COMPUTER SELF-EFFICACY AND ATTITUDE OF UNIVERSITY OF IBADAN PRE-SERVICE TEACHERS TOWARDS THE USE OF DIGITAL STORYTELLING AS A DELIVERY METHOD OF INSTRUCTION

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ABSTRACT

Teaching-learning process is rapidly becoming technology driven with the integration of technological devices to facilitate instructional delivery. Teachers across all levels of education are expected to be technology compliant, if they are to function effectively in the 21st Century classroom environment and meet the expectations of today's learners who are considered to be digital natives. However, studies have shown that educators need to do more in the area of training pre-service teachers on how to use technology to engage learners in classroom activities. There is, therefore, a need for a more robust strategy that could sharpen the digital literacy of the teachers, especially, at the teacher training institutions. Digital Storytelling goes beyond the capabilities of traditional storytelling by taking full advantage of the affordances provided by digital multi-media tools to engage learners in classroom activities.Also, teachers' computer self-efficacy and attitude have been touted as critical factors that could hinder the effective integration of technology in instructional delivery process.Thus, this study examined computer self-efficacy and attitude of pre-service teachers towards theuse of digital storytelling as a delivery method of instruction. Seventy-three pre-service teachers were randomly selected for the study and they were exposed to the rudiments of creating digital storytelling in the practical classes that were designed for the purpose.The results revealed positive correlation between pre-service teachers' computer self-efficacy and the use of digital storytelling and also between attitude and the use of this strategy. Furthermore, the findings showed that attitude, computer self-efficacy and gender had composite effect on pre-service teachers' use of DST in their future professional practices. Computer self-efficacy, attitude and gender contributed 34%, 35.9% and 21.1% respectively to the use of digital storytelling for classroom instructions. In conclusion, some factors like teachers' computer self-efficacy and attitude, which could hinder the effective integration of

this strategy for instructional delivery should be well addressed at all levels of education system.

***Keywords**:Digital storytelling, Attitude, Computer Self-Efficacy, Use of Digital Storytelling, pre-service teachers*

Introduction

The strategic role of learners' engagement in classroom instruction cannot be over-emphasised at all levels of education as it goes a long way in determining the success or otherwise of teaching-learning process. Leaners need to be actively engaged in classroom activities through effective collaboration and teamwork. Many scholars have consistently advocated the need for evolving more student-centred approaches that allow students active participation in instructional process instead of teacher-centered strategies that give passive roles to students in classroom activities (Sadik, 2008, Bernard, 2008, Teo, 2010). Even with the increasing use of technology in facilitating instructional delivery, studies have shown that many teachers, across all levels of education, still find it difficult to properly engage learners in classroom activities. The reason is quite obvious. Technology could be used to replicate the conventional method of teaching. Holmes, (2011) asserts that 'integration of technology into classroom instruction is often incorrectly applied in actual practice due to lack of skills in technology supported pedagogy and as such, teachers are finding it extremely difficult to use appropriate technology to engage learners in teaching and learning'.

Hughes (2005) classifies technology-supported pedagogy into three categories in which technology functions as: (a) replacement, (b) amplification, or (c) transformation. Technology as replacement involves technology serving a different means to the same instructional goal, such as when an instructor presents an instructional content on a PowerPoint slide instead of using the blackboard or having students read it from their books. Technology as amplification involves the use of technology to accomplish tasks more efficiently and effectively without altering the task. Finally, use of technology as transformation has the potential of providing innovative educational opportunities by reorganising students' learning content, actively engaging learners in classroom activities, and changinginstructors' roles in the classroom.

What could be deduced from this categorisation is that teachers could adopt the use of technology and yet, not properly engage learners in instructional process. As such, instructors may use PowerPoint slides instead of paper-based textbooks when explaining course content, but students are still passively listening to lectures, instead of actively engaging in the learning process, experiencing feelings of ownership, and taking responsibility for their learning. Sadik (2008) concludes that instructors are often accustomed to employing technology in familiar and convenient ways, often focusing on the delivery of course content rather than innovative instructional strategies that engage learners in teaching-learning process. There is, therefore, a need for a strategy that would fill this instructional gap and allow teachers to use technology more appropriately to engage learners.

The teacher occupies a strategic position in any educational system whose competence and efficiency has far reaching implications in the attainment of educational objectives and goals (Pelgrum 2001). Teachers have to be properly trained on new strategies that could afford them the opportunities to effectively engage today's learners, who are considered to be digital natives.

Therefore, in order to bridge this instructional gap, pre-service teachers need to be properly exposed to how technology could be used to facilitate instruction instead of focusing on technology itself. It has been argued that today's pre-service teachers are the essential keys in reaching the current generation of media-savvy and digitally literate students. Since classroom environment is increasingly being digitalised and students are becoming more technologically oriented, the onus lies on lecturers of Educational Technology courses in our higher institutions to continually expose the pre-service teachers to various technological tools that could allow them function effectively in the 21st Century schooling system.One of the emerging technological tools that could be used to adequately engage today's students in classroom instruction is Digital Storytelling.

Digital storytelling had been touted as an instructional strategy that allows students, especially, pre-service teachers to interact directly with technology. In other words, digital storytelling (DST) could go a long way in filling the aforementioned instructional gap, by allowing pre-service teachers to use technological devices that would inevitably be part of their future professional practice. Combining the old age tradition of storytelling with the latest technological devices, the end product is a compelling and sophisticated tool that motivates and engages learners in teaching-learning process.Digital storytelling, therefore, provides an appropriate convergent platform for traditional storytelling and technology to effectively interact and facilitate classroom activities.

Digital storytelling for classroom instructions serves dual purposes. First, it allows both teachers and students tohave direct contact with technological tools and facilitate instructional process. Also, digital storytelling provides a veritable platform for effective learners' engagement and active participation in classroom instructions as they would be able to search for materials and use technology to construct their learning. Sadik (2008) asserts that 'digital storytelling (DST), takes advantage of the advancements in technology and instructional design and it is increasingly being touted as a promising transformative technology-supported approach for engaging learners, including subject matter content acquisition, critical thinking skills, digital literacy skills, motivation, and information literacy'.

Integrating technology into the classroom, as it were, has been a challenging endeavour with many obstacles. The instructional gains that are derivable from using digital storytelling for teaching and learning are unprecedented.However, several factors are to be considered for effective use of this strategy to deliver instruction in the classroom. Pre-service teachers' attitude and computer self-efficacy were considered in this study due to the strategic positions the variables occupy in the integration of technology for teaching and learning.The disposition of teachers goes a long way in determining whether a particular technology would be adopted for instruction or not. Groff and Mouza (2008) reiterate that teachers' attitudes and beliefs are critical

factors in determining decision making in the classroom and the implementation of new technologies. Studies such as Seferoğlu (2007) and Teo (2008) also empirically support the conclusions that teachers' computer self-efficacy and their attitudes may possibly make an impact on their computer use in the classroom.

While making case for teachers' attitude as a factor in integrating ICT tools for classroom instruction, Huang and Liaw, (2005) opine that "the success of any initiatives to implement technology in an educational program depends strongly upon the support and attitudes of teachers involved. It has been suggested that if teachers believed or perceived proposed computer programmes as fulfilling neither their own nor their students' needs, they are not likely to attempt to introduce technology into their teaching and learning. Also, Zevenbregen and Lerman(2008) assert that "the values and beliefs that teachers hold about pedagogy and/or technology mediate the ways in which they will use such technologies. The beliefs and values may relate to the pedagogical approaches that are adopted or the technological tools themselves. In the same vein, available literatures reveal that the integration of technology in the classroom is partly a function of teachers' computer self-efficacy. Since digital story creation involves the use of computer software packages like presentation and authoring tools to combine images, videos, soundtrack and other digital media, teachers' computer self-efficacy should be a determining factor toward integrating the strategy to classroom instruction. As mentioned by Sadik (2008) the use of technology is only effective if the teachers have the expertise to customise and domesticate the use of technology for story creation and the benefits can only be received if teachers have the ability to use it in the classroom effectively. As pre-service teachers construct digital stories, they develop planning skills, learn to understand the relationship between words and images to convey meaning, and come to value digital technologies as tools for thinking, learning, and sharing ideas. Universities must provide pre-service teachers with opportunities to learn technology skills and also guide them to develop a positive attitude to technology and an understanding of how to utilize technology as an instructional tool for learning and teaching (Collier and Veres, 2006).

Also, gender was introduced as a moderating variable to cater for the influence gender could have on the study. This study, therefore, examined the computer self-efficacy and attitude of pre-service teachers towards the intention to use digital storytelling as a delivery method of instruction. This is with a view of tapping into the enormous instructional benefits and affordances digital storytelling offers to engage learners in teaching-learning process. Digital storytelling, as it were, remains an emerging pedagogical approach in classroom instruction and many of the pre-service and in-service teachers are unaware of this new development. Practical classes were, therefore, designed for the participants with a view to exposing them to the rudiments of digital story creation.

Statement of the Problem

Engagement of learners in classroom activities plays a pivotal role in the realisation of lesson objectives at all levels of education. Learners should be active participants and co-constructors of knowledge in instructional process. This can only be achieved, if teachers appropriately deploy adequate instructional tools and

strategies to facilitate classroom activities. Technological tools are increasingly becoming viable devices of engaging learners in classroom instructions and making learning connected to real life. In this 21st Century schooling system, where teaching-learning process is at the threshold of becoming technology-based, teachers face constant pressure of using digital tools to engage learners in instructional delivery. Many studies have been carried out on the need to use appropriate technological devices to enhance learning in the classroom. However, there seems to be paucity of research in the area of using technology to actively engage learners in teaching-learning process. For a long time, we have focused attention on technology itself instead of how teachers could use technology to engage leaners in classroom instruction.

Therefore, scholars need to focus their studies on more robust strategies that would actively prepare our pre-service teachers in the use of technology to engage learners in classroom activities and also afford students the opportunity to leverage on the rich media resources they are surrounded with for instructional purposes. Digital storytelling comes with inherent potentials of filling this gap in instructional delivery as it directly exposes pre-service teachers to the use of technology to engage learners and also allows co-construction of knowledge between teachers and students.

Research Questions

(1) What is the relationship between pre-service teachers' computer self-efficacy and the use of digital storytelling for classroom instruction?

(2) What is the relationship between pre-service teachers' attitude and the use of digital storytelling for classroom instruction?

(3) What is the relative effect of pre-service teachers' computer self-efficacy, attitude and gender on the use of digital storytelling for classroom instruction?

Methodology

Design: The study adopted a mixed method research designwhere pre-service teachers were exposed to treatment to complement the strengths of directly using questionnaire. They were, therefore, exposed to the rudiments of digital storytelling with a view to examining the influence of computer self-efficacy and attitude of pre-service teachers towards the intention of using digital storytelling as a delivery method of instruction.

Population: The population comprised all the four hundred and twenty-six (426) 300 level students who offered the course across five departments at the Faculty of Education, University of Ibadan.

Sample and Sampling Technique: Seventy-three pre-service teachers were randomly selected from the Departments of Teacher Education, Special Education, Adult Education, Guidance and Counseling and Human Kinetic Education as participants in the study.

Research Instrument: Questionnaire on Pre-Service Teachers' Computer Self-Efficacy and Attitude towards the Use of Digital Storytelling for Classroom Instruction was developed for the study on a 4-point scale Likert type. Cronbach's alpha value0.85 was obtained from the reliability test and this ensured that the instrument was internally consistent.

Procedure: The students were selected from those who registered and took "Introduction to Instructional Technology (TEE 353) a

compulsory course for 300 Level students of the Faculty of Education, University of Ibadan. Since digital storytelling is an emerging strategy, especially in this part of the world, pre-service teachers were exposed to the rudiments of creating digital storytelling in series of practical classes that were designed for this purpose through a time frame of 10 weeks. In the first two weeks, students were taught the basic concepts of DST since classroom observation showed that many of them knew next to nothing about this relatively new strategy. From the third to the seventh week, students were exposed to how they could use user-friendly digital tools like camtasia, movie maker and photo story to create their digital stories. After then, the students were classified into small discussion groups and were given different topics to work on for two weeks. They were to create digital stories, using different tools they have been exposed. In the last week of the practical class, the final products of different groups were presented to the general class and experts used the already prepared rubrics to evaluate the content. At the end of the practical classes, the researchers sought the participants' opinion on their intention to use digital storytelling in their classes and also measured their computer self-efficacy and attitude towards the use of this relatively new strategy. Questionnaire was administered to the students and the researchers explained each item of the instrument to clear any ambiguity or misinterpretation.

Data Analysis: The data collected were analysed using Pearson Moment Correlation as a statistical tool to identify the relationship between the variables and multiple regression analysis to determine the relative contribution of independent variables on the dependent variable at 0.05 level of significance.

Results

Research Question 1

What is the relationship between pre-service teachers' computer self-efficacy and the use of digital storytelling for classroom instruction?

Table 1: The relationship between pre-service teachers' computer self-efficacy and the use of digital storytelling for classroom instruction.

Variables	Mean	N	R	P
The Use of DST	31.3562	73	.554	.000
CSE	30.0959			

Key: CSE = Computer Self-Efficacy; DST: Digital Storytelling

The result from table 1 shows the mean scores and test of relationship between computer self-efficacy and the use of digital storytelling. The table reveals a significant positive correlation between pre-service teachers' computer self-efficacy and the use of digital storytelling since the correlation

coefficient (r)is positive and the level of significance (p) is less than 0.05.

Research Question 2

What is the relationship between pre-service teachers' attitude and the use of digital storytelling for classroom instruction?

Table 2: The relationship between pre-service teachers' attitude and the use of digital storytelling for classroom instruction.

Variables	Mean	N	R	P
The Use of DST	31.3562			
Attitude	30.4028	73	.568	.000

Table 2 shows the mean scores and test of relationship between attitude and use of digital storytelling for classroom instructions. This implies that there is a significant positive correlation between pre-service teachers' computer self-efficacy and the use of digital storytelling since the correlation coefficient (r)is positive and the level of significance (p) is less than 0.05.

Research Question 3: What is the relative effect of pre-service teachers' computer self-efficacy, attitude and gender on the use of digital storytelling for classroom instruction?

Table 3: Significance tests of regression weights of pre-service teachers' computer self-efficacy, attitude and gender on the use of digital storytelling for classroom instruction

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig	Decision
	B	Std Error	Beta			
(Constant)	13.300	2.568		5.179	.000	
CSE and the Use of DST	.313	.096	.340	3.260	.002	*
Attitude and Use of DST	.232	.068	.359	3.429	.001	*
Gender	1.014	.437	.211	2.321	.023	*

*= significant at p<0.05

Table 3 shows the relative contribution of each of the independent variables on the dependent variable. The contributions of computer self-efficacy, attitude and gender on the use of DST are all significant. From the values of Beta weights, computer self-efficacy contributed 34%, attitude 35.9% and gender 21.1%. This indicates that all the variables contribute significantly to the pre-service teachers' use of digital storytelling for classroom instruction.

Discussion

The findings reveal a positive correlation between computer self-efficacy and the use of digital storytelling. Also, it shows that pre-service teachers'computer self-efficacy had significant influence on the use of digital storytelling for classroom practices. This implies that pre-service teachers with high computer self-efficacy would be able to use digital storytelling efficiently in the classroom.This is in line with the outcome of research carried out by Holmes (2009), and he concluded that "teachers' computer self-efficacy strongly determines the effectiveness of technology use in classrooms" Thus, "teachers" computer self-efficacy is a strong determinant in studying teachers' behaviour with respect to teaching with new mediatechnology (Topkaya, 2010). It must be noted that, teachers' ability to use digital storytelling is usually a function of the effective utilisation of computer software to create an interactive and engaged learning package for classroom instructions. In other words, a teacher that intends to use digital storytelling for classroom instruction should not be found wanting in his/her ability to effectively use computers and other technological devices to engage learners in teaching-learning process.

Therefore, creation of digital storytelling and teachers' computer self-efficacy can be said to be two sides of a coin. It should also be noted that many of these pre-service teachers fall within the category of 21st Century students, who are considered digital natives. Many of them usually display their dexterity in using technological tools like computers, tablets and I pads, even more than their lecturers. This must have placed them at a vantage position of appreciating the potentials of integrating technology in instructional delivery. Therefore, the high relative contribution of computer self-efficacy in this study could not be unconnected with the technology experience of pre-service teachers in creating media to be used for different social media platforms and other un-instructional purposes.

Also, the result shows a positive correlation between attitude and the use of digital storytelling and that pre-service teachers' attitude contributed immensely to the use of digital storytelling to engage learners in classroom activities. This might not be unconnected with the strategic role of teachers' attitude in the integration of technological devices for classroom instruction. Teachers tend to integrate only the kind of technology they consider useful to deliver the content of their lessons.

Many researches had been carried out on the impact of teachers' attitude on the use of ICT in the classroom. Mueller, Wood, Willoughby, Ross and Specht, (2008)find out that attitude distinguishes the successful integrators from the less successful ones. They find that teachers who perceived computer technology as a productive cognitive tool had greater success at integrating technology. Heo (2009) discovers the effects of designing a digital story on pre-service teachers' attitudes towards implementing technology in a future classroom. He discovers that the willingness of pre-service to use digital storytelling in a future classroom is largely a function of attitude. This implies that teachers' attitude goes a long way in determining the success or otherwise of technology integration in the classroom. The pre-service teachers' exposure to the rudiments of creating digital storytelling could have significantly altered their attitude in appreciating the potentials of this strategy in instructional delivery. Series of practical classes organised for them could have changed their disposition towards technology use, as they are now better

equipped to take full advantage of the opportunities provided by digital storytelling in facilitating classroom instructions.The result also showed that gender had a noticeable influence on the use of digital storytelling for classroom instruction. Although, several studies had revealed that gender had no influence on the use of technology, Von (2001) asserts that gender is significantly related to attitudes towards computer and computer use in his study among secondary school teachers.

Conclusion

Digital storytelling provides a veritable platform for both teachers and students to utilise technological tools for learners' engagement and co-construction of knowledge in the classroom. Having identified the unprecedented instructional benefits that are derivable from using digital storytelling for classroom activities, it is imperative for education stakeholders to effectively prepare our pre-service teachers to use this strategy in the curricular of all school subjects; since studies have shown that digital storytelling could be used in all areas of specialization. Also, some factors like teachers' computer self-efficacy and attitude, which could hinder the effective integration of this strategy for instructional delivery should be well addressed at all levels of education system.

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