Integrating Digital storytelling into Curriculum:

Technological Innovation for 21st century Pakistani classrooms

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Abstract

Numerous researches are being recently conducted to explore the use of multimedia technologies as an aide in classroom teaching. Specifically, the use of digital storytelling in class room teaching has emerged as a far-reaching technique for improving student's comprehension and learning especially at the elementary levels. It's effective use is being recognized across the globe from United States, Canada, United Kingdom, Norway, Sweden, Ireland, Turkey, Egypt, Korea, the Netherlands, South Africa, and Austria. Various models like Technological Pedagogical Content Knowledge (TPCK) model, etc. are being proposed for its integration into classrooms. This paper aims to present a conceptual framework for the integration of digital storytelling technique into the elementary and high school's pedagogical pattern in Pakistan. The paper concludes by substantiating the effectiveness of using this technique as a tool to reinforce as well as enhance students' learning as compared to the traditional teaching approaches.

Introduction

Information communication technologies (ICTs) have been contributing in social and economic transformations in both the industrialized and developing countries. The increasing spread of ICT has opened up new opportunities for developing countries to harness these technologies and services to serve their development goals (Mansell and When, 1998). In the education sector, ICTs have the potential to improve the access and quality of education for the developing countries like Pakistan by enhancing educational systems, improve policy formulation and execution and classroom environment (Tinio, 2003).

Multimedia technologies are being used to enhance student knowledge (Liu, 2011) as well as teaching aides (Bagley, Rice, and Wilson, 2001). Research exploring the effectiveness of integrating technology into classroom teaching shows positive changes in student's learning and its use an effective teaching aide (Robin, 2008).

Keeping in view the significance of ICTs in 21st century education environment, National information and communications technology (NICT) strategy for education in Pakistan was developed (Government of Pakistan, 2007). Employ ICT to enhance student learning is one of the core issues addressed in this strategy document. Further areas are identified to employ ICT in enhancing student's learning that ICT can be utilized in enhancing and providing access to content particularly when textbooks and supplementary materials are inadequate, and in curriculum enrichment. It can also be used to assess student work and as Instructional Method to show teachers ways to move away from the whole-class lecture mode towards more active, student-centered methods of learning.

Taking advantage of the rich opportunities given by ICT, recent pedagogical methods must have to change by providing students freedom to interact with ICT in different ways that promote creativity and problem-solving. While NICT prescribes the key elements that must be taken in consideration will devising education reforms, however it does not delineate specific actions on how to implement these into the current teaching practices.

Digital storytelling is widely recognized for its effectiveness in improving student learning. Digital storytelling is a practice (Yuksel, Robin, and McNeil, 2011) of using multimedia tools to create media-rich stories to tell, to share, and to preserve. Digital stories

derive their power through weaving images, music, narrative, and voice together, thereby giving deep dimension and vivid color to characters, situations, and insights (Digital Storytelling Association 2002). It is being used in education, health, to report violence against women, and in other fields (Meadows 2003). Thus, this methodology would effectively enhance students learning through its integration in Pakistani classroom.

Process of Digital Storytelling

Many definitions of Digital Storytelling have been given in the literature, but in general, they all revolve around the idea of combining the art of telling stories with a variety of digital multimedia, such as images, audio, and video and music to present information on a specific topic (Robin, 2008).

Digital storytelling contains seven steps divided into four phases: Pre-Production, Production, Post-Production, and Distribution (Digital photography and video guide, 2008). Each phase is discussed below in detail.

Pre-Production

The first step in creating digital story is the script. Script revolves around the theme of the story. Discussions can help exploring ideas, organizing details, and deciding which ones will be included in the script to tell the essence of the story. Storyboarding is the second step that involves in the making of digital story. It is the process of planning the audio visual aid for the written script. The third step in creation of digital story is the management of audio visual objects that will be used in the creation of final outcome.

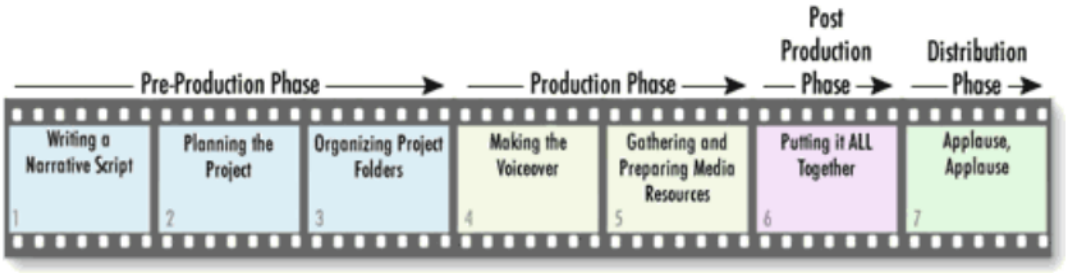

Figure 1 process of Digital Storytelling (Porter 2004).

Production Phase

Production phase includes creating the digital voiceover from the written script, collecting guest voices, filming, and photography, downloading images or sound from internet, and creating or editing your own media resources with software. Forth step is the recording of written script into the digital voice over. Author records his voice by narrating the script into the digital voiceover. After completing this, author is required to edit media objects in order to make them more effective for conveying the massage. There are different software that available free of cost to edit and create multimedia objects. In using media objects, it is necessary to see its copyright issue. As it is legal and ethical matter to use other's media objects. In last step, author finalizes his/her digital story and saves it on his computer from the software.

Post Production

In post production phase, recorded voice and media objects jointly mixed in software to develop the video. Editing the video to make it creative and effective for the viewers is the sixth step in developing digital story. Author first edits the video for unnecessary items and second time editing involves creativity and commitment of author to make it more effective for viewers.

Distribution

Distribution includes making digital movies that can be inserted into other media, making DVDs, posting on school, community or student websites, having parent, student or community gatherings to view the this outcome collectively. Digital stories can be viewed and utilized anywhere with consent of authors.

Literature Review

Storytelling is the original form of teaching (Pedersen 1995). Although storytelling is not new, the idea of digital storytelling is new as a way of teaching and learning (Meadows 2003). It is a comparatively new educational approach that integrates the use of digital devices with traditional storytelling methods (Yuksel, Robin and McNeil 2010). It is simple but powerful method to help students to understand complex and difficult ideas (Bruner 1990; Gils 2005). Robin and Pierson (2005) believe that "digital storytelling has captured the imagination of both students and teachers and the act of crafting meaningful stories has elevated the experience for students and teachers". As (Dorner et al. 2002) said that digital storytelling audiences are viewed not only as listeners but also as learners who can interact and shape the story.

Robin (2005) argued that educators at all levels and in most subjects can utilize digital storytelling in many ways to support students' learning by encouraging them to organize and express their ideas and knowledge in an individual and meaningful way. According to Gils (2005) digital storytelling can provide more variation than traditional methods in current practice. It can also be used to personalize learning experience and to make explanation or the practicing of certain topics more compelling. Further, this methodology has the potency to improve the involvement of students in the process of learning.

While Schiro (2004) used digital storytelling in teaching students algorithms and problem solving through several stages of learning in order to develop their mathematical skills. He argued that digital stories, with other materials like worksheets, not only present mathematical skills that students need to learn but also situate the mathematics in a context that is interesting, engaging and relevant. According to Papadimitriou (2003), digital storytelling can be utilized in teaching subjects like computer science and programming to a wider and more diverse audience. He indicated that digital storytelling can be used, for example, to share with students Al Khwarizmi's discovery of arithmetic algorithms notes on how to calculate the Bernoulli numbers without human head and hand to bring the beauty power and coolness of the message with more clarity and less pain.

Empirical Researchers have been conducted to explore the potential of digital storytelling in enhancing education system especially class room environment across the globe. As Sadik (2008) conducted a study on digital storytelling as an integrated approach for engaged student learning. Findings showed that the digital story projects implemented by Egyptian teachers supported students' understanding of specific content in an academic course. In addition, it was

found that teachers are willing to use digital storytelling for teaching content and to provide more effective instruction.

Heo (2009) examined the effects of the digital storytelling experience on pre-service teachers' self efficacy towards educational technology. This study also assessed professional dispositions including openness to change towards educational technology, degree of willingness to participate in professional development and technology training, and willingness to work beyond the contractual work hours for technology infusion in classrooms. A total of 98 pre-service teachers participated in the study. After participating in a brief tutorial session, participants spent a week creating their own personal stories using Photo Story software. Results indicated that participants' technology competency and openness to change towards educational technology improved with the experience of digital storytelling. While teaching pre-service teachers about educational technology and classroom technology integration is important, transferring the technology knowledge and skills that they already possess into the learning environment is also important.

Digital storytelling is effective for each type of subject. Ryan (2010) has conducted field research over a period of six weeks with seventeen fifth class pupils of Physical Geography. They were assigned a topic to produce a Digital Story based on that concept in collaboration. Findings showed encouraging results and suggest that working as producers in a collaborative environment had a positive effect on the learning of the concepts and vocabulary of Physical Geography as well as providing a learning experience which was motivating and interesting for the students. The analysis also identified interesting areas for further research such as making digital stories based on other areas of the Primary School curriculum, creating Social Stories as an aid for children with Autism and using the stories created as learning tools for younger classes.

Technological Pedagogical Content Knowledge (TPCK) Model

To integrate technology in the classroom, Technological Pedagogical Content Knowledge (TPCK) model developed Mishra and Koehler (2006) recommending the interplay of content, pedagogy and technology. The framework stresses upon the dependence of teacher training on effective educational practices. Mishra and Koehler (2006) believe that the basis of this framework is the understanding that teaching is a highly complex activity that draws on many kinds of knowledge. To be an expert in teaching, it is highly dependent on access to different organized systems of knowledge (Glaser, 1984; Putnam & Borko, 2000). Historically, education has remained focused on the content knowledge of the teacher (Shulman, 1986; Veal & MaKinster, 1999).

Shulman (1986) introduced the idea of teacher pedagogical content knowledge (PCK). Pedagogical content knowledge describes different teaching approaches for content, and understanding of the content's elements, how it can be arranged for better teaching. This knowledge differs from disciplinary expert's knowledge. It also differs from the general pedagogical knowledge shared by teachers across disciplines. It entails representation and formulation of concepts, pedagogical techniques, and knowledge of what makes concepts difficult or easy to learn, knowledge of students' prior knowledge, and theories of epistemology (Mishra and Koehler, 2006).

He proposed this idea as he felt that teachers' subject knowledge and pedagogy were being treated as mutually exclusive domains thus teacher education programs remained dominated on either subject matter or pedagogy. Shulman (1986) through PCK concept represent the blending of content and pedagogy into an understanding of how particular aspects of subject matter are organized, adapted, and represented for instruction. He emphasized that teachers must adopt different pedagogical patterns to teach contents by seeing the appropriateness of pattern with topic for successful teaching.

Mishra and Koehler used the idea of Shulman (1986) to develop the framework of TPCK. In their model, they recognized technology as an important aspect of overall teacher knowledge. They believed that through technological content knowledge, teacher posses the skills to harness newer and advanced technologies to present content in varied forms. Advanced technologies has also given different ways of understand the ways like geometric problems can be taught through computer software's (Mishra and Koehler, 2006). They further elaborate upon the skills of technological pedagogical content that is referred to as the knowledge of various Multimedia Technologies, software's and strategies. These technologies can be harnessed in teaching and learning settings, by developing lectures on multimedia, showing video of different concepts , utilizing different software's to solve mathematical and geometric problems, Enhancing language proficiency through video games and, asking students to make assignments by using digital storytelling. Particular technologies like digital storytelling integration can make positive effect on the teaching process.

TPCK is the attempt to see relationship of content, pedagogy and technology as presented in figure 3 below.

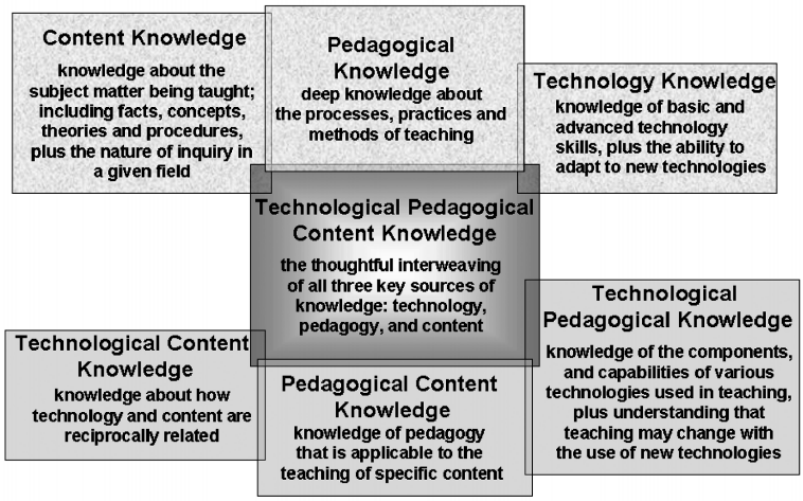

Figure 3 interactions of TPCK as described by Mishra and Koehler (2006).

TPCK thus as defined by (Mishra and Koehlar) is the basis of good teaching with technology and requires an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students' prior knowledge and theories of epistemology; and knowledge of how technologies can be

used to build on existing knowledge and to develop new epistemologies or strengthen old ones (p.1028-29).

Robin (2008) acknowledged the potential of digital storytelling as appropriate technology for the adaptation of TPCK model in teacher's education and teaching-learning process. He further elaborated that digital storytelling has been recognized itself as an instructive tool as well as tool to develop the knowledge of students by using this technique for doing their assignments.

Integration of Digital Storytelling into Pakistani classroom

In the present educational training in Pakistan, the teacher is essentially trained to impart instruction within the frame-work of curricular content, supported by textbook materials (Kazilibash, 1998). This is illustrated in Figure 2 below. Such type of teaching methodology promotes passive learning. In this way, students may not fully understand the topic contents (Qazi, 2007). In this regard, digital storytelling can thus be used an effective technique to instigate student learning and creativity.

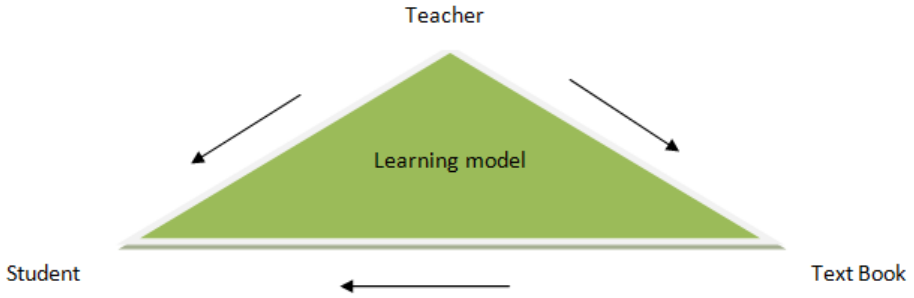

Figure 2 teaching learning process as practiced in Pakistan (Qazi, 2007).

However, attempting to integrate digital storytelling into curriculum, a two pronged approach needs to be followed:

1. Digital stories could be used by teachers to develop their class room lectures.
2. Digital stories could be prepared by students as their school assignments.

Such use of digital story telling will improve technological, analytical, research and writing skills among students which is the essential goal of education at that level. This will also enhance self-expression, communication and self belief of the students.

Recommendations

In order to successfully integrate technology in current elementary and high school level, there is need to change existing teaching-learning model with TPCK. Teachers must be trained to utilize novel technologies like digital storytelling for making teaching-learning process innovative and creative for the students.

For contemporary teachers, special training is required to harness technology especially digital storytelling in making their teaching effective, innovative and creative. Use of multiple technologies to aid classroom teaching must form an integral part of the teacher training

curriculum. To surmount the constrain of computer availability in public sector schools, this initiative could still be successfully launched in the 4286 public schools where the government of Punjab has established the computer labs through the IT Labs project.

Training on digital storytelling can be effectively used as teaching aide tool for the teachers and learning tool for the students. Digital storytelling professionals can be engaged in training process initially. Subsequently, for scalability, trained teachers can impart their knowledge of using digital storytelling in education to other teachers.

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