increase between word spoken per seconds between T1 and T2. Table 5 below, presents a Paired Samples Test between words spoken per second at T1 and T2, to reveal a significant difference.

Table 5. T1-T2 words spoken per seconds-paired samples test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference				
				Mean	Lower			
Pair 1 T1-T2 Word per second output	-.23911	.45509	.05645	-.35188	-.12635	-4.236	64	.000

Providing a review of 67 weekly monologues is also beyond the scope of this paper. However, below is a sample retrieved at random from the Describe your favorite shop. This engineering student spoke 60 words in 30 seconds (2 words per seconds), which is between the T1 and T2 mean average (see Table 4).

“Hello, today I talk about my favorite shop in Sendai. My favorite shop is The MALL. It is very big shopping mall in Sendai Naga-machi. There are many shops, clothes, book, restaurant etc. And there is a movie theater. I like seeing movies, so I often go there to see movies. That is why I like The MALL. Thank you.”

As can be determined from the sample monologue above, the student is maximizing the use of the time by reducing the amount of pauses, humming, and repetitions. The greater majority of the speech performances are similar to this sample. The most likely student speaking preference is to stop speaking once they have explained their idea. Therefore, even amongst lower words per second speech output, students seldom make use of temporal cues (Zellner, 1994). It is apparent that for students to speak at such a rate, that they would have to practice before sending their performance.

3.3 Post-Survey

After completing the pre-survey, students were encouraged to make 12 weekly 30-second video performances in the target language on a given topic. Once the task was completed, students were required to complete a post-survey, which aimed to collect information regarding their perception of the task. Below, evidence from the post-survey is presented. Thereafter, evidence from the video performances is presented to reveal students' digital storytelling practices.

As explained, the *Themes* were designed to align with the course curriculum or national events. The tasks were also designed to engage the students to consider filming locations and strategies. For example, it was anticipated that to film “describe your favourite shop in town” that students would be filming their videos in situ. Since the Japan-based literature indicates that Japanese students are for the most part shy about speaking in the target language in public spaces, this theme was included to observe students' filming strategies and their perception of this task. Table 6 below presents the post-survey participants' rating of each theme.

Table 6. Post survey rating of each theme

	What do you think of this course?	What did you do during Golden Week?	What did you think of the speaking style?	What did you think of the content?	How will you improve your next presentation?	Describe your favorite shop in town	Describe your favorite painting	How would you save the environment?	Describe your favorite invention	What do you think of your peers' presentation?	What will you do during the summer holiday?	What do you think of this course?
I liked it a lot	14	34	14	15	28	41	34	17	7	20	42	38
It was ok	37	23	41	37	32	16	18	37	21	41	20	28
I didn't like it	16	10	12	15	7	10	15	13	9	6	5	1
Valid	67	67	67	67	67	67	67	67	67	67	67	67
N Missing	0	0	0	0	0	0	0	0	0	0	0	0
Mean	2.03	1.64	1.97	2	1.69	1.54	1.72	1.94	1.58	1.79	1.45	1.45
Std Deviation	0.674	0.732	0.627	0.674	0.656	0.745	0.813	0.672	0.721	0.591	0.634	0.53

The post-survey provided students with clear terms to rate the themes; I liked it a lot, it was OK, and I didn't like it. As can be seen on Table 6, students liked the last two themes a lot; what will you do during the summer holiday? (n=42; M=1.45) and what do you think of the course (n=38; M=1.45). The next theme students enjoyed was Describe your favorite shop in town (n=41; M=1.54), followed by Describe your favorite invention (n=37; M=1.58). Comparing the theme, what do you think of this course? At the beginning and end of the term, reveals that students' rated the latter favorably (n=14, M=2.03; n=38, M=1.45, respectively). This is a fifty per cent increase in the rate of enjoyment between these two themes. A more favorable evaluation of the latter question at the end of the term would seem to indicate that, since students were familiar with the topic and the speaking process, they were able to perceive their ability to complete the task more effectively.

The post-survey guided students to rate whether or not they believed that their English language speaking improvements were due either to the regular homework or the varying weekly themes. Table 7 presents their responses.

Table 7. Perceived improvement due to regular homework and theme

Perceived improvement in	English due to regular homework	English due to theme	Speaking due to regular homework	Speaking due to theme
N Valid	67	67	67	67
Missing	0	0	0	0
Mean	1.01	1.07	1.01	1.12
Std. Deviation	.122	.265	.122	.327
Variance	.015	.070	.015	.107
Minimum	1	1	1	1
Maximum	2	2	2	2

As the evidence indicates, students were of the opinion that speaking in the target language on a regular basis led to an improvement. Students believed that they were able to improve their ability to speak in the target language (M=1.01), as well as improve their language skills (M=1.01), because the task required that they regularly speak in the target language. Students were less inclined to believe that the themes engaged them to improve their speaking abilities (M=1.12) and English knowledge (M=1.07).

The outcome from the project is that participants perceived some degree of improvement with their ability to use the video recording feature on their phone. Table 8 and 9 below provide a descriptive comparison between the pre- and post-survey level of confidence with using this feature. The same Likert scale was used for both surveys.

Table 8. Pre-survey smartphone video recording confidence

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Highly confident	3	4.5	4.5	4.5
Confident	9	13.4	13.4	17.9
Some what confident	15	22.4	22.4	40.3
Not confident	25	37.3	37.3	77.6
Not confident at all	15	22.4	22.4	100.0
Total	67	100.0	100.0	

As Table 8 indicates, at the beginning of the term, three students reported being highly confident, and nine reported being confident with using the smartphone recording feature.

In contrast, the post-survey evidence on Table 9 below, indicates that all students believed that the task enabled them to improve the confidence level.

Table 9. Post-test smartphone video recording confidence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Highly confident	31	46.3	46.3	46.3
	Confident	36	53.7	53.7	100.0
Total		67	100.0	100.0	

As can be seen on Table 9, the majority of the respondents explained that they believed that they became either confident (n=36) or highly confident (n=31) users of the smartphone video recording feature.

In terms of speaking confidence, 98 per cent of the students believed that the weekly video production activity, improved their English speaking abilities. Thirty respondents enjoyed creating videos, because it increased their opportunity to speak more regularly outside of class time. Seventeen explained that the activity enabled them to think about using vocabulary and grammar in order to express their opinion. Eleven students explained that they enjoyed the activity because it motivated them to improve their speaking ability; that is they could improve their memory, pronunciation, or pausing for effect. Students enjoyed receiving feedback, another three enjoyed learning new vocabulary and syntax structures and the remaining two students enjoyed the homework because it helped them gain more confidence speaking to an audience. Nonetheless one student provided a negative perception, indicating that he did not believe the homework improved his English ability because he used easy grammar and relied on his prior knowledge of lexical items to produce his speeches.

3.4 Qualitative Evidence

The students completed 12 30-second video performances recorded with their smartphone. The pre-survey evidence indicated that few students had experience with using the smartphone video recording feature. Students were more familiar with the photo-capturing feature. The post-survey indicated that students enjoyed producing the digital video storytelling activities, and a few of the themes were identified as highly memorable. This section documents the feedback collected from participants, and offers some photo evidence from the video performances produced.

Towards the end of the semester, students were invited to participate in individual non-structured interview to share their stories. Sixty students agreed to participate in the 30-minute interview. The responses were then coded in terms of content similarities and aligned with the themes.

Table 10. Explain which video do you remember the most

Rating	Theme	Similar responses	Application (n=no.)
42	What will you do during holidays?	It was enjoyable to talk about my holiday. the I was nice to think about the end of the term.	Easy to discuss (51) Future projection (7)
41	Describe favorite shop	your I went outside the shop to film. I film myself eat lunch there. I made my first film outside my room	Location (51) Location personal (3) Location outside (6)
38	What do you think of this course? (13)	you Because I thought I could show everything I this had learned in this course. I used simple (Week words and pictures. I could demonstrate I had improved	Personal gain (33)
37	Describe favourite invention	your I could use my phone, I think its best invention. I could use picture of invention.	Use visual cue (40)
34	What did you do during Week?	do It was enjoyable to talk about my holiday. Golden I filmed at a bookstore where I spent holidays. I filmed my cat. I filmed a creative movie about my holidays	Easy to discuss (56) Sharing personal experience (2) Creative (1)
34	Describe favorite painting	your I described my most precious picture. I was very happy to show my favorite picture by Inoue Naohisa. I wanted to share feelings about his picture. Because I like painting.	Use real picture (30) Use a book (3) Use Internet image (30) Sharing personal experience (4)
28	Describe why you (dis)agree your presentation	I used same picture as my peer to disagree with with him. peer's It was hard, but I wanted to make my point clear. I wanted to practice like my peers.	Use picture (7) Challenging (2) Reflective practice (5)

While students rated, What will you do during the holidays? As the most memorable (rating=42), only 58 participants were able to provide clear reasons regarding this issue. In contrast all participants were able to explain the reason why they remembered describe your favorite painting. As Table 10 above reveals, students used pictures to express their opinions on their videos. These images were real, retrieved from a book, or available in their homes, or they accessed them from the Internet as is the case with Inoue Naohisa (see favorite painting in Table 10).

Some digital video stories filmed on location resembled these.



Figure 1. Personal shot explaining setting



Figure 2. Outside the store



Figure 3. Inside the store

As the figures above demonstrate, the students used a range of media to respond to the themes. For example in Figure 1, the student begins her video as if she was a news broadcaster. She then shifts the camera to the garden in the background. To achieve this, a friend helped her during the video recording session. In Figure 2, the student filmed his digital story outside a karaoke tower. Figure 3 was filmed inside a local convenience store. The student presented images of his favorite food as well as explaining his reason for liking this store.

4. Discussion

Smartphones afford learners the opportunity to collect audio and visual information from their surroundings to store and modify for specific personal purposes. As the pre-survey evidence revealed, students have access to a smartphone from an early stage in their lives and they develop prior knowledge and familiarity with using certain features over others. The evidence indicated that while participants were familiar with the photo camera feature, most were not familiar with the video recording feature available on their phones. For this reason, researchers need to investigate the educational benefits that mobile technology and its many features afford students and teachers (Robin, 2009). Pertinent to the discussion are educational merits of the video recording feature as a

potential learning tool to engage students to speak about specific issues, and the participants' perceived improvements in both the task and technology use. Evidence regarding these foci are presented below.

Before attempting to understand whether or not students would perceived some benefits of producing weekly smartphone video recorded speeches in English, students' words spoken per second output was analyzed. In the analysis of fluency rate, Lys (2013) explains the process as "dividing the total number of words produced in the speech sample by the total amount of time expressed in seconds" (p. 102); the strategy applied within this research. The findings indicate that at the beginning of the experiment the participants produced 1.69 words per seconds and at "T2 was 1.42" (p. 102). In contrast the findings from this research reveal that students were able to increase their words per second output by 11 per cent between the beginning and end of one term. The difference in the fluency rate could be due to the length of time granted to students. In Lys' group, students were able to speak for any length of time, which Lys' reported as increasing. Whereas in this project, the time was kept constant at 30 seconds, which meant that the only option for students was to understand the process for improving their word output within that time constraints; the only option being to speak faster and more fluently. Such evidence seems to align with speaking fluency theory. Fillmore explained that "the ability to fill time with talk ... a person who is fluent in this way does not have to stop many times to think of what to say next or how to phrase it" (Cited in Nation, 1989, p. 377). Since the students were already familiar with the question (same at T1 and T2), they were familiar with the type of lexical items they could use and opinions they could express. Also, they were able to use a speaking pattern that would enable them to deliver their message effectively.

While it is apparent that students were able to improve their speaking speed, understanding students' perceived improvements with the task and the merits of technology-based learning was also investigated.

With regards to students' perceived speaking improvements, the data suggests that the regularity of producing videos in the target language was of some benefits. Students agreed that both the regularity of completing the task and addressing a particular theme may have had an effect on their English speaking ability and confidence. Similarly, regarding students' perceived improvements with the smartphone video recording feature, the evidence also reveals that the regularity of producing smartphone-based video recordings enhanced students' perceived confidence in utilizing this feature to undertake the task. In addition, participants indicated that certain themes were more conducive to improving their speaking abilities than others. It would seem that themes that engage participants to produce videos requiring more personal involvement were more appreciated than more content oriented themes. Participants indicated an appreciation for themes that engaged them to describe familiar themes, such as favorite paintings, shops, inventions or vacations.

The learners were able to use their prior knowledge of the target language to produce simple effective video performances. As the selected images from the videos revealed, students did plan and structure their speech, they did plan the filming location, and they considered filming strategies and lighting. Most of all the smartphone video recording feature project-based learning did enable these particular participants to produce meaningful digital video stories that enabled the viewer to understand the lifestyle and socio-cultural environment in which these students lived.

5. Implications

Since smartphones are becoming prevalent in many countries, students do not require any additional equipment to create digital stories. Students can easily take photos and add an audio recording, or use the video recording feature. Mobile technology and the findings from this research seem to indicate that the technology affords learners, teachers and researchers with greater opportunities for further investigation. Indeed, smartphone video recording is gaining interest from the medical community (Luxton et al., 2012) and offers potentials for augmented reality experiences (Antonioli, Blake, & Sparks, 2014).

A potential implication from this research becomes apparent and relates to student safety. As part of the task students were required to email their smartphone video stories to a class specific Yahoo email account. Digital storytelling presents both audio and visual evidence of an event, and reveal the producer's ability to express an opinion regarding a selected topic. Brake (2007) reports that learners are starting to change their behaviour or the content they present, because they are fully aware of their audience. It may be possible that learners alter the content, "put on a show", or go to great efforts to display an image of themselves that may or may not be contradictory to their personality. Further research of the impact of personal performance video display on personality formation or language output may elicit evidence regarding student filming practices.

6. Limitations

Student-centred research is not without limitations, especially when it concerns collecting evidence generated from perceived opinions. Baecher et al. (2013) explain that students are more likely to look at their performance and experience favourably. They continue to explain that self-evaluation can be either over or under rated, and that some students may have a “modesty bias” (p. 191). In a review of the Japan-based Computer-Assisted Language Learning research, Gromik (2009) notes that Japanese students do not like to lose face, may have a tendency to be shy or modest and thus may either under-rate or modestly rate their performance. Since the use of the smartphone video recording feature is still a novel learning method for students, it may be possible that participants may have considered the whole learning task more positively. To overcome this possibility, Baecher et al. (2013) suggest using rubrics for students to use.

Another limitation concerns the type of qualitative evidence that can be collected. For example, Hafner and Miller (2011) report that they could observe learner autonomy. This was primarily due to the fact that most of the filming and editing tasks were conducted during class-time. However, smartphone technology affords learners the opportunity to collect audio-visual evidence anytime and anywhere. This implies that students need to develop their own filming styles, collect resources from websites of interest to them and consequently develop learner autonomy outside of class time. Peer shadowing (Green, Christopher, & Kam-mei, 1997; Turner, White, & Poth, 2012) may not be feasible, as there is no process for a teacher to confirm the effectiveness of such strategy outside class. The other option would be to engage students to complete surveys but these may not provide a true reflection of students’ perception of their ability to apply effective autonomous learning skills.

7. Conclusion

As of June 2014, “the number of mobile-cellular subscriptions worldwide is approaching the number of people on earth... [and]... will reach 7 billion (ITU, 2014, p. 3). It is therefore vital for educators to explore the educational benefits that such powerful technology affords learners. This paper presented a case study investigating the use of the smartphone video recording feature by Japanese university English language learners to produce digital storytelling performances. The findings indicate that the participants enjoyed the producing the video digital stories on a weekly basis. Towards the end of the research these participants were able to remember and explain their favorite performance and theme. The results from this paper suggests that further research is needed to investigate the full educational potentials that smartphone technology provides to all subject areas.

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