DIGITAL STORYTELLING FOR 21ST CENTURY LEARNING: A STUDY ON PRE-SERVICE TEACHERS' PERCEPTION

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ABSTRACT

Digital Storytelling is one of the new pedagogical tools that calls upon students' creativity and helps them to "learn by doing". It is one of the important steps towards creating the 21st century learning environment as it promotes the integration of student-centered and technology-enriched learning environment for learners. Despite the many benefits that this learning tool has to offer, many educators are still reluctant to integrate this kind of technology in their classes which resulted in low implementation of this technology among the educators. Therefore, this study is intended to determine pre-service teachers' experience and perceptions towards digital storytelling for 21st century skills in learning environment. A set of questionnaire has been distributed to 150 trainee teachers from the Faculty of Education in one of public universities in Malaysia. The result of this study reveals that pre-service teachers' have moderately experienced the use of digital storytelling in their learning (M=2.98; SD=1.332). The finding also showed that the pre-service teachers responded positively towards the use of digital storytelling in the classroom (M=3.94; SD=0.713). The correlation analysis further showed that, the pre-service teachers' experience with digital storytelling has significantly given impact on their perception towards the implementation of this tool in teaching and learning process. Considering the many advantages of the digital storytelling towards the enhancement of 21st century skills among the younger generations, therefore more aggression steps need to be done to strengthen the teaching preparation programme in higher educational institutions. This is very important to ensure that the future teachers produced are well-equipped with all the teaching skills and technologies to educate the next millennial generations.

1.   INTRODUCTION

The new era of globalization and 21st century learning have brought many changes to the educational setting all around the world. The current focus of the educational system has changed the way we prepare the new generation with all the qualities for the challenging

future, work life and lifelong learning (Binkley et al., 2012). According to Schleicher (2012), the 21st century era requires a person who has creative and critical thinking skills, problem solving skills, decision making skills as well as communication and collaboration skills. The new millennials must also posses the knowledge in information and communication technologies. All these changes serve as a change agent in the educational institutions at all levels to seek new ways of teaching and learning (Griffin, McGaw and Care, 2012).

In Malaysia, the Ministry of Education has continuously revised the teaching and learning approaches to ensure that the educational sectors are relevant in producing the future generations who can propel the country's development. As stated in the Malaysian Education Blueprint 2013-2025, eleven (11) shifts had been pointed out by the ministry in order to bring changes in educational outcomes among Malaysians. Each of the shifts will emphasize the output of access, quality, equity, unity and efficiency (MOE, 2012). The blueprint has also outlined several teaching and learning strategies which include the use of active-learning and student-centered approaches such as inquiry method, constructivism and mastery learning. At the tertiary level, the National Higher Education Strategic Plan 2020 and National Higher Education Action Plan 2007-2020 (MOHE, 2007) have emphasized the use of many alternative learning strategies that could enhance the students' qualities specifically in preparing them to be well prepared to face the challenging world. These steps are well supported by Bromberg, Teechatassanasoontorn & Andradem (2013) who claimed that it is imperative to use effective and interesting teaching methods which are alternative to traditional methods, and at the same time can support meaningful learning as well as to address the changing characteristics of learning. While the access to personal computers, digital video cameras, video authoring software, digital pictures, World Wide Web (WWW), creating stories digitally and sharing them with wider audience seems to be possible for majority of people in the last decade (Meskill, 2005), but nowadays, the integration of technology into teaching and learning seems much easier (Dexter et al., 1999). The new generation is well adept with the technology and spend most of their time in communicating and sharing information online (Carpini, 2000). This scenario has indirectly provided a very good platform for teachers in optimizing the use of technology in their students' learning.

Digital storytelling is defined as modern expression of ancient art of storytelling by using digital media to create media-rich stories to tell, share and preserve (Digital Storytelling Association, 2002). It derives their power through weaving together images, music, narrative and voice in order to give deep dimension and vivid color to characters, situations and insights. Digital storytelling in educational setting is a process of creating short stories which allows students and educators to boost up their skills such as information gathering and problem solving skills (Robin, 2008). The usage of digital storytelling as pedagogical tools are able to foster better achievement and bolster students' attitude towards schooling and learning (Tamin et al, 2011). Due to its characteristics, it has been utilized in many different subjects (Robin & McNeil, 2012). Arts and humanities are the most often subjects being associated with the implementation of digital storytelling. However, previous studies had shown that this tool can also be an effective strategy for learning in mathematics and science (Sadik, 2008). Schiro (2004) used digital storytelling to teach students about algorithms and problem solving through several stages of learning in order for the students to develop mathematical skills. In Malaysia, the use of digital storytelling as one of instructional tools has not widely known and perhaps, more popular among language teachers as compared to other field of studies. According to Wang & Zhan (2010), digital stories were favoured in learning second language as it helps in language development and socio-cultural identities formation. A study conducted by Yee, Tina & Abdullah (2017) has shown many positive

impacts of the use of digital storytelling on students' understanding, participation and interest in learning English poem. Asides from that, students seem to be much happier, more motivated and actively engaged in information gathering and sharing. Similarly, Tsou, Wang and Tzeng. (2006) discovered the positive impacts of using the storytelling approach towards improving the students' level of learning in reading, writing, speaking and listening.

Despite the many benefits that the digital storytelling can offer, numerous educators are still not ready to embrace the innovation for instructing and learning undertakings. A large portion of the educators perceived innovation incorporation as troublesome, tedious and cause more inconvenience towards the teaching and learning process (Sheingold and Hadley, 1990). There were also some limitations arise from its implementation in learning environment that hinders the maximum usage of this technological tool. First and the foremost important part was due to limited access to technical equipment and lack of facilities provided (Bimber, 2000). There are also some institutional reasons such as time constraint (Sheingold and Hadley, 1990), and high curriculum demands. Hence, with the presence of advantage and disadvantage of implementing Digital Storytelling in learning session, it is best to know pre-service teachers' perception and inclination towards Digital Storytelling for 21st century skills in learning environment. Therefore, this study was conducted with the following research questions:

1. What is pre-service teachers' previous experience with digital storytelling?
2. What is pre-service teachers' perception towards digital storytelling in learning environment?
3. Is there any relationship between pre-service teachers' previous experience with digital storytelling and their perception towards digital storytelling in learning environment?

2. METHODOLOGY

This study is conducted with the objective of investigating the pre-service teachers' experience with digital storytelling. The second objective is to know how do the pre-service teachers' perceive the use of digital storytelling in their teaching and learning process. Further analysis has been carried out to find if there is any relationship exist between these two variables. The study was conducted at the Faculty of Education in one of public universities in Malaysia. A total of 150 respondents were involved in the questionnaire survey. A set of questionnaire using a 5 point Likert-scale was used to gauge students' responses on their experience with digital storytelling and how they perceive the use of digitral story telling as part of teaching and learning activities for 21st century learning.

3. RESULTS

Table 1 showed that a total of 150 students have responded to the questionnaire. Female students formed the majority of the respondents (n=116, 77.3%) while male students contributed to only 22.7% (n=34) out of the total number of respondents. The largest age group of the respondents are in the range of 23-24 years old (n=102, 68.0%) followed with 25-26 years old (n=36, 24.0%). There are 7.4% respondents (n=11) aged between 21-22 years old and only one respondent aged 26 and above (0.7%). Table 1 further portrayed the courses taken by the respondents. The demographic factors analysis indicated that most of the

respondents were Mathematics students (26.7%), followed by Physics students (24.7%), Biology students (21.3%), Chemistry students (20.0%), Physical Education students (6.7%) and TESL programme students (0.7%) .

Table 1. Demographic Factor Analysis

Gender	Frequency	Percent
Female	116	77.3
Male	34	22.7
Total	150	100.0
Age	**Frequency**	**Percent**
21-22	11	7.4
23-24	102	68.0
25-26	36	24.0
>26	1	0.7
Discipline of study	**Frequency**	**Percent**
Mathematics	40	26.7
Physics	37	24.7
Biology	32	21.3
Chemistry	30	20.0
Physical Education	10	6.7
TESL	1	0.7
Total	150	100.0

Table 2 demonstrated students' previous experience with digital storytelling. Based on the result, in overall, students were reluctantly to agree that they "have created a digital story" (M=2.49, SD=1.384). The lowest mean score showed that most of the pre-service teachers never create any digital story before in any occurrence. However, they moderately agreed that they "have viewed a digital story" (M=3.16, SD=1.311) and also agreed that "the term digital storytelling is new to them" (M=3.29, SD=1.302)

Table 2. Pre-service teachers' experience with digital storytelling

Experience with digital storytelling	Mean	Std. Deviation
Have you ever created a digital story?	2.49	1.384
Have you ever viewed a digital story?	3.16	1.311
Is the term digital storytelling new to you?	3.29	1.302

Table 3 presented the pre-service teachers' perception on digital storytelling. In general, majority of the respondents disagree that the "use of digital storytelling in the classroom will not make their teaching more motivating to students (M=2.72, SD=1.136). They moderately agree that the use of digital storytelling can "enhance their students' leadership skills" (M=3.78, SD=0.911), "make their students able to handle complex and multi-disciplinary tasks" (M=3.80, SD=0.811), "make students to be more responsible" (M=3.85, SD=0.798) and "help the students to have cognitive flexibility" (M=3.98, SD=0.700). The findings also revealed that the pre-service teachers strongly agreed that the

teaching and learning process by using digital storytelling can "make the students more curious about the subject taught" (M=4.01, SD=0.746) and "help students to have deeper understanding" (M=4.04, SD=0.589). In relation to the 21st century learning, most of the respondents strongly agreed that the integration of digital storytelling in class will help to "enhance the collaboration among students" (M=4.06, SD=0.688), "provide students with the opportunity to think creatively and critically" (M=4.07, SD=0.656), "encourage students to actively engaged in conversations and discussion" (M=4.07, SD=0.682), "make students more engaged in the lesson" (M=4.11, SD=0.625), and "motivate students towards openness and courage to explore new things" (M=4.13, SD=0.559). Respondents also strongly agreed that digital storytelling "makes the class atmosphere more enjoyable" (M=4.13, SD=0.642) and "makes their students happy with the learning activity" (M=4.14, SD=0.591).

Table 3. Pre-service teachers' perception on digital storytelling

Perception on digital storytelling	Mean	Std. Deviation
Using digital storytelling in the classroom will not make my teaching more motivating to students.	2.72	1.136
Digital storytelling enhance my students to have better leadership skills	3.78	0.911
Digital storytelling makes my students able to handle complex and multi-disciplinary tasks	3.80	0.811
By using digital storytelling, my students tend to become more responsible	3.85	0.798
Digital storytelling did help my students to have cognitive flexibility	3.98	0.700
Digital storytelling makes my students curious about the subject taught.	4.01	0.746
Using digital storytelling in the classroom will help my future students to have a deeper understanding of the content.	4.04	0.589
Digital storytelling help to enhance collaboration among students	4.06	0.688
Digital storytelling provides my students with the opportunity to think creatively and critically	4.07	0.656
Digital storytelling encourage my students to actively engaged in conversations and discussion	4.07	0.682
Digital storytelling makes my students more engaged in the lesson.	4.11	0.625
Digital storytelling motivate my students towards openness and courage to explore new things	4.13	0.559
Digital storytelling makes the class atmosphere more enjoyable.	4.13	0.642
Digital storytelling makes my students happy with the learning activity.	4.14	0.591

The Pearson Product Moment Correlation results in Table 4 showed that there was a weak, positive and very significant relationship identified between "pre-service teachers' experience with digital storytelling" and "their perception towards digital storytelling" (r=.265, p<.01).

Table 4. Correlation analysis between pre-service teachers' experience with digital storytelling and their perception towards digital storytelling

		pre-service teachers' perception towards digital storytelling	pre-service teachers' previous experience with digital storytelling
Pre-service teachers' perception towards digital storytelling	Pearson Correlation	1	.265**
	Sig. (2-tailed)		.001
	N	150	150
Pre-service teachers' experience with digital storytelling	Pearson Correlation	.265**	1
	Sig. (2-tailed)	.001	
	N	150	150

**. Correlation is significant at the 0.01 level (2-tailed).

4.   DISCUSSION

The findings in this study showed that the pre-service teachers have moderately experienced the use of digital storytelling in their teaching and learning practice. However, they strongly agreed that the use of digital storytelling is one of the teaching approaches that can help in nurturing all the positive values needed for the 21_{st} century education such as collaboration, active engagement, creative and critical thinking skills. Based on the result of the study, most of the trainee teachers are not well exposed to the term digital storytelling and hardly have the experience of creating a digital story. Similar finding was obtained by Robin (2016), who mentioned that the term of digital stories might not be familiar to everyone even though the action of compiling images, text, recorded audio narration, video clips and music into short movies have been occurred for the past few decades. This means, most of people tend to act without knowing the exact term relating to it. Another study done by Gakhar (2007) also showed the same result where the respondents show a moderate level on the exposure towards digital storytelling. Limited access to technical equipment and lack of facilities provided have been shown to play signifant role towards this issue (Bimber, 2000). Besides that, students also do not get sufficient exposure and information relating to the current development of technology. Therefore it is important that these future teachers are given adequate knowledge and exposure towards the technological advancement that surround the educational setting nowadays. This step is very important as it will provide them with opportunities to learn and create their own authentic products that can be used during teaching and learning session in classroom (Gakhar, 2007). It is also very important for the trainee teachers to understand the process of digital storytelling and be comfortable to teach their future students (New, 2006).

The result also revealed that this group of trainee teachers have positive perception towards the use of digital storytelling in their future class. Most of them strongly agreed that the use of digital storytelling can help to nurture 21_{st} century skills among students. These include enhancing the students' curiosity towards the subject, getting them involved with collaborative learning, providing more opportunities for creative and critical thinking, engaging more actively with learning activities and widening scope for greater exploration. Di Blas and Ferrari (2014) have highlighted the benefits of working on digital storytelling project towards cultivating and enhancing various critical skills which are vital for the 21st century learning. Jenkins et al (2006) also agreed that students will gain knowledge not only relating to their video topics but more importantly, they will get involved in rigorous discussions and collaborative activities that involve groups members. The sharing and feedback session that follow after will make the learning process more meaningful and serve as motivational factors for the students (Niemi et al, 2014).

The further correlation analysis has showed a positive and very significant relationship between the trainee teachers' experience with their perception. This finding is in line with the past study done by Sheingold and Hadley (1990) in which they found that the teachers' initial perception technology integration which is difficult, time consuming and resource intensive endeavor and cause more trouble had significantly been improved after they had their own experiences with digital storytelling. Another study conducted by Morehead et al., (2007) also revealed that pre-service teachers' experience in using digital storytelling was able to boost up their competencies towards digital tools and at the same time amplify their self-efficacy.

5. CONCLUSION

To conclude, digital storytelling is able to reinforce positive attitudes and 21_{st} century skills among pre-service teachers. It is one of learner-centered approaches which can help to improve students' learning in multiple ways (Yang & Wu, 2012). Hence, it is vital to integrate the use of this teaching and learning tool in the classroom. The findings of the study made clear that most of the pre-service teachers still lack of knowledge and experiences in applying digital storytelling in their teaching and learning session which may lead them to have negative perceptions on digital storytelling. Therefore, it is highly recommended that the educational institutions can provide more opportunities regarding the teaching and learning technologies to the future teachers. This is very important for pre-service teacher to become skillful with the technologies before they embark on their journey as future teachers.

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