An Analysis of the Development of Cultural Augmented Reality Education in Taiwanese Aboriginal Literature

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Abstract: Regarding Taiwanese literature from the period between 1945 and 1987, meaning before the dissolution of punishment, this study focused on the issue of the "Analysis of the Augmented Reality of Cultural Education in Aboriginal Literature in Taiwan", as based on indigenous peoples after postwar Han writers. Cultural writings, such as Zhao－Zheng Zhong, Qiao Li, Tian－Jun Hong, Meng－Ren Gu, Jin－Fa Wu, Li－Han Zhong, Tai－Li Hu, Huan－Yue Liu, Zhi－Zhong Ye, Sheng A, Qi－Nan Chen, Li－Guo Ming, Lie Chen, Du Yang, Qing－Rong Li, Bao－Juan Zheng, Chun－Cheng Liu, Fu－Mei Wu, Wen－Yi Lin, and other writer's texts; and supplemented by the ideas of post-colonial theorists, such as Sayid, Fanon, Gramsci, and Fu Ke, this study aims at the awareness of the core issues of "indigenous culture writing", and culture, education, etc. are analyzed. The culture of Indigenous ethnic groups is the cultural focus of many postwar writers. Combined with the augmented reality of digital technology, the culture of aboriginal literature is promoted through the information communication mode. Finally, it is also possible to analyze and compare Taiwan's indigenous culture education with international cultural education.

Key words: Taiwanese literature, indigenous literature, indigenous writing, augmented reality.

1. Introduction

1.1. Cultural Education in Aboriginal Literature

This paper explores the cultural and educational developments of Taiwan's indigenous peoples, which can be promoted by cultural activities and the introduction of cultural knowledge. Through aboriginal literature, many indigenous peoples can present their cultural and educational developments. According to the writings of Taiwanese Han writers, aboriginal writings show different perspectives, such as the development of aboriginal culture, aboriginal culture, aboriginal cultural conflicts, and ethnic impressions. With regard to the differences between the Han ethnic groups, and according to cultural, work, education, social, and economic aspects, this study conducts analysis of different Han writers' viewpoints, confirms the theoretical framework of the writing of indigenous peoples, and analyzes the post-colonial theory of Syed and Fanon. Taiwanese literature, history, sociology, political science, and even feminist and postmodernist interpretations have all undergone strong changes because of the post-colonial vision. This is because the arrival of the post-colonial theory awakened the historical awareness of the discipline training of researchers in various countries, which enabled them to be aware of their own fields and have a close

connection with Taiwan's history of the colonial experience. [1].

According to the analysis of the "reactional reading" method of the Sayade methodology, "in practical terms, what I call meta-reading means that when reading a text, I try to understand what the content is as the author presents the subject. It is involved in the development." This is one of the research methods of this article.

The basic structure of "Culture and Imperialism" is extremely simple, namely, the dialectical relationship between Western imperialism and Third World nationalism. This dialectic process has been carried out at two levels: the actual level of political history and its culture. The mental aspect of ideology, but the inseparable dialectical unity between them is that Sayed painstakingly. As the core concept of his methodology is "contrapuntal reading", he pointed out that his consistent type of symphony-like manic styles and climaxes are tightly structured and consistent. [2].

According to cultural knowledge and cultural education in Taiwanese aboriginal literature, the text analysis method is used for analysis; then, the postcolonial research method is used to analyze the aboriginal culture and construct the aborigines' cultural theory with the international perspective of post-colonial theory analysis.

The great empire experience of the past two hundred years is global and universal; meaning that in every corner of the globe, colonists and colonists are close together. As the West gained global control, it seems to have completed its orbit. [3].

From diverse perspectives, we will explore the development context of Taiwanese aboriginal culture writing. In the future, we will conduct an in-depth study and analysis of important ethnic groups in the writing of ethnic minority cultures around the world. Then, we will establish a theory of minority ethnic groups with a deep international outlook. Next, we will discuss cultural writing in Aboriginal literature.

2. Aboriginal Cultural Education and Augmented Reality Applications

This digital humanities analysis of the "Augmented reality development of Taiwanese aboriginal culture and education" will combine "creative culture education" with "innovative digital education research", and "innovative digitized action research" with the "creative digital humanities". Innovative Teaching Models include (Fig. 1); - 1. "Cognition", 2. "Sentiment", 3. "Digital Mode" - "Digital Humanities". The project host will guide students to conduct 1. Text reading, culture of professional "deepening humanities" level exploration, field surveys, records, and coordinative planning, which is co-hosted by guide students 2. Innovate digital technology development at the "creative digital" level, including documentary filming methods, post-production editing, sound effects and subtitles processing, web application, augmentation reality digital technology, etc.

In order to cultivate students' "diverse and digital humanities abilities", we will adopt a digital multicultural and multidisciplinary teaching model and learning mechanism. In addition, the "Flip Curriculum" and "Question-Oriented Learning (PBL)" are integrated into the "Learner-based Learning" to create a creative thinking model for the study of the cultural activities of indigenous ethnic tribal rituals. This innovative teaching model includes innovating traditional text teaching, stepping out of classrooms, entering the tribe, cultivating teaching, practicing action research, and then, establishing a new humanistic new learning model, in order to deepen and recreate the multiple values of digital teaching and humanity.

The teaching philosophy of this course is designed to promote "cultivating the augmented reality of aboriginal culture", in which the students digitize their local culture. Through the reflection of contemporary multi-ethnic culture, and in addition to studying text narratives, it will create "Culture and education", which is practiced in the "Innovative Digitalization Action Research" of this field survey, and then, guides students in the "Action Research" of "Indigenous Ethnic Tribal Cultural Investigation" of

Aboriginal Cultural Concerns. As a result, students are encouraged to learn the core concerns of the people who have digitized the "tribal origins" of local culture, in order to combine the objectives of action research in cultural teaching and digital culture, enhance students' effectiveness in "multiple innovative learning", and foster their "multiple intelligences regarding humanistic abilities." [4].
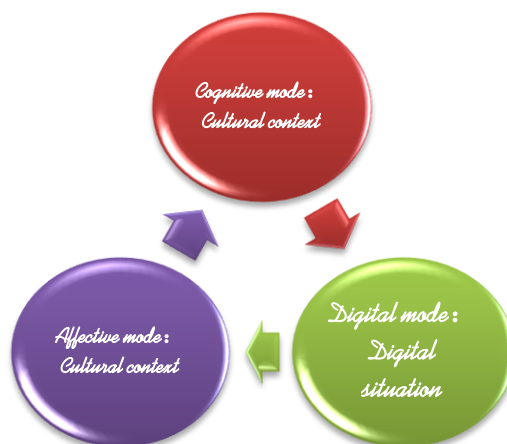

Fig. 1. Three innovative teaching modes.

In addition, augmented reality e-books are an interesting reading experience in the application of cultural education learning. Billinghurst, Kato, and Poupyrev (2001) designed the augmented reality Magic Book to integrate and superimpose the animated contents into the books. In this unit, the reader still keeps the general page flipping movement while reading, but can see the virtual model animation while watching, allowing the reader to experience the stimulation of virtual information in the actual reading experience, which renders this concept a more novel and interesting reading experience. [5]. Shelton and Hedley (2002) found that using augmented reality teaching experiments can assist teachers to teach activities using simple teaching materials. Augmented reality can increase student perceptions and enhance their understanding. [6]. Liarokapisa and Whiteb (2005) also used augmented reality in building digital virtual environments for museums. [7]. Through marker identification, three-dimensional architectures that correspond to actual environments are presented in a virtual digital environment through three-dimensional spaces. (Fig. 2). The appearance of space can enhance the user's identification of objects in real space. In addition, as aboriginal tribes live in remote areas, many people cannot go in person. The Internet cannot produce the feeling of being in a realm, while virtual reality can introduce time-space into a scene and allow users to feel the scene conditions, thus, augmented reality can be further interacted with or experienced after it is set up.
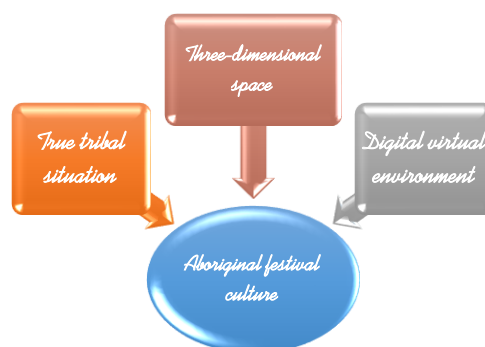

Fig. 2. The three-dimensional space of aboriginal culture.

Therefore, this paper proposes to innovate a number of the teaching beliefs of the humanities, cultivate

the spirit of "humanistic care", care for indigenous peoples, and further understand aboriginal culture, and then, apply professional cultural knowledge to the "cognitive model". In the text narrative in the classroom, students are expected to seek awareness of the problem of aboriginal culture in the "affective model", and then, go deeper into indigenous tribes to investigate the true situation of the traditional sacrificial culture and implement "humanistic digitization." "Humanistic digitization" is a practice in which the opportunity of field investigation verifies culture and education, which is then cultivated through a documentary of the tribal ritual culture in the "digital model" and interviews with tribal indigenous people. Using the "Aboriginal Augmented Reality Application" will allow teachers to actually inspect tribal culture, while the action research and initialization of an aboriginal culture show will show the truth about tribal culture. (Fig. 3, 4);
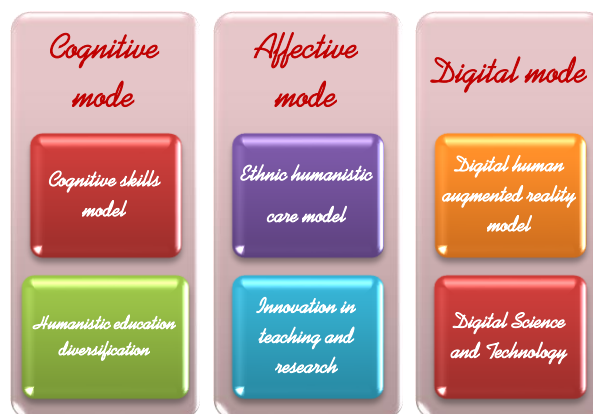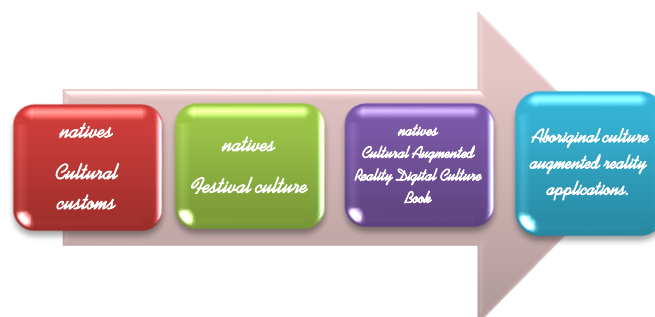
Fig. 3. Three innovative teaching modes.

Fig. 4. Aboriginal culture augmented reality applications.

3. Education of Aboriginal Culture

Aboriginal culture and education can use texts to organize texts, further integrate media science and technology, and use augmented reality to produce teaching materials, thus, helping people to better understand Aboriginal culture.

Table 1. Textual Education of Aboriginal Culture

Han writer	Indigenous Peoples text	Indigenous Peoples Issues
1. Zhao－Zheng Zhong	1.1. Mahepo event	1.1.1. Indigenous Peoples rites
		1.1.2. Worship of the souls of the dead and avatars
		1.1.3. Aboriginal people made out of grass
		1.1.4. Yeongshi training and honor

		1.1.5. Tribal wedding customs
	1.2 . Woman Island	1.2.1. Woman Island - legendary story
		1.2.2. Tribal wedding customs
	1.3. Malico Bend Heroes	1.3.1. Malico Bend, a Legendary story
		1.3.2. Chigily Festival
		1.3.3. Lutu Bing Festival
		1.3.4. Worship of the souls of the dead and avatars
		1.3.5. Aboriginal people made out of grass
		1.3.6. Yeongshi training and honor
		1.3.7. Tribal wedding customs
		1.3.8. Buried stone for the League
		1.3.9. Bird accounting
		1.3.10. Tattoos
		1.3.11. Mouthpiece
		1.3.12. Agagang Legendary story
		1.3.13. Mahathir Bird taboos
		1.3.14. Hunting taboos
		1.3.15. Snake entering the house - Ominous taboos
	1.4. It's good to go back to the mountains	1.4.1. Aboriginal people made out of grass
	1.5. Marathon champion First Class	1.5.1. Aboriginal people made out of grass
		1.5.2. Aboriginal tribal activities
	1.6. Bear-hunter	1.6.1. Aboriginal people made out of grass
		1.6.2.Yeongshi training and honor
	1.7. Dwarf Festival	1.7.1. Dwarf Festival - Legendary story
		1.7.2. Indigenous Peoples rites
	1.8. The wife of the snake	1.8.1. Snake husband - Legendary story
		1.8.2. Worship of the souls of the dead and avatar
		1.8.3. Yeongshi training and honor
		1.8.4. Tribal wedding customs
		1.8.5. Bird accounting
	1.9. Chuanzhong Island	1.9.1. Aboriginal people made out of grass
		1.9.2. Tribal wedding customs
		1.9.3. Buried stone for the League
	1.10. Beinan Plain	1.10.1. Pennant King - Legendary story
		1.10.2. Indigenous Peoples rites
		1.10.3. Worship of the souls of the dead and avatars
		1.10.4. Aboriginal people made out of grass
		1.10.5. Yeongshi training and honor
		1.10.6. Twins Taboo
	1.11. Good day Beinan	1.11.1. Indigenous culture
2. Qiao Li	2.1. Mountain Love	2.1.1. Tribal wedding customs
	2.2. Confused on the mountain	2.2.1. Confucius Mountain - Legendary story
	2.3. Wu snake pit savage	2.3.1. Wu snake pit savage - Legendary story
	2.4. Shanhe Road	2.4.1. Tribal wedding customs
		2.4.2. Indigenous Peoples rites
		2.4.3. Indigenous culture
	2.5. Battle of Malabana	2.5.1. Malabon - Legendary story
	2.6. Tam Mountain〉	2.6.1. Tam Mountain - Legendary story

3. Tian－Jun Hong	3.1. The origin of agitation	3.1.1. Original inhabitant fable and rites
	3.2. Dwarves and Wu Guifan	3.2.1. Original inhabitant fable
	3.3. Bass dwarf legend	3.3.1. Original inhabitant fable and rites
	3.4. Deep mountain wedding	3.4.1. Tribal wedding customs
	3.5. The source of the suffering of indigenous peoples	3.5.1. Original inhabitant fable and rites
4. Meng－Ren Gu	4.1. Black tribe	4.1.1. Indigenous Peoples historical events
		4.1.2. Aboriginal customs and habits
		4.1.3. Original inhabitant fable and rites
5. Jin－Fa Wu	5.1. Swallow tweet Street	5.1.1. Indigenous Peoples rites
6.Li－Han Zhong	6.1. Fake woman	6.1.1. Aboriginal image
7. Tai－Li Hu	7.1. Death of Wu Feng	7.1.1. Indigenous culture
		7.1.2. Original inhabitant fable and rites
		7.1.3. Aboriginal Field Survey
	7.2. Willing to marry Mountain youth	7.2.1. Indigenous culture
		7.2.2. Aboriginal Field Survey
8. Huan－Yue Liu	8.1. Wandering land Nomadic people	8.1.1. Aboriginal Field Survey
		8.1.2. Indigenous Peoples history
		8.1.3. Indigenous culture
		8.1.3.1. Aboriginal social organization
		8.1.3.2. Aboriginal festival divination
		8.1.3.3. Indigenous culture
9. Zhi－Zhong Ye	9.1. My friend lives in fog	9.1.1. Aboriginal Field Survey
		9.1.2. Indigenous Peoples rites
10. Sheng A	10.1. Footprint Lanyu	10.1.1. Indigenous culture
11. Qi－Nan Chen	11.1. Flying fish and car	11.1.1. Indigenous Peoples rites
12. Li－Guo Ming	12.1. Hengchun thought from	12.1.1. Aboriginal culture songs
13. Lie Chen	13.1. Fellow countrymen	13.1.1. Indigenous Peoples rites
14. Du Yang	14.1. Village Notes	14.1.1. Original inhabitant fable and rites
15. Qing－Rong Li	15.1. Fifteen people	15.1.1. Indigenous culture
16. Bao－Juan Zheng	16.1. Jump one night with Ami	16.1.1. Indigenous Peoples rites
17. Chun－Cheng Liu	17.1. Jiangxi grandson	17.1.1. Indigenous culture
18. Fu－Mei Wu	18.1. I come from the mountains	18.1.1. Aboriginal culture songs

4. The Development of Aboriginal Cultural and Augmented Reality

AR is a live direct or indirect view of a physical, real-world environment with elements augmented by computer-generated sensory input, such as sound, video, and graphics. Augmentation is conventionally used in real-time and in a semantic context with environmental elements, such as video animations on a real book. With the help of advanced AR technology, information about the surrounding real world of the user becomes interactive and digitally manipulable. Artificial information about the environment and its

objects can be overlaid on the real world. This study used HP Reveal as our platform, as it offers the widest set of features and capabilities, which gives developers the freedom to extend their visions without technical limitations. With support for iOS, Android, and Unity 3D, the HP Reveal platform allows users to write a single app that can reach the most users across the widest range of smartphones and tablets.

This study created a set of 18 Han writers, 38 Indigenous Peoples texts, and 81 Indigenous Peoples Issues AR app from video materials, which follow the development of a story in a video. The app includes an aboriginal cultural story to provide augmented reality instruction for participants. The AR learning system has two layers: (a) static image layer: a storybook is created based on the meanings behind the aboriginal culture in the story, and uses simple sentences for participants to read; (b) augmented dynamic video layer: virtual visual hints based on the storybook (Fig. 5) and extended social stimulation are used with the HP Reveal mobile vision platform. (Fig. 6) The HP Reveal platform presents an augmented reality interface that shows video clips overlaid on the book in order to strengthen the participants' attention and focus on the parts that include aboriginal cultural education.
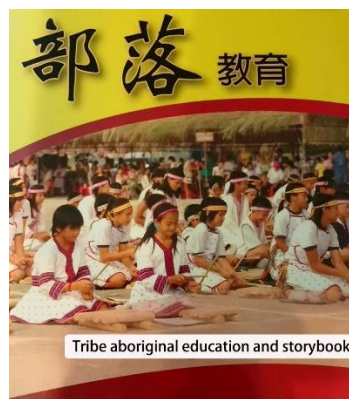

Fig. 5. Using aboriginal storybook to make AR.

Fig. 6. Using mobile HP Reveal to trigger AR.

5. The Conclusion of Cultural Writing and Education

In the early post-war period regarding the issue of indigenous peoples, the author focused more on the colonial situation and the Wu-she incidents of the indigenous peoples during the Japanese rule period. After the Indigenous Peoples Movement in 1970, aboriginal literature followed, and from 1945 to 1987, Han writers gradually focused their attention on the social reality of indigenous peoples. The stories of aboriginal cultural customs, myths, and legends are often recorded in written literature.

This study intends to understand the cultural writings of Taiwan's indigenous peoples, as well as the

images of the ethnic groups under the Han writer's pen. Further study opportunities include a comparative study of Taiwan's indigenous peoples and other South Islanders, and the international cultural education of ethnic minorities. This study combines augmented reality technology to promote the cultural development of indigenous culture through information communication models, and hopes to integrate aboriginal culture into augmented reality to allow many aboriginal cultures to be innovative and diversified through digital technology, thus, bringing aboriginal culture trends into a new era of innovation.

1) "Indigenous Culture Documentary Film Festival" - This program will organize the "Indigenous Culture Documentary Film Festival" curriculum exhibition and activity plan. The "Digital Humanities Achievements" will be displayed by teachers and students, who will be invited to join the project "Innovative Curriculum Teaching Model of Digital Humanities".

2) "Indigenous Peoples Culture Digital Culture Book" - This course will produce "Indigenous Peoples Culture Digital Culture Book" course results and present "Digital Augmented Reality Achievements" to all teachers and students in the school, and invite interested teachers and students to invest in an "innovative teaching model for digital augmented reality"

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