HRMARS
Exploring Intellectual Capital

Theoretical Framework and Development Motion Comic Instrument as Teaching Method for History Subject

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Abstract

The purpose of this study is to define and produce a theoretical framework for motion comics theory and methods development. Principle of comics, cognitive multimedia learning and A.D.D.I.E model has been recognized as a key element in the production process. The construction phase of motion comic is divided into 3 phases such as process of pre-production, production and post-production. The construction also involves the creative process and technical elements are integrated with multimedia theory. As a results, the researchers will produce a theoretical framework through the comics principle, cognitive multimedia learning and A.D.D.I.E model to link the combination in development of motion comic.
Keyword: Comics, Motion comics, Interactive comics, Multimedia, Animation production, Education.

1. INTRODUCTION

This study was designed to identify the theoretical and methodological development of the motion comic for Form Four History subject. It is intended as a teaching aid to provide a different experience for students in order to understand the history content. Through previous studies, scholars have underlined that one of the major issues in learning History subject is the difficulties for students to memorize history facts, events, years and peoples (Hwa, 2004). Furthermore, in 2013 the History subject was announced as compulsory subject to pass by the Malaysia government. Comic offers a new learning experience and could help students to overcome some of the learning issues. It is safe to say that although comic has been used as a teaching aid, it was done only by changing the text to a form of conventional comic (Razilah, 2011). Through this study, researchers will develop a theoretical framework and using it as a guideline to produce a motion comic as teaching aid from one of the topic in History subject.

2. LITERATURE REVIEW

The presence of multimedia technology has reduce the dependence on methods of teaching and learning (PDP) in conventional way. Conventional methods can be defined as a one-way process between teachers and students. Teachers who used conventional methods usually

exam-oriented, thus aimed to finish the syllabus prescribed, so that it enable the students to achieve high scores in exams (Fletcher, 2003).

Fischer (2003) stated that in Western countries the integration of Information and Communication Technology (ICT) in the classroom is very encouraging since thirty years ago. Obviously the use of ICT for education in the West have long been utilized rather than in Malaysia. Koohang, Riley and Smith (2009) denoted the use of ICT can increase the interest and attention of students, encouraging feedback, offer intellectual learning experience, fostering higher levels of literacy and skills among students.

2.1 MULTIMEDIA IN EDUCATION

Multimedia is a combination of two or more communication tools such as text, graphics, images, animation, video and sound with the interactive features of the computer to produce an exciting multimedia work. Barker (1990) stated that multimedia involves two or more instructional media used in a presentation. This opinion is supported by Mayer (2001) which included the use of multimedia VCD / DVD or Power Point, or even 16mm film. For examples: still picture, text, graphics, video, background music and narrative that is integrated together with the aim of teaching students to understand the concept. The advantages of this multimedia which makes it appropriate and timely to be used in the process of the PDP. Furthermore, elements in multi-sensory in multimedia character can stimulate students and the senses of their interactivity (Jamalludin & Zaidatun, 2003).

2.1.1 COGNITIVE THEORY MULTIMEDIA LEARNING

The basic hypothesis of multimedia learning theory by Mayer (2001) is how the human mind can understand the concept of learning through multimedia interaction. Multimedia learning cognitive theory based on three cognitive processes through scientific principles of how humans process information: Dual-channels assumption, assumption and Active Limited processing capacity assumption. Mayer multimedia learning cognitive theory is also outlined five specific multimedia learning process in which:

i.   Selected text and narrative appropriate.
ii. Selected appropriate image of the illustration presentation
iii. Organize selected text into a verbal representation
iv. Organize the selected image into a pictorial representation
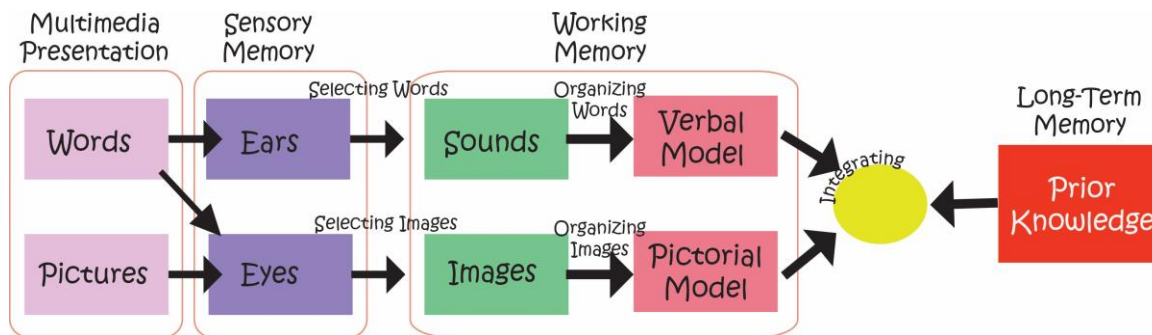v.   Integration of pictorial or verbal representations to prior knowledge.

Figure 1: Cognitive Theory of Multimedia Learning Mayer (2001)
Source: Cognitive Theory of Multimedia Learning Handbook (2005)

2.2 COMIC

McCloud (1993) expressed a term 'Sequential Art' as a basis for the definition of comics. McCloud regards to the definition of the comic as a picture or a sequential or juxtaposed images that create the storyline. Eisner (2005) pointed out that comics are a medium or a way of telling a story that is closely related to the writing style. Unlike other medium, comic strength is the style of storytelling, in which the style of writing can be assisted with the visual impact that gives more to the readers' imagination.

Eisner (2005) suggested that comic is merely a medium or means of communication by combining storytelling with images and texts. This statement was also supported by Arroio (2011) and he added that comic is not just creating an illustration, since comic artists are using their intellect to formed a perfect combination of images and text in order to build narrative. Rigaud, Gierin& Karatzas (2015) said comic also allows reader to understand information that interact with visual impact on the comic itself. According to Maximilians (2015) comic philosophy now has integrated with technology and relevant for a philosophy of technology.

2.2.1 MOTION COMIC
In 2008, Warner Bros. has launched twelve episodes of Watchmen in a format known as motion comic. Motion comic meets the characteristics of digital comics like comic panels that have been animated by adding panning and zooming techniques and provided with sound effects, voice and character, music and special effects.

Figure 2: Watchmen Motion Comic 2008

McCloud (2000) stated that motion comic as 'Infinite Canvas' whose concept, storyline, style and elements of the comic is presented in a digital environment with multi-dimensional structure panels, voice, sound, special effects and with a simple animation or movement. Miller (2005) also described motion comic as a combination of multimedia elements such as images, sounds, texts and film concept, that is similar to moving comic. In the future comic could no longer printed on paper but it can exist in the internet (Eisner, 2005). Meanwhile, Smith (2015) described that motion comic is a digital media that offered new opportunities and challenges for comic book in order to explore new consumers' experience in reading comic book. Smith also stated that motion comic can interplay and convergence between comic, animation and interactive media. This expansion into new and diverse areas of comic book narratives suggesting that motion comic is the one that well suited to the adaptation and remediation of comic book narratives.

2.2.2 COMIC IN EDUCATION

Comic in education was introduced in the United States as early as the 40s, in which many educators have used comics as a teaching aid. According to the Gene (2003) there are many advantages of using comics in education, for example, it can help in terms of motivation and maintain students' interest in learning. Jackson (2009) have found that the use of comics in education seeks to provide a positive mood in the PDP.

In a study produced by Graham (2011) has advocated the use of comics in the classroom which took place in Thailand. Graham recognized that most teachers in Thailand were less fluent in English to communicate. To overcome these problems Graham has been using the software 'Smooth Transitions', 'SPEAKIT Voice Recognition' and 'Gap-Fill Comics' as teaching aids in order to assist the teachers to train students to speak and communicate in English.

The study of Leong and Amir (2012) entitled "Penggunaan Komik Strip bagi Meningkatkan Pencapaian Murid Dalam Topik Kitaran Air Tahun Lima" aimed to attract students and provide an understanding of the water cycle. Leong and Amir found that a significant improvement on students' achievement and students' understanding of the subject matter after using comic strips.

3. METHODOLOGY OF MOTION COMIC DEVELOPMENT

The process of building motion comic is based on cognitive multimedia learning by Mayer (2001). Development of motion comic is also adopted A.D.D.I.E model, which refers to the Analysis, Design, Development, Implementation and Evaluation (Danks, 2011). McCloud (1993) has outlined some of the characteristics of comic. Such features include: ideas, forms, idioms, structure, surface and craft. From the storytelling side McCloud (1993) also suggested several ways of conveying storytelling in comics, namely: specific word, specific picture, duo-specific, specific additive, parallel, montage and inter dependent. These elements are also in line with the model of multimedia learning cognitive developed by Mayer (2001), which integrate words and images that make up a meaning in a multimedia presentation. Production of a comic according to McCloud (1993) involved visual iconography with many styles of art images to

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form a realistic representation of simple cartoon that integrates the power of visual and text to convey a story.

Infinite Canvas in McCloud has outlined a number of specific criteria in addition to the traditional comic namely: trails, distance pacing, narrative subdivision, sustained rhythm and gradualism.
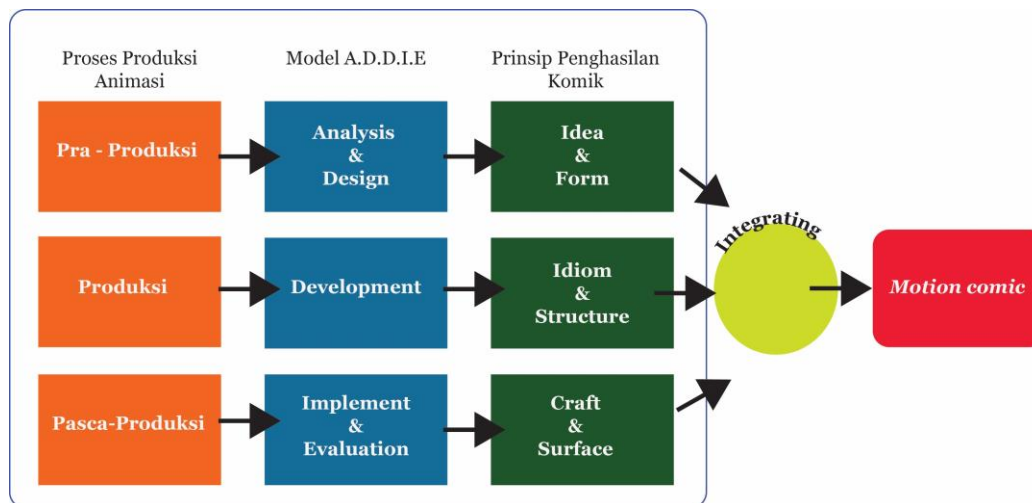

Figure 3: Correlation between animation production process, A.D.D.I.E model (1996) and the principle of comic McCloud (1993).

Researchers have developed a theoretical framework and methodology for the development of motion comic (See Figure 4), based on the adaptation and combination of cognitive theory of multimedia learning Mayer (2001), A.D.D.I.E model, McCloud's (1993) principle of comic and infinite canvas by McCloud (2000).
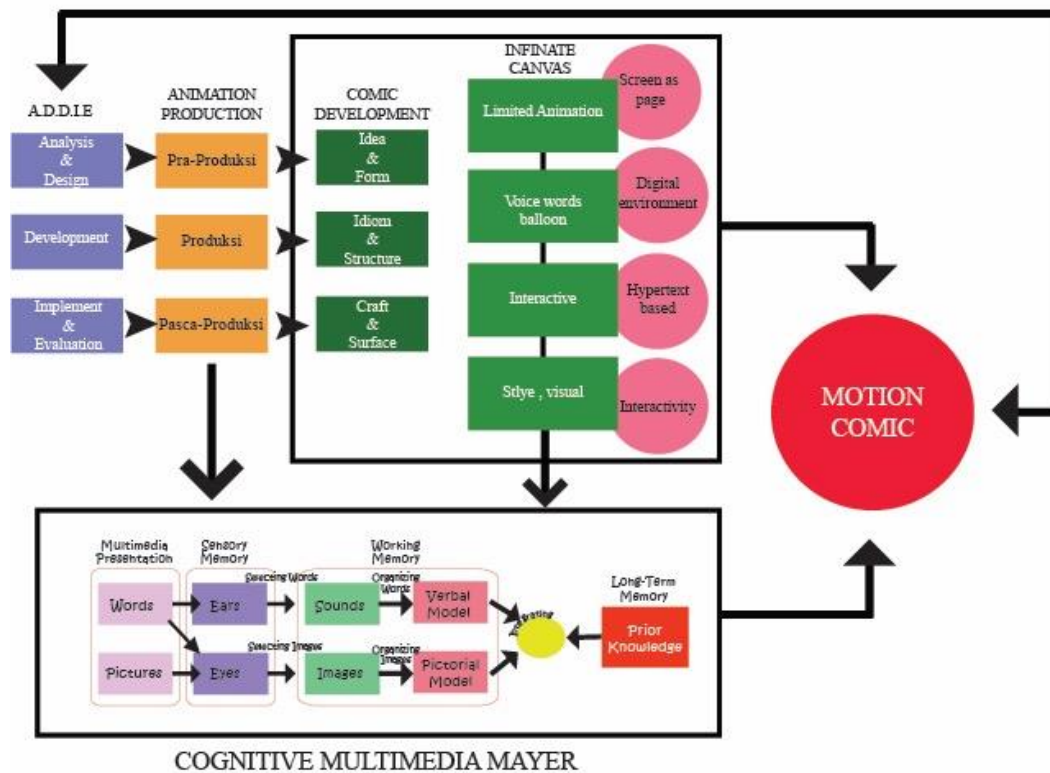
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Figure 4: The framework of the motion comic construction methods.

The proposed theoretical framework in this study is deems to be conducive to develop a motion comic in which its process is break down into three main steps, namely: pre-production, production and post-production.

4.1 CHARACTER DRAWING

Character drawing is a process of finding the appropriate characters and characteristics through visual and manual sketches based on a script. Character drawing is based on the topic of the arrival of Islam to Southeast Asia contained in Form Four History textbook. In addition, characters, places and historic buildings as well as the props had been drawn up to suit with the subject and the way the story was framed. A detailed study of visually drawn characters involved, costumes and social activities. The figure below are some examples of visual sketches of characters and characteristics.

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Figure 5 : Character Drawing Sketch

4.1.1 CONCEPT ILLUSTRATION

This process is combining the ideas and sketches the concept corresponding to background, places and events. It contain costume, character art, historic buildings and social activities. Sketches of props are also constructed based on research.

Figure 6: Concept Illustration

4.1.2 STORYBOARD

Storyboard began in the animation industry in 1900 when Winsor McCay has created a comic strip to describe the animated story made by him. The important of Storyboard is to look at the whole story. Storyboard also include of development ideas, the whole sketch of story and script illustration. It was include a set of visual storyboards, camera angles, camera movements, duration and picture stories every scene.
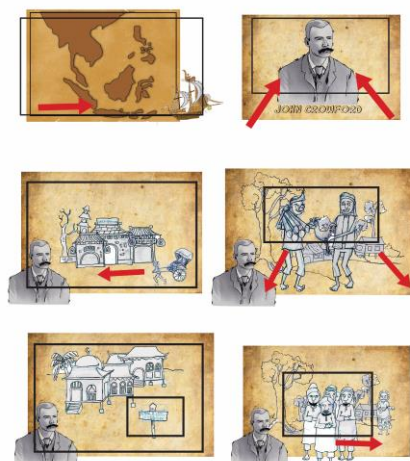
Figure 7: Storyboard

4.2 PRODUCTION PHASE

Production phase refers to the actual process that needs to be done to produce the comic. It involves a number of key processes such as drawing characters and characteristic, colouring, sound, sound effects and character motion. Apart from the character and background of the character ,image and props should also be drawn based on storyboards and scripts. Sketch of image had been drawn digitally by emphasizing colour and concept. It is transferred in digital form to facilitate the production of motion comic.

Figure 8: The process of transfer of sketches to digital drawing.

In this process also all drawing of characters have to been clean-up using Adobe Photoshop software and the graphic tablet. This transfer process to facilitate the preparation of each scene in the motion comic produced using Adobe After Effects.

Figure 9 Arrangement motion comic scenes in Adobe After Effects

The next process is the recording of music and sound effects based on scripts, storyboards and production sequences in Adobe After Effects. Recording music has been recorded in advance by using the keyboard and Adobe Sound Booth for editing music and sound effects. To ensure the suitability of music and storyline for researchers to study the elements of Middle Eastern music and the Malay world before making recording and editing.

Figure 10: Recording and editing music with Sound Booth motion comic

4.3 POST-PRODUCTION PHASE

Phase of post-production editing process, which involves surgically cutting or rearranging scenes generated in the production process. This process is to ensure delivery of motion comic have continuity and be able to convey the message properly. Special sound effects and visual effects also transitions should be included or added in this process to give more dramatic effect mood and appropriate to the story that want to convey. In this process the researchers used Adobe Primiere to produce visual and sound editing.

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Figure 11: The process of editing scenes and audio visual motion comic using Adobe Primiere

5. CONCLUSION

In conclusion, this study outlined the theoretical framework to develop motion comic for teaching aid. History subject is chosen because it contains a story, facts, events, characters and situations that are appropriate to the comic elements that involve stunning visual and dramatic story. Motion comic will give added value to the PDP experience, and in this case for the subjects of History. Through the theoretical framework and the motion comic development process presented in this paper, the researchers will later continue this study by looking at the effects of motion comic on student achievement.

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