



The Production of Audio-Visual Media Promoting Awareness of Adolescents in Conservation and Restoration of Kwan Phayao

Nakharet Chaikaew^{a,b*} and Nakarin Chaikaew^{a,c}

^aResearch Unit of Spatial Innovation Development, School of Information and Communication Technology, University of Phayao
No. 19 Moo 2 Tambon Maeka, Amphur Muang, Phayao 56000, Thailand

^bComputer Graphics and Multimedia, School of Information and Communication Technology, University of Phayao
No. 19 Moo 2 Tambon Maeka, Amphur Muang, Phayao 56000, Thailand

^cGeographic Information Science, School of Information and Communication Technology, University of Phayao
No. 19 Moo 2 Tambon Maeka, Amphur Muang, Phayao 56000, Thailand

*Corresponding author. E-Mail address: nainakared_anakin@hotmail.com

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Abstract

The objectives of this study were: 1) to produce the audio-visual media promoting the awareness of adolescents in conservation and restoration of Kwan Phayao; 2) to develop the survey in measuring awareness of adolescents in conservation and restoration of Kwan Phayao; and 3) to assess the effectiveness in using the audio-visual media using the comparison between awareness of adolescents in conservation and restoration of Kwan Phayao prior and after the adoption of the audio-visual media. A sample was selected from three experts in audio-visual media production, three experts in the subject matter, and 392 students in the Bachelor's degree program at the University of Phayao. The data was analyzed and exhibited using descriptive statistics including mean, standard deviation, and t-test. The results of the study were as follows: 1) the project's audio-visual media was considered to be effective based on the overall assessment by the experts in the highest degree ($\bar{X} = 4.51$, S.D.= 0.42); 2) the project's survey in measuring awareness of conservation and restoration of Kwan Phayao was deemed to be face validity with discrimination and reliability value of 0.793; and 3) the adolescents expressed the overall increase in awareness regarding the conservation and restoration after they watched the audio-visual media with statistical significance at 0.01 level. The overall effectiveness of the audio-visual media is in the highest degree and applicable.

Keywords: Audio-Visual Media, Awareness of Adolescents, Conservation and Restoration, Kwan Phayao

Introduction

Kwan Phayao or Phayao Lake is the largest freshwater resource in the northern region of Thailand and the fourth largest of the country following Bueng Boraphet Swamp in Nakhon Sawan, Nong Han Lake in Sakon Nakhon, and Bueng Lahan in Chaiyaphum. Kwan Phayao located on Mueang Phayao district of Phayao province. In the past, Kwan Phayao was the natural water resource under the authority of Chiang Rai province. The Department of Fisheries later blocked the water flow from Ing River which was the primary inflow of Kwan Phayao. The purpose was to increase the aquaculture area and to breed the aquatic animals. Kwan Phayao has been under the authority of the Department of Fisheries since 1938. In the addition to serving as the fishing source of the local people and being the educational area regarding the study of fisheries by institutions and Phayao's Fisheries Research Station, Kwan Phayao has been the main water supply for agriculture and consumption of the people living in Mueang Phayao district in which the Provincial Waterworks Authority utilized it as the raw water resource. Kwan Phayao is also marked as the significant tourist attraction and recreation venue of Phayao province (Honghirun, 2001). Kwan Phayao has various benefits and functions as a wastewater disposal site from the municipal communities of Mueang Phayao and neighborhoods area surrounding the Lake. As a result, the water



quality of Kwan Phayao has been deteriorated and caused the decrease of aquatic animals compared to being a rich source of fauna and flora in the past. Due to the insufficiency in appropriate planning for the management of Kwan Phayao's area following the principle of conservation and inadequate participation from the involving parties, the ongoing issues and deterioration of Kwan Phayao are continuing to become worse. The management of Kwan Phayao's and its surrounding area thus required the awareness of the local people to encourage the senses of sentiment, cherished, and appreciation toward the natural resources and environment. It is also necessary to provide the opportunity for those individuals who benefited or burdened from the exploitation of Kwan Phayao to participate in the development and rehabilitation processes to facilitate the sustainable conservation, restoration, and renovation of the Lake.

The conservation of natural resources and environment in the course of an evolution of the information technology and communication, the "media" is the means to encourage and persuade the people as well as to communicate the information to the general public or target audiences to raise the awareness regarding the deterioration crisis of natural resources and environment. The media can visually demonstrate the ongoing issues and capable of promptly and extensively portray the story that represents the troubles regarding Lake (McCombs, 1995; Morgan, 1997; Kapoor, 2011). Furthermore, the production of an effective media could influence the awareness along with provoking changes in attitudes, perceptions, and practices in the conservation of natural resources of the target audiences (Population Media Center (PMC), 2006; Shanahan, 2011; Sayo, 2014) especially among the youths or adolescences whom recognize the "media" as a function of socialization in which they could learn from and such impressions would emerge as their traits. Assuming that the media introduced the desirable ideas to the adolescences, they would subsequently grow into good persons with appropriate behaviors (Jaruseranee, 2009). For this reason, this study focuses on the production of audio-visual media which is a various combination of images, motion pictures, infographics, audios and texts depicting the story embed with substantial information and encouraging topics in raising the awareness among the native adolescences for the conservation and restoration of the prominent local natural resource: Kwan Phayao. This is due to the fact that adolescences are likely to access and susceptible to new media, and their learning in schools would able to be disseminate to their family members or their acquaintances to bring about understanding as well as appreciation regarding the importance and benefits of Kwan Phayao in order to carefully utilize the Lake and appropriately handle the situations of Kwan Phayao as well as refrain from any unsuitable actions which would damage the Lake.

Research Objectives

1. To produce the audio-visual media to raise the awareness of adolescents in conservation and restoration of Kwan Phayao;
2. To develop the survey in measuring awareness of adolescents in conservation and restoration of Kwan Phayao;
3. To assess the effectiveness in using the audio-visual media by the comparison between awareness of adolescents in the conservation and restoration of Kwan Phayao prior and after the adoption of the audio-visual media



Methods and Materials

1. Scope of Contents

The infographics are the basis of the audio-visual media production to increase the awareness in conservation and restoration of Kwan Phayao. The related information was compiled and selected to compose the graphics, illustrations, and audio accompanying the narration for more comprehensible content to the adolescents and general audiences with recognizable messages. These elements were ideal to be developed into the audio-visual media to raise awareness in the conservation and restoration of Kwan Phayao.

2. Population and Sample

- 1) Three experts in audio-visual media production and three experts in the subject matter;
- 2) The population of this study was 18,691 adolescents with ages of 17–25 years old studying in the Bachelor's degree program at the University of Phayao during the academic year 2019. 392 samples were drawn by using Stratified Random Sampling and Taro Yamane's equation with an acceptable margin of error at 5%. The sample was separated according to 17 faculties in three study programs which was comprised of 77 students from the Science and Technology program, 110 students from the Health Science program and 205 students from Humanities and Social Science program. The data was collected using the accidental sampling method according to the ratio of sampling for each faculty which had been defined.

3. Research Instruments

- 1) The audio-visual media promoting the awareness of adolescents in conservation and restoration of Kwan Phayao;
- 2) The survey measuring the effectiveness of the audio-visual media using the questionnaire customized from the survey of the effectiveness of media made by the experts. The questionnaire adopted the 5-point Likert scale with the set responses of strongly disagree to strongly agree (Chaikaew, 2012).
- 3) The survey measuring the efficiency or the level of awareness regarding the conservation and restoration of Kwan Phayao using the pretest and posttest comprising of three aspects. This survey was derived from the literature review. Three aspects of the survey are consisting of perception, attitude, and performance using a 5-point Likert scale with the set responses of strongly disagree to strongly agree and from never to always.

4. Research Processes

- 1) The data was collected using the analysis of documents and studies from secondary sources along with the primary sources in the field study to gather information for the production of the audio-visual media. The information was comprised of the background regarding the ecological and environmental history of Kwan Phayao, the facts on its economy and tourism, the ongoing issues of the Lake as well as the insights on management and development of Kwan Phayao. The information then being analyzed for the production of the audio-visual media.
- 2) The audio-visual media was designed and produced in accordance with the synthesized contents and information conforming with the media production processes:
 - The compilation: compilation of aforementioned information related to Kwan Phayao;
 - The treatment: the utilization of gathered information in the direction of the audio-visual media's story regarding the overview of its history, significance, issues, and solutions to the problems arising in Kwan Phayao;
 - The storyboard: splitting the story into scenes, compose the visual and narrative scripts with the verification of contents and languages provided by the experts in audio-visual media production;



- The filming and edit: these are including the edit and design of infographics, narrative voice, and the soundtrack using the specialized software for media designing and editing with the verification of contents and languages provided by the experts in audio-visual media production;

- Post-production: the assessment of effectiveness derived from the medium using the effectiveness survey with the experts in audio-visual media production and apply improvements to the audio-visual media based on the advice provided by the experts.

3) The creation of a survey measuring the efficiency or the level of awareness regarding the conservation and restoration of Kwan Phayao. This process consisted of the analysis of the subject matter, the elaboration of questions, and the examination of face validity through an Index of Item-Objective Congruence (IOC) conducted by the experts. The examined survey then being calculated for its reliability and taken on the pilot test with 60 non-sample individuals and analyzed for its entire discrimination and reliability via Cronbach's Alpha Coefficient.

4) Once the survey measuring the efficiency or the level of awareness regarding the conservation and restoration of Kwan Phayao with a good degree of reliability has been obtained, it then being applied to the sample of 392 students in the Bachelor's degree program at the University of Phayao. The process in surveying the effectiveness for the audio-visual media was pilot tested with the sample by completing the pretest and posttest survey to determine the results prior and after the adoption of audio-visual media (both pretest and posttest are identical in its contents but the choices and question orders were altered). Both the survey and the audio-visual media are accessible online.

5) The data then were analyzed and summarized to exhibit the results of the audio-visual media production in the aspects of its effectiveness and efficiency regarding the establishment of awareness in the conservation and restoration of Kwan Phayao.

5. Data Analysis

1) The measurement for awareness in conservation and restoration of Kwan Phayao was conveyed using the descriptive statistics including mean (\bar{x}) and standard deviation (S.D.).

2) The measurement of effectiveness in using the audio-visual media by the comparison between awareness regarding the conservation and restoration of Kwan Phayao prior and after the adoption of the audio-visual media using (t-test) for the dependent sample to compare the difference of the survey results prior and after the implementation of the audio-visual media.

Results

1. The audio-visual media promoting awareness in the conservation and restoration of Kwan Phayao (Figure 2) has a running time of 4.39 minutes. Its contents are comprising of background, significance, management, issues, and solutions regarding Kwan Phayao. The audio-visual media is able to be published online to reach the adolescents and the general public and constitute the understanding as well as the appreciation of Lake Phayao's benefits and importance.

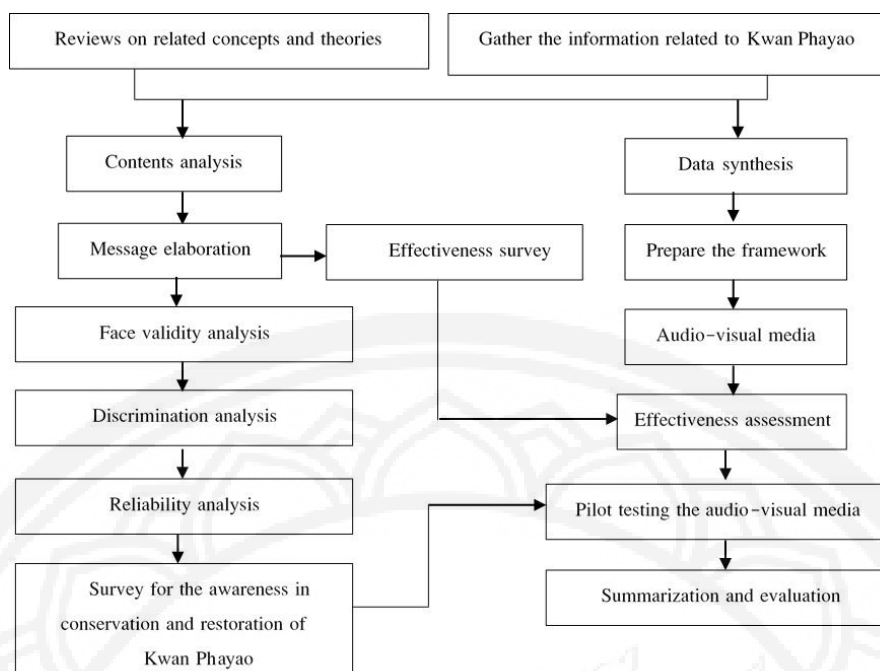


Figure 1 Conceptual Framework



Figure 2 Example Screenshot from the Audio-Visual Media Promoting the Awareness in Conservation and Restoration of Kwan Phayao

2. The assessment for the effectiveness of the audio-visual media by the audio-visual media production experts (Table 1) indicated that the project's audio-visual media has the highest degree of overall effectiveness ($\bar{x} = 4.51$, S.D.= 0.42). While in each aspect, the general aspects were the highest degree of effectiveness ($\bar{x} = 4.71$, S.D.= 0.16). The subsequent aspects were audio and narration ($\bar{x} = 4.51$, S.D.= 0.43) and the soundtrack was the least effectiveness ($\bar{x} = 4.17$, S.D.= 0.79) in comparison with other aspects. The notable components of the audio-visual media were the visual connection with the content, the narration is in harmony with the visual, proper language usage with comprehensible meaning, the harmony and flawless of narration, compelling elements, appropriate running time, comprehensible to the audience, easily applicable, and flawless viewing experience without issues such as unresponsive application or screen.

**Table 1** Assessment Results of the Audio-Visual Media's Effectiveness by the Experts

Items of Assessment	\bar{x}	S.D.	Effectiveness Degree
1. Visual			
1.1 Visual attractiveness	4.33	0.58	High
1.2 The visual connection with the content	4.67	0.58	Highest
1.3 The appropriate use of visual to the content	4.00	1.00	High
1.4 The proper alignment of visual elements with the content	4.33	0.58	High
Total	4.33	0.68	High
2. Audio and Narration			
2.1 Precision and grammatical accuracy of the speech and narration	4.00	0.00	High
2.2 The narration is in harmony with the visual	4.67	0.58	Highest
2.3 Proper language usage with comprehensible meaning	4.67	0.58	Highest
2.4 The harmony and flawless of narration	4.67	0.58	Highest
Total	4.51	0.43	Highest
3. Soundtrack			
3.1 Soundtrack is suitable with the visual and narration	4.33	0.58	High
3.2 Soundtrack is in harmony with the visual and narration	4.00	1.00	High
Total	4.17	0.79	Highest
4. General Aspects			
4.1 Desirable and proper representation of the subject matter	4.33	0.58	High
4.2 Compelling elements	5.00	0.00	Highest
4.3 Appropriate running time	5.00	0.00	Highest
4.4 Comprehensible to the audience	4.67	0.58	Highest
4.5 Intriguing to the audience	4.00	0.00	High
4.6 Easily applicable	5.00	0.00	Highest
4.7 Flawless viewing experience without issues such as unresponsive application or screen	5.00	0.00	Highest
Total	4.71	0.16	Highest
Total Effectiveness	4.51	0.42	Highest

3. The results of the development of awareness measurement survey regarding the conservation and restoration of Kwan Phayao and the evaluation of survey's quality by the examination of face validity, discrimination, and reliability of the survey and standard error of measurement have been constituted into 24 questions across three categories of awareness: nine questions regarding the perception, seven questions regarding the attitude, and eight questions regarding the practices. It was found that all 24 questions have an Index of Item-Objective Congruence (IOC) between 0.67 to 1.00. As all questions acquired the IOC over 0.50, it indicated that all of the questions have face validity.

The analysis for the discrimination value of the questions was completed using the upper group-lower group method in quartiles and test the differences of the mean using t-test. The analysis results were shown in Table 2 to Table 4.

**Table 2** Results of Discrimination Value Analysis Regarding the Perception

Item No.	Upper		Lower		t
	\bar{X}_H	S_H	\bar{X}_L	S_L	
1	4.71	0.52	4.19	0.63	-3.44**
2	4.12	0.77	3.62	0.64	-2.69**
3	4.03	0.90	3.50	0.65	-2.53**
4	4.35	0.77	3.81	0.69	-2.83**
5	4.44	0.79	3.73	0.78	-3.49**
6	4.94	0.24	4.31	1.12	-2.83**
7	4.62	0.60	4.15	0.78	-2.59**
8	3.03	1.55	2.27	0.96	-2.34*
9	3.09	1.48	2.27	1.19	-2.31*

* Statistically significant at 0.05; ** Statistically significant at 0.01

Table 3 Results of Discrimination Value Analysis Regarding the Attitude

Item No.	Upper		Lower		t
	\bar{X}_H	S_H	\bar{X}_L	S_L	
1	4.91	0.30	4.61	0.50	-2.78**
2	4.91	0.30	4.50	0.58	-3.36**
3	4.22	0.91	2.25	1.17	-7.32**
4	4.13	1.18	2.21	1.07	-6.53**
5	2.56	1.54	1.68	0.77	-2.86**
6	4.63	0.55	4.32	0.67	-1.92*
7	5.00	0.00	4.46	0.58	-4.92**

* Statistically significant at 0.05; ** Statistically significant at 0.01

Table 4 Results of Discrimination Value Analysis Regarding the Practice

Item No.	Upper		Lower		t
	\bar{X}_H	S_H	\bar{X}_L	S_L	
1	4.84	0.37	4.32	0.86	-2.97**
2	4.56	0.67	3.43	1.14	-4.63**
3	4.69	0.47	3.50	0.84	-6.63**
4	4.75	0.44	3.61	0.99	-5.62**
5	4.41	0.71	2.82	1.19	-6.16**
6	4.63	0.49	3.82	0.77	-4.87**
7	4.59	0.56	3.96	0.92	-3.24**
8	4.91	0.30	4.32	0.67	-4.27**

** Statistically significant at 0.01

The nine questions regarding the perception gained the t-test scores from -3.49 to -2.31. Item No.1-8 are statistically significant at 0.01 and item no.9 is statistically significant at 0.05. The ten questions regarding the attitude gained the t-test scores from -7.32 to -1.92. Item No. 1-5 and no.7 are statistically significant at 0.01 and item no.6 is statistically significant at 0.05. The eight questions regarding the practice gained the t-test scores from -6.63 to -2.97. Every question in this category is statistically significant at 0.01. This indicated that



every item of the awareness survey has an actual discrimination value.

The analysis for the reliability of the survey using Cronbach's Alpha Coefficient indicated that the awareness measurement survey regarding the conservation and restoration of Kwan Phayao has a reliability value of 0.718 to 0.898 with entire reliability of 0.793. The standard error of measurement is between 1.720 to 2.327 and the entire standard error of measurement is at 3.668 (Table 5)

Table 5 Results from the Analysis of the Reliability of an Awareness Measurement Survey Regarding the Conservation and Restoration of Kwan Phayao

Awareness Categories	r_{tt}	SE_{meas}
Perception	0.718	2.324
Attitude	0.720	2.327
Practice	0.898	1.720
Entire Total	0.793	3.668

4. The overall results from the pretest and posttest of the adolescents prior and after having viewed the audio-visual media promoting the conservation and restoration of Kwan Phayao are significantly different in terms of statistics at 0.01 (the audio-visual media resulted in the increased awareness of the adolescents regarding the conservation and restoration). The results from each aspect also suggested that the awareness scores of the adolescents prior and after having viewed the audio-visual media are significantly different in terms of statistics at 0.01. This implies that the audio-visual media has increased the degree of perception among adolescents. Meanwhile, the results from attitude and practice aspects survey showed no difference in terms of statistics at 0.01 and 0.05 i.e. the audio-visual media is ineffective to the attitude and practice of the audience (Table 6).

Table 6 Mean, Standard Deviation, and t-test Results from the Pretest and Posttest Prior and after Having Viewed the Audio-Visual Media Promoting the Conservation and Restoration of Kwan Phayao

Categories of Awareness Regarding the Conservation and Restoration of Kwan Phayao	Pre-test		Post-test		t
	\bar{X}	S.D.	\bar{X}	S.D.	
Perception	34.82	3.64	38.12	4.12	-8.72**
Attitude	27.73	3.58	28.11	4.35	-1.41
Practice	33.30	4.79	34.01	5.17	-1.94
Overall Awareness Regarding the Conservation and Restoration	95.84	7.80	100.24	9.38	-6.29**

** Statistically significant at 0.01

Discussion and Conclusion

The audio-visual media promoting the awareness in conservation and restoration of Kwan Phayao was developed through the compilations of primary and secondary data using the concepts and processes of common audio-visual media production with quality assessment from the experts of the subject matter. The results of this study indicated that the overall effectiveness of the audio-visual media is in the highest degree and applicable. The notable components of the audio-visual media were the visual connection with the content, the narration is in harmony with the visual, proper language usage with comprehensible meaning, the harmony and flawless of narration, compelling elements, appropriate running time, comprehensible to the audience, easily applicable, and



flawless viewing experience without issues. The production of this audio-visual media which has the main theme of natural resources and the environment is based on the application of infographics and multimedia in the storytelling for more attractiveness and accuracy of the conveying messages to the adolescent audiences in promoting the satisfaction and ideal attitude toward the conservation and restoration of the environment. This is conforming with the theories and concepts of perceptions which suggested that the degree of the media's effectiveness in promoting the awareness or an ideal attitude toward the natural resources is depending on its contents and communication techniques (Chompoorat, 2012). This notion has made it possible for the authors to produce an audio-visual media that is able to convey a message and promote a sense of environment conservation among adolescents.

Every question in the awareness measurement survey regarding the conservation and restoration of Kwan Phayao gained face validity of over 0.05 with statistically significant discrimination value at 0.05 (Saiyod & Saiyod, 2000). This is in accordance with the studies of Prasopkittikun (1991) and Sangpen (1994) which they have developed the measurement survey regarding the attitude and awareness toward the conservation of natural resources. The measurement survey gained over 0.5 face validity scores with statistically significant discrimination value at 0.001, 0.01 and 0.5, which considered being of high reliability for the measurement. The reliability score of the measurement survey regarding the conservation and restoration as acquired by Cronbach's Alpha Coefficient is at 0.793, which meets the standard of the measurement theory that suggested the acceptable reliability at 0.70 and over. The measure instruments for individual's perception should gain the reliability score of 0.70 at the minimum (Pinyoanuntapong, 2002). This is consistent with Saiyod & Saiyod (2000) who suggested that the survey with a reliability score over 0.70 should be considered as trustworthy. The factor affecting reliability is the questioning style. The survey with explicit questions tends to has high reliability. This thus indicated that the measurement survey of this study has high reliability in the overall and deemed applicable in measuring the attitudes toward the conservation and restoration of the natural resources and environment.

The adolescents exhibited a high degree of awareness regarding the conservation and restoration of Kwan Phayao both prior and after have viewed the project's audio-visual media. After the adoption of the audio-visual media, the adolescents display higher scores regarding the awareness in the conservation and restoration of Kwan Phayao in every aspect. Most of the adolescents showed a higher degree of perception and attitude in comparison to the practice aspect. The result is conforming with the studies by Ketsing (2016) and Harris (2006) who found that the sample population of students in their studies has a higher degree of perception, understanding, and attitude toward environment conservation compared to their behaviors. The efficiency test of the audio-visual media by the measurement of adolescents' awareness prior and after watching the audio-visual media indicated that the adolescents gained a higher degree of awareness regarding the conservation and restoration especially in the perception aspect which exhibited the significant difference in terms of statistic among the scores between pretest and posttest. The result was in accordance with the studies of Chompoorat (2012) and Intawong (2008) which revealed that an individual would appreciate the significance of natural resources after has watched the media which promote the conservation of natural resources as well as obtained knowledge and understating with more satisfaction toward the media.

The observation of the audio-visual media from this study was emphasized on the awareness of natural resources and environment conservation for adolescents which was suitable for academic program in education Institute or related organizations. Regarding to the media length which was limited to be less than 5 minutes in



order to avoid tediousness for audience and encourage the understanding in short time, it was effected the content was not covered other interesting topics for example human resources, travelling resources etc. which are important and related to Kwan Phayao conservation. In addition to the adoption of media in promoting awareness regarding the conservation of natural resources, the other methods are also significantly effective such as activities, games, and practices. The observation of behaviors together with the assessment of awareness shall result in the approach in promoting adolescents with a sense of awareness toward the conservation of their national natural resources.

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