Innovation on Pharmacology Knowledge through Short Movie

Awirut Singkun*

Research and Innovation Department, Sirindhorn College of Public Health Yala, Thailand

Abstract. The integration of computer technology in education provides students have more understanding. The suitable learning material can make learning activity more attractive. The objectives of this development research are short movie production, used as learning material, evaluated innovative short film and knowledge comparison between traditional learning and learning through short movie. The screenplay was proved by licensed pharmacists. Short movie interpretation and evaluation were made by these experts as well as students. The experimental research studied in 68 students as control group and 31 students of experiment group. The results of this study found that the highest mean on issue interpretation is the clearly of group of anti-bacterial agents and the lowest is recommendation of time used. The evaluation of innovative short movie was found that the first highest mean is the film can be used as the objective's direction and the lowest is the film is usefully material. The students' knowledge of witch studied through short movie is significant higher than the traditional learning.

Keywords: Innovation, Pharmacology, Short Movie

1. Introduction

There are many teaching methods that teachers provide to develop their students' knowledge. These are, for example, lecture by teacher, discussion groups, gaming and simulation, models, role playing, drama, etc. Drama is seen as an inclusive, multi-faceted agency for the holistic development of children as learners. It is a learning medium that utilizes a range of intelligences (D A Simpson, 2006). Recent research on the learning process has shown that students tend to learn in different ways and that they prefer to use different teaching resources as well (Franzoni, A. L. and Assar, S, 2009). Teachers can benefit by getting information about how their students are used to learn, which provides them with a deeper understanding and might help when explaining or preparing learning material. Providing students with learning material and activities that fit their preferred ways of learning can make learning easier for them. (Graf S., Kinshuk and Liu T.C., 2009).

Nowadays, the use of computer technology in education has gained global acceptance. Computer technology is widely used for learning. Technology can provide powerful tools for students' learning (Hogarty, Lang and Kromrey, 2003). Computer technology and multimedia elements have been developed and integrated into teaching and learning. Entertainment-based learning environments can make learning contents more attractive, and thus can lead to learners' active participation and facilitate learning (Xu Y., Park H. and Baek Y. (2011).

The use of technology in education has become an increasingly important area of research during the past decades. Technology has been used as a medium to encourage inquiry, enhance communication, construct teaching materials, and assist students' self-expression. The importance of technology has the potential for teaching and learning by expediting and enhancing work production, supporting exploration and experimentation, supporting collective knowledge-building, improving motivation and engagement, offering learners more responsibility and control through individual exploration and experimentation, and helping students to visualise processes more clearly. Educational technology has an effective role in moving from teacher-centred learning activities to student-centred learning activities. Having teachers who are competent in using and managing educational technology is important (Efe, R. , 2011).

Over the past decades, an amount of research examined using video editing software to create video clips for digital storytelling activity. It has the potential to facilitate teaching and learning in the classroom. Consequently, many of teachers intend to utilize the technology in classrooms at all levels of education. In addition, it can be a compelling teaching method to gain and hold students' attention. It is worth considering the application of digital storytelling in various subjects. This expression can promote learners' active participation and emphasize the active role of students rather than teachers. Therefore, it encourages student-centered learning (Xu, Y., Park, H., & Baek, Y. (2011).

* Corresponding author. Tel.: + (66) 896170007 ; fax: + (66) 73213234; *E-mail address*: asingkun@hotmail.com

Short movie production on pharmacology knowledge is an innovative material that integrated computer technology in education. This film would make learning activity more attractive.

2. Objectives

- To produce short movie containing pharmacology knowledge
- To use short movie as a learning material in pharmacology
- To evaluate short movie as an innovation learning material in pharmacology
- To study students' knowledge and compare their knowledge between traditional learning and learning through short movie

3. Methodology

3.1. Research Design

- Short movie production: a development research was used to produce the short movie on pharmacology knowledge. Beginning, study on anti-bacterial agents that emphasize on Pennicillins and first choice for patients who has history of pennicillins allergy.
- Comparison of mean between two group : experimental research design will be used for the research, conducted traditional learning for control group and learning through short movie for the experiment group.

3.2. Study Population and sample

Purposive sampling of 2 curriculums that students' knowledge is not difference at base line. 68 students of Diploma of Public Health Program (Community Health) and 31 students of Diploma of Emergency Medical Technician, Sirindhorn college of public health Yala in second semester, academic year 2011 (October 2011 – March 2012) were selected as study sample.

3.3. Measurement Tools

- Short movie production

Study on anti-bacterial especially Pennicillins, Cephalosporins and Macrolides was reviewed and wrote screenplay of short movie. for content validity, three licensed pharmacists act as the experts to evaluate the accuracy and pharmacology contents, give some recommendations and suggestions. Finally, screenplay of short movie adapting and improving was made before produce the short film.

- The test of pharmacology knowledge

The test of pharmacology knowledge on Pennicillins and guideline to patients who has history of allergic to Pennicillins was conduct. The test consists of 20 items. Three licensed pharmacists proved for content validity. All item was criticism by the experts using index of consistency (I.O.C.) between each item and learning objectives.

- Innovative short movie evaluation

Adapted from Quality criteria of innovation (Office of the Basic Education Commission, 2007)

3.4. Data Collection

Data collection was conducted among 99 students of Sirindhorn college of public health Yala in second semester, academic year 2011. 68 students of Diploma of Public Health Program (Community Health) as a control group that arranged to traditional learning and 31 students of Diploma of Emergency Medical Technician as an experiment group that learned through short movie. Both two groups took the test of pharmacology knowledge after they had learning activity.

3.5. Data Analysis

Independent t-test was used to test for the different score of pharmacology knowledge between two group of students. First group studied by traditional learning and the second one studied through short movie. Descriptive statistics that are mean and standard deviation were used in the part of Interpretation between short movie screenplay and pharmacology contents and Short movie evaluation as an innovation learning material in pharmacology.

3.6. Ethical Consideration

Ethical consent from the ethical review committee for research involving human research subjects, Sirindhorn colledge of public health Yala, Praboromarajchanok institute of workforce development, The Ministry of public health, Thailand. The committee proved and made consideration before collecting the data. All subjects were informed about the objectives, the operation definitions of terms, and the processes of the study. Informed consents from all subject.

4. Results and Discussion

Table 1: Interpretation between short movie screenplay and pharmacology contents

Issue interpretation	Mean	S.D.
1. Screenplay relates to learning objectives	4.19	0.63
2. Group of anti-bacterial agents	4.65	0.49
3. Drug action	4.35	0.49
4. Factors related to drug action	3.96	0.66
5. Recommendation of continues used	4.08	0.74
6. Structure of anti-bacterial agents	4.23	0.59
7. Ability of anti-bacterial agents to acid resistance	4.38	0.50
8. Recommendation of time used	3.81	0.80
9. Recommendation in the case of forget taking medicine	4.15	0.61
10. anti-bacterial agents resistance to drug used	4.15	0.61
11. Drug allergy	4.04	0.60
12. Cross-hypersensitivity	4.00	0.63
13. Drug of choice in the case of allergic to pennicillins	4.31	0.55
14. Resistance to beta-lactamase of bacteria	4.31	0.62
15. Combined drug used to enhance power of drug action	4.27	0.60
16. Power of drug action between each medicine	4.31	0.68
17. Action of combined agent combined drug	4.23	0.43
18. Overall of interpretation between screenplay and pharmacology contents	4.12	0.82
Total	**4.20**	**0.82**

Note : n = 34 (31 students of experiment group and three experts)
5 point rating scale

Table 2: Short movie evaluation as an innovation learning material in pharmacology

Item evaluation	Mean	S.D.
1. It is a novel material in pharmacology learning	4.23	0.59
2. There are innovation's objectives and goal	4.00	0.57
3. Design to produce the short movie	3.92	0.48
4. Can be used as the objective's direction	4.46	0.51
5. Screenplay and pharmacology contents are consistency	4.23	0.59
6. There is pharmacology reviewed before writing screenplay and film production	4.00	0.80
7. Coving in pharmacology contents		
8. Use as a complementary material for learning	4.15	0.67
9. Use as a comprehensive replacement for learning	3.85	0.67
10. Innovation development procedure consists to learning objectives	3.92	0.63
11. It can be interpretation to pharmacology contents	4.23	0.59
12. It is interesting material	4.08	0.84
13. Suitable for students' needs	4.08	0.74
14. Organization and personnel participate in innovation development	4.38	0.64
15. It is usefully material	3.92	0.74
16. It is accepted as a pharmacology material learning	3.69	0.62
17. This innovation can be further development	3.92	0.74
18. Value of academic work	4.00	0.80
19. Value of innovation	4.31	0.62
20. Sufficiency benefits to subjects	4.23	0.71
21. Easy to understand and use	4.46	0.76
22. There is the way to use, present, or to be published	4.23	0.99
	4.46	0.65
Total	**4.12**	**0.12**

Note : n = 34 (31 students of experiment group and three experts)
5 point rating scale

The interpretation between short movie screenplay and pharmacology contents was found that overall mean is 4.20. The first three highest mean on issue interpretation are the clearly of group of anti-bacterial agents, ability of anti-bacterial agents to acid resistance and drug action. The lowest mean on interpretation is recommendation of time used (Table 1).

Short movie evaluation as an innovation learning material in pharmacology was found that overall mean is 4.12. The first three highest mean on item evaluation are the film can be used as the objective's direction, there is the way to use, present, or to be published and sufficiency benefits to subjects. The lowest mean on item evaluation is the film is usefully material (Table 2).

The comparison of mean between two groups was found that the mean of experiment group, studied through short movie, is significant higher than the control group, traditional learning (p-value < 0.001).

Table 3 Pharmacology knowledge score between traditional learning and learning through short movie by independent t-test

Data	Mean	S.D.	p-value	95% CI interval	
				Lower	Upper
1. Pharmacology knowledge score : traditional learning	11.63	2.39	0.000	1.90	4.02
2. Pharmacology knowledge score : learning through short movie	14.60	1.78			
Traditional learning Max 16.00 Min 8.00			Learning through short movie Max 17.00 Min 9.00		

5. Conclusion

The interpretation between short movie screenplay and pharmacology contents was found that the highest mean on issue interpretation is the clearly of group of anti-bacterial agents and the lowest mean on interpretation is recommendation of time used. The evaluation of short movie as an innovation learning material in pharmacology was found that the first highest mean on item evaluation is the film can be used as the objective's direction and the lowest mean on item evaluation is the film is usefully material. The mean of the students studied through short movie is significant higher than the group of traditional learning. However, further development of this innovation should be made.

6. Acknowledgements

This innovative research could not successfully completed without the kindness of Dr.Parichat Utaipan, Mr.Chainarong Chootong, and Ms.Arunothai Derramun, licensed pharmacists who gave appreciate suggestion, checked and corrected the screenplay of the short movie. Thanks to Sirindhorn college of public health,Yala for financial supported to produce the innovative research of short movie on pharmacology knowledge and Praboromarajchanok institute of workforce development, The Ministry of public health to support the budgets to present this research in the international conference. And the special thanks to students of Bachelor of Thai Traditional Medicine and Bachelor of Science (Community Health) for their helpful . Thank also to Mr.Paiboon Chaosuansricharoen, associated director in academic section for his kindness, encouragement, and convenience supported.

7. References

[1] Al-Ruz, J. A., & Khasawneh, S. Jordanian Pre-Service Teachers' and Technology Integration: A Human Resource Development Approach. *Educational Technology & Society*. 2011, **14**(4): 77–87.

[2] D A Simpson. Drama for Learning and Creativity. University of Brighton, School of Education . 2006, pp. 10 – 12.

[3] Efe, R. Science Student Teachers and Educational Technology: Experience, Intentions, and Value. *Educational Technology & Society*. 2011, **14** (1): 228–240.

[4] Franzoni, A. L., & Assar, S. Student Learning Styles Adaptation Method Based on Teaching Strategies and Electronic Media. *Educational Technology & Society*. 2009, **12** (4): 15–29.

[5] Graf, S., Kinshuk, & Liu, T.C. Supporting Teachers in Identifying Students' Learning Styles in Learning

Management Systems: An Automatic Student Modelling Approach. *Educational Technology & Society*. 2009, **12** (4): 3–14.

[6] Hogarty, K. Y., Lang, T. R., & Kromrey, J. D. Another look at technology use in classrooms: The development and validation of an instrument to measure teachers' perceptions. *Educational and Psychological Measurement.*2003, **63**(1): 139–162.

[7] Office of the Basic Education Commission. *Quality criteria of innovation*. Bangkok, 2007.

[8] Sadik, A. Digital storytelling: a meaningful technology-integrated approach for engaged student learning. *Educational Technology Research and Development.* 2008, **56**(4): 487-506.

[9] The National Education Act. Of Thailand. 1999.

[10] Xu, Y., Park, H., & Baek, Y. A New Approach Toward Digital Storytelling: An Activity Focused on Writing Selfefficacy in a Virtual Learning Environment. *Educational Technology & Society*. 2011, **14** (4): 181–191.