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Accessing Culture of the Indigenous People through QR Code and Multimedia

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Abstract

Tap and you learn. Mobile technology affects people's lives. Users are addicted to their mobile devices due to its interactive features. Multimedia plays an important role on why people keep on using their mobile technologies to gather information through combined text with video, animation, audio, graphic and virtual reality. In this study, multimedia elements is stored in a Quick Response(QR) Codes; a two-dimensional barcode application that stores information in Uniform Resource Locator (URL) or other multimedia format, a QR reader can be installed in mobile devices. At present, people are very dependent to technologies because of its portability, convenience, and ease of use. Since young people today adept to technology, than learning their culture in a traditional way, this study was conducted to generate QR codes to learn and access cultures of indigenous peoples shown in multimedia-based elements. The research used in the study is descriptive. Respondents were indigenous peoples in the Cordillera Administrative Region-Philippines. Random sampling technique was also used to gather data through surveys and downloading of multimedia elements was also used. Secondary data was also utilized to have reliable data. Results show that the expressions of cultures and the multimedia elements are very much liked. Further, the end-users perceived to be very much benefited from the advantages in using the system. Implementation and enhancement of the study is highly recommended.

Keywords: Mobile Technology, Quick Response (QR) Code, Multimedia Elements, Culture, Indigenous People

Background of the Study

Introduction

Tap and you learn. Mobile technology changes people lives. Users are addicted to their mobile devices due to its interactive features. Multimedia plays an important role on why people keep on upgrading their mobile technologies to gather information through combined text with video, animation, audio, graphic and virtual reality. According to a Computer Technology research in 1993, “*People only retain 20% of what they see and 30% of what they hear, but they remember 50% of what they see and hear, and as much as 80% of what they see, hear and do simultaneously*” (Gerth 2001). An effective multimedia application should not only reach the 20% attention of the people, but rather, should approximate the 80% memory retention of individuals through the proper use and integration of the different elements of multimedia. In this study, multimedia elements are stored in Quick Response(QR) Codes; a two-dimensional barcode application that stores information in Uniform Resource Locator (URL) or other multimedia format.

At present, people are very dependent to technologies because of its portability, convenience, and ease of use. Since young people today are adept to technology, than learning their culture in a traditional way like reading books and making observations, this study was conceptualized to digitized access to cultures of indigenous people, to be more accessible and shareable information through the use of multimedia.

To understand further the main content of the QR Codes, images of the indigenous people were gathered and transformed into multimedia elements. To access and appreciate these elements, a user must download a QR reader application to his mobile devices.

The classic definition of culture is provided by the eminent English scholar, Edward B. Tylor, who defined it as “that complex whole which includes knowledge, belief, art, morals, law, custom and any other habits acquired by man as a member of society”.

As members of the society, indigenous peoples are “peoples” in every political, legal, social, cultural and ethnological sense of the term. They have their own culture, languages, laws, customs, values and traditions; their own long histories as distinct societies and nations; and unique religious and spiritual relationship with the land territories in which they have live (Daes, 2008).

Indigenous peoples have different cultures inherited from their ancestors. They are categorized as expressions of culture which include rituals/beliefs, dances, foods, beliefs, attire and songs. Multimedia elements used in this study were movie clips, audio/music, animation, graphics/images, and text. The perceived benefits that an end-user will experience would be portability, accessibility, learnability/awareness, interactivity and shareability.

Objective of the Study

The study aimed to generate QR codes to access multimedia elements of the cultures of the indigenous people. Specifically, it sought to answer the following:

1. To determine the level of likeness on the expressions of cultures;
2. To determine the level of likeness on the features of multimedia elements; and
3. To determine the perceived level of benefits of the end-users.

Scope and Delimitation

The study focused to determine the level of likeness on the expressions of cultures of the indigenous people and the features of multimedia elements, and also to determine the perceived level of benefits by the end users. The respondents were college students; undeniably they are adept to technology and prefer learn innovatively that the traditional paper-based learning, they also belong to the indigenous people of the Cordillera Administrative Region specifically the Ibaloi, Ibontoc, Ifugao, Kalanguya, Kalinga, and Kankana-ey.

Significance of the Study

The Culture of the indigenous people is preserved but these must be accessible both for the old alike and young generations. Mobile devices are already a necessity, anybody can afford it. Using these devices will increase the awareness of the mobile user on these cultures in an innovative way using QR code and multimedia.

Related Innovations

The study of QR codes in education can be placed in the context of mobile learning. Users with a camera phone equipped with a QR code reader application and a data connection can scan QR codes, to display text, open a web page, and send automatic SMS messages. There are several mobile applications that can be used to read and decode QR codes. With QR codes it is possible to connect resources to printed text. This implies the potential to enrich paper-based learning materials. These enrich learning can serve and motivate students with different learning needs. (Chen, Teng, & Lee 2010)

QR codes can support learnability of the end-users. With the QR codes embedded in the environment, students can obtain contextual or location-aware information (Osawa et.al. 2007). QR codes also allow the implementations of innovative systems based on the paradigm of just-in-time learning and collaborative learning (De Pietro&Frontera 2012).

The use of Quick Response codes in the classroom is infancy. The students were very enthusiastic and motivated by teachers' attitude was more skeptical. The main feedback from the teachers was the planning of QR activities is an arduous task when one is not familiar with QR codes or the ways to utilize them. However, QR codes can support learning in different contexts and support both independent and collaborative learning and that QR can motivate and engage learners (Rikala and Kankaanranta 2012).

In the study of Walsh (2009), most of their users are likely to be able to use QR codes if they install a free reader onto their camera phones or other mobile devices. An already high and further increasing number of people own suitable devices. There are many ways QR codes can be used, with the most exciting applications relying on the use of the internet from mobile devices. The main restrictions on their take up is likely to be increasing awareness of QR codes and carefully marketing services based on QR codes to our users.

Daes (2008) expressed that profoundly how indigenous peoples have enriched the world and continue to do so? With the use of mobile technology, users can learn and be aware on the preserved cultures in more convenient and electronic ways.

Based on the literature review, multimedia is supported that is to digitized paper-based into different multimedia form. It was also found by the authors that QR codes support learnability and awareness which was indicated as the perceived benefits of the present and future generations.

Methodology

Research Design

The study used descriptive research design in the study.

Pilot testing utilized mobile phones and tablets as the hardware devices and Quick Response (QR) Reader as the software application to record, to save, to access and to view information of the indigenous cultures, the development of multimedia elements is the primary information of this study. Figure 1 shows the diagram on the processes in using the QR system.

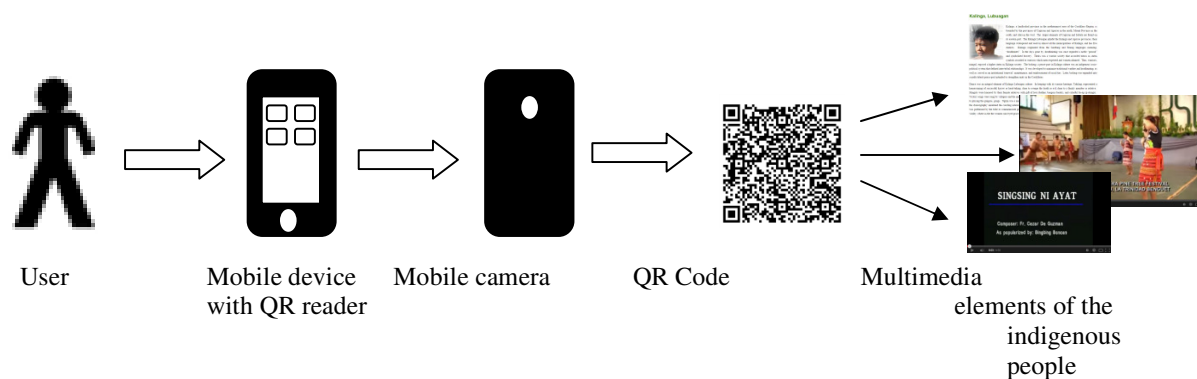


Figure 1. Processes in using the QR system.

The respondents of the study were taken randomly from the different indigenous groups in the Cordillera Administrative Region which includes the Ibaloi, Ibontoc, Ifugao, Kalanguya, Kalinga, and Kankana-ey. A survey questionnaire was given to obtain their level of likeness on the expressions of cultures and the elements of multimedia, and the perceived level of benefit in using the Quick Response code to view multimedia elements.

Instrumentation

The researcher administered survey questionnaires to the respondents to obtain the level of likeness on the expressions of cultures and the elements of multimedia, and the perceived level of benefit in using the system developed.

Secondary data includes digitized, embedded captured photos, sounds, videos and other elements of multimedia of the indigenous cultures for more interactivity and portability.

Downloading was also undertaken to embed the multimedia captured by other authors in featuring cultures of the Filipino people. Downloading includes opening a web page, receiving email, purchasing music files and watching online (Bell 2012).

Data Gathering

Prior to the gathering of the data, the researcher requested permission from the deans of the colleges and different professors of the selected class to allow the conduct of the study. Capturing multimedia from secondary data and downloading was undertaken to make the resources more reliable and accurate data.

Data Analysis

Weighted mean was used to determine the level of likeness on the expressions of cultures and the elements of multimedia, and the perceived level of benefit in using the Quick Response code to view multimedia elements. Below shows the Likert scale used:

For The Level of Likeness on the Expressions OF Cultures and Multimedia Elements

Rank	Range	Description	Symbol Used
1	4.20-5.00	Very Much Liked	VML
2	3.40-4.19	Much Liked	M
3	2.60-3.39	Moderate Liked	ML
4	1.80-2.59	Slightly Liked	SL
5	1.00-1.79	Very Slightly Liked	VSL

For The Perceived Level of Benefit

Rank	Range	Description	Symbol Used
1	4.20-5.00	Very Much Benefitted	VMB
2	3.40-4.19	Much Benefitted	M
3	2.60-3.39	Moderate Benefitted	MB
4	1.80-2.59	Slightly Benefitted	SB
5	1.00-1.79	Very Slightly Benefitted	VSB

Results and Discussion of Findings

Table 1 shows the level of likeness on the expressions of culture of the indigenous people. Among the listed expressions, respondents very much liked dances, foods, attire and songs while rated indigenous beliefs as “Moderately Liked” and ritual rated as “Much Liked”.

Dances, foods, attire and songs are “Very Much Liked” probably because these expressions of culture observed most frequently compared to the rituals and beliefs maybe because these expressions of cultures can be performed during special occasions like thanksgiving and if member of a family is suffering from sickness.

The overall weighted mean on the level of likeness on the expressions of cultures is “Much Liked”.

Table 1
Level of Likeness on the Expression of Cultures of the Indigenous People

Expressions	Mean	Description
Ritual	3.87	Much Liked
Dances	4.38	Very Much Liked
Foods	4.54	Very Much Liked
Indigenous Beliefs	3.76	Moderately Liked
Attire	4.32	Very Much Liked
Songs	4.24	Very Much Liked
Overall Weighted Mean	4.18	Much Liked

Table 2 shows the level of likeness on the features of multimedia elements, generally all of the multimedia elements rated as “Very Much Liked”. This implies that the different features of multimedia are effective and interactive way to learn cultures of the indigenous people. This supports the study of Najjar (1996) who said that multimedia is being used increasingly to provide computer based instruction. One reason for this trend may be the assumption that multimedia information helps people learn.

The overall weighted mean of 4.42 indicates that the features of multimedia elements are “Very Much Liked”.

Table 2
Level of Likeness on the Features of Multimedia Elements

Multimedia Elements	Mean	Description
Movie Clips	4.48	Very Much Liked
Audio/Music	4.54	Very Much Liked
Animation	4.35	Very Much Liked
Graphics/Images	4.48	Very Much Liked
Text	4.24	Very Much Liked
Overall Weighted Mean	4.42	Very Much Liked

Table 3 presents the perceived level of benefits of the end-users was individually “Very Much Beneficial”. Portability is “Very Much Beneficial” probably end-users used and bring their mobile devices or tablets anywhere, use the camera of their devices to capture QR codes. Accessibility is “Very Much Beneficial” maybe due to Wireless Fidelity (Wi-Fi) and data connection of their mobile device that end-users can avail anytime. Learnability and Awareness is “Very Much Beneficial” possibly because there is no need to attend actual occasions to be aware on the cultures of different indigenous people, with QR code and multimedia. Interactivity is “Very Much Beneficial” possibly of the look and feel of the multimedia elements that can be experienced after capturing the QR code. And Sharing is “Very Much Beneficial” maybe because in just a tap on the mobile phone using its camera, sharing of multimedia elements can be done quickly.





The overall weighted mean of 4.40 indicates that the perceived level of benefit in using QR codes and multimedia is “Very Much Liked”.

Table 3
Level of Perceived Level of Benefit in using the QR Codes and Multimedia

Perceived Benefit	Mean	Description
Portability	4.41	Very Much Benefitted
Accessibility	4.39	Very Much Benefitted
Learnability/Awareness	4.46	Very Much Benefitted
Interactivity	4.35	Very Much Benefitted
Shareability	4.47	Very Much Benefitted
Overall Weighted Mean	4.40	Very Much Benefitted

The study generates QR codes, using mobile devices and installed QR reader application; it can easily capture the multimedia elements of the indigenous cultures.

Table 4
The Prototype of the Culture of the Indigenous People through QR Code and Multimedia

QR code	Output/Screen Shots	
		This QR code shows the image element of multimedia on the rituals of the Igorot indigenous people.
	<p>The Belief System</p> <p>The two main ethnic tribes, "Kankana-ey" and "Ibaloy" are the spirit in their belief system, except that they are classified as animists. Their belief system is based on the idea of spirits in nature or possession by an ancestor who brings the spirit and possess.</p> <p>The Kankana-ey people believe in the existence of various spirits that emanate from the household and the wilderness. Their belief system being an oral tradition brought to light by their own oral tradition. In a further interview that their stories were passed on to the younger generation. With this belief, the people strive to reach the favor of the spirits through various rituals and offerings to them.</p> <p>The Ibaloy people believe in a belief system from which various traditions and values are established. Through the centuries, the people have accepted this system as part of their life style and development. Although the belief system is animistic, it was passed on to the next generation as the basis of their system, which was passed down, not generation to another and the like.</p> <p>The program was developed in the context of Banguebu's research system. One can find information on the belief system of the Kankana-ey and Ibaloy people in the field. One has a choice for both sides to have complete data before the process of writing except for the fact of an Ibaloy to understand various concepts, the meaning of each concept, insight and meaning for Ibaloy experiences and for researchers and colleagues.</p> <p>The belief system of the people from the above of the past and past/present (Ibaloy) down to the Ibaloy (Kankana-ey) and Ibaloy (Ibaloy) is the same. It is the belief system of a group of ancestors, the oral tradition system and children like children of indigenous for various oral of oral tradition. One has been written by following scholars, experts in their fields of study. Besides the oral tradition, the traditional system like a thought as for the experience that give rise the people to construct the tradition in the form of rituals. The rituals are classified as to different different sub-apparatuses.</p>	This QR code shows the text-based element of multimedia on foods and beliefs of the Kankana-ey and Ibaloy indigenous people.
		This QR code shows the video element of multimedia on Dances of the Igorot indigenous people.
		This QR code shows the image element of multimedia on the attire of the Tagalog indigenous people.
		This QR code shows the audio element of multimedia of the songs of the Ilocano indigenous people.

Summary, Conclusions and Recommendations

Summary of Findings

The study aimed to generate QR codes to access multimedia elements of the cultures of the indigenous people. Specifically, it sought to answer the following:

1. The level of likeness on the expressions of cultures.

Among the listed expressions, respondents very much liked dances, foods, attire and songs while rated indigenous beliefs as “Moderately Liked” and ritual rated as “Much Liked”.

Dances, foods, attire and songs are “Very Much Liked” probably because these expressions of cultures are practiced frequently compared to the rituals and beliefs maybe because these expressions of cultures can only be performed during special occasions.

The overall weighted mean on the level of likeness on the expressions of cultures is “Much Liked”.

2. The level of likeness on the features of multimedia elements.

Generally, all of the multimedia elements were rated as “Very Much Liked”. This implies that the different features of multimedia are effective and interactive way to learn cultures of the indigenous people. This supports the study of Najjar (1996) multimedia is being used increasingly to provide computer based instruction. One reason for this trend may be the assumption that multimedia information helps people learn.

The overall weighted mean of 4.42 indicates that the features of multimedia elements are “Very Much Liked”.

3. The perceived level of benefits of the end-users.

The perceived level of benefits of the end-users was individually “Very Much Beneficial”. Portability is “Very Much Beneficial” probably end-users used and bring their mobile devices or tablets anywhere, use the camera of their devices to capture QR codes. Accessibility is “Very Much Beneficial” maybe due to Wireless Fidelity (Wi-Fi) and data connection of their mobile device that end-users can avail anytime. Learnability and Awareness is “Very Much Beneficial” possibly because there is no need to attend actual occasions to be aware on the cultures of different indigenous people, with QR code and multimedia. Interactivity is “Very Much Beneficial” possibly of the look and feel of the multimedia elements that can be experienced after capturing the QR code. And Sharing is “Very Much Beneficial” maybe because in just a tap on the mobile phone using its camera, sharing of multimedia elements can be done quickly.

The overall weighted mean of 4.40 indicates that the perceived level of benefit in using QR codes and multimedia is “Very Much Liked”.

Conclusions

Based on the findings of the study, the following conclusions were drawn:

1. The level of likeness on the expressions of cultures is “Much Liked”.
2. The features of multimedia elements are “Very Much Liked”.
3. The perceived level of benefit in using QR codes and multimedia is “Very Much Liked”.

Recommendations

Based on the findings and conclusions of the study, the following are recommended.

1. Implementation and enhancement of the culture of the indigenous people through QR and multimedia elements.

2. Centralize database to access the different cultures of the indigenous peoples through the internet.
3. Consideration of Intellectual Property Rights.
4. Comparison of the culture of indigenous peoples in Luzon, Visayas and Mindanao, Philippines.

Bibliography

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