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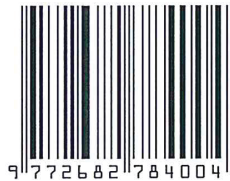
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IMPLEMENTING ANIMATION PRODUCTION PROCESS: CASE STUDY OF DESKTOP APPLICATION LEARNING SYSTEM (MILO) FOR FRONT OFFICE MANAGEMENT

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ABSTRACT

The rise of learning innovation suggested that distance learning included the use of technologies such as video, audio, computer and multimedia communications into supporting extended teaching and learning tools. However, despite an increasing number of learning innovation, there has been little detailed documentation of the processes involved in this format of animation production process. More specifically, there has been little documentation and analysis of the key considerations and issues that might confront practitioners when integrating 3D animation production process with teaching and learning tool. This paper aims to examine the 3D animation production process of Desktop Application Learning System: Multimedia Interactive Learning Online (MiLO) by Kemmis & McTaggart Action Research Model. Qualitative research applied by action research methodologies and make use of reflective practice across a series of action research cycles in the form of making the 3D animation for the desktop learning application. The findings of this paper propose a new framework of animation production process for teaching and learning application by using iClone software. This paper contribution a new framework of animation production process for teaching and learning application for future researcher or designer to use it on another field that feeds the grounds.

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1.0 INTRODUCTION

The rapid increase of online interactive learning has shifted the traditional learning process from chalk and blackboard into virtual classroom. According to Aburahma MH, Mohamed HM (2015), traditional teaching and learning environments are often static, unchallenging, and, at times, boring, especially when compared with educational virtual games that compete as sources of active learning for students. The emergence of learning innovation suggested that distance learning included the use of technologies such as video, audio, computer and multimedia communications into supporting extended learning (Woo, Shahril, Azmi, & Rosli, 2018). According to Raiyn (2014), interactive teaching begins with a philosophy about teaching with technology and results in a new process of interactive teach-

ing and learning (p.14). In addition, the interactive stage is the most important by using technology to develop knowledge and concepts to enable greater interaction between lecturer and student (Grant and Thornton, 2007). According to Tuparov, G., Tuparova, D.D., & Peneva, J, (2004) explained that having a computer-based learning program is not only the content, but also how the program can meet its learning objectives.

The Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Puncak Alam campus in Selangor offers a course subject in Front Office Management. In the subject, the student are taught how to interacts with the customers when customer first arrived at the hotel premise. Front office staff handles the arrangement between the hotel and guests. The team receives the guests, handles their requests, and strikes the first impression of the hotel into their minds. In front office management, the learning is on practical basis, but textbook is the main reference to understand the topics. In this research, it aims to bridge the gap of learning from textbook to interactive learning through desktop application. Furthermore, according to Woo, Shahril, Azmi, & Rosli (2018) educators are suggested to shift from conventional to interactive learning.

This research aims to examine the 3D animation production process of Desktop Application Learning System Multimedia Interactive Learning Online known as MiLO through Kemmis & McTaggart Action Research Model. The animation production process by Selby, A, (2013) contain three phases starting with Pre-Production, Production and Post Production. As shows in Figure 1, the pre-production phase contains idea and concept, scripting, storyboarding and 3D modelling. In production phase, it is all about preparing the design for a project. The process start with texturing and shading, animation setup, character rigging, particles and FX (effect), animation motion, lighting, camera setup and rendering. Finally, in Post-production process is a composition and video and sound editing process. This is a common process of animation project used in every animation or film. As stated by Scaramozzino, M, (2018) the process is generally broken down into three distinct phases Pre-production, Production and Post-production and each of those stages is comprised of a few distinct steps. Each one of these steps requires special talent, software and equipment.

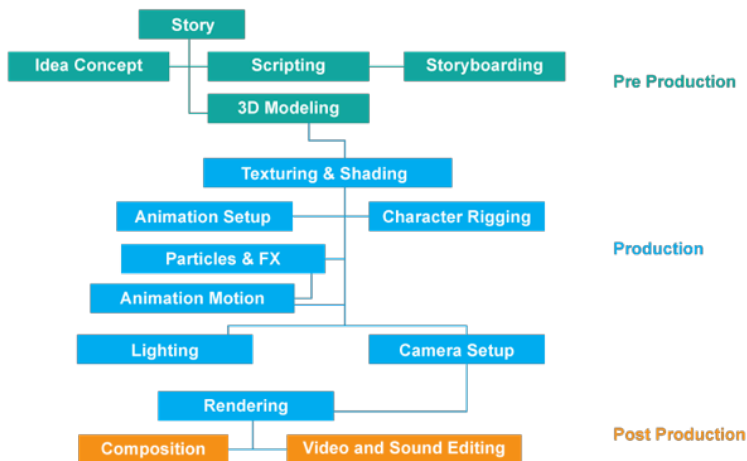


Figure 1: 3D Animation Production Process (Selby, A, 2013)

1.1 Pre-Production

Animation production process by Selby, A, (2013) explained in detail. It starts from written out a script to a brief given and may be based on observation, an exposition of an event, or an adaptation of a story. Acknowledge content are completed script by the process of edited and analyzed until it is agreed. Director directs the crew to interpret the material visually and aurally by script was given and is known as concept and ideas process. Concept explored and developed, and resulting ideas are given rough visual and aural forms so that the first views of the production can be formed and considered. Next, ideas explored through more focused and sustained research, collecting information through observations and recording and assembling this material into a systematic order that can be used in the studio domain to add more characteristic and expression to the initial ideas. The project pitched to the client or funding body through a written synopsis known as treatment, where the story or idea summarized through a presentation comprising one or more of the following elements as a written statement, visualized images or storyboard, temporary soundtrack sample voice-overs, and atmosphere effect ideas. The production method of creating the job is set and agreed according to the budget set or confirm for the production, and the release format is accepted. Illustrate the emerging narrative, scene, introduction characters, establishing where dialogue fits with action, a suggestion of cameras shots and angles also the sound effects known as a storyboard. Development set, scenes, and characters visually developed in tandem with collected research components as the crew work out how to animate the details included in the storyboard. Lastly, in this phase, the choice of sound, dialogue, narration, music, and special effect is finalized and designed in close to conjunction with the visual development. Music in charge if a score is required, the voice talent is auditioned for narrative and dialogue roles if needed. Special effects worked on by the crew with originating or collecting relevant material that can be first recorded on location or studio before edited in the studio and mixed to form a soundtrack.

1.2 Production

The second phase is the production of the animation. In 3D animation, the process is slightly different from 2D animation. It starts with modeling a character or object. Sculpted and formed through development drawings and groundwork to remain faithful to the creator's vision of it. Moving on to rigging and animating define how the modeled form will move, either manually through the animator flexing the form or digitally through approval granted in the software application to handle the form on an established axis, through walk cycles, lip- synching and other more. Effect and lighting process is visual effect significant of the central movement of the form a re-executed and recorded. Frequently worked in tandem with lighting design to evoke atmosphere and create highlights on aspects of the form for the dramatic purpose. Compositing is where recorded three-dimensional elements are brought together, manipulated and outputted, generally, alter the feel and attributes of the recorded footage to maximize dramatic impact and draw attention to the story or idea in an exciting way for the viewer. The stage of rendering defined as layers in the frame are flattened through the rendering process to create final structures. Finally, the work print process is where by looking at the special effects, music, narrative, and dialogue all together.

1.3 Post-Production

This phase takes all collected animation and recorded material and synthesize it into a product, adding special effects and titles for a ready to release and distribution. Special effects are the concluding stage of a project allows special effects to be placed, accentuated and mixed to enhance the viewing and audio experience. Next panning is putting out the sound in a different landscape of the

visual. Stage of colour correction and mastering is to fine-tune and removing any minor inconsistency and creating a seamless and pure visual and audio experience. Titles and credit is stage acknowledging all the role played in shaping the project. Lastly, it can be released and distributed.

2. METHOD

This practice-led research project emerged from Universiti Teknologi MARA teaching and learning grant ARAS in 2017. The timeline of the project has been scheduled through a Gantt chart, and it needs to be ready for a prototype testing in 3 months. From my expertise in teaching animation production process, the help of new software can shorten the production of animation. This practice-led project approach based on Gray (1996) explains that it is a form of ‘naturalistic inquiry’ that embeds the researcher firmly within the research process and positions the emergence of problems, questions, and challenges as occurring within creative practice. The methodology used for this research is action research methodologies and make use of reflective practice across a series of action research cycles in the form of making the 3D animation for the desktop learning application. The method provides a means for the discovery of new knowledge about the process of 3D animation video for teaching and learning tools. To ease the evolution of creative component and ensure that new questions, problems, and challenges result from the animation production process of the project. The research project consisted of three interactive cycles of practice, which follows Kemmis and McTaggart’s (1998) action research model as in Figure 2. This method involves four phases: developing a plan, actioning the plan, observing the effects of the action and reflecting on these effects (Kemmis & McTaggart, 1998).

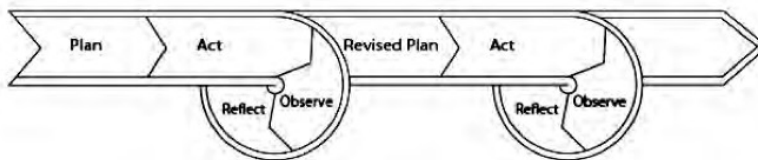


Figure 2: Kemmis & McTaggart Action Research Model (Kemmis & McTaggart, 1998)

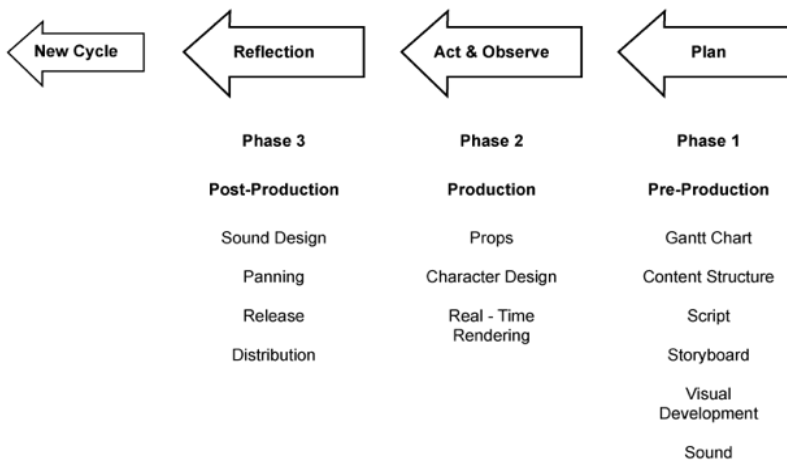


Figure 3: Conceptual design of the research cycles

According to Kerlow, (2009), each cycle of practice constituted the production of animation and concurrent with the segments approach usually undertaken during animation production: pre-production, production, and post-production. The design of this research twine the general phases of animation production. The phases of the presented model of action research cycles by assuming the development of a plan for the cycle within the pre-production phase, the actioning of the plan and the observing of practice within the production phase and the reflection on outcomes and observations made during production within the post-production phase. As illustrated in Figure 3 above, each research cycle revolved around the following conceptual design.

3. RESULT & DISCUSSION

3.1 Plan Phase

Through Kemmis & McTaggart Action Research Model, we developed a plan for the cycle within the pre-production phase. The development of the project started with a Gantt Chart as in Figure 4. Through this chart, we scheduled the project timeline as in this development it took three months to produce the 3D animation for the desktop learning application MiLO. The Gantt Chart had been divided into three phases from September to November. Starting with the schedule and move on to the content structure. The content structure is a process of dividing the Front Office Management subject according to the main topic as shows in Figure 5. The Front Office Management had been separated by four main topics as the reservation, reception, bell service and cashiering. 3D animation video produced according to this main topic.

Furthermore, every main topic script had been developed according to the characters, setting, and plot of a story means the main events of a play as the reservation topic the situation will be at the front desk of a hotel with a telephone, walk-in guest and computers. The script that fleshes out the characters, setting, and plot of the story. Development of a script connected with the storyboard process. Through some brainstorming ideas to life and by drawing storyboards for a few possible scenes in your script.

Month	Phase 1	Phase 2	Phase 3
Sep 2017	Content Structure, Script, Storyboard		
	Visual Development, Sound (content)	Props	
Oct 2017		Prop, Character Design	
		Character Design	
Nov 2017		Real - Time Rendering	Sound Design, Panning
			Release, Distribution

Figure 4: Gantt Chart - Development of 3D Animation for Desktop Application MiLO

Draw out squares on plain paper and sketch out details like setting, time of day, and scenery for the scene. Include character dialogue and action in the storyboards. As shows in Figure 6, it is an example of our script and storyboard process for this project. As shows in Figure 7, visual development is a process of identifying the tone, mood, colour scheme, and more for all the characters, environments, clothes, and objects in an animation. In this desktop application project, we identified the colour and mood by looking at the actual reference of hotels event, guest props, and event

settings. Beside of visual development process, a male and female voice had been recorded as a draft voice, so we manage to control the length of the 3D animation video accurately of a maximum, not more than 2 minutes. The mobile sound recorder had been used in this process as WAV — sound format.

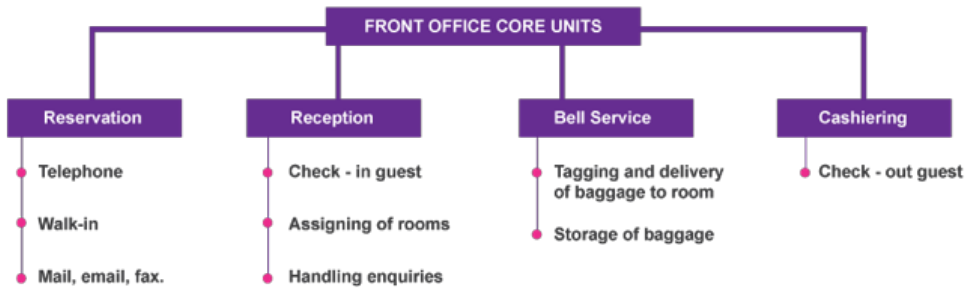


Figure 5: Content Structure of Front Office Management: Four Main Topics

SCRIPT RECEPTION
TELEPHONE

Female: Hello, good morning to. How can I help you sir?
Male : Morning to you too. I want to check my reservation.
Female: How do you make your reservation sir?
Male : By telephone.
Female: I will check your reservation sir.
Male : Thank you



Figure 6: The Script and Storyboard Process

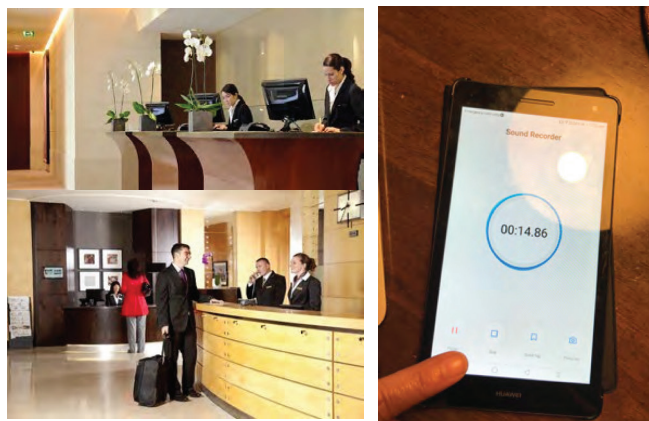


Figure 7: The Visual Development and Sound Recording Process

3.2 Act and Observe Phase

In act and observe phase according to the cycle, it is a production phase. This production phase continues with prop design development. In this production phase, we develop all the prop and character design by using iClone Software. iClone is a real-time 3D animation and rendering software program that enables users to make 3D animated films. Real-time playback is enabled by using a 3D videogame engine for instant on-screen rendering. It is a user's royalty-free usage of all content that they create with the software, even when using Reallusion's own assets library. In this process, all the prop and characters are in the drag and drop menu. The 3D workspace, the basic scene with sky, building blocks and texture it and it could get into the mood of light depending on the storyline. Everything can change accordingly. In this content library body style, also can be modified according to specific sizes as in slim, strong or plump. In this project, we used a male and female character with proper dress code according to the real situation in a hotel reception table in Figure 9. The iClone video editor has been put in the timeline according to sequences. The motion, movement of character had been applied to create a movie clip. Proceed to the director mode section. The character recorded according to camera angles. Director mode introduced as to control the characters on screen like a game, and movement can be customized, and it can make a smooth walk. Generally, basic of animating objects are the same as the keyframes, picking a bone, inverse kinematics and motion paths process (C., & Cowan, F, 2003). The rendering process was very quick as it is a real-time rendering process as shown in Figure 8.

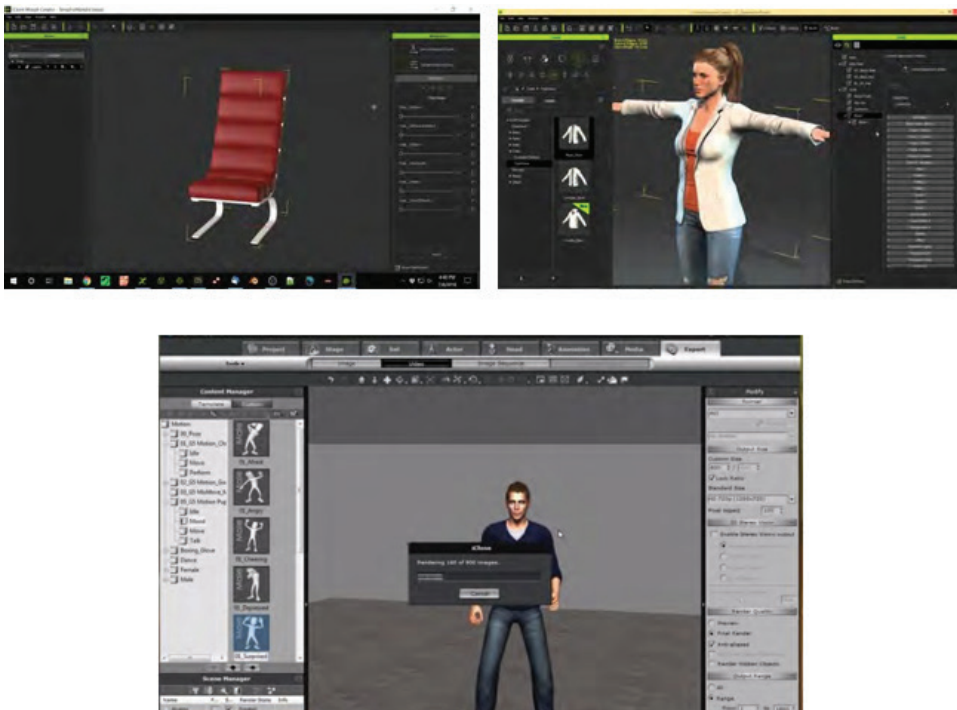


Figure 8: The Prop, Character Design Development and Real-Time Rendering

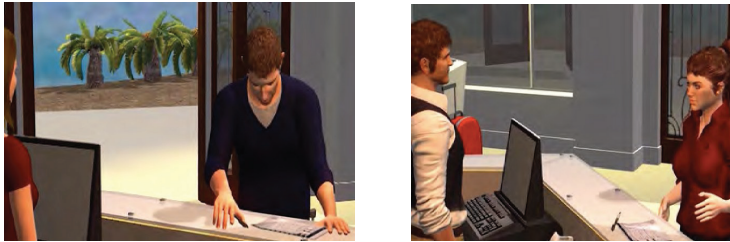


Figure 9: The Reservation and Reception Scene



Figure 10: The Bell Service and Cashiering Scene

3.3 Reflection Phase

In the reflection phase, it is a production within the post-production phase. In the production process, we prepare the sound design and panning process. Panning is putting out the sound in a different landscape of the visual. In this process, the reference of real-life situation sound in the hotel ambiance needs to be applied in this 3D animation video. The mood and real situation manage to be produced as we follow a few references. Music background had been applied to suit the event. The dateline had come to an end, the editing process means by joining the video to voice over and background music. In this phase, synchronizing sound and choose the correct software for this editing process. All the footage had been exported into editing software iMovie Figure as to put in the audio separately in Figure 11. In this project, we edited the sound separately as easy to cut out a few frames and from the scene and make it suit to the voice that had been recorded before by using mobile phone application voice recorder. In this phase, all the sound will be mix until it is final.

The background sound of the ambiance, foley and voice will be mix together as it produces a great sound. Finally, the final scene had been finalized and choose the correct medium to release. In this project, the process continues with a script-free programming tool that allows users to create video games or other interactive software using a range of graphical user interface tools known as Clickteam Fusion. All the video has been attached with the interface design that had been done by a graphic designer, and it is ready to release to prototype testing for students as in Figure 12.



Figure 11: Editing The 3D Animation Clip with Voice Audio and Background Music

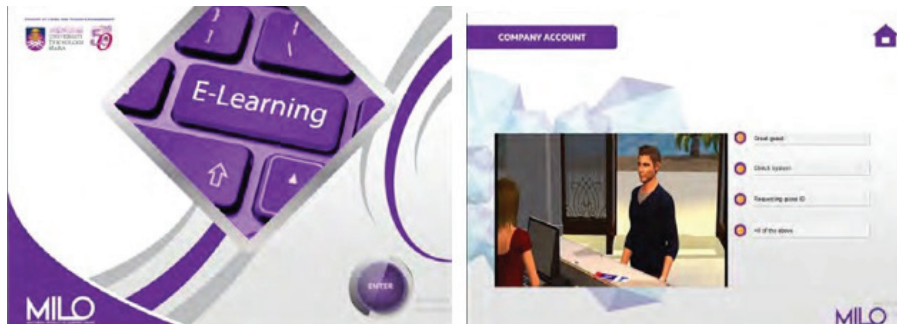


Figure 12: Interface Design of the Desktop Application Learning System MiLO for Front Office Management Student

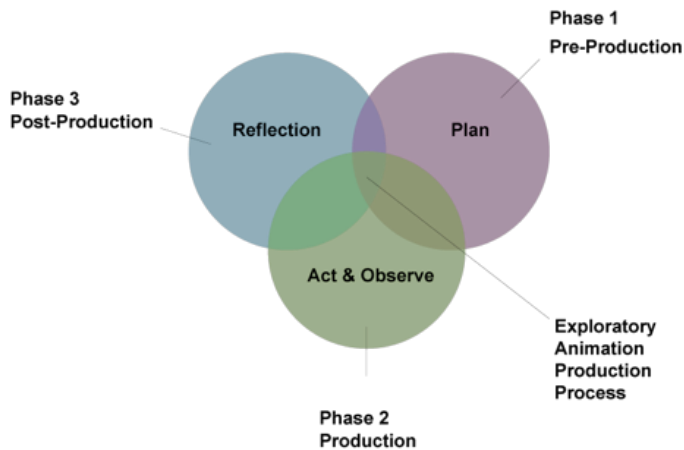


Figure 13: Exploratory Animation Production Process Adapting from Kemmis & McTaggart Action Research Model

As outlined in the paper objective, there is less documentation on the animation production process. Through Kemmis & McTaggart Action Research Model, the process of animation production go through a conceptual design of the research cycles. The connection of every phases is very important as in the process to continue smoothly without effecting the dateline with a very systematic way. In Figure 13 shows a connection of the three phases result of an exploratory animation production process. Start with Phase 1 with Pre-Production, continue with Phase 2 Production and Phase 3 Post Production and it connect and create an exploratory animation production process. As a result, a new framework had been produce in the process of animation production process in this project.

4. CONCLUSION

Through the Conceptual design of the research cycles based on Kemmis & McTaggart Action Research Model (1988), we identified that by using the research cycle as shown in Figure 13, through all the process it concludes that an exploratory animation production process can be developed. It expands because of the step by steps observation and documentation make this process very personalize on its way to create the desktop application teaching and learning tools. Besides that, the

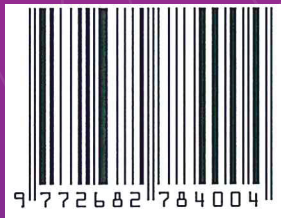
aims are to explain the 3D animation production process of Desktop Application Learning System Multimedia Interactive Learning Online known as MiLO. As a conclusion, a new framework had been adapted from Kemmis & McTaggart Action Research Model and produced an exploratory animation production process that can be applied to another animation project especially in developing a short time 3D animation project in another field.

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