Primary Study of Attitudes of Schoolchildren in Rural and Remote Areas Toward Digital Imaging Learning—Taking Film-Making Summer Camp as an Example

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No matter how fast or wide digital technology develops, because of the gap between urban and rural areas, a digital divide in the education system still exists. The researcher joined the digital film-making summer camp, where the major objective was to decrease the digital divide between urban and rural areas. Thirty schoolchildren from one primary school in Tainan City, Taiwan, participated in the project as research subjects, and were divided into two groups. By implementing self-edited digital film making learning materials, questionnaire surveys, and performing descriptive statistics analysis, t-test and Levene's Test with SPSS software, the study aims to understand the schoolchildren's capability in digital imaging, and to discuss their learning attitude towards educational activities and feelings during filming.

Keywords: digital image learning, kids film-making, learning attitude, multimedia

INTRODUCTION

With Today's technological advancements, the use of machinery has superseded traditional textbooks in education. The arts and humanities course in primary school education in Taiwan includes three categories —visual arts, music and performance and commonly uses technology in the classroom. There are a number of primary schools in Tainan City, Taiwan. Many of them had already been using video cameras in arts and humanities class to teach the students how to perform digital imaging, and even hosting a kids' film festival to display their works once every two years. Yet when it comes to this particular primary school, owing to its rural location and

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budget limitation, their only digital imaging learning opportunity came from thiscamp that was organized by the researcher. The film camp lasted for two weeks and included imaging lectures, training and actual filming; the last day in camp was a screening presentation. A pre-test survey on schoolchildren's learning attitude was conducted before the camp in order to understand their attitudes and opinions about digital imaging. After the camp, another post-test survey was conducted to understand how satisfied they were during the whole process.

LITERATURE REVIEW

Situated learning theory

Situated learning theory places emphasis on the process of how learners interact with their learning environment. Being a good team player with strong interaction skills is a critical component of situated learning as learners become involved in a community of practice, which promotes certain beliefs and behaviors to be acquired (McMahon, Klopper & Power, 2015). Accordingly, situated learning focuses on how to provide or create a learning environment that allows the learners to construct knowledge themselves. The researcher employed the teaching method of cognitive apprenticeship, focusing on arranging a realistic learning environment (Peters-Burton, Merz, Ramirez, Saroughi, 2015); and by dividing the children into groups, the college students may play an assisting role in leading the schoolchildren to participate throughout the whole process, from discussing the script to finishing the whole film. The application of cognitive apprenticeship in this filmmaking camp helped stimulate students' learning attitudes (Singh, 2015). Mohanty (2011) mentioned that the more stimulation an art program provided, the more creativity and learning attitude students ex-pressed.

State of the literature

- In the film making world (Wang, 2014), problem solving and critical thinking skills as well as communication and teamwork skills, are becoming increasingly essential.
- The application of cognitive apprenticeships helped stimulate students' learning attitude (Imholz & Gold-man, 2013).
- Good team play with strong interaction skills is a critical component of situated learning as learners become involved in a community of practice, which embodies certain beliefs and behaviors to be acquired (McMahon, Klopper & Power, 2015).

Contribution of this paper to the literature

- With the help of college students, the subjects completed an introduction video about their hometown legends allowing children from other countries to understand different local cultures.
- It was found that digital imaging educational activity may increase students' interest in learning as well as help them to develop their teamwork abilities.
- Three films that were completed during this project were appreciated by an international film festival and one was selected to be played during the festival. This opportunity was provided for schoolchildren in rural and remote areas to allow them to experience teamwork and broaden their international vision.

Imaging creation education

Imaging creation education was conducted in a "Games" mode—the students learned throughout the games, and the competitiveness between them when playing also helps to enhance their motivation and learning effect. In the film making world (Papastergiou, 2009), problem solving and critical thinking skills as well as communication and teamwork skills, are becoming increasingly essential (Wang, 2014). Furthermore, imaging creation education is also an "Exploratory" mode, encouraging the students to film their subject from various angles and styles. Deyglio (2015) pointed out the combination of the exploratory value that games have on students when learning academic subjects can make the outcome more effective. Furthermore, educational games and exploratory behavior increasingly attract the interest of researchers in areas such as art creation and the didactics of the various disciplines. Students needed to brainstorm their ideas in order to generate more creativity for artistic topics. Using Learning Through Games Mode as

an instructional tool facilitated collaboration by allowing easy peer reviews for students, and also attracted experts or mentors from outside the classroom easily (Mori, Shibata, Kimura, & Tamura, 2013).

METHODOLOGY

The study aims to understand the rural schoolchildren's capability in digital imaging, and to discuss their learning attitude towards educational activities and feelings during filming. A pre-test survey on schoolchildren's learning attitude was conducted before the camp in order to understand their attitude and opinion about digital imaging. After the camp, another post-test survey was conducted to understand how satisfied they were during the whole process. According to the major objects of the present study, our discussion was focused as follows:
1. How satisfied were the schoolchildren during the whole digital imaging creating process?
2. Are the schoolchildren willing to participate in more digital imaging creating learning activities?

Participants and limitations

The participants of the study were thirty 4th and 5th grade schoolchildren from the targeted rural elementary school in Tainan. Most of the participants came from low-income, single, or dysfunctional families. They were divided into two groups. The main reason we chose this particular school was because the research team had already been working on digital imaging education there for a few years. For this reason, the present study didn't satisfy the complete randomization or stratified sampling; hence the result has its limitations that may only be relevant to schoolchildren under similar circumstances and background.

Instrumentation

Digital imaging learning attitude survey

The present study employs "digital imaging learning attitude survey" as research tool, which is a mixture of questionnaires using both positive and negative items. The researcher developed a pre-test / post-test four-point Likert-type survey with 20 questions to assess attitudes about film making. These 20 survey questions consist of four main perspectives: methodological knowledge, understanding of film-making, acceptance of film value, and willing to participate in more film making activities (Table 1). The data of the survey was analyzed under the descriptive statistic.

Instrument validity and reliability

Expert validity involved judging the breadth and appropriateness of the content by varied experts in the field (Rose, Spinks & Canhoto, 2015). In order to determine content validity, the attitude survey was given to two art educators and one film maker. The three subject matter experts came to the agreement that all survey questions cover the content that the attitude purports to measure of the film-making learning. The level of reliability of this study was to evaluate the degree to which different survey items that probe the same construct produce similar results. The survey contained 20 Likert-type questions, which was piloted with 20 randomly selected 5th grade elementary students in the same target school. The 20 students were not included in this summer film-making camp. The objective of the pilot test was to modify the pretest and posttest, and to fully understand the internal consistency reliability of the perceptions of the participants (Rose, Spinks & Canhoto, 2015). The internal consistency reliability was calculated by applying the

Cronbach Alpha method. The Cronbach α coefficient of the total questionnaire is .8733; the degrees to which the questionnaire items are compared between .7607 and .8702, hence showing a good internal consistency of the scale. Reliability of .70 or higher indicates an acceptable level for educational research.

Independent variables and dependent variables

The single factor analysis of covariance as the pre-test scores for the film learning attitude was set whereby the independent variables where the experimental treatment (film learning) and the dependent variables was the post-test scores for the learning attitude.

Table 1. Survey questions

N.	Survey Question	Main Perspectives	N.	Survey Question	Main Perspectives
1	This camp has added to my knowledge of film-making.	M.K.	11	My camp counselor taught me to appreciate movies.	A.F
2	This camp has increased my interest in film- making.	M.K.	12	Now I understand that it's not easy to make a film.	A.F.
3	This camp has improved my ability to create film works.	M.K.	13	I love having people watch my film.	A.F.
4	This camp has taught me the basic ideas of using a camera.	M.K.	14	I have enjoyed the film-making process.	A.F.
5	I still have no idea what film is.	M.K.	15	The best value of film-making is to communicate with teammates.	A.F.
6	I am satisfied about the whole film-making process.	U.F	16	I don't have difficulty creating a film project with others.	A.F.
7	I did not know film making involved team work until I joined this camp.	U.F.	17	My thoughts and ideas may be better comprehended by others through the presentation of images.	A.F.
8	The process of filming and imaging helped me improve my teamwork ability.	U.F.	18	I am staying in a rural and remote area; so it's not easy to begin learning how to create a film.	F.C.
9	Now I know the process of film-making.	U.F.	19	I am interested in and desire future opportunities for participating in film-making.	F.C.
10	Film making can also broaden my international vision.	A.F.	20	Filming is not so far-from-reach, after all.	F.C.

Note. Four Main Levels of Questionaries' Design:
Methodological Knowledge Level = M.K.
Understanding of Film Making and Love to Learn Level= U.F.
Acceptance Level in the Value of the Film = A.F.
Future Continuation of Studies Level = F. C.

Figure 1. Brainstorming: kids created their short films based on Siraya culture-the legend of Siao Fei-Fan

Procedures and Pre-test

The camp lasted for two weeks and included imaging lectures and training and actual filming (Figure 1, 2); the last day in the camp was the screening (Figure 3).

Besides learning professional video shooting skills, these children were participating in an international film making movement, and with the help of college students, they completed an introduction video of their hometown legends allowing children from other countries to understand different local cultures (Figure 4). This opportunity was provided for schoolchildren in rural and remote areas that allowed

Figure 2. In a film-making lecture

Figure 3. The screening.

Figure 4. Participating in an international film making movement

them to easily begin learning how to create a film, to experience teamwork, and broaden their international vision. Hence, this allowed college students to give back and dedicate themselves to the world of film and animation arts creation with what they have learnt in their majors. All the participants received the same four-point Likert-type survey regarding attitudes attitude about film making before and after the camp activity. Participants were asked to rate from 4 to 1 (4 = strongly agree; 3 = agree; 2 = disagree; 1 = strongly disagree) to report their attitudes toward film making.

Before the start of the activities, an independent sample t-test homogeneity testing was conducted first to test the differences between the students. This was to determine whether all students are homogenous before continuing the activities, and must also be in line with the previous analysis of variance of the basic assumptions.

Thirty students were randomly divided into two groups for conducting of the pre-test questionnaire survey; the average scores were 72.01 points and 76.25 points, the total score was 100. The Levene variance homogeneity test was not significant（$F = .760$，$p = .388 > .05$, indicating that the discrete nature of these two groups of students did not show any significant differences with two samples of several homogeneous variations. The hypothesis of equal variance and t values was not found to be significant（$t = -.676$, $p = .503 > .05$）, indicating that there was no significant difference in the total pre-test scores of the students' learning attitude before the film camp (Table 2).

FINDINGS

After the exclusion regarding the impact of learning interest on the pre-test scores, the experimental treatment (film learning) was at its significant level. Hence, this activity yields significant differences with regards to the post-test on the students' interest in film learning. In the process of learning attitudes, the average pre-test scores were 74.13 points and the average post-test scores were 86.0 points, with a progress of 11.87 points. It was found that digital imaging educational activity may increase students' interest in learning as well as help them to develop their teamwork ability. This opportunity was provided for schoolchildren in rural and remote areas and it allowed them to easily begin learning how to create a film, to experience teamwork, and broaden their international vision. Hence, this allowed college students to give contribute and dedicate themselves to the world of film and animation arts creation with what they learned in their majors.

CONCLUSIONS

The conclusions of the present study and the results of the four levels from 20 questions of the attitude survey are as follows:
1. The research subjects have all provided positive feedbacks on both the understanding of image creation and the value of the films (Acceptance Level in the Value of the Movie);
2. The research subjects showed positive reactions in both learning attitude

Table 2. Independent-samples T test of pre-test

	Levene's Test		T Test		
	F-Test	Significance	T-score	df	Two-taile testing
Equal variance assumed	.760	.388	-.676	42	.503
Equal variance not assumed			-.676	40.55	.503

and learning desire for digital imaging creation (Understanding of Films and Love to Learn Level);

3. The research subjects showed interest and desire in future opportunities for participating in digital imaging creation (Future Continuation of Studies Level);

4. The research subjects have no particular understanding on the level of the knowledge of film (Methodological Knowledge Level).

It is worth mentioning, that the three works that were completed during this project were appreciated by the 2014 Asian American International Film Festival and selected as some of the films to be played during the festival. This is great encouragement for rural schoolchildren who had never attended any international events before.

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