THE STUDY OF DIGITAL STORYTELLING SKILLS FOR UNDERGRADUATE STUDENTS TO THE CONCEPT OF DEVELOPING AN INSTRUCTIONAL MODEL USING DESIGN THINKING PROCESS

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Abstract

The objective of this research is to synthesize and propose a conceptual framework for developing digital storytelling skills. The documentary research was conducted and the interview was also conducted with the experts and undergraduate lecturers to analyze behavioral indicators of digital storytelling skills. The research tool was a questionnaire on the opinions of experts on digital storytelling skills. The statistics used to analyze the data were mean and standard deviation. From collecting the data on the expert's opinion, the research results revealed that digital storytelling skills contained the following components: 1) Digital storytelling ability comprising 3 indicators, 2) Creative thinking comprising 4 indicators, 3) Critical thinking comprising 4 indicators. The results of study on digital storytelling skills led to the concept of developing a learning management model using a design thinking process as a base consisting of 5 steps; survey, data collection, brainstorming, modeling and presentation of the work. As such concept is a development that encourages innovation focusing on the use of creativity, the researcher had the idea to apply this learning management model to promote digital storytelling skills for undergraduate students.

Keywords: Digital Storytelling Skill, Design Thinking Process, Creative Thinking, Critical Thinking

Introduction

The 21st Century Skills are the concept and policy proposal in education that is continually innovated, developed, promoted, and published by the public and private organizations around the world. The emphasis is on cultivating such skills (Soisakul, 2016). The required skills in the 21st century are learning and innovation skills, including critical thinking and problem solving skills, creative and innovation skills, cross-cultural understanding skills, cooperation teamwork and leadership skills, communications, information and media literacy skills, computing and ict literacy skills, and career and leaning skills (Panich, 2012).

The skills of critical thinking and problem solving, creativity and innovation, communications, information and media literacy are the skills very close to students at the undergraduate level. It determines the readiness of learners to enter the real world of work in order to prepare students to be problem solvers and create innovations or work styles to be up-to-date and keep pace with changes with technology and media. Especially in the 21st century, where the problem is more special than the previous era, the problem is increasing in complexity in every aspect, coupled with the exponential growth of technology. Therefore, the 21st century learners should have high-level thinking skills by learning to solve real-world problems. The thinking and problem solving skills should have the following features; 1) critical thinking is a practice of thinking by comprehending reasoning and making complex choices to understand the system interconnection, 2) identify the problem, create an analysis framework, and solve problems, and 3) creativity and intelligent curiosity. It is the development, application of communication of new ideas in order to be able to convey to others.

According to the National Education Plan 2017- 2 0 3 6 and according to the Strategic Development Approach No.3, it is stated that the learning management model that is necessary for learners in the 21st century should be developed by promoting learning and thinking of learners with a focus on emphasis of innovation (Office of the Education Council Secretariat, 2017). The 15-year Long-term Higher Education Plan No.2 (2008-2022) has set goals for producing graduates to be able to develop innovations (Office of the Higher Education Commission, 2007). The National Economic and Social Development Plan No.12 focuses on the development of youth's abilities in science, technology, innovation and creativity (Office of the National Economic and Social Development Board, 2015). In addition, the Thailand 4.0 model states that Thai people can lead the country towards sustainability. It must develop and drive the economy through innovation (Secretariat of the Prime Minister, 2017). Developing learners in higher education is for preparing the learners to be ready to face increasing challenges in the future. The complexity and diversity of technology in the 21st century, therefore, is creative and critical thinking becomes even more important. Working requires thinking of both of these things for problem solving and decision making in work. Social Innovation also develops both the left and right brains at the same time. Appropriate learning management can encourage learners to develop jointly between creative thinking and critical thinking importantly. It can fix various problems creatively. The ability can be increased to create innovation by using technology effectively (Vongtathum, 2015).

As mentioned above, critical thinking is essential. What is essential for learning to keep up with changing technologies and media is media literacy and creative use of technology. Due to the current learning in the era of digital media and social media to play a greater role in daily life, students in this era have devices to use to support the needs of accessing the information they need via the network more conveniently and quickly. This makes it easy to access the information you need. The way students learn will change. Learners can learn on their own, show research, and create a portfolio. They can present their talents through modern media with technology. Various communication devices can be broadcasted quickly. The students can analyze and integrate into new skills and knowledge to create digital content on their own disseminated through various channels and media as part of driving learners' abilities. When

media and technology are used to interact with the environment around them, the students are granted more opportunities allowing them to expand their knowledge, understanding and ability to create better works. This includes the development of communication skills and the use of technology as a tool to seek knowledge to encourage learners to be knowledgeable, skillful, and have more diverse abilities. Although students have the ability to easily access technology, it cannot be used effectively. Especially towards the learning process, students still lack assessment. Synthetic analysis for the correct use of information lacks ideas to implement to support learning and skills to support academic work (Kaeophanuek, 2017). Providing advice on how to use technology to support learning is still important for learning in the digital age including promoting the use of technology with judgment to develop competence in various fields with quality. For the aforementioned reasons, learners need to be aware of media and creative use of technology. Therefore, digital storytelling skills are another important skill and should encourage learners to demonstrate behaviors that demonstrate digital storytelling skills. Storytelling is an important tool for learners to reflect on experiences, images, ideas, and opinions through language expressions in developing skills such as vocabulary, speaking, listening, writing, and reading. These can help developing critical thinking and creativity enabling students to learn from one another. Learning management allows students to present their own stories or interesting stories through video, known as "Digital Video" which is the media that helps promoting reflection in the manner of transferring knowledge and experiences arising from learners' learning through work contributed to the process of self-reflection for students (Songkram, 2011; Pianpeng & Koraneekid, 2014). Although students have the ability to easily access technology, it cannot be used effectively. Especially in the learning process, students still lack assessment and synthetic analysis for the correct use of information. They lack the ideas to implement to support learning and skills to support academic work (Kaeophanuek, 2017). Providing advice on how to use technology to support learning is still important for learning in the digital age including promoting the use of technology with discretion to develop competence in various fields with quality. For the aforementioned reasons, learners need to be aware of media and creative use of technology. Therefore, digital storytelling skills are one of the most important skills and should encourage learners to demonstrate behaviors that demonstrate digital storytelling skills.

At present, leading organizations place great emphasis on innovation by using the Design Thinking Process as the main tool for innovation, such as Google, Apple, Nike, IBM, Alibaba, etc. The Design Thinking process is a thought process to find creative ways to create innovation. The problem solving has been developed with the evolution of cognitive research and computer design research. Originally, Design Thinking was used in product design or architecture to play a role in business and society widely. The principle of design thinking focuses Human-Center Approach emphasizing the experiences, thoughts and feelings of those involved in all dimensions. These can change the way you see problems, build skills, perspectives, and experiences to create or improve things to be innovative as the new solutions. Creating good innovation must be consistent with the actual needs of the service recipient or user for solving problems on the spot in line with changing technology and social contexts. A typical design thinking process consists of five steps; empathize, interpret, brainstorm, ideate, prototype, and test. In the design thinking process, learners use two essential skills, namely, creative thinking skills and critical thinking skills alternately in each step of the process. In addition, it also helps creating better effective thinking. These skills will help solving complex situations leading to the promotion of quality of life for learners in the 21st Century (Choueiri & Mhanna, 2013; Seidel & Fixson, 2013; Rojsangrat, 2016).

At present, higher education institutes focus on the development of Soft Skills for undergraduate students. In the general education course category of Office of General Education (2021), King Mongkut's Institute of Technology Ladkrabang, in various subjects,

11 areas of Soft Skills will be developed with creative thinking, analytical and critical thinking are included. Therefore, the development of students studying at the bachelor's degree level to be creative thinking, have analytical thinking, and critical thinking as well as having digital storytelling skills will give learners the ability to communicate and create content published through online media to be useful and create a better society.

Research Methodology

Study of related documents and research both domestically and internationally to acquire the elements of creative digital storytelling skills to be used as a conceptual framework for creative digital storytelling skills for undergraduate students.

The tool used is a questionnaire on expert opinions on creative digital storytelling skills for undergraduate students. The Content Validity is checked using a method to find the Index of Item Objective Congruence (IOC) from 3 experts. It was found that the consistency was 0.67-1.00. Tool can be made from an expert opinion questionnaire on creative digital storytelling skills for undergraduate students which has been considered the quality of the tool to create a 5-level rating scale according to the Likert method.

The questionnaires asking the expert's opinion on creative digital storytelling skills for undergraduate students were used. The data were collected from the experts for 2 rounds to summarize the opinions in order to obtain the most consistent and expert opinions.

The population and samples included storytelling experts, digital storytelling experts and teachers at the bachelor's degree level, obtained by Purposive Sampling. The questionnaire was used to analyze the mean and standard deviation. The interpretation of the mean data was based on the criteria of Srisaat (2011).

Statistics used in data analysis were descriptive statistics which were statistics used to describe the characteristics of the Mean and Standard Deviation by using a software package for the statistics data analysis and the content analysis.

Research Findings

Regarding the examination on the creative digital storytelling skills for undergraduate students based on the study of related documents and research, it was found that creative digital storytelling skills should consist of 3 components; (1) digital storytelling ability, (2) creativity, (3) critical thinking and the opinions of 13 experts on the three components of creative digital storytelling skills for undergraduate students.

From the table 1, it was found that in language proficiency, the main behaviors which were storytelling in easy-to-understand language had the mean of 4.54 at the highest level. In digital storytelling techniques, the main behaviors included plotting the story and writing the script in accordance with the objectives or main issues of the story to be conveyed with the mean of 4.46 at very high level. In storytelling through their own point of view, the important behaviors include presenting ideas and their own perspective so that others could understand the story they wanted to convey with the mean of 4.46 at the high level.

Table 1 Expert's Opinion on Digital Storytelling Capabilities

Digital Storytelling Capabilities	Mean	S.D.	Interpretation
1) Language proficiency			
Use of language in writing and taking notes	4.15	0.801	Very suitable
Use of language in conveying stories and experiences that happen to oneself	4.38	0.650	Very suitable
Tell stories in easy-to-understand language	4.54	0.660	Most suitable

Table 1 (Con.)

Digital Storytelling Capabilities	Mean	S.D.	Interpretation
2) Digital Storytelling Techniques			
Choose interesting ways to communicate stories through digital media.	4.31	0.751	Very suitable
Plan the story and write the script according to the purpose or main point of the story to be conveyed.	4.46	0.660	Very suitable
Create the storyboard along with aligning the events and continuity of the story.	4.23	1.013	Very suitable
Filming and editing technology	4.15	0.801	Very suitable
3) Tell the story through your own point of view			
Known to observe the surrounding events and select to be presented through the story	4.38	0.650	Very suitable
Present an idea on your own perspective so that others can understand the story you want to convey.	4.46	0.519	Very suitable
Audiences are inspired by the digital storytelling they create.	4.23	0.725	Very suitable

According to the recommendations from the interview results and additional opinions from the experts, there should be unique tone or narrative style. The storyteller needs to have experience or memory from the story that he wants to tell. The telling is from direct experience through the real action. The better the narrative is, the more he will be able to present an interesting perspective.

From the table 2, it was found that creative thinking consisted of 4 indicators with behavioral indications of initiation The main behaviors include being able to think of new and different topics, content, perspectives, or adapted to apply new ideas which may have never been thought of before, with the mean of 4.62 at the highest level.

Table 2 Expert's Opinions on Creative Thinking

Creativity	Mean	S.D.	Interpretation
1) Originality The ability to come up with new topics, content, and different perspectives or adapted to a new idea which may have never been thought of before	4.62	0.506	Most suitable
2) Fluency The ability to come up with answers quickly. It is an answer that has been researched for a variety of options and is the right answer. It is the ability to come up with a large number of ideas in a limited amount of time.	4.46	0.660	Very suitable
3) Flexibility The ability to come up with answers/methods/ideas/topics in many different types and have a variety.	4.23	0.832	Very suitable
4) Elaboration The ability to think to visualize the first thought so that it is clear, complete in every point and has a more complete meaning.	4.38	0.650	Very suitable

According to the recommendations from the interview results and additional opinions from the experts, it was found that the tasks and goals of the work affect the development of work and the use of creative skills in knowing the surrounding things. The thinking processes and the

ability to think differently can be applied to theory or principles carefully and accurately until leading to the invention and creation of new inventions or new ideas. Students can create work from their own creativity. There is a source with the courage to think differently and confidence in presenting new stories.

From the table 3, it was found that critical thinking consisted of 4 indicators with behavioral indications of identification on significance, ability to characterize the distribution of significance or elements of the content, event, or story in a cause-and-effect manner. The main behaviors include being able to think of new and different topics, content, perspectives, or adapted to apply new ideas which may have never been thought of before with the mean of 4.62 at the highest level.

Table 3 Expert's Opinions on Critical Thinking

Critical Thinking	Mean	S.D.	Interpretation
1) Identification of significance The ability to describe the nature, significance, or element of a content, event, or story in a cause-and-effect manner.	4.62	0.650	Most suitable
2) Rational identification of relationships The ability to consider information, ideas, perspectives, and other issues and be able to explain relationships or connections among data, concepts, perspectives and issues that arise to lead to guidelines for finding suitable topics and contents.	4.54	0.519	Most suitable
3) Identification of principle The ability to describe principles that support a content, event, or story relationship in the manner of applying knowledge, concepts and theories rationally and with reasonable credibility.	4.54	0.660	Most suitable
4) Conclusion of results The ability to interpret data analysis. The assessments and summaries are based on reliable data to clearly support the content, events or stories.	4.54	0.519	Most suitable

According to the recommendations from the interview results and additional opinions from the experts, it was found that the content development process during production will help developing critical thinking skills and listen to others' opinions to develop a story. Critical thinking is thought through a systematic cognitive process with reflective thinking and rational contemplation all around. It aims at deciding which statement is true and which will rely on information and evidence. It is easy to understand and highly flexible. The important thing is to check that the information is correct because of the correct communication of information not distorting information distinguish between right and wrong, what should be presented and what should not be presented to deeply consider the issues.

Conclusion and Discussion

The research findings on the exploration for digital storytelling skills for undergraduate students revealed that digital storytelling skills should consist of 3 components: (1) Digital Storytelling Ability, (2) Creative thinking, and (3) Critical Thinking. Nowadays, Digital Storytelling is a form of digital video that creates stories to tell and share. There is a wide variety of content. It is an understanding of yourself, your family, your knowledge, thoughts and experiences using digital media. It is a combination of images, music, storytelling and tone of voice as well as the narrative creator's point of view leading to meaningful learning

(Songkram, 2010). In case of higher education institutes, it has given importance to the development of soft skills. The development of a learning management model that promotes digital storytelling skills will enable learners to develop Digital Storytelling Skills to appreciate and benefit the people around you and the society as a whole. At present, the creation of self-created stories for digital distribution and social media is very popular. However, in many contents, this is often due to a lack of good analytical thinking. There is no careful review of the source information, misrepresentation causing the huge impact. Therefore, to develop digital storytelling skills for undergraduate students, the researcher has an idea to define it as a learning objective in the course related to digital storytelling by organizing teaching and learning activities based on a design thinking process to promote digital storytelling skills for undergraduate students. Due to the results of the study of information on the use of the design thinking process, students have developed thinking skills in analytical, synthetic, creative thinking, critical thinking, creative problem solving. These can improve student problem solving working with others along with understanding the feelings of others. This is consistent with the research of Choueiri & Mhanna (2013) showing that teaching design thinking drives creative skills and critical thinking in parallel. In addition, it also helps creating better effective thinking (Rojsangrat, 2016; Seidel & Fixson, 2013). In applying the design thinking process, students alternately use two types of skills, namely creative thinking skills and critical thinking skills. They come at each step of the process and these skills will help solving complex situations leading to the promotion of quality of life for learners in the 21st century (Choueiri & Mhanna, 2013). Teaching with a project-based teaching method is the key to design thinking which can be assessed from the results that show creativity and the performance assessment according to the actual conditions of the learners (Rojsangrat, 2016).

The framework for learning management model uses the design thinking as a base to promote higher thinking and creative digital storytelling skills. For undergraduate students, there are five steps, each of which focuses on 1) exploration stage and 2) data collection stage. Instructors provide mentoring and facilitating allowing students to jointly define issues of interest to create digital narratives to meet the needs or interests of the learners. It will help to have the determination to focus on researching information and is the most effective analysis of learners' data. 3) Brainstorming step is to share opinions and discuss with group members to exchange knowledge and train learners to listen to others' opinions and work as a team. 4) Modeling step is an action to achieve empirical results and is also a practice for students to be witty, to think and solve specific problems that can arise. 5) Presentation Stage is the stage where teacher plays a role in encouraging students to think. They will block students' opinions in order that they can discuss and exchange opinions altogether. The efficiency can be improved and ready to bring digital storytelling to the public.

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