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Author post-print (accepted) deposited in CURVE September 2013

Original citation & hyperlink:

Jupit, A.J.R. , Minoi, J-L. , Arnab, S. and Wee, A.Y. (2012). Story-telling and narrative methods with localised content to preserve knowledge. In P. Felicia (Ed). *Proceedings of The 6th European Conference on Games Based Learning – ECGBL 2012* (pp. 210-218). Academic Publishing International.

<http://academic-conferences.org/ecgbl/ecgbl2012/ecgbl12-home.htm>

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Story-telling and Narrative Methods With Localised Content to Preserve Knowledge

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Abstract: In today's globalized age, there exists the risk that individual cultures and customs could lose their importance and identity. This paper explores the notion that the traditional method of passing down knowledge from one generation to the next through story-telling could be enhanced in a more engaging ways using ubiquitous mobiles and computer technologies. This paper focuses on the importance of story-telling and narrative methods, which are also common in the Iban culture, and their relationship to a game-based intervention. Specifically, a pedagogic approach utilising a narrative-based method is employed. This method correlates the cultural content and game technology development based on the Cultural Technological Pedagogical Content Knowledge (Cu-TPACK) framework. The content knowledge component of the framework used for promoting cultural awareness would include key elements of cultures which are symbols, rituals, heroes, values and man's relationship with a god/deity, nature and people. The pedagogical knowledge component includes methods and strategies to promote and encourage understanding and respect of the culture. With the advancement of game technology, games can be initiated for learning cultural awareness. Game-based learning (GBL) implies self-learning abilities and allows transfer of learning from other cultures. The aim of integrating GBL and cultural elements is for knowledge preservation on culture.

Keywords: games, narratives, story-telling, culture

1 Introduction

"*The Headhunter's Trail*" is a concept for a game seeking to promote cross-cultural awareness in Malaysia, which is inline with the national level 1Malaysia campaign. This concept revolves around the Ibans, an indigenous group in Sarawak, the Malaysian Borneo state. The Ibans, famously (or infamously) known for their headhunting, are the largest indigenous group in the state, comprising 30.3% of Sarawak's population (Department of Statistics, 2011). Their culture is rich in art and craft skills, local folk music and dances, indigenous cuisine, such as *manok pangso* (chicken cooked in bamboo), and architecture, such as the longhouses (Chin et al., 2010), and this culture needs to be preserved and protected for younger generations.

Given the advancement in technology and the global economy, individual cultures and customs stand to lose their importance and sense of identity. The Iban traditional method of passing down knowledge from one generation to another by *berensera* and *jerita*, methods not dissimilar to storytelling, could potentially be perceived as less engaging and exciting to emerging generations often described as "digital natives" or the "net generation" (Zyda, 2005; Bialeschki, 2007). These younger generations are turning towards technology for information, crowd sourcing, and social networking as well as entertainment. According to a study on Pew Internet and American Life Project by Lenhart et al. (2010), the average teenager owns 3.5 out of 5 of these technologies, such as computers, game consoles, mobile phones, mp3 players and portable gaming devices. With these gadgets in hand, the younger generation has easy access to games and movies with just a few clicks and swipes (touch-screen based gadgets), and frequently communicate via media such as Facebook or Twitter.

Whilst they are constantly adapting to a fast-paced lifestyle and ever-evolving gadgets, their own indigenous culture and identity are slowly fading in the wake of this technology. Lack of usage of the indigenous languages and awareness of their own cultures are among the factors that contributed to the watering down of customs and traditions (Spaniol et al., 2008). Thus, the concept for utilizing technologies commonly used for entertainment has been conceived as a means for allowing the young to learn about their own and other cultures. In particular a game-based learning (GBL) platform to promote the Iban culture is being developed. This platform combines the elements of information and entertainment, which is crucial in order to successfully engage the students.

This paper reports ongoing work building around the importance of storytelling and narratives that are common to the Iban culture. To ensure learning is promoted, this paper explores this from a pedagogical perspective, using narrative-based methods that associate the cultural content to the game technology development. The study is based on a Cu-TPACK (Cultural Technological Pedagogical Content Knowledge) as proposed by (Jupit et al., 2011).

1.1 The Iban way of *Berensera*

The Iban community is one of the indigenous inhabitants of the island of Borneo, and can be found in both states of Sabah and Sarawak (Malaysia), and Brunei and Kalimantan (Indonesia). Prior to the introduction of digital technologies in villages, the Ibans entertained themselves with recreational and educational activities. In the absence of Internet, radio and television, the Ibans were able to pass down stories from one generation to another as entertainment and moral instructions (Encyclopaedia of Iban Studies, 2001). Oral histories have also helped support claims on formal boundaries for officials of the Batang Lupar district in Sarawak (Wadley, 2003). Story-telling or *berensera* was a pastime where a skillful story-teller would captivate his/her audience with epic stories, such as *Keling*, *Kumang*, *Laja*, *Bunga Nuing*, and memorable characters from the *Panggau Libau-Gelung* world. His/her skills in telling stories were measured by his/her elaborate performance, especially on the exploits of both mortals and the *petara* (gods) from *Panggau Libau*.

Asides from these epic stories, Iban folklores have also played an important role in their culture. Iban folklore depicts the people who have lived with and where they have adapted in the worlds. The folklores comprise of aphorisms, chants, laments, fairy tales and legends, myths and sagas, motifs, prayers, proverbs, riddles and songs.

Another means of documenting stories was to imprint imageries as tattoos on the body of the Iban men. For instance, individuals branded with tattoos on the back of their fingers meant that they had successfully carried out "headhunting" and in later times, tattoos were imprinted on other parts of the warrior's body such as neck, shoulders and thighs. Tattoos also illustrated the many travels an Iban man had undertaken, and the people he met along the way. For the womenfolk, sporting tattoos on their forearms and hands showed that they were skillful in weaving five patterned skirts (*kain kebat*) and five blankets (*pua kumbu*), all in their original designs (Encyclopaedia of Iban Studies, 2001).

In the next section, we briefly review the use of narrative methods in existing games. In Section 3, we discuss more on the narrative approach used in "The Headhunter's Trail" story game. Following that, Section 4 discusses the contribution of using story-telling and narrative methods in the proposed GBL application. Finally, in Section 5 concludes the paper and describing possible future work.

2 Narratives in Games: A Revisit

Storytelling can be defined as a process of relating a series of events, which are presented in a narrative form. Usually, storytelling is an interactive art performance, in which teller and audience can directly interact with each other. In this context, the listener co-designs the story by giving non-verbal feedbacks to the teller, and therefore, interaction would takes place. Listeners perceive a story and create images based on the performer's story. In this context, storytelling can be personal and interpretive (Fog, Budtz and Yakaboylu, 2005).

Narrative and storytelling can, under the right context, prove a powerful tool for teaching and distributing knowledge in a cross-cultural awareness research. According to Jerome Bruner, the narrative forms a non-neutral rhetorical account that aims to come to an understanding in meaning (Bruner, 1984; Ryan, 2001).

Storytelling has proven to be an effective way to teach, learn and transfer knowledge (Mott et al., 2006). "*It has been detected that stories are faster comprehended, better kept in mind and easier transferred than abstract explanations*" (Frenzel, Müller and Sottong, 2004). Narrative is not merely a story achieved through analysis and arguments, but through metaphor and connection. Storytelling has evolved from oral dissemination to written media and it has naturally progressed to interactive media implemented in various digital environments including digital games. Games have received much attention, and have become the most successful application of interactive narrative (Wei,

Bizzocchi, and Calvert, 2010). In GBL, narrative can take on a dramatic shape of the game and the players' engagement with the game. Strong narratives in games are essential to foster satisfaction with the way that games function, in particular, as storytelling systems. Basically, "*a story is the experience of a narrative*" (Zimmerman, 2004). Narratives encapsulate key events and story-systems function by representing changes of events through pattern and repetition (Zimmerman, 2004).

The past decade has seen increasing research and development focused upon the creation of meaningful and engaging stories in digital games (Wei, Bizzocchi, and Calvert, 2010), addressing cognitive, technological and pedagogic issues, such as the effectiveness of technology-enhanced learning, the engagement and sustainability of participation in learning, etc., which has significantly advanced the power of storytelling to enhance the player's experiences. Furthermore, storytelling fulfils important criteria of innovative pedagogical and didactical approaches: It is learner, oriented, motivating, creative and free (Pappa et al., 2011). Strong narratives could promote affective motivation influencing the way a player behaves (Ryan and Deci, 2000); deliver more naturalistic game-play by reducing cognitive load (Pillay, 2002); sustain engagement (Slater and Khanna, 2009); promote identification with the player character (Hoffner and Buchanan, 2005); and captivate players in an immersive fictional world (McLellan, 1993). This can be seen in successful commercial titles such as the Assassin's Creed series, the Prince of Persia series, and the Fable series. Non-commercial titles also exist, such as *Façade* which is an interactive drama where a player has to interact with two Non-Playing Characters (NPCs) employing both plot-based and character-based approaches. This system is a drama manager. A more advanced and highly interactive system employs a multi-agent simulation environment where narratives arise on the fly from spontaneous interactions among characters during the game. The approach is called emergent narrative, commonly used in games such as *Othello* (Chang and Soo, 2009).

Narratives within existing commercial games often capitalize on voice-over narration or the role of NPCs as a source of key information. A flashback method supporting oral history (King and Stahl, 1990) can be deployed using a narrator or oracle-like character. A good example of flashback narrative in games is the Prince of Persia: The Sands of Time, which uses voice-over narration to feature the Prince telling a story to another person. Another well-known example of flashback with the player's involvement is the prologue of Max Payne. The game begins with a flashback of the protagonist Max Payne's past to set the scene for the game. In *Masyaf*, the player avatar uses a gateway to step into the other part of the game world, either reporting to his master or going to carry out his missions. The player often receives instructions from an NPC acting as an oracle.

Games employed in teaching and learning have the potential to engage learners and sustain their participation with the learning process (Annetta, Cook and Shultz, 2007). Developed using computer game technologies more often associated with entertainment, this concept is often referred to as "Serious Games"- a platform that combines game technologies associated with entertainment with engaging content, novel interfaces, and serious purpose (Jupit et al., 2011). "Immersive" game-based learning applications should draw us into virtual environments that look and feel familiar and relevant. Within a game-based learning environment deploying role-play adventure, players/learners work toward a goal, choosing actions and experiencing the consequences of those actions along the way. "*To progress in a game is to learn; when we are actively engaged with a game, our minds are experiencing the pleasure of grappling with (and coming to understand) a new system*" (Trybus, 2009). This is valid for both of "entertainment" games (e.g., *World of Warcraft*) or "serious" games (e.g., an FAA-approved flight simulator). Exploring stories within a game is a creative learning experience, where players can discover new facets of the characters, themes, and plot, and reflecting those insights as the stories evolves. "*As they probe the system, evaluate the feedback, revise their understanding, and probe again, players are indisputably learning*" (Trybus, 2009). Via such an exposure-based setting, players/learners can make mistakes in a risk-free setting, and through experimentation, they actively learn and practice the right way to do things. Players/learners will be highly engaged in practicing behaviors, thought processes and insights that may be transferred from the simulated environment to real life.

In support of oral history and exposure-based scenarios, the E-VITA project developed a set of games to promote European cultural awareness by conveying cross-border and inter-generational experiences (Arnab et al., 2010, Pappa et al., 2011, Protopsaltis et al. 2011). It promotes experiential and narrative-based learning by seeing life through others' eyes and telling the story of an experience in diverse ways. All games are based on personal experiences of the older generation. Being

narrative-centric, these games emphasize the use of storytelling to achieve immersion, drawing on oral history pedagogy. This illustrates oracle-style games, where stories are always holistic. They do not transport just factual knowledge, but connected knowledge and support the building of “significant learning” (Rogers, 1969). With these illustrations, we want to weave in how the Iban storyteller retells and incorporates myths, historical narratives and eyewitness reports into the Headhunter’s Trail.

3 GBL Narrative Methods based on Cu-TPACK

In this section, we discuss a pedagogical method using a narrative-based approach and correlate it with the cultural content and game technology development from the Cu-TPACK (or Cultural Technological Pedagogical Content Knowledge) framework. See Figure 1. The framework details can be found in (Jupit et al., 2011).

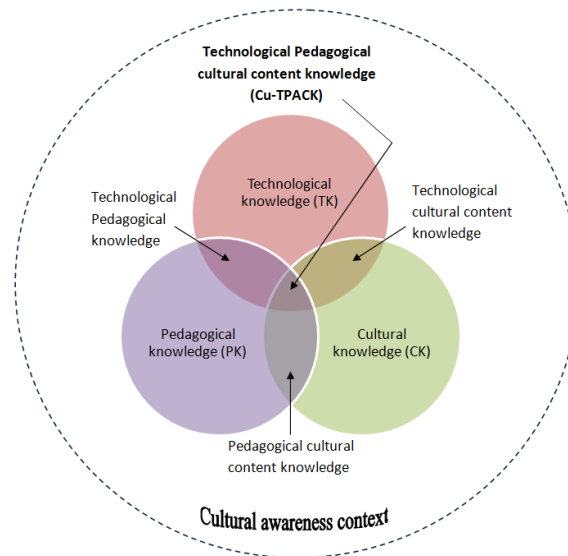


Figure 1: The Cu-TPACK framework (adapted from TPACK framework (Mishra and Koehler, 2006))

The aim of the narrative approach in story-telling is to present a particular model of reality, provide cultural facts and share cultural knowledge to learners. In addition, it is intended that learners are able to create their own narrative. Hence, the key question is how to best implement a constructive narrative; drawing upon the evidence given in the previous sections, critical to this is by presenting an attractive storyline and engaging current and future players of different ages and disciplines. One potential mechanism for this is the use of games technology.

3.1. Cultural knowledge

Abdullah has identified five main elements that define a culture and they are symbols, rituals, heroes, values and man’s relationship with men and their deity (Abdullah, 1996). These key culture elements are then included in the Culture Knowledge in the Cu-TPACK model. Given the key culture elements, we have identified the manifestation of culture in an Iban community. The manifestation of culture includes the symbolic aspects of a culture and cultural assumptions adopted by the Iban society to influence the values they consider important and would want to pass on to the next generation (Abdullah, 1996). The main elements of the Iban culture can be found in Table 1.

Table 1: Content Knowledge on Culture Elements

Culture elements	Manifestation of culture in an Iban community
Symbols	<i>Parang</i> (dagger), shield, tattoos (on neck, shoulders, etc), hornbill birds, smoked skulls, wood carvings, spirit, <i>pua kumbu</i> (cloth)
Heroes	Warrior
Rituals	Net fishing, agriculture, head-hunting, tattoo-making, spirits/dance, <i>tuak</i> making (locally brewed rice wine), marriage, wild boar-spearing, <i>miring</i> (ritual ceremony), farming
Values, politics and relationship	Women, warrior (bravery, skilled in warfare), language

In conjunction with oral history using story telling as means of transfer of knowledge, narrative and storytelling approach within a game-based environment is the basis for the technological knowledge (i.e. game mechanics, interactivity, imaging tools, visualization, etc.)

3.2 Pedagogical Knowledge

Oral history is to be supported by the proposed game environment. The narrative construction will reflect the identified culture content to be built into the game. The *pedagogical knowledge* includes narrative-based methods and strategies to promote and encourage understanding, as well as respect of the culture. In support for experiential (Kolb, 1984) and exploratory learning method (de Freitas and Neumann, 2009; Arnab et al. 2011), a role-play approach will allow players and learners to interactively explore the environment and relate to the non-player characters (NPCs).

To render this narration, the task involves collecting an organization of thoughts and personal accounts presenting multiple perspectives from the Iban people, and a globalised array of convictions and popular values achieved through time and experience. In GBL, the narrative is rooted in constructivism, whereby players will explore the particular cultural model of reality, push against it and analyze how it works (Ryan, 2001). In this process, they will come to an understanding and become aware of culture within the game context.

The game creates links to each of the cultural content elements aimed at tuning prior knowledge and cognition, seeking to create a user-supportive and compelling gaming experience. For example, the game would teach players basic survival skills, such as farming, hunting and fishing. The game uses voice-over oracle as depicted by *Ini' Bunai* (Grandmother Bunai), an elderly woman in the longhouse. A key NPC, *Ini' Bunai*, which was inspired by a real-life figure is essential to the game narrative as *Ini'* represented the elders who have the knowledge and wisdom gained over many generations. Figure 2 illustrates part of the overview of the links and flow of the games to becoming a warrior.

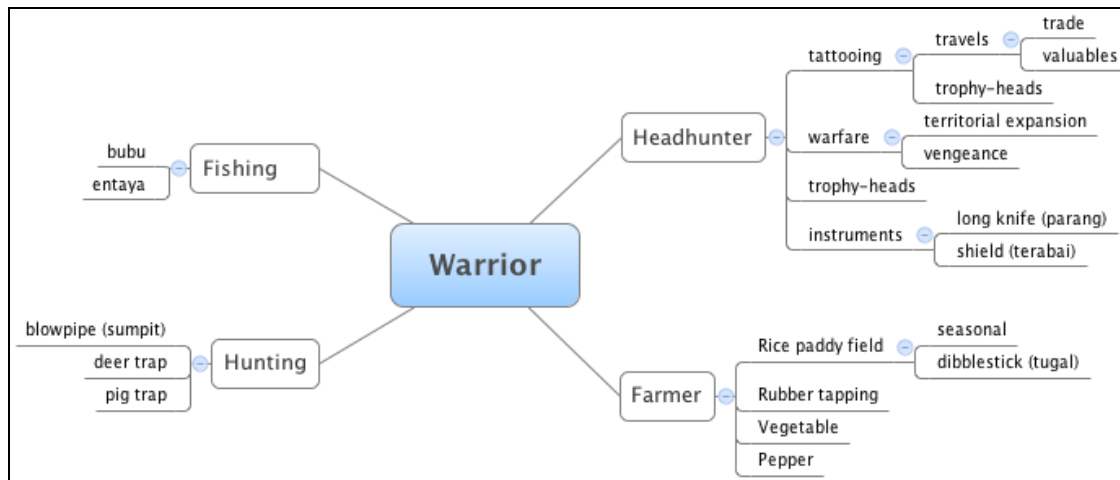


Figure 2: The skeleton of the game narrative

The game is constructed based on a specific sequence of levels, in other words, one storyline. However, within each level, the flow of the storytelling may not necessarily be in a linear format. There will be four (4) main levels (as shown in Figure 3); peasant, warrior, *tuai rumah* (head house) and *penghulu* (area chief / head village). Each level contains mini games, which draw on common game-playing skills with minimal instructions. We reward players to a higher level of the game by engraving tattoos on their virtual body. In the Iban culture, the more tattoos one has represent power and greater authority.



Figure 3: The proposed levels in cultural awareness game

An example story line for Level 1 and 2 are summarized below in Table 2.

Table 2: Headhunter's Trail narrative

Character: Jacob (fictional name)

Background story* : Following his father's will, Jacob brought his father's ashes to be buried next to his adopted Iban father's grave in the lands of Borneo. There, he meets with his father's adopted family. He decided to stay longer to get to know the family who unconditionally accepted Jacob's father into their family. Jacob's father, William was a British officer in the Royal Corps of Signals when he first met Kiyai, a *tuai rumah* whose *rumah panjai* (longhouse) was situated near the Royal Corps headquarters. Kiyai and his family bonded with William and called him, *anak iru*, meaning adopted child and in return, William called him *apai*, which means father.

Level 1: Jacob, fascinated with the headhunting stories and traditional way of life in the longhouse, decided to extend his stay with Kiyai's family and follow the path like his father before him. During his stay, Jacob was taught the traditional Iban way of life or *Tusun Pendiau Iban Lama* and the daily activities in the longhouse: hunting, fishing, gathering jungle produce and farming. Following the Iban folks in their daily routine, he found out these activities are not just limited to men alone but the womenfolk who have also helped pitch in for the every day livelihood.

Jacob also meets other residents: Japang, son of Kiyai, the current *tuai rumah*, and *Ini' Bunai* (Grandmother Bunai), the oldest resident in the *rumah panjai*, who regale him with stories passed down from one generation to another. *Ini' Bunai*, who also acted as the oracle, guides Jacob throughout the game as he undertakes the many tasks and challenges (refer to Figure 4). From here, he learns that the Iban, called the Sea Dayaks during the British colonial days, was a strong and warring tribe on the island. Head hunting in the older days was a practice and necessity when fighting with other tribes over territories where heads were collected as trophies.

Level 2:** As Jacob goes on in his journey, he discovers that he would need to go through an initiation ceremony to become a member of their tribe. He would need to go through trials, which would test his mental and physical limits. Some of the trials included lying down in a four-foot-deep pit filled with giant carnivorous ants which is intended to test his courage and will, and a hide-and-go-seek "game" Iban style which lasted for three days and three nights evading a group of young warriors, lest they behead him (see Figure 5).

At the end of the ordeal and surviving the wild without any supplies, weapons or food, Jacob returns to the longhouse before the warriors, and is congratulated and embraced by the warriors when they returned. Jacob was finally a headhunter, also known as a warrior.

The design of the narrative will include images and language that reflect the prior identified culture content. For example, the terms *longhouse* (Iban's house), *tuak* (sweet rice wine), *parang* (sword, long dagger), *apai* (father), *ini'* (grandmother) etc. will constantly be used within the game.

**Background story was adapted from a local newspaper article entitled 'Briton's wish to return to 'papa' fulfilled' published in 2011*

***Level 2 of the game was inspired by Douchan Gersi's adventures in Borneo (Hirschberg, 1992)*



Figure 4: Non-playing character, *Ini' Bunai* giving instruction to Jacob

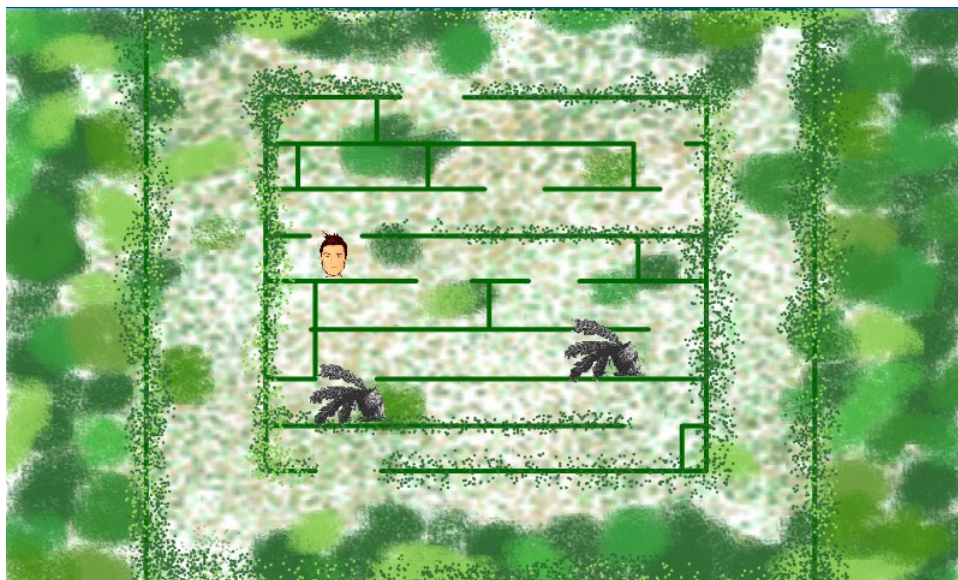


Figure 5: Jacob needs to outrun from his pursuers in a maze

4 Discussions

The use of oral history in terms of story-telling and narratives have been implemented in games and it is highly relevant to the subject matter of this project. The Iban culture has already embraced story-telling and oral history as part of their culture and tradition. The benefit of using this technique is in the engaging of both players who are familiar to the approach in a cultural sense and those who are familiar with the techniques in the existing entertainment games.

Understanding the cultural context to be presented in games is essential in order to consider the most effective method of deployment. In order to frame the game content and mechanics, Cu-TPACK provides a useful model for data gathering, classification of cultural contents, identification of methods relevant to the target subject and structuring the storyboard for the game. The narrative construction reflects the identified culture content and context to be built into the game. By this understanding, oral history has been the key method in passing down knowledge and wisdom in the Iban culture, and hence the process of identifying *pedagogical knowledge* leads to the narrative-based methods and the role of an 'oracle'. A role-play approach in support of experiential and exploratory learning models

has been implemented to allow players/learners to interactively explore the environment and relate to the 'oracle' – *Ini' Bunai*.

The contribution of this project includes clear indication of the importance of understanding the target culture and heritage in order to implement relevant pedagogy, game mechanics and contents to promote existing practices within the context of the culture (custom and tradition). This project has demonstrated that there is a similarity between methods (oral history, oracle, role-play) employed in entertainment and cultural-based games such as E-VITA project and traditional practice of an indigenous culture. Cu-TPACK has the potential to frame the requirements and guide the design and development of a game-based intervention to cultural awareness.

5 Conclusions and Future Works

The traditional method of passing down knowledge from one generation to the next via oral dissemination could potentially be enhanced and sustained by various technological platforms, capitalizing on the fact that the learning style and demand of the younger generations are evolving with technology. Storytelling has naturally progressed from traditional methods by the older generations, to interactive media implemented in various digital environments including digital games. Since games have received much attention, and have become the most successful application of interactive narrative, strong narratives in games would be essential to engage players and sustain their participation especially in teaching and distributing knowledge on a cross-cultural awareness research. This paper is based on the Cu-TPACK framework focusing on the cultural content and pedagogical considerations of a game concept aiming at raising awareness of an indigenous culture facing risk of irrelevance in a more global and technological saturated society. The paper reports on the ongoing considerations with regards to the Iban cultural elements and pedagogical knowledge to support the need for cultural preservation in a technology saturated society. The proposed narrative-based game concept revolves around the importance of story-telling and narratives, which is already common in the Iban culture and their relationship to the game-based intervention. As for the game design and development, works are currently on-going to integrate various game modules that make up the main research theme. One of the next crucial steps is conducting the game assessment, which will involve the community and player. This is vital to the research because we want to investigate the performance, usability and validation of the game to name a few with various stakeholders.

6 Acknowledgement

The authors would like to thank the reviewers for their constructive comments which helped to improve this paper, Carolyne Alphonsus Tommy for designing the prototype for Headhunter's Trail and Universiti Malaysia Sarawak (UNIMAS) for supporting the travel fund.

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