

Augmented Reality Storytelling: A Transmedia Exploration

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Abstract—This research paper discusses the implementation of augmented reality in transmedia storytelling. The innovation was applied on the subject matter of culture and heritage. A range of content was designed for augmented reality distribution for the 2 research-creation output from the projects. The paper will discuss the consideration of the chosen content for AR distribution, its production design and lastly its limitation on the type of content that was chosen.

Keywords—augmented reality, transmedia, storytelling, culture and heritage, intangible heritage.

I. INTRODUCTION

Dissemination of data has been interesting with the advancement of media-based technology today. Currently we are the time of Virtual Reality making a comeback together with Augmented reality (AR). AR has been a strong attraction for people to experience, as it involves devices that commonly available to people. The technology itself is astonishing for most people as it is a tremendous upgrade from the common QR code that is widely used [1]. The research implemented AR to the storytelling of 2 research topics that was conducted for the past 2 years. A variety of data collected for these projects, were then curated to be used as AR content. This paper shares the design of transmedia storytelling that incorporated AR.

II. BACKGROUND

We implemented Augmented Reality storytelling in the 2 research-creation projects. One was implemented in 2016 on the topic of traditional boat builder in Pangkor Island. This topic revolves around one of the masters boatbuilder in Pangkor Island, who coincidentally the only Hainan descendance in this trade. Data was collected in an earlier research fieldwork that documents this traditional boatbuilding [2]. This boatbuilding is done without any blueprint, except for the plan in the master boatbuilder's mind. He is close to 70 years old and has no successor for the business. He has been conducting this trade for the last 40 plus years. From this business he has managed to send all his children to school and are now working in the city. Upon completing the interviews with him, we found out that when he decides to retire, he either retires and close up the workshop or

sell the business. One fishing boat he built can command up to a million ringgit complete with the engines. In a year he takes a max of 3-4 orders as it takes approximately 3 months for him to complete it. Safe to say that it is quite a lucrative business but one that requires dedication.

The folklore projects documents stories in the Malaysian culture and heritage [3]. The researcher identifies 5 stories that are then illustrated by an artist which then those illustrations are animated in post-production in an animatic style [4]. The stories are collected directly from the storytellers such as the case in the Mah Meri indigenous people and the Iban of Sarawak. While the rests are collected from book sources. This serves to show that there are already initiatives to collect, documents and distribute these oral folklore stories to the public. Yet in the face of modern stories from the European and American culture, the local Malaysian stories are facing great challenges to be preserved continuously. Whereby the stories that were collected directly from the main sources were never heard of before and has never been known to the public.

It has been predicted that digitization of book content will continue to be practiced in the future [5]. Thus, why the researcher aims to gauge the preservation impact via transmedia storytelling and augmented reality. This AR book is another public dissemination. It is common practice to deliver digital representations of cultural documentations the public which will lead in fostering greater understanding of the data and the culture involved [6].

The Augmented Reality book was accompanying an installation of the stories in a multi display storytelling, in the case of the Folklore stories. For the Pangkor Boatbuilder, the book serves as another angle of dissemination from the main delivery of screening of a short documentary. Transmedia resolves around the concept of dispersing integral elements in a narrative, across multiple media or channel [7]. In this instance, the AR book is an added media to the live installation/exhibition media that was available for access by visitors or audiences.

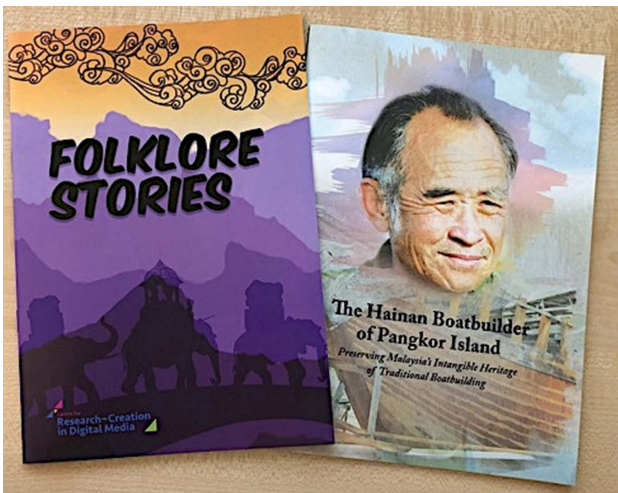


Fig. 1. 2 AR Books produced for the research.

III. PANGKOR TRADITIONAL BOATBUILDER

In this project, we collected data in the form of videos, images, interviews, 360 videos and lastly 3D model of the boat.

The objective of this project was to document the traditional boatbuilding process and tell that story to the public. Aside from the exhibition that was used as a medium to disseminate the data that we have as a way of storytelling, and Augmented Reality storytelling tool produced in a form of a book.

The anchor of this story is a documentary that was produced in the perspective of the only Hainan-descendent traditional boatbuilder in Pangkor island. 2 formats of this documentary were produced where one is meant for Film Festival screening and another is an exhibition format. The exhibition format was produced in a concise form with considerations of the concept of exhibition audience versus the cinema audience.

The book was distributed to visitors of the exhibition whereby they can explore and stories of this traditional boatbuilder, at their own pleasure at home. They are to download the AR application by scanning the QR code in the first page of the book.

The book consists of 10 pages, with 8 of them having AR content. At the production of the book, the research has collected a vast number of images that was cumulated from the fieldwork data collection. Thus, utilizing the images in the layout design of the book and as AR markers. With the images, it gave a strong benefit in AR as the images were very unique and strong to be used as AR markers.

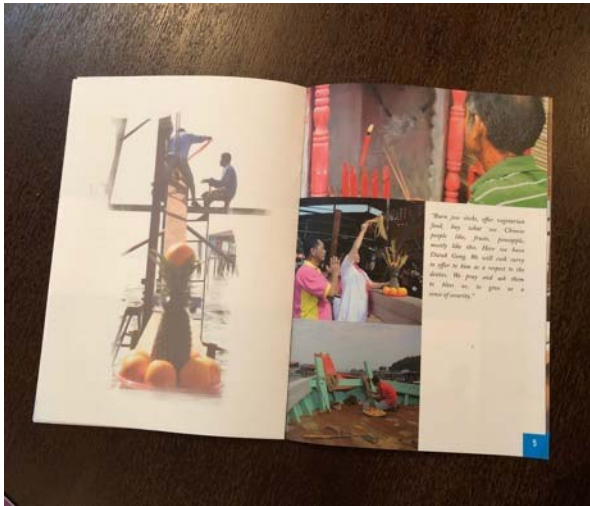
In the book, we start with the first AR content of the boatbuilder's introduction, his personal short bio that he shared in a video interview. The second page covers the part of the materials in boatbuilding and the types of fishing boats that he builds. 2 video interviews and a set of images was used as the AR content for this second page. Third page follows with a video interview of the boatbuilder right hand man, where he explains on his responsibilities on cutting and shaping the wood.



Fourth page talks on the stages of boatbuilding in their workshop, the bow, the keel and the tail. This is told in a video interview and a collection of images of them raising the bow.



Fifth page tells their ritual and prayers in every stage of building the boat, such as the raising the bow and the boat launch. They shared why such rituals are practiced especially by the boat owners that commissioned them. Video content followed by images were used in this page.



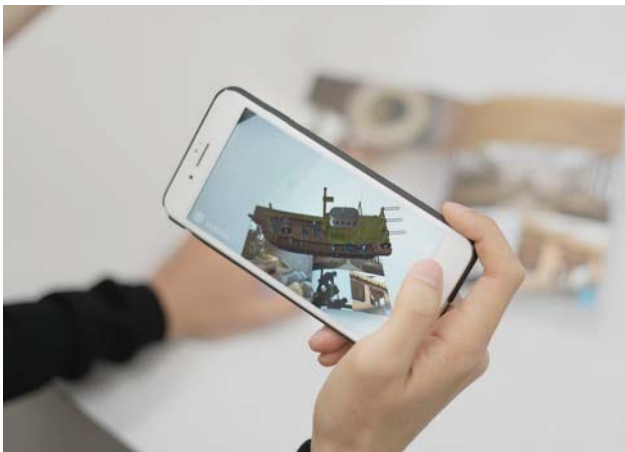
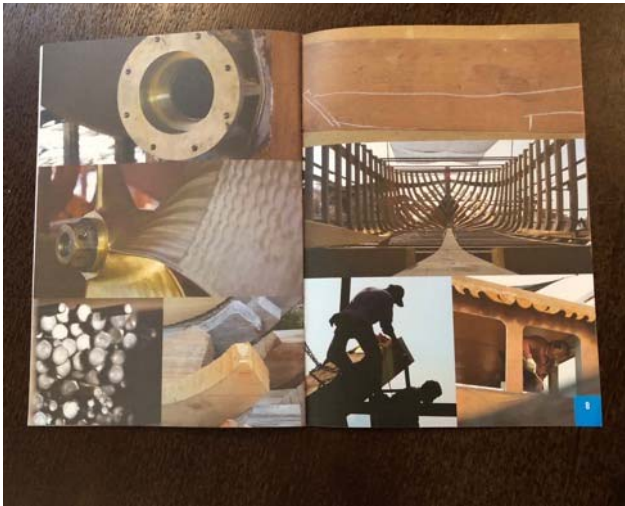
Sixth page is continued by the boatbuilder explaining how many workers he has and their tasks. This is told in a video content.



Lastly in the storytelling sequence, the next page has the master boatbuilder sharing on his history of boat building since he was young. This is told in a video content.



The second last page of the book, users can scan the page and interact with a 3D model of the fishing boat. This 3D model is a replica of the fishing boats that they built.



IV. FOLKLORE STORIES

There are 5 stories in the AR book version. The first version of the 5 animatics were animated for a 3-display installation show whereby characters and objects in the illustration were animated across multiple screen. A narrator in English, Malay and Mah Meri language were recorded and placed to accompany the visuals in storytelling. For the AR book, the stories illustration was presented in a comic style layout since each story has 7-10 panels. Size wise, A5 was chosen as it is convenient for the user to experience the AR content and to take home.

The first page of the book, provides a QR link for users to scan in order to get the AR application.



Last page is then a VR360 tour of the boatbuilding workshop. Users are then free to watch the 2-minute VR360 experience of the workers in the workshop, completing each of their tasks.

In one A4 page (A5 side-by-side), the panels of each story are fitted in a comic-inspired layout. Text boxes were provided to tell the story as like the narration in the installation, but in shorter length. Readers may read the visuals in each panel and read the captions to understand the story that is being told. The AR content is only delivered through a few panels in one story, not all. AR works as to enhance the storytelling via a short animation and sound in the panels it is applied on. The AR book is not to provide a 1-to-1 replica of the installation format, thus users who watched the whole animatics in the installation will get a different experience from the book.

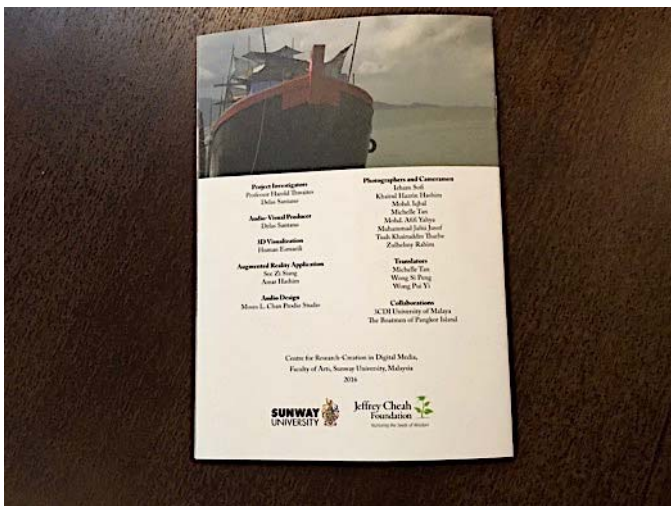




Fig. 2. Sample of AR content in Folklore Stories



One of the AR content implemented is a mask-reveal animation, where the printed image as the AR marker was printed with no color or no foreground subject and the AR will reveal the color or the subject on the screen of the device.

Short animation of effects such as lightning, are also showed in a few panels as to enhanced the story delivery.

Unlike the Pangkor boatbuilder AR book where video content where embedded within the app as one whole video in MP4, for Folklore Stories the short animation was in image sequence format with the audio in mp3. Both were then imported into Unity as the compiling software for the AR application.





V. FINDINGS AND CONCLUSION

This article presents the sharing of building an AR experience in the context of culture and heritage content. The content that has been researched prior to the development of this AR book, helped shaped on how it was to be disseminated via AR. Short to say is that the content was telling the researcher on how AR fit into it. As the concept of Augmented Reality has defined that it is a medium between humans and humans that communicates ideas [8]. Thus, why the AR books was chosen to tell the stories or the data to the public.

The AR experience produced from these 2 research topics is merely an extension on digital curation. Without the initiative of collecting the intangible heritage data, any technology the exists today or in the future will not be relevant.

For this “custom” kind of AR experience, the researcher used a combination of software to develop the application namely Unity and Vuforia. This allows the content and interaction customization that each application requires. Videos were required to be able to play full screen when the users tap them. Users may also slide the images to browse more.

In the case of the videos in the Pangkor book, the form of the content was a video interviews, thus it is in a normal 2D videos encoded in 480P in MP4 container.

This resulted in a high file size for the application, which was very impractical for end users to download and install in the devices. To address this, almost half of the videos are then streamed from YouTube. This wasn’t the best solution at the time as from the AR app it opens the YouTube app within the user’s devices thus affecting the user experience.

360-videos playback were supported in YouTube; thus, users can experience them properly either via a phone-mounted headset or by holding the device and turning around to see the content.

The boat model replica, being a 3D object was programmed with interaction scripts for pinch zoom and rotate. File size wise, 3D object is small.

The folklore stories application holds the content in PNG image sequence that was imported into Unity with an MP3 audio file attached to it as it plays. With this workflow, file size of the application was manageable.

The factor on file size is a concern because of the application publishing consideration as Google Playstore and Apple Appstore will review the apps prior to public availability. End user’s practicality in downloading and installing is also a factor.

This paints a picture of the type of content that is best delivered in an AR manner prior to developing the application. So far, the best content is 3D object that can also be embedded with interaction scripts.

Future exploration can be researched as AR is still evolving and improving, even as we see from the latest updates of AR Core and ARKit.

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