การพัฒนาสื่อมัลติมีเดียเพื่อให้ความรู้ เรื่อง การส่งเสริมพัฒนาการเด็กปฐมวัย
ในบริบทของชาติพันธุ์อาข่า

The Development of Multimedia Education on Promotion of Early Childhood
Development in the Context of Akha Ethnicity

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บทคัดย่อ

การวิจัยเชิงพัฒนานี้มีวัตถุประสงค์เพื่อ 1) ศึกษาสถานการณ์การส่งเสริมพัฒนาการเด็กปฐมวัยชาวอาข่า 2) พัฒนาและประเมินผลสื่อมัลติมีเดีย เรื่อง การส่งเสริมพัฒนาการเด็กปฐมวัยในบริบทของชาติพันธุ์อาข่า การศึกษาสถานการณ์ใช้ระเบียบวิจัยเชิงคุณภาพ เลือกผู้ให้ข้อมูลสำคัญ จำนวน 52 คน ด้วยวิธีเฉพาะเจาะจง และแบบลูกโซ่ วิเคราะห์ข้อมูลโดยการตรวจสอบแบบสามเส้า และการวิเคราะห์เนื้อหา การทดสอบสื่อมัลติมีเดียใช้กลุ่มตัวอย่าง คือ ผู้เลี้ยงดูหลักเด็กปฐมวัยชาวอาข่า จำนวน 53 คน คำนวณประสิทธิภาพของสื่อมัลติมีเดียตามเกณฑ์มาตรฐาน E1/E2 วิเคราะห์ผลสัมฤทธิ์ทางการเรียนรู้ของผู้เลี้ยงดูหลักก่อนและหลังใช้สื่อมัลติมีเดีย และความคงทนในการเรียนรู้โดยใช้สถิติ Paired-Samples t-Test และวิเคราะห์ข้อมูลความคิดเห็นของผู้เลี้ยงดูหลักที่มีต่อสื่อมัลติมีเดียโดยใช้โดยค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน

ผลการวิจัยพบว่า 1) สถานการณ์การส่งเสริมพัฒนาการเด็กปฐมวัยในบริบทของชาติพันธุ์อาข่ามีข้อค้นพบหลัก ได้แก่ ความเชื่อ ความรู้ กิจกรรมและอุปสรรคในการส่งเสริมพัฒนาการผู้เลี้ยงดูหลักเด็กปฐมวัยชาวอาข่า 2) ประสิทธิภาพของสื่อมัลติมีเดีย มีค่า E1/E2 = 76/91 ผ่านตามเกณฑ์ที่กำหนด 3) ผู้เลี้ยงดูหลักมีคะแนนหลังเรียนรู้สูงกว่าก่อนเรียนรู้โดยใช้สื่อมัลติมีเดียอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 4) คะแนนของผู้เลี้ยงดูหลักหลังการเรียนรู้ด้วยสื่อมัลติมีเดีย 15 วัน ไม่มีความแตกต่างกันกับการทดสอบครั้งที่ 1 อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และ 5) ผู้เลี้ยงดูหลักมีความคิดเห็นที่มีต่อสื่อมัลติมีเดียในระดับเห็นด้วยอย่างยิ่ง (ค่าเฉลี่ยเท่ากับ 4.75 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ .64)

คำสำคัญ: การพัฒนาสื่อมัลติมีเดียเพื่อการศึกษา, การส่งเสริมพัฒนาการเด็กปฐมวัย, ชาติพันธุ์อาข่า

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ABSTRACT

The purposes of this study were 1) to analyze the situation of promotion Akha early childhood development 2) to develop and to assess multimedia education on the promotion of early childhood development in the context of Akha ethnicity. A qualitative method using purposive chain-referral sampling was employed to recruit 52 key informants to the study. Data were analyzed by using content analysis and the triangulation process. The efficiency of multimedia testing E1/E2 was calculated among 53 Akha primary caregivers before and after using the media. The Sample t-test was used to compare the mean knowledge scores before and after using the media; mean and standard deviation was used to analyze Akha primary caregivers' opinions toward the media.

The findings showed that 1) The four main points show the situation toward early childhood development including beliefs, knowledge, activities, and obstacles 2) The efficiency of the multimedia test showed E1/E2 = 76/91 which all met the criteria. 3) The comparison showed that the mean post-test knowledge scores were significantly higher than the pretest at the 0.05 level of significance. 4) There was no statistically significant difference in mean scores between after immediate usage of multimedia education and after 15 days at the significance level 0.05 and 5) 40 primary caregivers had their opinions "strongly agree" toward the use of multimedia education ($\bar{x}$ = 4.75, SD=.64).

Keywords: Development of Multimedia Education, Early Childhood Development, Akha Ethnicity

Introduction

Akha ethnicity is one of the thirteenth ethnic groups originated in southern China. Most of Akha ethnicity in Thailand came from Burma, and they have been settling in Thailand over hundred years in the northern mountainous areas. Chiang Rai province is home to most Akha villages with the approximate population of 80,000 people (Ministry of Social Development and Human Security (MSDHS), 2015). Over the years, Thai government has realized the importance of ethnic minority development which is considered one of national security issues. Akha children have the same rights and responsibility as other Thai people. Akha people have access to basic services including public health which is essential to basic human life. Health promotion and disease prevention are the priority benefits among Thais and ethnic minorities. (MSDHS, 2013; MSDHS, 2015; Strategy and Planning Division (SPD), 2020). Some basic public health benefits for Akha children aged 0-5 years are health assessment and promotion of early

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childhood development. The benefits are vital because it assesses children during their first stage of childhood development, allows the primary caregivers to handle and cope with the problems related to health and well-being of children. As a result, children will grow up developing their mental and physical health according to age and are able to grow up with quality and contribute good deeds to society. In addition, child development is one of the important indicators in monitoring the implementation of the Ministry of Public Health in accordance with Thai National Strategy. The strategy emphasizes the children age group of 0-5 years old from all ethnic minority groups to have the equal standard in monitoring and promoting child development (MSDHS, 2013; SPD, 2020).

From 2015 until now, Thai Ministry of Public Health has continued to develop suitable and effective tools to monitor and promote early childhood development. The ministry of public health (2017) has established a manual for early childhood surveillance and promotion manual: DSPM for normal children age 0-5 years of age and Developmental Assessment for Intervention Manual: DAIM) for children in the risk group (Low Birth Weight or Birth Asphyxia) age 0-5 years of age. In addition, several learning tools on early childhood surveillance and promotion were created in Thai language by Thai government. Therefore, there is a language barrier for Akha parents who do not understand Thai language.

Due to rapid social and economic changes, the ways of life among Akha people have changed from the past. Parents have to leave their homes to work in the city or a foreign country leaving grandparents, especially a grandmother to become a primary caregiver for their children (Jeff, 2014). Majority of elder primary caregivers are unable to communicate in Thai. They usually use Akha language to communicate with their children. Due to this reason, it is an obstacle in receiving health information regarding child development from public health staffs. As a result, primary caregivers lack knowledge in appropriate practice in promoting early childhood development. This is one of the factors causing development delay in Akha's children aged 0-5 years old. A previous study showed that approximately 1,145 children aged 0-5 years old (3.84%) in Chiang Rai province have experienced delay development (HDC service, 2020). It is consistent with several studies which showed that parenting has effects on child development. (Black, Walker, Fernald, Andersen, DiGirolamo, Lu, et al. 2016; WHO, 2017). Other factors preventing Akha primary caregivers from obtaining health information are living in a remote area, living in a remote area, transportations, and inconvenient commutation. Akha villages are located in remote area that is far from health care services and Child Development Center (CDC) in community which makes it difficult to commute from their residence to the city (Jeff, 2014).

Several studies showed that teaching or providing information through multimedia has been proven to help increase knowledge and skills in learner and constantly create awareness among the learners. Multimedia with attention provoking features including still images, moving images, graphics, audio descriptions and music can stimulate five senses among learners which create a fun learning environment. In addition, multimedia education can be used for self-learning through online because of convenience and saving time and money for users. (Xianhong, 2017) Nowadays, the internet has become a part of our lives in a modern world, multimedia education can be viewed online via any devices connected to the internet. In corresponding to the lifestyle of the Akha people, many Akha people receive news and information from the internet (Mirror foundation, 2020). According to the preliminary survey done by the researcher, it found that the survey of 28 Akha caregivers who took their children to receive health service at the 60th Anniversary of Nawaminthrachinuthit, Doi Tung, Chiang Rai, 26 people have mobile phone to connect to the internet. Thai government has organized a project "Border Internet" by providing mobile signal (WiFi) and high-speed internet services to people who are living in mountainous areas covering eight provinces in the upper region, allowing people in highlands to access the internet service including Akha ethnic group. Akha people are able to receive news information easily through the internet; and it is a free of charge (National Statistical Office, 2018). Due to this reason, the aim of this research was to develop and to assess multimedia education on surveillance and promotion of early childhood development in the context of Akha ethnicity for primary caregivers, nurses, and public health staff to have a high quality multimedia education, easily access information regarding early childhood development and cultural appropriateness for Akha ethnic group.

Method

Research settings and participants:

Data collection was performed in Mae Fah Luang district in the northern part of Chiang Rai Province, northern Thailand which is home to most Akha villages. Mae Fah Luang district was on the hilltop and located 65 kms. from the Chiang Rai city and 958 kms. from Bangkok (Google, 2020). Qualitative method using purposive chain-referral sampling was employed to recruit 52 key informants to the study including 20 Akha primary caregivers who are able to communicate in Thai language, 10 village health volunteers, 5 teachers from child development center, 12 registered nurses and public health workers, and 5 directors from health promoting hospitals. The efficiency multimedia testing was performed on 53 participants who were recruited using simple random sampling.

Ethical Considerations:

This research was approved by The Ethics Review Committee for Research Involving Human Research Subjects Phayao University with the certified number 3/017/61. The study process was explained to participants before the study begin. They received both written and verbal information regarding the objectives of the study, the process of the study, and the benefits from the study before they agree to participate. Their information would be kept confidential.

Instruments

1. The Semi-structure interview guide were used to guide a focus group and in-depth interview in 4 major issues including: 1) Beliefs toward childhood development; 2) Knowledge regarding surveillance and promotion of early childhood development; 3) Activities for promoting child development; and 4) Obstacles in promoting early childhood development. The validity of the questionnaire was checked by six experts in the related field of the study.

2. Knowledge questionnaire regarding the promotion of childhood development for Akha primary caregivers. The content validity = .8 and the reliability was tested with KR 21 = .7.

3. The opinions assessment questionnaire for Akha primary caregivers toward their opinions on the usage of multimedia education on promotion of early childhood development in the context of Akha ethnicity. The validity of the questionnaire was checked by 6 experts. The CVI = 0.8. The reliability was tested with the Cronbach's Alpha Coefficient = .8.

4. The fourth instrument was the developed multimedia for promoting the early childhood development based on the context of Akha ethnicity and in the Thai and the Akha language. The multimedia is a cartoon animation together with real Akha persons as presenters which lasted one hour and seven minutes. This media was tried out during the field testing and its effectiveness was at E_1/E_2 = 76/91 against the set criteria of efficiency. It was given to the primary caregivers, and they were immediately assessed their knowledge both after using the developed multimedia and after 15 days. Finally, the primary caregivers were asked to rate their opinions toward the developed multimedia.

Process

Step 1: To study a situation analysis on early childhood development in the context of Akha ethnicity. Qualitative method was employed to the study. The semi-structure interview guide was used to obtain information from focus group interview, group meeting, In-depth interview among 52 key informants. Triangulation process was employed to validate information obtained from different sources and forum was organized to present the issues

obtained from the situation. The obtained information was analyzed using qualitative content analysis based on Graneheim and Lundman's procedure (Graneheim & Lundman 2004). Procedures applied during this step were 1) rereading the entire data of the interview session several times to identify the utmost important information for the study, 2) classify the data and the statements into categories and units, 3) condense, code, and compare the data in terms of differences and similarities through an interpretation process, and 4) thematize the data to link all related information. Ideas and plans for the development of the multimedia education in the context of Akha ethnicity were encouraged from all participants involved.

Step 2: To develop multimedia education on promotion of early childhood development in the context of Akha ethnicity.

The obtained information from literature review, DSPM, and situation analysis was used as a guideline to create an appropriate content, an outline the story board. There were 3 main parts: 1) The definition, the significance and the promotion of well early childhood development, 2) Content on early child rearing for their age-appropriate development, and 3) Content on promotion of early childhood development according to age of children based on DSPM. The researcher has applied the Akha folk toys that were easy to find around the area and relevant to the toys suggested in DSPM so that its objectives would not be misled. The multimedia education was first developed in Thai language. The content was checked by 6 experts, after that translator translated the revised multimedia in Thai format to Akha language sentence by sentence using back translation method. The media production team recorded the audio content in Akha language according to the completed transcripts.

Step 3: The researcher performed the efficiency of multimedia tests based on Chaiyong Promwong's procedure (Chaiyong Promwong, 2013) with 53 Akha primary caregivers Three tests were performed including

1) One to one testing [1:1] tested among 3 Akha primary caregivers. The result showed E1/E2 = 40/85 (not lower than 60/60). After that, the researcher revised the media content and ran the second test with the result of E1/E2 = 70/90 which meets the criteria (Chaiyong Promwong, 2013).

2) Group testing [1:10] the researcher used the revised media content from the prior testing and tested among new 10 Akha primary caregivers with the result of E1/E2 = 72/91 (not lower than 70/70) (Chaiyong Promwong, 2013).

3) Field testing [1:40] the researcher used the revised multimedia from the step 2 to perform the field testing with the new 40 Akha primary caregivers. The result showed E1/E2 = 76-91 (not lower than 75/80) (Chaiyong Promwong, 2013).

At the end of step 3, the Thai and Akha multimedia version to educate the promoting early childhood development was developed. This media contained three main parts including 1) The meaning of development and importance in promoting early childhood development (last 2 minutes), 2) Raising early childhood for having age-appropriate development (last 4 minutes) and 3) Promoting the development for normal children aged 0-5 years in four skills; gross motor, fine motor, language, and personal and social. This last part was divided into 16 episodes (last 60 minutes). At the end of the media, the channels for obtaining counseling and media access channels were presented (last 1 minute). Part one and two were presented with cartoon animation whose characters represented Akha's identity while part three was a virtual reality video filmed in Akha village and performed by Akha caregivers and children.

Step 4: The researcher analyzed the comparison of mean knowledge scores before and after using the multimedia education on and promotion of early childhood development in the context of Akha ethnicity using paired sample t-test. After 15 days, the researcher conducted the second test of knowledge after learning to analyze knowledge persistence or working memory toward the multimedia education on the promotion of early childhood development in the context of Akha ethnicity using the paired samples t-test. (Baddeley, 2012)

Step 5: The researcher analyzed the scores of primary caregivers' opinion toward the usage of multimedia education on promotion of child development in the context of Akha ethnicity using percentage, mean and standard deviation.

Results

1. The situation analysis showed that majority of Akha primary caregivers were mothers and grandmothers. There were four main points explaining the situations including beliefs, knowledge, activities, and obstacles. The detailed are as follows a) Akha people have a belief that Children must carry on family line and inherit their race for generations; therefore, each child must grow up physically and mentally healthy. When the new Akha is born, family will hold a blessing ceremony for bringing good soul to a child and perform a ritual ceremony to inform their ancestral spirits to help protect the child. Akha people also believe that if a child is sick, that is caused by an angry spirit; b) Akha mothers were educated regarding surveillance and promotion of early childhood development at the hospital where they gave birth. However, elders who are grandmothers did not have appropriate knowledge resulting in a slow development of a child; c) Two main activities for child development were allowing children to play freely in nature environment and telling stories to children, and d). Obstacles towards surveillance and promotion of child development were language, location, commuting and lack of learning materials.

2. The results showed the efficiency of multimedia field testing [1:40], E1/E2 = 76/91 which met the criteria; the multimedia education was efficient in increasing knowledge and promoting early childhood development among Akha primary caregivers.

3. The comparison of the mean knowledge scores of Akha primary caregivers between before and after using the multimedia education on promotion of early childhood development in the context of Akha ethnicity showed that Akha primary caregivers had higher knowledge scores after using the multimedia education at the significance 0.05. The mean score before using the multimedia education was 15.12; however, after using the multimedia education, the mean scores had increased to 18.12 at the significance 0.05. (see in Table 1).

Table 1: The comparison of mean knowledge scores of Akha primary caregivers between before and after using the multimedia education on surveillance and promotion of childhood development in the context of Akha ethnicity.

Test	n	mean	SD	t	p
Before using the multimedia	40	15.12	1.34	11.84*	.000*
After using the multimedia	40	18.12	2.72		

*$p < .05$

4. The results showed that there was no statistically significant difference in mean scores between after immediate usage of the multimedia education and after 15 days usage of the multimedia education on promotion of childhood development in the context of Akha ethnicity (see in Table 2).

Table 2: Knowledge Persistence toward the multimedia education on the surveillance and promotion of early childhood development in the context of Akha ethnicity

Test	n	mean	SD	t	p
After using the multimedia					
1st Time	40	18.12	1.93	2.14*	.071*
2nd Time	40	18.15	2.72		

*$p < .05$

5. The results showed that the number of 40 caregivers had their opinions "strongly agree" toward the use of multimedia education on promotion of childhood development in

term of these features: media characteristics suitable for users, completeness/comprehensive, of the content, content neither too easy nor too difficult, new content to learn, content understandable, clear and easy to understand of presented images, good sound quality, font styles, size, and color clear and easy to read, content interesting of the content, and overall satisfaction of the user (see in Table 3).

Table 3: Akha primary caregivers' opinions toward multimedia education on promotion of early childhood development in the context Akha ethnicity.

Assessment	Mean	SD	Comments
Media characteristics suitable for users	4.75	.44	Strongly Agree
Content comprehensive/completeness	4.63	.49	Strongly Agree
Content neither too easy nor too hard	4.58	.64	Strongly Agree
New content to learn	4.58	.50	Strongly Agree
Content understandable	4.65	.48	Strongly Agree
Images presented clear and easy to understand.	4.78	.42	Strongly Agree
Good sound quality	4.75	.44	Strongly Agree
Font styles, size and color clear and easy to read.	4.75	.44	Strongly Agree
Content interesting	4.73	.45	Strongly Agree
Overall, users were satisfied with the multimedia education	4.75	.44	Strongly Agree
Conclusion	4.69	.64	Strongly Agree

Discussion

In this research, the researcher discussed the results according to the following objectives:

Objective 1: The aim was to conduct a situation analysis on early childhood development in the context of Akha ethnicity. The findings showed four main points explaining the situation including beliefs, knowledge, activities, and obstacles regarding promotion of early childhood development.

1) Akha children have to carry on family line and inherit their own race; in which this belief is consistent with the Eastern Nations (IMPECT, 2020; Jeff, 2014). Children have to grow up physically and mentally strong without any disabilities. Due to the lifestyle of Akha ethnicity in the past, they relocated their homes in search for abundant areas for agriculture. Born children must be physically healthy as not to be a burden for family members when migrating (IMPECT, 2020; Jeff, 2014). When the new baby is born, the family will hold a blessing ceremony for the baby. They believe that the ritual is to welcome holy soul to protect the baby and to inform the ancestral spirits to protect the child from being sick (MSDHS, 2015). Akha people believe that once their ancestors died, their souls would return to the land where they were born to help protect family members (IMPECT, 2020; Jeff, 2014). In addition, if a

child is sick, it is caused by angry spirits; in which there could be a person doing something wrong and a child gets punishment. Therefore, family members have to perform a ritual reuniting the holy soul with the child's body in order to recover from sickness. Children who have strong physical, mental, and spiritual health will be able to learn something new. As a consequence, they will develop at a pace that is appropriate for their ages. This is consistent with ethnographic studies on beliefs among Akha ethnic group (Jeff, 2014).

      2) In term of knowledge, it found that Akha mothers were educated regarding surveillance and promotion of early childhood development at the hospital where they gave birth and where their children received vaccinations. Nowadays, public health in Thailand provides more health services to remote areas than the past. Akha people realize the great importance to the survival of mother and child health; therefore, safe delivery and vaccinations are top priority for Akha family (Jeff, 2014). As a result, many Akha mothers deliver the baby and take their children to receive vaccinations at public health facilities more comparing to the past. The findings showed that Akha mothers have knowledge regarding early childhood development obtained from health facility; however, primary caregivers who are grandmothers or elders in the family did not have appropriate knowledge resulting in a slow development of a child. Moreover, elderly caregivers were not able to communicate in Thai language which could create an obstacle in obtaining health information from public health staff. In addition, it is difficult to use the DSPM or DAIM instrument to identify a child's delayed development.

      3) Two most common activities used for promoting early childhood development among Akha ethnic group were letting children play freely and telling tribal stories to children. It's because Akha people build houses close to each other, children have playmates of the same age in the neighborhood. Children create toys found from nature; and their creativity are encouraged from nature and its surroundings (Jeff, 2014).

      4) There were several obstacles in promoting early childhood development among Akha ethnicity; for instance, elders who played a role as a primary caregiver were not able to communicate in Thai; it is difficult to commute from their residence to hospital located in the city, they live in a remote area which is far from health promoting hospital and they lack appropriate learning material to educate primary caregivers toward surveillance and promotion of early childhood development.

Objective 2: To develop and to assess multimedia education on promotion of early childhood development in the context of Akha ethnicity.

      The efficiency of the multimedia test showed E1/E2 = 76/91 which all met the criteria.

Based on the test results, the multimedia education was efficient in increasing knowledge and promoting early childhood development among Akha primary caregivers. The researcher developed the multimedia education in Akha language. Back translation method was employed to translate the completed translation back into the original language in order to avoid any meaning differences between the two languages. The media contained images and sound that allowed users to learn detailed content in a concrete way, which it is more effective comparing to the traditional class lecture. Moreover, it helped users to continue engage in learning and comprehend the content shown in the media through the sound and animation in the context of Akha ethnicity. In addition, the content used in the multimedia education has been revised several times according to the recommendations of Akha primary caregivers and the correctness clarity of the academic content. In order to provide users with different learning abilities and comprehend academic content with reasonable duration without feeling boredom while learning, the researcher and media production team adjusted the length and divided the content into 16 episodes. Each episode contained learning content according to the age of children which allowed users to choose the episode that interest them. More importantly, the multimedia education contained animated introduction; in which the media producer designed a cartoon characters that maintained the Akha's identity through the sound, the dress and actual situations. The actors and voice actors are Akha people who are currently residing in Mae Fa Luang district. These features helped attract learning attention of the users and made them feel that the multimedia education was developed especially for Akha people.

Objective 3: To compare knowledge scores of the Akha primary caregivers before and after using the multimedia education was developed.

The comparison of the scores between before and after using the multimedia education on promotion of early childhood development in the context of Akha ethnicity showed that Akha primary caregivers had higher knowledge scores after using the multimedia education at the significance 0.05. This enabled Akha primary caregivers to understand and learn the content better than listening to teaching staff who used academic Thai language. Moreover, the multimedia education contains images and sound that portrays actual situations in the context of Akha ethnicity, which can stimulate the learning experience through sensory including eyes and ears causing users to pay attention and perceive information while using the media. The features in developed multimedia education in the context of Akha ethnicity helped create a process of learning among users. This is consistent with the theory of learning; in which the learning process requires three important components including stimulus, learner, and response. In this study, multimedia education was used as a stimulated learning tool applied

from the theory of learning process in order to motivate the Akha primary caregivers to realize the importance gained that will benefit to their children. In turn, it created a change response according to new knowledge gained among Akha primary caregivers (Mirror foundation, 2020; Xianhong, 2017).

Objective 4: To study knowledge persistence toward multimedia education of the Akha's primary caregivers

The result showed that there was no statistically significant difference in mean scores between after immediate usage of the multimedia education and after 15 days usage of the multimedia education on promotion of childhood development in the context of Akha ethnicity at the significance level .05. This can be explained that the developed multimedia was presented in many features including slides and cartoon animation with fonts and sound in the context of Akha ethnicity which enabled users to understand easier and become familiar with the media. This enabled Akha primary caregivers to gain tangible learning experience and to comprehend detailed content shown in the media which helped users to memorize faster and obtain knowledge longer better than learning from staff through class lecture (Xianhong, 2017).

Objective 5: To explore opinions of primary caregivers toward using a multimedia education

The findings showed that the number of 40 primary caregivers had their opinions "strongly agree" toward the use of multimedia education on promotion of childhood development ($\bar{x}$= 4.75, SD=0.64) as shown in the Table 3. It's because the multimedia education was brainstormed and developed by real media users including Akha primary caregivers, media production team, and experts in the field of child development. Moreover, there had been several revisions of the media to meet the basis of academics, and more importantly it had been developed within the cultural context of Akha ethnicity. With the involvement of Akha people in the process of production, they felt that this multimedia education on surveillance and promotion of childhood development was really suitably developed and created for them.

Recommendations

1. A developed multimedia education from this research can be applied as a model development in providing education to other ethnic groups with similar cultural and community contexts.

2. A developed multimedia education from this research can be used as a tool in action research for promoting Akha child development.

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