



**THE DEVELOPMENT OF THE LUMPINEE PARK
NATURE LEARNING GUIDE FOR THE FAMILY**

POLICE CAPTAIN KRITSANA CHUCHUAY

**With compliments
of
บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล**

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NATURE LEARNING GUIDE FOR THE FAMILY**



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The purpose of this study was to develop a learning guide for families to learn about nature in Lumpinee Park and to assess the learning guide quality. The process of this research was divided into three steps. First was development of the learning guide by consulting with three experts and advisors. Second was improvement of the learning guide 2 times by trying it out with one family and then with four families, consecutively. Third was the experiment using the learning guide with 32 families in Lumpinee Park by accidental random sampling. Authentic assessment, research observation and questionnaire were used in the evaluation by the children's parents. Frequency, percentage and descriptive statistics were used for this analysis.

The results showed that (1.) most children could answer all questions correctly, except for the sixth worksheet (Find the Insects), which was due to an environmental change that made the children unable to answer. However during use of the learning guide, the children joined in the activities. (2.) Most parents were satisfied at a moderate level in regards to the learning guide, worksheet and instrument for activities.

Therefore, it can be concluded that the learning guide developed by the researcher was efficient for enhancing childrens' learning in Lumpinee Park, which can be organized by themselves, in the family car.

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การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อพัฒนาคู่มือการเรียนรู้ธรรมชาติสำหรับครอบครัวในพื้นที่สวนลุมพินี กระบวนการวิจัยประกอบด้วย 3 ขั้นตอนคือ ขั้นตอนที่ 1. การสร้างคู่มือการเรียนรู้ธรรมชาติสำหรับครอบครัวในพื้นที่สวนลุมพินี โดยการปรึกษาผู้ทรงคุณวุฒิ 3 ท่าน และอาจารย์ที่ปรึกษาวิทยานิพนธ์ ขั้นตอนที่ 2. คือ การพัฒนาคู่มือการเรียนรู้ธรรมชาติสำหรับครอบครัวในพื้นที่สวนลุมพินี โดยการนำคู่มือที่สร้างขึ้นไปทดลองใช้กับครอบครัวที่มาใช้บริการสวนลุมพินีจำนวน 2 ครั้ง ครั้งแรกกับ 1 ครอบครัว ครั้งที่ 2 กับ 4 ครอบครัว ขั้นตอนที่ 3 คือการนำคู่มือที่ปรับปรุงแล้วไปทดลองใช้เพื่อประเมินผล กลุ่มตัวอย่างคือครอบครัวที่มาใช้บริการในสวนลุมพินีจำนวน 32 ครอบครัว ซึ่งได้มาโดยการสุ่มตัวอย่างแบบบังเอิญ (Accidental random sampling) วิธีการประเมินคือการประเมินผลตามความเป็นจริง โดยการสังเกตของผู้วิจัยและการใช้แบบสอบถามความพึงพอใจของผู้ปกครอง วิเคราะห์ข้อมูลโดยใช้สถิติแบบพรรณนา

ผลการวิจัยพบว่า (1.) เด็กที่เข้าร่วมกิจกรรมส่วนใหญ่สามารถทำกิจกรรมถูกต้องเกือบทุกกิจกรรมยกเว้นใบงานที่ 6 (ตามหาแมลง) เนื่องจากมีการเปลี่ยนแปลงสภาพแวดล้อมของพื้นที่ศึกษา แต่จากการสังเกตเด็กทุกคนมีความสนุกสนานในการทำกิจกรรมตามคู่มือ (2.) ผู้ปกครองส่วนใหญ่มีความพึงพอใจต่อคู่มือ ใบงาน และกิจกรรมในการเรียนรู้ในระดับปานกลาง

โดยสรุป คู่มือการเรียนรู้ธรรมชาติสำหรับครอบครัวในพื้นที่สวนลุมพินี สามารถนำไปใช้ในการส่งเสริมการเรียนรู้ในพื้นที่สวนลุมพินีได้ โดยผู้ปกครองสามารถเป็นผู้บริหารจัดการการเรียนรู้ได้ด้วยตนเอง

CONTENTS

| | page |
|---|-------------|
| ACKNOWLEDGEMENTS | iii |
| ABSTACT | iv |
| LIST OF TABLES | viii |
| LIST OF FIGURES | ix |
| CHAPTER | |
| 1. INTRODUCTION | |
| 1.1 Background of the study | 1 |
| 1.2 Objectives | 2 |
| 1.3 Research questions | 3 |
| 1.4 Limitation of the study | 3 |
| 1.5 Assumption | 3 |
| 1.6 The definition of the terms | 3 |
| 1.7 Significance of the Research | 4 |
| 1.8 Conceptual framework | 4 |
| 2. LITERATURE REVIEW | |
| 2.1 The pre-school childrens learning | 5 |
| 2.2 The nature interpretation | 11 |
| 2.3 The construction of nature trail guide | 16 |
| 2.4 The Lumpinee Park | 20 |
| 3. METHODOLOGY | |
| 3.1 The developments of the learning guide | 23 |
| 3.2 The improvements of the learning guide | 29 |
| 3.3 The experiments of the supplementary reading learning guide | 29 |
| 4. RESULTS | |
| 4.1 The Lumpinee Park nature learning guide for the family and supplementary media | 34 |
| 4.2 The family and learning results | 36 |

CONTENTS(cont.)

| CHAPTER | page |
|---|-------------|
| 4. (Cont.) | |
| 4.3 The results of parents' evaluation | 39 |
| 4.4 The prompt and the limitations of the Lumpinee Park nature learning guide for the family | 44 |
| 5. DISCUSSIONS | |
| 5.1 Learning guide for Environmental Education for Families who visit Lumpinee Park | 47 |
| 5.2 Children's Learning Results | 47 |
| 5.3 Parents' Satisfaction | 49 |
| 6. CONCLUSIONS | |
| 6.1 Research Summary | 53 |
| 6.2 Research Recommendations | 57 |
| 6.3 Recommendations for Further Research | 57 |
| BIBLIOGRAPHY | 59 |
| APPENDIX A | 62 |
| APPENDIX B | 74 |
| APPENDIX C | 80 |
| APPENDIX D | 82 |
| BIOGRAPHY | 91 |

LIST OF TABLES

| TABLES | Pages |
|---|--------------|
| 1. The concepts and learning objectives | 24 |
| 2. Frequency and percentage of general characteristics of the parents who participated the activities | 36 |
| 3. Frequency and percentage of the general characteristics of the child who participated the activities | 37 |
| 4. Frequency and percentage of the results of child's activities that show in there work sheets | 39 |
| 5. Frequency and percentage of the parents to the learning guide, the work sheet and instrument for activities | 41 |
| 6. Frequency and percentage of the parent's opinion for the learning guide, the work sheet and instrument for activities. | 43 |

LIST OF FIGURES

| FIGURES | Pages |
|--|-------|
| 1. Conceptual framework of the research. | 4 |
| 2. The learning guide development process. | 33 |



CHAPTER I

INTRODUCTION

1. Background of the study

The environment education management needs solving permanently the environmental problems. The United Nations Organization recommended at a meeting in Tbilisi City, USSR. In 1977 that the environment education management must be set to for all people and for any socio-economy. The aim of environmental education is to develop population's quality and awareness of this problem by themselves (Vinai Weerawatananon and Banchun Sriphanpong, 1996: 17-31).

The pre-school child should learn about the environment, and activities should set balance with child development. The Office of the National Education Commission (1999: Executive Summary) concluded that the authentic activity was the best way to help them learn with efficiency. They need to learn by searching process, and to learn by truth media. The pre-school had specific learning process and they need to learn by playing and the appropriate activities that balance with childhood. Besides this process, the efficient supporting by construction the knowledge is constructing the power to learning that helps them to be good persons.

Youvapha Dechakup (1999: 7) said the activities for child's learning should balance in learning and playing. It should be managed with the conceptual on learning by doing. The activities not only emphasis the literate study, but also should prepare them for development all of physical, mind, social and intelligent. In addition, the child should learn from the real object and learn in the natural condition. By this study the child would be close up by nature then would love and conserve the nature. Prathammapidok (cite by Kansuang Atipho and Anuchat Pongsumlee, 1996:190) said that "if we need to conserved the nature, we must love it an if we wanted to love the

nature, we must happy to live with nature . The education which teach human love the nature should started from the childhood in order to help them to developed together with the nature too.

The parents have a main role to bring their childs to the natural learning. They have more opportunity than teachers to took them traveling and take care them more than studying in school. The National Education Act 1999, presents the participation which the family or parents have a role to set an education management. The family was very important in order to support childs' childhood development. Sucha Chanaim (1998: 146) said the family was the first institute that closes up and along time with them. In addition to constructed the childs with happy life, the parents should be good model for their imitation. It was the most important of social institute. Phantip Siriwanabud (1993: 2) said the family was the first social institute represents of relation, value, and attitude to join with a new generation members for a warm family. So, this institute was more efficiency to set the childs learning experience. The 3-6 years of pre-school was a creative ages and imitation their families. So, the researcher interested in constructed the Lumpinee Park nature learning guide for the family in order to developed the childs learning experience.

Lumpinee Park has been choose in this research, because it was a public park for people and location's in the central city. There were many people about 7,000 persons/day and 25,000-30,000 persons/day in holiday to visited this park. (Department of Public Park, 1995: 22). If the researcher has developed the natural learning guide for the family in Lumpinee Park, the parents can used it to management the environmental education by themselves.

2. Objectives

2.1 To develop the Lumpinee Park nature learning guide for the family.

2.2 To try out and examine the childs' learning achievement gained by using this learning guide.

2.3 To study the quality of the Lumpinee Park nature learning guide for the family on the structure and language used in the learning guide.

3. Research questions

3.1 How much percentage of the childrens could pass examinations and activities by using this learning guide?

3.2 In what level the quality of learning guide is?

3.3 What are the problems of using this learning guide?

4. Limitation of the study.

The target of this research was the Thai family who visited to Lumpinee Park.

5. Assumption

5.1 The parents could literate and understood to use the learning guide.

5.2 The childs have a good health and intelligence to do activities by this learning guide.

6. The definition of terms

Lumpinee Park nature learning guide for the family means a small learning guide that the researcher constructed for the parents to set up learning activities for their child at Lumpinee Park on environmental education.

The parents means father or mother or the both of them or relative who take care the child during visited to Lumpinee Park.

The 3-6 years childhood means the 3-6 year childrens who visited to Lumpinee Park with their parents.

The family means the adults and childrens who visited together in Lumpinee Park.

The natural trail means the nature trail that the family took their member learns about nature by using this learning guide.

To used the nature learning guide means the parents could understood this learning guide by reading and listening researcher's suggestions and then practiced along with the trail guide.

The satisfaction of nature learning guide means the level of parents satifaction evaluated by nine parts and 42 indexes of the contents in this guide as the format, language, knowledge, activities for childrens and activities for the parents. In statement, The parents specify the 4 level of satisfaction as very good, good, fair and to be adjust.

7. Significance of the research

7.1 It was bring to the pattern of environmental education activities of the early childhood, which the parents as a director managed in learning.

7.2 It was bring to family nature learning guide in the Lumpinee Park where increases relation in their family. They learn to participate by all activities in Lumpenee park.

7.3 There was a guideline to develop the others family nature learning guide.

8. Conceptual framework

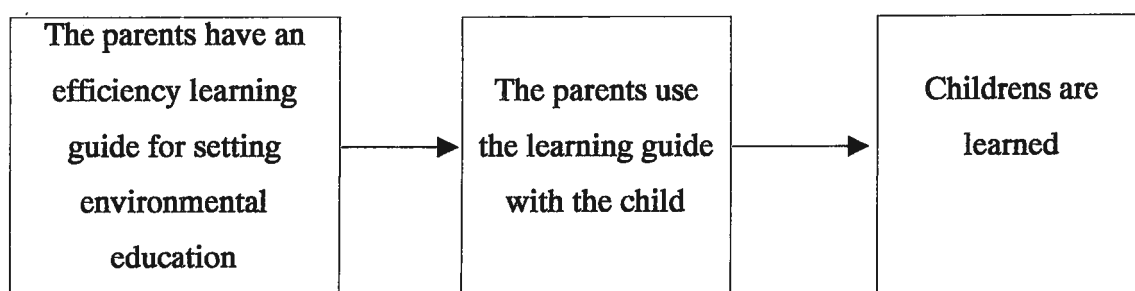


Figure 1 Conceptual framework of the research

CHAPTER II

LITERATURE REVIEW

In this research, the researcher studies about issues in detail like this:

1. The Pre-school childrens learning.
 - 1.1 The theory and development of pre-school children learning.
 - 1.2 The curriculum for 3-6 years old childrens
 - 1.3 The evaluation for pre-school childrens learning.
2. The nature interpretation
 - 2.1 Meaning and objectives of nature interpretation.
 - 2.2 Concepts of nature interpretation.
 - 2.3 The media's of nature interpretation.
 - 2.4 The interpretive trails.
3. The construction of natural trail guide
 - 3.1 Meaning and general characteristics of trails guide.
 - 3.2 The nature trail guides design.
 - 3.3 The writing of natural trail guide.
4. Lumpinee Park
 - 4.1 The historic of Lumpinee Park.
 - 4.2 The general of Lumpinee Park.
 - 4.3 The interesting things and activities.
 - 4.4 The travel convenience.

1. The pre-school childrens learning.

- 1.1 The theory and development of pre-school children learning.

Office of the Private Education Commission (1997:1-3) divides the pre-school children development as the physical development example: run, jump, climb, kick, drawing etc. The mention development was the ability to help themselves, the

participation with other people, the love and the responsibility. The intelligent development is the language ability, mathematics, reason, group dynamics, the touches, leaning and thinking etc. All of development have among relation. Example, playing in the yard would support the physical development and mental development too. There was estimated the distance, solving the problems including to developed all three parks. Because they pay, it made them to socio relate with another people.

Erickson (cited by Peangjit Danpadit, 1999: 18-25) who was the father of mental and social development theory said that: The early age was importance because it was a background of personal characteristic and in this age the relation between child and another peoples were influent to childs development. The childrens who were in an experience' learning, especially the pre-school childhood was creation. Because their environments were talents for them to efficiently ability, it makes them to created the sense of initiative. If their parents were understood them, it was a change opportunity for give good attitude and value. They respected their parent to represent with a pattern.

The pre-school childs have an independent physical ability, enthusiastic to infinite learning. For a moment, the childs need help to experience learning from their parents. This process was emerging all the time. If the parents set time for systematic, it would support the childs development too. This systematic needs the education theory to guideline the systematic. (cited by Arawan Chanapolakri : 1998, 9-14)

Piaget's Theory, Piaget said about three components of this theory as follows:

1. Adults who have a duty to educate childrens.
2. The objectives and environmental situation.
3. The childrens or the persons who want to learn.

He said that the childrens were the heart to set systematic. Adult should bring an appropriately education as the objective and environment, situation believes that it will be a good way for learning if the learners have an opportunity to touch the objects and the environmental conduction by themselves.

The empiricist's theory belongs to Gagne. His idealism wasn't difference from Piaget's theory. That knowledge was hold on the external environment of the learners knowledge also appear after they touch with the physical organs. The effective learning would good not to hold on the complete learners. His opinion was contrast from Piaget that Adult were the heart to set the systematic, because they were prepare to set the content of knowledge for needed to learning. It was complex for another details.

The Ausubelian's Theory belongs to Joseph Novax who has looks like the 4 concepts with Gagne as: 1) adult was a heart of systematic 2) knowledge was hold on the natural 3) the knowledge would appear when the learner were complete to learn 4) there were set in order to learn from easy step to hard step knowledge.

His idealism was contrasted from Gagne' theory that they should to learn with basic contents before the deep contents.

The Vygotsky's Theory belong to L.S. Vygotsky said that the child's learning was came from the efficiency participation of 3 components as: the first, the learners: the second, the adults and the third, the problems that he didn't emphasis the 2 components for the heart of learning.

1) The childs would supported by adults setting.

2) The learners who refused for learning need help from adults to supported them for special learning.

Vygotsky set the 3 components that influent for childs learning by adult as follows:

1) They enforced the criteria for childs' learning.

2) They set a frequency of activities for experience contraction.

3) They limited the discriminate for childs' learning activities.

The problems' Vygotsky were the condition that adults plan for the child was it appropriate for childs' learning. It should hold on the abilities and promoted of childs.

Another theories of development for set the pre-school learning, John Lock, et al (cited by Phatcharee Phonyothin, 1994: 121-125) said that the experience and environment were important for childs' development. B.F. Skinner said that the human behavior was came from the environment reaction and the ability for change the behaviors with enforcement. But Sigmund Freud didn't agree with this concept. He thought that the main influent of development came from internal of them all of physical, mention and social. His opinion contrasts from John lock, B.F. Skinner but it has been compared with Gesal. He thought that the childs' development hold on age and their behavior. Their parents should gave the independent for interesting activities.

In addition to the learning theories, in each theories were different in other detail for childs' learning. The same components of pattern learning were learners, adults and the essential knowledge. The parents have a main responsibility for set the childs' leaning.

1.2 The curriculum for 3-6 years old childhood.

The curriculum for 3-6 years old childhood was emphasis to develop all of parts. There were high participate with the family and community to set the curriculum. There were 10 characteristics of the essential aims such as: (Department of Education Techniques, 1997: 31-32)

- 1) To developed the good health and development.
- 2) To used the muscles with ability and balance.
- 3) To made an enjoy and happiness for themselves and other people.
- 4) To be good ethics and responsibility.
- 5) To help themselves with appropriately.
- 6) To live with their family and to be a good social members.
- 7) To love the nature, social environment and Thai value.
- 8) To be a good communication.
- 9) To solve any problems and good attitudes.
- 10) To is creative thinking.

Besides 10 characteristics all above, the Department of Education Techniques (1997: 34-35) sets the basic of pre-school childhood experience with 15 characteristics as follows:

- 1) To supported and promoted the development continuity.
- 2) To supported and promoted with psychology development and childs' learning.
- 3) To hold on the child centered the teacher as a supporter to set the child learning.
- 4) To set the warn environment for learning.
- 5) To set the multi – discriprinary activities for development.
- 6) To set the direct experience for child learning.
- 7) To set participate among materials, child and adults.
- 8) To set the balance activities.
- 9) To set the childs' learning with variety activities.
- 10) To set the childs' development in essential process more than productivity.
- 11) To set balance with environment, social culture and for use in everyday life.
- 12) To set the responsibility a commonsense activities for themselves and community.
- 13) To bring the child to participate plan in their activities with another people.
- 14) To evaluated the development with process continuity and was part of experiences.
- 15) To set a participation between the parent and community for childs' development.

The pre-school childhood experience was setting to work an all activities by themselves. They used their organs for fun, learning and development so, there were contrast for experience childs' learning, there were one that agree with idealism was wanted the childs' to learn with highly efficiency.

Office of the National Education Commission (1999: Executive Summary) fix the model of pre-school childs' learning that was a heart of learning. There was a

process of authentic activity for participation to social competence, support self-esteem and dare to think or performance. It was balance with Neo-humanness Education (Kearttiwan Amartayakul, Mimeographed: 9-23). This idealism was emphasis to teach and developed the personality. It was likely to say that holistic Education was developed the perfect human.

Above the summary, It could conclusion about the process to childs' learning as follows:

- 1) To set the order of contents from easy step to hard step.
- 2) To set the order of general contents and deep, respectively.
- 3) There was select the easy and appropriate words correctly.
- 4) Should add the activity for multi-disciplinary.
- 5) The childs' would touch the nature by themselves.
- 6) The childs' pass the other play, which make an opportunity to choose by their interesting.
- 7) Adults have a duty for construct the conditions to talent the childs' ability for learning.
- 8) Adults were observable for childs' learning. They were facilitator and encouraged them.
- 9) Adults should followed to close up with childs' leaning. Their role would help them to adjust their learning.
- 10) Adults should avoid the enforcement for them.

1.3 The evaluation for pre-schools childs' learning.

Office of the National Education Commission (1997:1) said the process of evaluation of pre-school childs' learning, It was an evaluated their behavior in each age groups. The results data were guideline for developed of individual persons in a parts of physical, mention, social and intelligence. Besides the contents, Office the National Education Commission (1997) said the guideline for evaluation the childs' development as follows:

1) The observation, teachers should observe them while they play in a groups or individual. It was the way to know their development. Teachers should record everything from them for list the criticism to set the activities in the future.

2) The conversation, the teachers talk about their students. It's help to know the ability of childs' communication. Besides the data, it would helps the teachers to know the home environment and their mind.

3) The data from interview which help the teachers to know about the language development, the speech disorder as clear or unclear speech. In addition to the useful, it helps to know about the intelligent development, the capacity of solving and thinking being to the children.

4) The collecting or port-folios, These data are helping the teachers know the child development.

5) The test of drawing, It could help teacher know the same information among the childrens. They should write the test in their familiar environment.

In this research, the researcher would like to evaluate the childs' learning by the test of drawing with port-folios because of the activities in trails with their parents. So, they have a familiar with the environment and could draw it in the test. This test could show the childs' development in each part of them.

2. The nature interpretation

2.1 Meaning and objectives of nature interpretation.

Tilden, et al. (1987:8) said the meaning of nature interpretation, that was a good plan activity to disclose the meaning and reaction of area for revelation to touch a direct experience by the objects. Yupharej Wangyaishim (1997: 29) has agree with Tilden but she add about it that the natural interpretation has been choose for a target groups, convenience and conditions.

Phicha Phitayakajornwut (1998: 1) said, the meaning of natural interpretation that were clearly revelation, value and attributable beauties of natural components. It was the change from negative behavior human to positive behaving human or from the

destructive to the constructive by directly approaches revelation between human (perception organs) and natural.

In addition to conclusion about the nature interpretation, it was one of natural activities with good plan. It was perfect by revelation, values and complete the natural attributable beauties. It could change human behavior from destructive too constructive and adjust for target groups with any conditions.

The objectives of the nature interpretation:

Rennie (1980, cite by Knudson, et al: 13) concluded the objective of the natural interpretation in a 5 issues as follows:

- 1) It could help to supported understanding, awareness and values of natural resource of that area for the tourists.
- 2) To disseminate the information on nature, culture, and the process in history related with the ecology and the human roles.
- 3) To appreciate the value of the nature and history via the direct experience with the natural resources and the cultural environment.
- 4) To changed behavior and attitude of public for constructive the merit of nature.
- 5) To enjoy and accumulate their experience.

From all above it may concluded that the objectives of nature interpretation was to inform the nature, history, culture and the ecology relation through the direct experience with natural resource and cultural environment. It would like to understood natural and aware the attitude for constructive the natural and environment.

2.2 Concepts of nature interpretation

Department of forest (1992, cited by Phanwipha Daramas, 2002: 43-44) lists the concepts of nature interpretation that the trails should considerate between appropriate namely and trails shown the layout of relation of the live things and unlive things. Phicha Phitayajornwut (1998: 4) said the concepts of nature interpretation were the 7 concepts of human learning as follows:

1) There is open the perception organs to preview the external stimulus out of body and transfer to record the data into the brain the nose smells, the tongue tastes and the skin touches the objects.

2) There is explain about the process of sight seeing hear the sound, to smell, to taste and touch the objects which around external the body. There is no send the repeat sign to the brain for perceive the values, benefits all of the external of buddy. The brain just perceives and memories the general data in wide space. So, to perceive and to memory everything with clear for the brain should repeat by emphasizing in the values and benefits speech.

3) The process of pointing the benefits to interesting is identify the benefits that the audience will receive directly and do not say about the other benefits which the audience do not get it.

4) To repeat the appreciate values contrast from attributable beauties. There are benefits that necessary to goodness. Appreciation is emphasizing the values those points to the good benefits and the goodness.

5) The process that shows off the necessary is to be the popular. The humans interesting emerge after they receive the values and the goodness. These two things make them appreciatively in the goodness. The memory is help the humans who intend to these things if they had background to interest and appreciate before.

6) The example of destructive sign was brought to guard with ardent care the owner thing. The man feel lost with in the old values. If they were much guard with ardent care, they would feel lost, too.

7) To responsibility alone, it made change to the creative behavior. The feel of guard with ardent care would come back to feel of responsibility.

In addition to conclusion of the nature interpretation, it was a one parts of environment education activity. There was used self-direct experience with the nature. This activity would change behavior from destructive too positively constructive the natural and environment.

2.3 The media of nature interpretation

Sharp (1982, cited by Yupharej Wangyaishim, 1997: 29-30) divide the concepts of medias of nature interpretation in as follows:

1) The personal interpretation was good medias because of the warm and flexible. The visitor got warns welcome and has two-way communication. The officer controlled the condition of the media of interpretation. The personal interpretation and explain everything and developed the subject matter by the sounds.

There was a weak point that did not cover the audience, high cost for hire the personal interpretation. It was hold on the explainer that the tourists feel in the dependent.

2) The self-guided interpretive trails were trails for the tourists. They could touch the environment with themselves by the signs all the way. The media could explain the point mark or interesting mark with tourists. The media of nature interpretation were consist as follows:

2.1 The pamphlet of booklet, it has a strength point that could read before and after go to the trails. It shown details by graph and subject matter. There was weak point that the data no update. It could not answer for the user. Their must prepared the location for distributes the pamphlet.

2.2 The folder and the sign in trails, there was strength point as a numbered that false in the trail and it has a small size. It was efficiency used by themselves, easy for read and care. The weak point, there were something that did not in the trails must to copy the many folder. If the design did not attractive, it look likes a rubbish.

2.3 The interpretive placard, there was a strong point that made the tourists to learn about their interesting. It can change or pull up the placard. There were foreign things to contact to your eyes, expensive. The tourists must stand for read it.

2.4 The audio divides, there was a strength point that the tourists could listened and recorded more than reading. The weak point was used in the open. It used the complex instrument. The producer must be specialist for produced it.

In addition to conclusion about the medias of nature interpretation, there were two types as by some one or not. It was match in appropriate condition. There were hold on many components as the location for interpretation, the competency of personals.

2.4 The interpretive trails

The nature trail becomes to main role for learning. It was the best way for education that was the basic instrument to studied the environment education. The objective of the interpretive trails were consist of as follows:

1) The education: It teaches for general characteristics of natural resource ecology, biology process and management. The scientific method could solve for natural problem.

2) The conservative: The interpretive trail was a place where human learns about the relation between human and environment including the natural conservative.

3) The interpretative: The directly touch of natural resource was the way to learn about the relation between the living things and environment.

4) The research: It was the way to survey and experiment the natural resource for study with closely.

5) The direction is to introduce with the systematic of for the beginner. It is a motive and supports the experience.

6) The enthusiastic concepts the first experience, were push up the first impression in that story for the humans to be responsible nature.

Seree Wechabushakorn (1996: 4-6) classified the trails into 3 categorizes of as follows:

1) The format teaching trail: It was emphasis the system interpretative and divided into two types:

1.1 The guided trails

1.2 The self guided trails

2) The hiking trails: It was sets up for the interesting groups. They did not interrupt from the other tourists. In this trails, there was limited an interesting things in

the wide areas and did not bring the effects to the nature. There was a marker in the interpretative land for meaning and set for a learning guide.

3) The special used trails: The trails were too responded the need and objectives of tourists. The example of this trail was bicycle trail, under water trail, canoe's routes, equestrian, elephants' trail and the trail for the handicapped etc.

In this research, the researcher had studied the formal teaching trail and tries to develop the natural learning guide for the family as self-guided trails which the parents have role to supported their childs' learning.

3. The construction of nature trail guide

3.1 The meaning and characteristics of nature trail guide

The Dictionary of Royal Institute (1982: 126) mean that the guide is a book which wrote for explain subjects or convenient for the another education.

Sukhothai Thammathirat University (1985, cited by Yupharej Wangyaishim, 1997: 31) means the handbook was a special book or writing for specific job as an annual report, the official guides the usage for products. There were 5 x 7 inches as small size or hold on the design.

Busaba Sutheethorn (1988 : 461) means that the guide was small size document. It also sets in 5 x 7 inches or 6 x 8 inches size. There also used by the specific objective as a handbook.

Phanwipha Daramas (2000: 62 -93) who developed and tried out the nature guide for a youths in Tone-Pariwat a conservative of wild life boundary. Her handbook was 5 x 7.25 inches size.

It was a compact size that hides on convenience. It was 18 markers in this handbook that signs with the lock and written with a 4 inches red letters. Her recommendation for the handbook easy to read it and should take the questions before

writes the details. Because the hand book was vary, if should be design for the size and details of the natural trails as follows:

1) The size; there were 30 pages as the normal size by 5 & farce 12:x 8 & farce 12. It does not standard criteria.

2) The general guide also made by two-face letter paper with folder. The other was two letter-papers of 8 pages. The details have narrow columns. If the handbook was complexity, it's too hard too understand. As the general trail guide, it also made by 200-300 meters length and has 15-20 makers for interpretation. The sign shows the number for specify the position. The story does not be continued but it has no meaning. The details in each station were fine. A specialist in any field as ecology, soil conservative, forest, biology and etc has written it. These peoples must be studies in the trails and anything record that they interested to writing about the basic of natural trail guide.

Summaries according about the nature guide shows that it was made by the different objective of the owner. The details can compare with any instrument are the source of knowledge benefits.

3.2 The nature trail guide design

Zehr, et al. (1994: 13-28) said, the guide design was the same as general prints. The important of the prints were the target groups, the objective for write the guide and the place where used this guide. These components considerate to design, the guide for the shape of characteristics. The basic concepts to design the handbook were consists of:

- 1) Balance: It should be set the appropriately contents and the picture.
- 2) Sequence: The reader also read from the left top to the right bottom, from the big to the small picture, from black and white picture and from topic of contents.
- 3) Contrast: The interesting points should be persuade the reader. It also used the different concepts about the shape, size or color.
- 4) Simplicity: This was a main of the guide. Not only the contents but also the pictures could not look feel tight.

5) Proportion: It was used for selected the area of paper. The appropriately area ratio was 3 to 5 or 3 to 4.

6) Unity: Each part of the guide was completion.

Anun Anuntachote (1998 : 132) said, the handbook designed must be so beautiful and persuade for the tourists or readers. The paper should be quality and design for worth keeping.

Anunthana Aungkinun (1992 : 132) said, the handbook designed that the cover was persuade, interesting and understand details.

Chalornng Nuishim (1999 : 106 -110) developed the natural guide and ecological travel history of Phu-Hin-Rong-Kra National Garden. It started from the survey and records the data in the real area. The contents were fact balance with the feeling of forest. The shape of handbook was 4 & farce 12 inches x 8 inches size. It was small to hide on for reading while the tourists traveled.

Phanwipha Daramas (2000 : 63 -64) who developed and tried out the nature guide for a youths Thon-Pariwat a conservative of wildlife boundary. Her handbook is 5 x 7.25 inches size with a colorful. It was small to hide on everywhere. The construction of the handbook consists of the cover, pictures the with subtitle, preface, content, background of wildlife boundary. Not only these things but also concluded the preparation, the manual of this hand book, a map, a nature, a contents, 18 makers with subtitle and the general data of plant, and interesting wildlife and natures. There was question for persuade the tourists to rechecking.

According to above of the handbook designed, there should be realized on all of components of the handbook as the shape, size, presentation and the paper quality for printing.

3.3 The writhing of nature trail guide

Zehr. Et al. (1994: 7-11) said, the concepts of writhing the nature trail guide to the public that easy to read or understanding, fine and persuade for follow up. The topics should be interesting and used the parable. The importance of the handbook that responded of the reader feeling and the writhing to natural interpretation. There were somethings that avoided writing with bias were race, sex, aging although used inappropriate pronouns and repeating word. In a process of writing needed to fine studied the outline draft and correct a draft before print.

Hill and Knoslton (cited by Wijit Awakul, 1991: 84) broadcast the concepts of writing that the fine, clear, disclose, fairness and honest. There should be write that needs to explain.

Kanya Sirisakul (1989 : 242) said about concepts of writing that should used a fine word, easy to understand, the print arts, persuade with pictures and letters through book – binding.

Yuparej Wangyaishim (1997 : 33-107) developed the nature trail guide in Koa-Yai National Park. The contents came from literature review, check validity by the experts and tried out in the experimental samples. After the test from the tourists, the appropriate guide size was 6x8 inches. It was balance with Somshong Sritalayun's research that the 6x8.5 inch size was appropriately book, small and easy to read. The characteristics of appropriately guide were consisted of:

- 1) The shape was 6x8 inches size with colorful pictures.
- 2) The pattern of interpretation was numeric system.
- 3) The numeric red pastiche sign was 3x3 inches size and etches at interpretative makers.
- 4) There were 20 makers in the trails. There were 34 pages and balance with a conceptual and objective trail.
- 5) It was descriptive by a prose that shows about the general trail and joins with ecology theory. The contents emphasis already to understood and awareness to natural conservative. It should be an empty page for record anything that the tourists

interest or impressive. The others have a reward for answer with the trail, write detail about distances among markers, show a map for travel. All of those persuade their interesting.

In this study, the researcher designed the natural guide for family in Lumpinee Park. These were five guidelines to developed the hand book as follows:

1) The researcher choose 6x8 inches size of this trail guide because of Yopharej Wangyaishim's research (1997) that was a small, easy to read and convenience to print.

2) The interpretative pattern, the researcher made the trail guide with specify in each markers which need to interpretation. There was explaining in each marker by the fine signs in everywhere in area of Lumpinee Park.

3) The researcher was reviewed the related literature for Pre-school child learning experience. There was consulted to the experts and survey the trail for developed the conceptual and objective interpretation. It was appropriately with the 3-6 years childrens' development as target groups.

4) The contents in this hand book was modified by the pre-school child's learning experience.

5) The words easy to understand. It has been shown by the parents presentation to their childrens. They did activities together by the makers in this handbook. There was a test in each markers child's learning after they used the natural interpretative hand book.

4. The Lumpinee Park

4.1 The historic of Lumpinee Park

The old named of Lumpinee Park was "Sala-Dang Field" . It was the owner of the Majestic King Maha Vajiravudh's Royal. He gave to national property. The objectives of this place were:

1) To present the first big goods fair of National as "Siam museum" and to broadcasts the Thai goods for Thai people and the foreigners. This objective is cancel because the Majestic King Maha Vajiravudh's Royal died.

2) After the goods fair presentation, it was modified to the public park namely Lumpinee Park. This name came from the place where the Buddha was born

Because of the Majestic King Maha Vajiravudh's Royal died before his work would be successful, the Majestic King Maha Prajadhipok's Royal works the old job of his continuity. He gave the Lumpinee Park belong to the government. It was become to the public park for everybody. The government constructed the Majestic King Maha Vajiravudh's Royal statue in front of Lumpinee Park at 27 March 1915 (Department of Public Park, Mimeographed: 21-22)

4.2 The general of Lumpinee Park

Lumpinee Park is a city parks. There is an area cover 360 plantation. There an emphasis for active recreation as rest activities as: 1) Walking 2) Riding 3) Sail 4) Play the games as football, basketball 5) Running exercise.

Besides of above activities. There are other persuade games in the bottom park as camping, where wide park for festival. The people can rest along time. It is located in central city and convenience to service all of people in the city as Phatumwan, Sampantawong, Pomprab-Satrupia, Rajtawee, Sathon, Bangkok, the some area in Heuy-Khang, Din-Dang, Phayatai, Klong-Taei, Yannawa, Thonburi and Klong – San (Department of town plan Bangkok; Mimeographed: 10 -73)

4.3 The interest things and activities

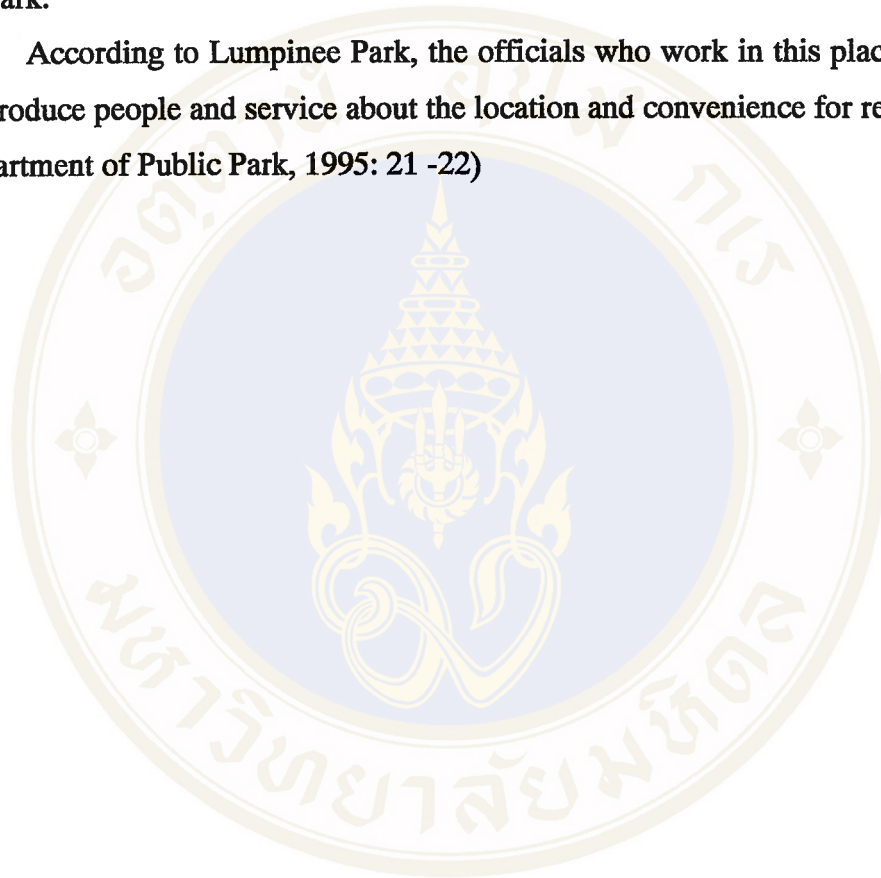
The Chinese small-house clock tower was a permanent construction at the four gates of this park. There were float island, the pool around this place and all trees that belong to take care of Department of Public park, Social welfare office, Bangkok. In this garden, there were many flowers, bamboo gardens, forests, herbs, palm trees etc. In wide area, the people could exercises in many ways. About Sail service, it was open from 05.00 a.m. to 08.00 p.m. daily. The rate of service was 30 bath/boat. About the aerobic-dance, it was open from 06.00 a.m. to 07.00 p.m. and free for service.

4.4 The travel convenience

It was around with four roads; the north was Sarasin road, the south is King-rama 4, the east was Withayu road and the west was Rajdumri road. On the King-

Rama 4 Road, we can go by the bus number 4, 14, 47, 67, 74, 76, 106, 109, 115 and 7 air-condition. On the Withayu Road we can go by bus number 13, 17, 62, 76 and 160. On the Sarasin Road, we can go by bus number 13, 76 and 106. On the Rajdumri Road, we can go by bus number 14, 15, 74, 77, 119, 4 and 5 air-condition. There are about people go to this park 7,000 /day. But there are 25,000 – 30,000 people to rest in this park.

According to Lumpinee Park, the officials who work in this place have a duty to introduce people and service about the location and convenience for rest in this park (Department of Public Park, 1995: 21 -22)



CHARTER III

METHODOLOGY

This study was experimental research. Using one group designed and authentic assessment. The education was the parents who using the learning guide which developed by the researcher. The study area was Lumpinee Park, Phatumwan Bangkok. The processes were as follows:

1. The developments of the learning guide.

1.1 Literature review about the conception of child' learning. The researcher reviews the concern literature from the Ministry of Education.

1.2 To set up the objective of the learning guide which are:

1.2.1 To help the parents educated their childrens about environment at Lumpinee Park.

1.2.2 To help the childrens participate in the learning process of environmental education at Lumpinee Park.

1.3 To set up the scope of content which were:

1.3.1 Plants: they're about the diversity of area, shape, and the components of plants. The flowers and the system and then the useful of flowers.

1.3.2 Insects: there were about the insects foods, the useful of insects, the insects conservation and the components of plants that find the insects.

1.3.3 Soil: there were about the characteristic and the useful of soil.

1.3.4 Water: there were about the useful of water and the lives in the water.

1.3.5 The natural arts .

1.4 To write the concepts and behavior objectives of the learning guide.

When the researcher wrote the concepts and behavioral objectives of the learning guide review the contents about pre-school and primary school including consulted with advisors and experts. The concepts and learning objective in each issues were as follows:

Table 1: The concepts and learning objective.

| Topics | Behavioral Objective | Concepts |
|------------|--|--|
| 1. Plants. | <ul style="list-style-type: none"> - The child can tell the location of plants. - The child can tell about the vary shape of plants. - The child can identifies the component of plants. - The child can tell the different of shape and color of the plants. - The child can tell the function of the stamen is those help the reproductive. | <ul style="list-style-type: none"> - The plants have a vary location as the land, the muddy and the area with the hold water. - Some plants have a strong trunk of trees, some are small trunk , a hush and no trunk but have only the leaf and roots. - The parts of plant have a different names and duties. - The flowers have different shape and color. - Insight the flowers, there are a small stalk stay in a central. When it is reproduction, it brings to seeds that can be a food. This is mean reproduction. |

Table 1: (Cont.)

| Topics | Behavioral Objective | Concepts |
|------------|---|---|
| 2. Insects | <ul style="list-style-type: none"> - The child can divide the different of shape and color of insects. - The child can explain the soft water from the flowers is a food of some insects. - The child can explain the useful of insects. | <ul style="list-style-type: none"> - The insects have a different shape and beautiful colors. - Some insects eat the soft water from the flowers as a food. - When the insects eat the soft water, they can help to reproduction for the flowers. |
| | <ul style="list-style-type: none"> - The child can explain the way of insects conservative. | <ul style="list-style-type: none"> - All insects have a useful for humans as mix the stamen, the bright colors are made the human freshing. So, a man should protect the insects, don't to destroyed them. |
| 3. Soil | <ul style="list-style-type: none"> - The child can tell useful of soil. - The child knows the diversity of soil. | <ul style="list-style-type: none"> - Besides the soil is a house of any animals, the human uses the soil as for housing too. - The soil in any areas has different characteristics. The soil in the dry areas is hard or friable soil. The soil in the wet area is soft and the soil in the hold water is a muddy soil. |

Table 1: (Cont.)

| Topics | Behavioral Objective | Concepts |
|----------------------|---|---|
| 4. Water | <ul style="list-style-type: none"> - The child knows the useful of water. - The child knows that in the water have living things. | <ul style="list-style-type: none"> - The plants use water to be surviving and in the water there are aquatic life which can be a human's food - The many living things are live in the water as some plants, fishes, crabs, crustacean and turtles. |
| 5. The natural arts. | <ul style="list-style-type: none"> - The child bring the material from the nature to create the arts from their imagination | <ul style="list-style-type: none"> - The nature is a beautiful and useful. Human should protect it and should not destroy it. |

1.5 To study the area and the parents activities in Lumpinee Park

By the results of survey, many parents took the child to play at the Lan-Dawan-Yim in the Lumpinee Park, and them walked through the bridges that mend between the marsh and the canal around the Lumpinee Park, the field, the rest parks and any palm parks. In the same areas, there were a shrubbery, a stilt and a crop. Besides there was a small pools, it was shallow pools and easy to see the fishes and the turtles. In the pools have lotus, around the pools have green planers, easy to see insects as bees, ants and a bugs.

1.6 The natural trails and nature learning station design.

By the results of survey in this place, the researcher had the natural trails limitations by consulted the three experts (as the persons who qualified specific in the teaching media, environment education and pre-school children). Their names were merges in the appendix with thesis advisors names. The results was :

The researcher started to learning at Lan-Dawan-Yim. Because the learner who was 3-6 years old were learn with natural, they would not take care themselves and have short time interested for learning. So, the nature trails for childrens should walk and do activities with safe on the way and to short learning mark. The childrens were safe and funs by the parents who take care them. The researcher identified the five natural learning stations as follows:

1). Lan Dawan Yim: It was a start point of leaning. The parents should prepare the prompt of their childrens. The name of activity was “What is at Lan Dawan Yim?” They could describe the important of the natural environment and to bring the knowledge about the characteristics of living things and non-living thing for them.

2). Sapan Fuang Fah : It was a second for learning. The name of activity was “Follow Your Friend”. These contents were educated about the general duties of plants.

3). Suan Yom Rimkoo : It was a third for learning and name of activity was “Close Your eyes, Fine Your friends”. After they learn and did this activity, they knew that the plants have different characteristics.

4). Sra Suan Palm: It was a fourth for learning of was:

The first activities, was named “Park Flowers”. When they did these activities, they knew about the flowers, and the useful of insects.

The second activities, was named “Magic Soil”. When they did these activities, they will knew that between the plants and animals were lived in the water and they would not destroyed.

The third activities, was named “What is in the water?”. When they did these activities, they would knew water was habitation for the plants and animals.

5). Suan Palm: It was a fifth station for learning and name of activity was “Plant Art”. When they did these activities, they repeated the knowledge for learning and could present it by the creative arts from their imaginations.

1.7 Described the role of parents and childrens’

The role of the parents were the director for set the learning from the learning guide to their child and they help them did the activities when the child wanted to help.

The role of the children were learn with the natural by the limits trails and did the activities in each marker that limited in this learning guide. The results of this activities were record by the parents.

1.8 Set their details of activities and time for each learning station.

After the researcher wrote the appropriate contents, the objective for child learning and the role of the parents. The researcher surveyed again in the Lumpinee Park to set the details of activities and time for each learning station and check all the design with this criterion.

1.8.1 There were interest points in this trail that balance with the objectives.

1.8.2 There were convenience and safe for the children to walk in this trail. It was not too far and close in each station and it uses the appropriate time to walk in the natural trails.

1.9 The natural trails guide for the family in Lumpinee Park limitations.

The pattern of this learning guide were three components as:

1.9.1 The shape of this learning guide was 6x8 inches size. Because of small, easy to take it in every where and easy to print.

1.9.2 Inside this learning guide, there were a cover, contents and the preface for used this learning guide.

1.9.3 Easy language has been used and color pictures have been printed in this learning guide.

1.10 Draft the Lumpinee Park nature learning guide for the family.

After the researcher consulted advisors and experts, the researcher had already, started to write the contents of the Lumpinee Park nature learning guide for the family.

1.10.1 The guide for the parents : it was consists have

(1). The map to shows the natural trails markers.

(2). The introduction for the parents.

(3). The concepts for doing the natural learning activities and prepare before doing the activities.

(4). The details of learning station from 1 to 5.

(5). The way to do activities and learning in each station.

1.10.2 The sheets for record the results of childrens learning in each activity.

2. The improvements of the learning guide.

2.1 Tried out the learning guide two times.

2.1.1 First, tried out the learning guide, activities and the media for one family. The researcher participated to join with activities in this family and found the problems during activities. Then the researcher improves the learning guide, the activities and the medias and then consulted with advisors and experts to developed it.

2.1.2 Second, third out with 4 families that have qualifications as follows:

(1). The family that the child with the father, mother or parents who graduate or higher.

(2). The family that the child with the father, mother or parents who below graduate .

(3). The family that the child with the relatives who graduate or higher.

(4). The family that the child with the relatives who below graduate .

2.1.3 After twice tried out, the researcher found the problems and suggestion from the parents. The researcher consulted advisors and experts for developed it.

3. The experiments of the supplementary reading learning guide.

3.1 The sample

There are 32 families sample that came from the accidental sampling and classify with four groups as:

3.1.1 The 11 families that take the child with the father, mother or parents whom graduated or higher.

3.1.2 The 10 families that take the child with the father, mother or parents who below graduated .

3.1.3 The 4 families that take the child with the relatives who graduate or higher

3.1.4 The 7 families that take the child with the relatives who below graduate.

3.2 The experimental instruments.

3.2.1 The learning guide for the family with the supplementary for support the children's activities as follows:

It was 6 x 8 inches in size and 17 pages long. The inside consisted of encouragement in using the learning guide, suggestions in using the learning guide, a table of contents, a map of the walkways, environmental communication places, and details about the activities in each place.

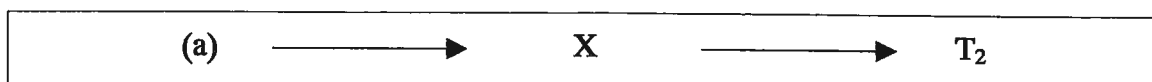
3.2.2 The work sheets for record childrens' activities.

It means recorded their into work sheets, characteristics of record were answer the easy questions and remark the cross (x) in the pictorial form that represent the appropriate language of with pre-school child and the art woks that they were painted and patched up.

3.2.3 The observation records

The researcher recorded by myself. It was consisted of the 4 checklists in the 7 of learning activities and there were any observation records.

3.3 The experimental process. This experiment is one sample group design with no controlled group, and using authentic assessment. At first the families sample read the supplementary reading Lumpinee Park nature learning guide for the family them the families have activities in the natural trail, and then the parents answered the questionnaires.



Then (a) means the sample groups in experiment.

 X means the experiment the walk to learn the nature by the natural trail learning guide that the researcher constructs.

 T₂ means to collect the work sheets after experiment the sample groups.

3.4 The data collection:

The researcher introduced the parents for guide usage and understanding minutes. Then, the parents have the activities by using learning guide. The researcher would observe the parents and their child all the time. When they have finished the activities, the parents answered the questionnaires and the researcher gave the gift to the parents for their cooperation. The date collection were from 08.00 a.m. To 18.00 p.m. on Saturday and Sunday, from 5 January 2002 to February 2002.

3.5 The datas analysis :

3.5.1 Bring the observation datas of the samples to describe the facts.

3.5.2 The researcher brought the work sheet form the childrens and the parents' questionnaires to analyze by frequency and percentage. Presentation this analyzes datas used the descriptive method.

3.5.3 To conclusion and recommendation about the nature learning guide for the family development in the future research.

3.6 The questionnaires of measure satisfaction of the parents:

These questionnaires divided into nine parts as follows:

Part 1:The general characteristics.

Part 2:The satisfaction with the learning guide.

Part 3:The opinions with the learning guide.

Part 4:The satisfaction for the work sheets of childrens.

Part 5:The opinions with the work sheets.

Part 6: The satisfaction with the activities by this learning guide.

Part 7: The opinions with activities.

Part 8: The satisfaction for the instrument to do activities by this learning guide.

Part 9: The opinions for the instrument to do activities by this learning guide.



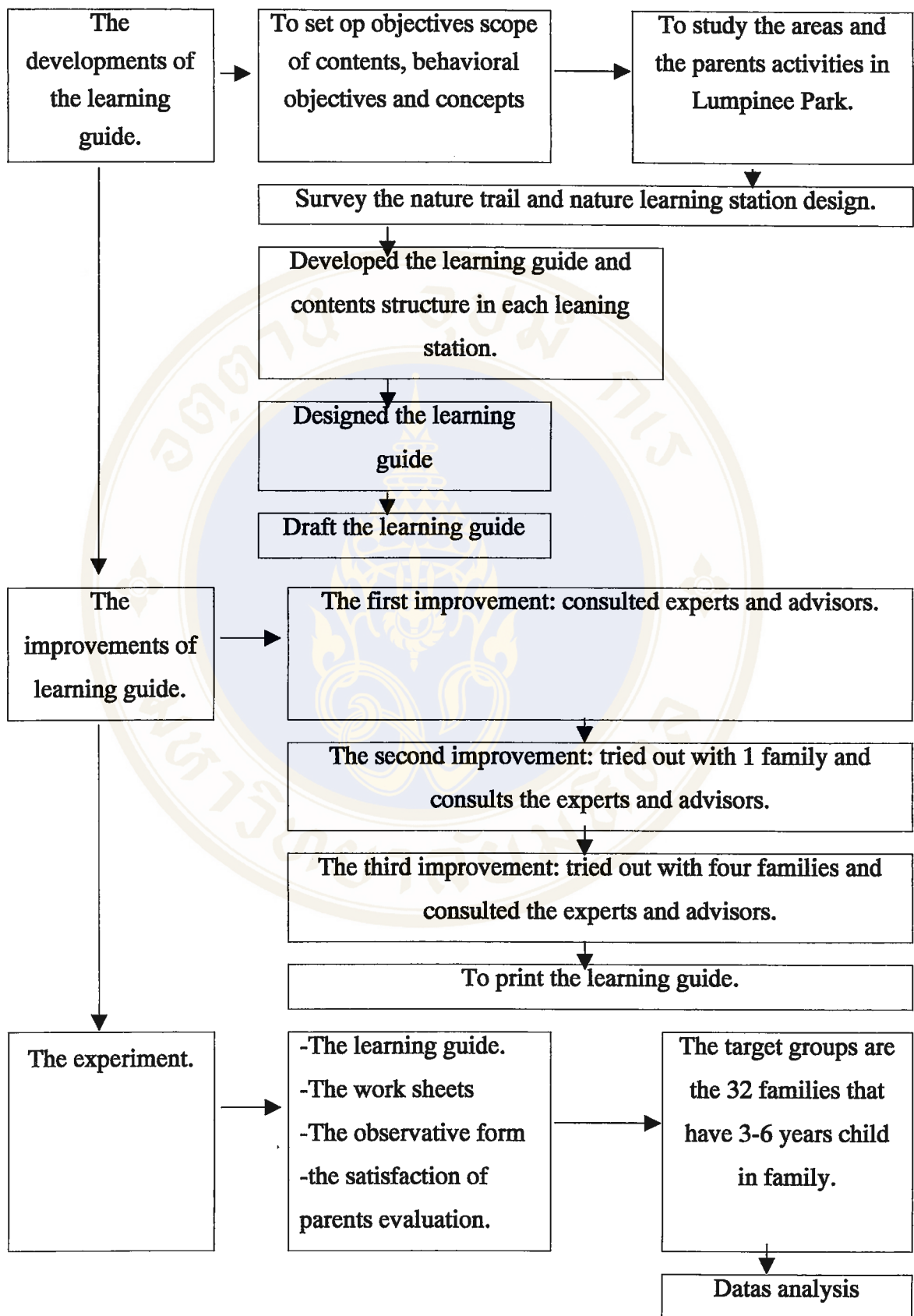


Figure 2: The learning guide development process

CHAPTER IV

RESULTS

In this study, the researcher has developed the Lumpinee Park nature learning guide for the family. This was experimental research. There was only one sample group and do not have control group. The area where the researcher used in the studied was Lumpinee Park. It was located on Rama 4 road, Phatumwan, Bangkok. In this studied, the researcher evaluated the result by using the observative behavior of childrens and parents while they used the learning guide for learning work sheets from the childrens and the satisfaction of parents evaluation questionnaires. This observation used for the presentation the facts. The results of this studied as follows:

1. The Lumpinee Park nature learning guide for the family and supplementary media.
2. The family and learning results.
3. The results of parents' evaluation.
4. The prompt and the limitations of the Lumpinee Park nature learning guide for the family.

1. The Lumpinee Park nature learning guide for the family and supplementary media.

1.1 The Lumpinee Park nature learning guide for the family.

This learning guide was a 6x8-inch size, contained with 17 pages. In this details consisted of the persuade this learning guide, the introduction for the parents, the contents, a map that wrote the learning point and the detail of activities all markers.

1.2 The work sheets

A total of 10 work sheets that were 6 x 8 inches in size were stapled at the upper right-hand corner for ease of separation. Each sheet would include the activity details that the children need to follow as appears in the parents' manual, as follows:

Activity 1 – What is at Lan Dawan Yim? – There were 2 work sheets: #1 “What is at Lan Dawan Yim?” and #2 “Living Things in Lan Dawan Yim.”

Activity 2 – Follow Your Friend – There was 1 work sheet: #3 “Tree Parts.”

Activity 3 – Close Your Eyes, Find Your Friend – There was 1 work sheet: #4 “Close Your Eyes & Find Your Friend.”

Activity 4 – Park Flowers – There were 2 work sheets: #5 “Park Flowers” and #6 “Find the Insects”

Activity 5 – Magical Soil – There was 1 work sheet: #7 “The Home of Friends”

Activity 6 – What is in the water? – There were 2 work sheets: #8 “What is in the water?” and #9 “Benefits of water.”

Activity 7 – Plant Art – There was 1 work sheet: #10 “Plant Art.”

1.3 There was an equipment box 12 x 18 inches in size. In front, there were 3 bags of soil approximately 2 x 3 inches attached, which were used in the learning point of Sra Suan Palm for Activity 5 Magical Soil. The box contained 1 pen, 1 box of oil pastels, 1 blindfold, 1 glue stick, and 1 piece of paper 6 x 8 inches.

1.4 The 5 learning points were:

Learning Station 1 – Lan Dawan Yim – At this point, parents must prepare the children by explaining the importance of the natural environment and letting the children know the features of living and non-living things.

Learning Station 2 – Sapan Fuang Fah – The activity “Find Your Friend,” once done, will let children know of the different parts of trees.

Learning Station 3 – Suan Yom Rimkoo – The activity “Close Your Eyes & Find Your Friend” where children have to learn about the differences of trees is done here.

Learning Station 4 – Sra Suan Palm – This is the point for 3 activities, as follows:

(a) Park Flowers – once finished, the children would learn about flowers and know the benefit of insects

(b) Magical Soil – once finished, the children will learn that different plants need different soil

(c) What Lives In the Water? – once finished, the children will know of plants and animals that live in water and know they should not pollute it.

Learning Station 5 – Suan Palm – The activity “Plant Art” is done here, where children will be able to review what they learned and display their art and imagination.

2. The family and learning results.

2.1 The general characteristics of the parents who participate in this activities.

There were 32 parents who participated in this activities. The number of male was not different from female. There were proportional education likely between the graduate and below. A half of them visited Lumpinee Park at one or twice a week. The details show in table 2.

Table 2: Frequency and percentage of the general characteristics of the parents who participated in these activities.

| The general characteristics | Frequency | percentage |
|-----------------------------|-----------|------------|
| <u>Sex</u> | | |
| - male | 16 | 50.0 |
| - female | 16 | 50.0 |

Table 2: (Cont.)

| The general characteristics | Frequency | percentage |
|---|-----------|------------|
| <u>The relation with the child and level of education</u> | | |
| - The parents who graduate or higher. | 11 | 34.4 |
| - The parents who below graduate. | 10 | 31.25 |
| - The relatives who graduate or higher. | 4 | 12.5 |
| - The relatives who below graduate. | 7 | 21.9 |
| <u>To visit Lumpinee Park for a week.</u> | | |
| - More than 7 times | 4 | 12.5 |
| - 3-5 times | 2 | 6.3 |
| - 1-2 time | 16 | 50.0 |
| - No define | 10 | 31.2 |

2.2 The general characteristics of the child who participate in the activities.

Most of them were female. They have 3-6 years old age (74.2%). They studies in the pre-school 3,2,1 (40.6%, 31.3%, and 25.0% respectively). The details were shows in table 3.

Table 3: Frequency and percentage of the general characteristics of the child who participated in the activities.

| The general characteristics | Frequency | percentage |
|-----------------------------|-----------|------------|
| <u>Sex</u> | | |
| - Male | 13 | 40.6 |
| - Female | 19 | 59.4 |

Table 3: (Cont.)

| The general characteristics | Frequency | percentage |
|------------------------------------|------------------|-------------------|
| <u>Age (years)</u> | | |
| - 3-4 | 8 | 25.8 |
| - 5-6 | 23 | 74.2 |
| - No define | 1 | 3.2 |
| <u>Level of education</u> | | |
| - pre-school 1 | 10 | 31.3 |
| - pre-school 2 | 8 | 25.0 |
| - pre-school 3 | 13 | 40.6 |
| - Primary school 1 | 1 | 3.1 |

2.3 The child's works that evaluated from the work sheets

The child who participated in these activities shown off the 3 work sheets as:

2.3.1 The work sheets that all of childrens correctly answer were the work sheets of "Living Things in Lan Dawan Yim", "Tree Part", "What is in the water?" and "Benefits of water."

2.3.2 The work sheets that most of childrens correctly answers were the work sheets of "What is at Lan Dawan Yim", "Close Your Eyes & Find Your Friend", "Park Flowers" and "The Home of Friends"

2.3.3 The work sheets that the child wrong answer was the sixth work sheet as "Find the Insects." The wrong answer was 12.5% and no answer was 87.5%. The details were shown in table 4.

Table 4: Frequency and percentage of the results of child's activities that shown in there work sheets.

| Activities | Correctly answer | | Wrong answer | | No answer | |
|--|------------------|------------|--------------|------------|-----------|------------|
| | Frequency | percentage | Frequency | percentage | Frequency | percentage |
| The first work sheet: "What is Lan Dawan Yim?" | 27 | 84.4 | 5 | 15.6 | - | - |
| The second work sheet: "Living Thing in Lan Dawan Yim?" | 32 | 100.0 | - | - | - | - |
| The third work sheet: "Follow Your Friend." | 32 | 100.0 | - | - | - | - |
| The fourth work sheet: "Close Your Eyes & Find Your Friend" | 27 | 84.4 | 3 | 9.4 | 2 | 6.2 |
| The fifth work sheet: "Park Flowers". | 25 | 78.1 | 6 | 18.8 | 1 | 3.1 |
| The sixth work sheet: "Find The Insects" | - | - | 4 | 12.5 | 28 | 87.5 |
| The seventh work sheet: "The Home of Friends" | 27 | 84.4 | 4 | 12.5 | 1 | 3.1 |
| The eight work sheet: "What is in the water?" | 32 | 100.0 | - | - | - | - |
| The ninth work sheet: "Benefits of water." | 32 | 100.0 | - | - | - | - |
| The tenth work sheet: "Plant Art." | 24 | 75.0 | 3 | 9.4 | 5 | 15.6 |

3. The results of parents' evaluation.

3.1 The parents have a satisfaction to the learning guide, work sheets activities and the instrument in these activities as follows:

3.1.1 The learning guide

Most of the parents have a fair of satisfaction for this learning guide. The satisfaction that arranged in order with each items. The language is easy to

understand and easy to explain for their children rapidly. The formal was setting appropriate with the 3-6 years old children. The size of learning guide holds on convenience. The learning guide and cover are beautiful and interesting. About the learning guide satisfaction, the parents have a fair level as same as the should adjust level are the appropriate pictures with the activities and the pictures are clear. The opinions about the learning guide satisfaction are the learning guide setting that conveniently easy for usage.

3.1.2 The work sheets

Most of parents told that all of work sheets easy for activities. The pictures in the learning guide were a fair level and balance with the contents, the pictures in work sheets were clear, these was the same proportion between fair and adjust level.

3.1.3 The activities

Most of the parents have a medium level of satisfaction in the time of the first, the third, the fifth and the sixth activities that appropriate with the 3-6 years old childhood. There was appropriated to set the activities with the time in the seventh activity. There was the same proportion between the fair and should adjust level of satisfaction in the fourth activities and have should adjust level of satisfaction in the second activity.

3.1.4 The instrument for activities.

Most of parents have a fair level of satisfaction for the instrument in the second, the first, the fourth, the third and the seventh activity, respectively. There was the same proportion between the fair and should adjust level for use the instrument in the fifth and the sixth activity. The details were show in table 5.

Table 5: Frequency and percentage of satisfaction of the parents to the learning guide, the work sheets and instrument for activities.

| Item | Very good | | Good | | Fair | | Should adjust | | No define | |
|--|-----------|------------|-----------|------------|-----------|------------|---------------|------------|-----------|------------|
| | Frequency | percentage | Frequency | percentage | Frequency | percentage | Frequency | percentage | Frequency | percentage |
| The satisfaction for the content of the guide | | | | | | | | | | |
| - knowledge and comprehensive | - | | 2 | 6.2 | 19 | 59.4 | 9 | 28.1 | 2 | 6.2 |
| - the appropriate in the 3-6 years old childhood | - | | 3 | 9.4 | 19 | 59.4 | 9 | 28.1 | 1 | 3.1 |
| The satisfaction for the language of the guide | | | | | | | | | | |
| -Use the easy language explain for the child | - | | 3 | 9.4 | 20 | 62.5 | 8 | 25.0 | 1 | 3.1 |
| The satisfaction for the book and the pictures compartments | | | | | | | | | | |
| -The book in interesting and beautiful. | - | | 3 | 9.4 | 16 | 50.0 | 11 | 34.4 | 2 | 6.2 |
| -It small to hold on everywhere. | - | | 4 | 16.5 | 18 | 56.2 | 7 | 21.9 | 3 | 9.4 |
| - Easy to set the book and usage. | 1 | 3.1 | 2 | 6.3 | 12 | 37.5 | 14 | 43.7 | 3 | 9.4 |
| -The cover is interesting. | - | | 7 | 21.9 | 14 | 43.8 | 8 | 25.0 | 3 | 9.4 |
| -The pictures compartment appropriate with the activities. | - | | 3 | 9.4 | 14 | 43.8 | 13 | 40.6 | 2 | 6.2 |
| - The pictures are fine to understand. | - | | 7 | 21.9 | 12 | 37.5 | 12 | 37.5 | 1 | 3.1 |
| The satisfaction for work sheets. | | | | | | | | | | |
| -The work sheet easy to do the activity. | - | | 4 | 12.5 | 16 | 50.0 | 11 | 34.4 | 1 | 3.1 |
| - The pictures in the work sheet balance with the contents in the guide. | 1 | 3.1 | 5 | 15.6 | 15 | 46.9 | 10 | 31.3 | 1 | 3.1 |
| -The pictures in the work sheets are clear. | - | | 8 | 25.0 | 12 | 37.5 | 11 | 34.4 | 1 | 3.1 |
| The satisfaction for the activities | | | | | | | | | | |
| - The activities that appropriate with the 3-6 years old childhood. | - | | 1 | 3.1 | 17 | 53.2 | 13 | 40.6 | 1 | 3.1 |
| - The balance between the appropriate and content, in the guide. | - | | 1 | 3.1 | 17 | 53.2 | 13 | 40.6 | 1 | 3.1 |

Table 5: (Cont.)

| Item | Very good | | Good | | Fair | | Should adjust | | No define | |
|--|-----------|------------|-----------|------------|-----------|------------|---------------|------------|-----------|------------|
| | Frequency | percentage | Frequency | percentage | Frequency | percentage | Frequency | percentage | Frequency | percentage |
| The satisfaction for set the time. | | | | | | | | | | |
| The first activity | - | | 1 | 3.1 | 20 | 62.5 | 7 | 21.9 | 4 | 12.5 |
| The second activity | - | | 1 | 3.1 | 13 | 40.6 | 15 | 46.9 | 3 | 9.4 |
| The third activity | - | | 4 | 12.5 | 19 | 59.4 | 7 | 21.9 | 2 | 6.2 |
| The fourth activity | - | | 4 | 12.5 | 13 | 40.6 | 11 | 34.4 | 4 | 12.5 |
| The fifth activity | - | | 4 | 12.5 | 11 | 53.2 | 13 | 40.6 | 4 | 12.5 |
| The sixth activity | - | | 3 | 9.4 | 11 | 53.2 | 15 | 46.9 | 3 | 9.4 |
| The seventh activity | - | | 5 | 15.6 | 15 | 46.9 | 9 | 28.1 | 3 | 9.4 |
| The satisfaction for instrument with during activity. | | | | | | | | | | |
| The first activity | - | | 1 | 3.1 | 18 | 56.2 | 10 | 31.2 | 3 | 9.4 |
| The second activity | - | | 1 | 3.1 | 19 | 59.4 | 9 | 28.1 | 3 | 9.4 |
| The third activity | - | | 2 | 6.2 | 16 | 50.0 | 11 | 34.4 | 3 | 9.4 |
| The fourth activity | - | | 1 | 3.1 | 17 | 53.1 | 11 | 34.4 | 3 | 9.4 |
| The fifth activity | - | | 2 | 6.2 | 13 | 40.6 | 13 | 40.6 | 3 | 9.4 |
| The sixth activity | - | | 2 | 6.2 | 14 | 43.7 | 13 | 40.6 | 3 | 9.4 |
| The seventh activity | - | | 1 | 3.1 | 15 | 46.9 | 13 | 40.6 | 3 | 9.4 |

3.2 The opinion of the parents

There was 32 family that the parents have the opinion to the learning guide, the work sheet and the instrument as follows:

3.2.1 The learning guide:

The opinion of parents was the same percentage in the high and medium interesting of the contents in the guide (43.75%). Two-third of them told that it has a completely contents.

3.2.2 The work sheets:

Most of them (62.5%) told that it have a high appropriate with the activities and 25% of them tell that it has a completely worksheets.

3.2.3 The activities:

Most of them (62.5%) told that it has a completely activities.

3.2.4 The instrument for doing activities:

Most of them (46.9%) told that the instruments have a high appropriate and told that it has a completely instruments. The details were show in the table 6.

Table 6: Frequency and percentage of the parent's opinion for the learning guide, the work sheet and instrument for activities.

| Item | Frequency | percentage |
|---|-----------|------------|
| <u>The opinion for the guide.</u> | | |
| The interesting of the contents. | | |
| - High interesting. | 14 | 43.75 |
| - Medium interesting. | 14 | 43.75 |
| - No define. | 4 | 12.5 |
| The guide improvement. | | |
| - No improvement. | 24 | 75 |
| - Should improvement. | 5 | 15.6 |
| - No define. | 3 | 9.4 |
| <u>The opinion for the work sheets.</u> | | |
| The appropriate between the works sheets and activities. | | |
| - High appropriate. | 20 | 62.5 |
| - Medium appropriate. | 8 | 25.0 |
| - No define. | 4 | 12.5 |
| The work sheet improvement. | | |
| - No improvement. | 24 | 75.0 |
| - Should improvement. | 6 | 18.8 |
| - No define. | 2 | 6.2 |
| <u>The opinion for activities.</u> | | |
| The activities improvement. | | |
| - No improvement. | 20 | 62.5 |
| - Should improvement. | 5 | 15.6 |
| - No define. | 7 | 21.9 |

Table 6: (Cont.)

| Item | Frequency | percentage |
|---|-----------|------------|
| <u>The opinion for the instrument to do the activities by the guide.</u> | | |
| The instrument appropriates. | | |
| - High appropriate. | 15 | 46.9 |
| - Medium appropriate. | 12 | 37.5 |
| - No define. | 5 | 15.6 |
| The instrument improvement. | | |
| - No improvement. | 30 | 93.8 |
| - No define. | 2 | 6.2 |

In addition to the opinion and recommendation of the parents about the learning guide, the work sheets and the instrument could conclude:

1. Should improved the book pictures competes.
2. Should add more than these contents.
3. Should add more than activities.
4. Should set the activities for the higher 3-6 years old childhood.
5. Should decrease time for activities.

4. The prompt and the limitations of the Lumpinee Park nature learning guide for the family.

4.1 The results from the observation.

From the 10 families that the researcher observes while they were going on these activities. It could concluded the results as follows:

4.1.1 Before doing the activities by this learning guide, most of the parents did not, study for understanding. They also rapidly to read and immediately ask the researcher and then started to do the activity.

4.1.2 While they did the activities, it could divided into 2 parts as the early of activity and the last of activity.

(1). The early part of activity was a first station to third station learning as Lan Dawan Yim, Sapan Fuang Fah and Suan Yom Rimkoo. Both of the parents and childrens hasten to do the activities. The childrens ask and the parents answer the questions. The parents help the childrens did the activities.

(2). The last part of activity was fourth station learning as the Sra Suan Palm and the fifth station learning as the Suan Palm. In the last activity, the factor of the climate have influent to the child learning If the day was too warm, the parents and the childrens don't to do activities in the learning station.

4.2 The facts that occur and bring to the limits of studied.

4.2.1 The equipment of the area of study.

Because the trail was equipment was a main in this studied. Due the researcher did not cooperated the area changing improve the areas, so when took the experiment me have the problems

4.2.2 The parents:

Because of the parents in the experiment did not studied for understanding before did activities. So, there was a problems for doing activities, the parents could not teach knowledge for their child with connotative. It has interacted to the child who still waited the answers from their parents. When the parents did not immediately to teach, the child may be bored by the activities too.

4.2.3 The learning guide:

It was a pictures that compartments in this learning guide. The researcher prepares for the environmental condition that occurs among the learning guide construction as: the pictures of lotus and flammers. In the real condition, the lotuses and flowers did not to produced. It was the problems that the pictures did not clear in this learning guide.

CHAPTER V

DISCUSSIONS

At present, environmental problems are a worldwide problem that every party must work together to solve. One solution is managing environmental education for people of all ages and of all economic and social standings, as the United Nations suggested to do. The goal would be to create awareness of environmental value and to cooperate in preventing and solving environmental problems. Primary-aged children are at an age of creative thinking and learning, and they are also at an age where they are under the care of parents/guardians. Therefore, the National Education Act of,1999 began to set guidelines for families and communities to participate more in managing education. The type of education where the family is the facilitator can be organized in all places that children and their families do activities together. The park is one place where families do activities together, which also has a relaxing environment. This makes it appropriate for “learning through a mixture of study and play,” as stated by Youvapha Techakup (1999). Communities surrounding Lumpinee Park use it often; the researcher therefore thought of organizing the creation of a learning guide for environmental education for families who visit Lumpinee Park (for children aged 3 – 6 years). It would be a learning guide for parents to let children engage in activities that are fun but environmentally educational at the same time. The results of the creation and development of learning guide, the effectiveness of the children’s learning, and the parents’ satisfaction regarding the learning guide will be discussed in the following topics.

1. Learning guide for Environmental Education for Families who visit Lumpinee Park

Because the target group consists of children aged between 3 – 6 years, the design of the educational activities needs to relate to the development of the children in all sides (physical, emotional, mental, social, and intellectual), as the Office of the Private Educational Commission(1991). Therefore, the researcher gave importance to the tools and the design of activities that would focus on hands-on experience, consistent with the guideline set by the Department of Curriculum and Instruction in regards to arranging experiences for primary school aged children that places more importance on the process rather than the result.

Besides considering the design of the activities to follow Department of Curriculum and Instruction guidelines, the researcher also considered the safety during the activity, such as touching soil in learning point 4, Sra Suan Palm and at activity 7. This would give the children an opportunity to touch soil in different places and compare the differences. If the children touched the soil directly, they may be infected. Hence the researcher has placed the soil from different places in marked bags in order for the children to touch and observe.

2. Children's Learning Results

The children's learning results from the educational activities can be separated into 3 groups:

2.1 Activities where the children answered questions correctly were work sheet number 2, 3, 8, and 9. The activities were about categorizing living and non-living things, the parts of trees, living things in the water, and the benefits of water, all of which were answered correctly by the children because the content was easy and were linked with what the children had done beforehand. The children can use and modify previous knowledge to fit with these activities.

2.2 Activities that the children answered mostly correctly (75.0 – 84.4%) included work sheet number 1, 4, 5, 7, and 10.

Work sheet number 1, 4, and 7 were sheets that the children were able to answer correctly most often (84.4%). The researcher sees that the work sheets were those that initiated new knowledge, but most children could answer the questions. Wrong answers or incomplete answers are believed to be due to the children and parents having a misunderstanding during doing activities as work sheet.

In work sheet number 5, Park Flowers which is the fourth learning activity, it was found that the park gardeners had trimmed the flower bushes, leaving only the new buds with none of the flowers but the leaves were left being observed. Therefore, parents had to tell children to observe and notice the leaves of lotus and canna in the learning guide and work sheet instead, which was not clear as the real flowers. The children could consequently answer only 78.1% correctly.

In work sheet number 10, Plant Art, there were children who answered correctly 75.0% (that is, followed everything in the learning guide correctly) and those who missed to follow learning guide correctly 9.4%. However, when considering the work of children who answered incorrectly, it can be seen that the children are able to create plant art in various shapes very well with the help of their parents. Therefore, the fact that they did not answer correctly is not an indication that they could not do activities follow the work sheet number 10.

2.3 Activity that most children did not answer in the work sheet number 6.

There were only 4 children who answered (12.5%) and answered incorrectly in this work sheet with most of the children not answering at all (87.5%), it may be that during the time the researcher tried out the learning guide, the palm area had numerous flowering lotus and canna, which attracted many nectar-feeding insects. However, on the day the learning guide was actually used, the park gardeners had trimmed these flowers and left only the buds without any flowers. This made the area devoid of insects, thus disabling the children from answering. This activity was also the continuing activity of activity 5. Since the area was without insects, the insect drawings that the researcher used in the learning guide could therefore not be seen in

the limited time so the children could not answer. Those who answered incorrectly were children who wanted to take part in the coloring activities.

3. Parents' Satisfaction

3.1 Satisfaction of the Learning guide

3.1.1 Content Satisfaction

(1) In giving knowledge and understanding, it was found that 59.4% of parents were satisfied at an average level. When considering equally the opinion of 43.75% of the parents who thought the content of the learning guide was very interesting and interesting at an average level, it shows that the content of the learning guide could be used in the learning of children. However, the learning guide gives too little knowledge and understanding, which may be due to the limitations of the learning guide form, as the researcher limited the content to be put in the learning guide for fear of parents spending too much time reading.

(2) In regards to the suitability of the content to children aged 3 – 6 years, it was found that 59.4% of parents were satisfied at an average level. Even so, the researcher created the learning guide appropriately and had it verified by qualified experts; the researcher is therefore confident that the content in the learning guide is suitable to children aged 3 – 6 years. Although the insect activity scored low, it was because the children did not answer due to a change in the environment, not because the children could not do the activity.

3.1.2 Language Used

The language used in the learning guide is simple to understand and can be explained immediately to children for them to understand. It was found that 62.5% of parents were satisfied at an average level. For the learning guide's language, the researcher consulted with qualified experts, and experts of pre-school already, as well as made improvements according to the suggestions of parents in the testing phase in order to develop the learning guide to be simple and easy, without any expanding information. For example, a question could be "What is the largest part of the tree?" without adding "which is brown bark etc" in order to decrease the burden of reading for parents. On observing the parents using the learning guide, it was found that they

used the words that appeared in the learning guide in reading without explaining the meaning to let children understand clearly, all the while proceeding continuously to the next activity. Sometimes, the words are difficult for the children to understand. Therefore, in using the learning guide, there might have to be recommendations on it that state that the parents have to explain the various words used, to ensure the understanding of the children.

3.1.3 Form of the Learning guide and Pictures Used

Most of the parents were satisfied with the form of the learning guide and the pictures used at an average level, with many who felt that there should be improvements to 3 areas: the learning guide should be convenient to use; the pictures should be appropriate to the activity; and the pictures should be clearer in order to be understood more easily.

(1) In regards to the form of the learning guide, the researcher tried to use a small, easily portable form by using the criteria that Yupharej Wangyaishim (1997) used in developing a learning guide for environmental education for the Khao Yai National Park. The size of the learning guide was a result of the survey that Yupharej Wangyaishim did by asking the tourists to the reserve about the suitability in size; if the learning guide was smaller than it was, the pictures would have to be smaller too, which may result in the pictures being too small to be clear. In this nature interpretation development, besides the learning guide being an important supplement, there was also an equipment box and work sheets that parents had to use during the activities. This might be why the learning guide was not very convenient in transporting and some parents have their own belongings, all of which would be burdensome, thus facilitating the low score.

(2) In regards to the pictures used, because the researcher's printer was a small ink jet, the printing effectiveness was not sufficient. Also, there were pictures such as those of the flowers of lotus and canna in learning point 4, Sra Suan Palm, the fourth learning activity, Park Flower, the work sheet number 5, activity 5, and work sheet number 7 that were not as clear as they should be. During the experiment of the learning guide, the flowers used in the learning guide were cut by gardeners, leaving only buds of lotus and canna. There were distinguishable leaves, so parents let their

children observe lotus and canna leaves, which were not very clear as flower in the learning guide and may be the reason why parents gave a low score.

3.2 Satisfaction of Work Sheet

Most parents were satisfied with the work sheet at an average level, but when the opinions of the parents towards the work sheet was surveyed, it was found that 62.5% felt that the work was suitable at a high level and 75% felt that there need not be any improvements. Therefore in general, the researcher feels that the work sheet could be used in teaching children.

3.3 Satisfaction of Activities

3.3.1 In regards to satisfaction of activities, 53.2% of parents felt satisfaction that the activities were suitable for children aged 3 – 6 years and the content of learning guide was suitable at an average level. When asked, 62.5% of parents felt that the activities did not need any improvements.

From the researcher's observations during the activities, the children were interested and excited about the variety of activities, such as walking, observing, questions-and-answers, and coloring, all of which support development in all sides (physical, emotional, mental, social, and intellectual), as Office of the Private Education Commission(1991).

However, because the parents were not really ready to engage in the activities, parents were unable to facilitate smooth learning. This resulted in an assessment of satisfaction at an average level, but once asked about improvements the parents could not answer. Therefore, overall the researcher feels that the activities could be used to arrange learning activity for children.

3.3.2 In regards to the time used for the activity, most parents were satisfied at an average level and felt that there should be improvements to activity 2, "Close Your Eyes & Find Your Friend," with similar results for activity 4, Park Flowers.

(1) Activity 2 is similar to a game of hide-and-seek in that the children would be blindfolded. Then, the children would be taken to touch a Silk (Rain or Albizzia) tree while the parents question and describe the features of the tree for the

children. Afterwards, the children are taken to another tree and the process is repeated. The adults then lead the children away from both trees and take off the blindfold, and the children are asked which tree they touched first and last. If the children do not understand the parent must explain and re-count the various features of the trees in order to stimulate the children in remembering the differences. From observation, it was found that the parents doing this activity used more time (15 minutes) than was established by the learning guide (10 minutes), since they need to make the children understand. If the children do not understand or answer incorrectly, sometimes the activity must be done again. The children have fun during the activity, but the adults may be tired of explaining all the time, which prompted the assessment to improve.

(2) Activity 4 was set for 5 minutes, but because the flowers of lotus and canna had been trimmed, the parents had to explain to the children to observe the lotus and canna in the pictures instead of the flowers, which could be seen much more clearly. This led the activity to use up more time than set, prompting the assessment to improve.

CHAPTER VI

RECOMMENDATIONS

1. Research Summary

Environmental problems need the cooperation of all parties in order to prevent and solve them. A family is an institution that can initialize the learning of family members, and children can be considered members who can be taught concept of various issues from the family in order to become a foundation of life. Therefore, the researcher created and developed a nature interpretation learning guide for families to become a tool that parents can use to teach their children. It would be a guideline in giving environmental education information to children, since the creation of development of a learning guide for the family was done for the first time. Therefore, this research had the objective of assessing the effectiveness of the learning guide and assessing the readiness and limitations of using the learning guide in real situations, with the research being experimental in nature with one group design and having no control group. The results were measured by observation, collecting the work results, and the assessment forms of children. The sample group used in testing consisted of 32 families of Thai parents with children aged between 3 – 6 years who come in to use the Lumpinee Park, using accidental sampling technique. The test was done on Saturday and Sunday, from January 5, 2002 to February 10, 2002 during 08.00 a.m. – 18.00 p.m. The results were analyzed by using statistics as frequency and percentages through an evaluation of the learning results as seen in the work sheet, as well as through a comparison analysis of the answers established. The assessment of learning guide quality was done by assessing the satisfaction of parents, analyzing the data through percentages. The research results can be divided according to the topics that follow.

1.1 Creating and Developing The Lumpinee Park nature learning guide.

Creating and developing the learning guide was done step by step. Limitations and content of the learning guide were established by studying initial information about the area, analyzing the students, and establishing objectives and a broad spectrum of content, as well as evaluating the walkways and setting the desired places. There were a total of 5 places used in nature interpretation in the trail: Larn Dawan Yim, Sapan Fuang Fah, Suan Yom Rimkoo, Sra Suan Palm, and Suan Palm. Then important topics and behavioral objectives were set in order to be information used in the establishment of learning activities at each learning place. Appropriate assessment tests were also created in order to measure the results in accordance to the objectives of the learning guide.

The learning guide was developed with the help of the thesis advisors committee and qualified experts, then tested 2 times in the real environment by letting 1 and 4 families respectively engage in the activities and having the parents express their satisfaction of the learning guide so as to know of its effectiveness.

From a study of the methods of creating and developing a learning guide from documents, textbooks, and related studies, the researcher was able to create a learning guide systematically and develop it to have the desired features as well as making it appropriate to be used in real situations.

1.2 Learning guide Features and Communication Medium

The natural interpretation learning guide consisted of the following:

1.2.1 The parents' learning guide, which was 6 x 8 inches in size and 17 pages long. The inside consisted of encouragement in using the learning guide, suggestions in using the learning guide, a table of contents, a map of the walkways, environmental communication places, and details about the activities in each place.

1.2.2 Communication Medium

1.2.2.1 A total of 10 work sheets that were 6 x 8 inches in size were stapled at the upper right-hand corner for ease of separation. Each sheet would include the activity details that the children need to follow as appears in the parents' learning guide, as follows:

Activity 1 – What is at Lan Dawan Yim? – There were 2 work sheets: #1 “What is at Lan Dawan Yim?” and #2 “Living Things in Lan Dawan Yim.”

Activity 2 – Follow Your Friend – There was 1 work sheet: #3 “Tree Parts.”

Activity 3 – Close Your Eyes, Find Your Friend – There was 1 work sheet: #4 “Close Your Eyes & Find Your Friend.”

Activity 4 – Park Flowers – There were 2 work sheets: #5 “Park Flowers” and #6 “Find the Insects”

Activity 5 – Magical Soil – There was 1 work sheet: #7 “The Home of Friends”

Activity 6 – What is in the water? – There were 2 work sheets: #8 “What is in the water?” and #9 “Benefits of water.”

Activity 7 – Plant Art – There was 1 work sheet: #10 “Plant Art.”

1.2.2.2 There was an equipment box 12 x 18 inches in size. In front, there were 3 bags of soil approximately 2 x 3 inches attached, which were used in the learning point of Sra Suan Palm for Activity 5 Magical Soil. The box contained 1 pen, 1 box of oil pastels, 1 blindfold, 1 glue stick, and 1 piece of paper 6 x 8 inches.

1.2.2.3 The 5 learning station were:

Learning Station 1 – Lan Dawan Yim – At this point, parents must prepare the children by explaining the importance of the natural environment and letting the children know the features of living and non-living things.

Learning Station 2 – Sapan Fuang Fah – The activity “Find Your Friend,” once done, will let children know of the different parts of trees.

Learning Station 3 – Suan Yom Rimkoo – The activity “Close Your Eyes & Find Your Friend” where children have to learn about the differences of trees is done here.

Learning Station 4 – Sra Suan Palm – This is the point for 3 activities, as follows:

(a) Park Flowers – once finished, the children would learn about flowers and know the benefit of insects

(b) Magical Soil – once finished, the children will learn that different plants need different soil

(c) What Lives In the Water? – once finished, the children will know of plants and animals that live in water and know they should not pollute it.

Learning Station 5 – Suan Palm – The activity “Plant Art” is done here, where children will be able to review what they learned and display their art and imagination.

1.3 Children’s Learning Results

The activities that the children participating can be divided into 3 groups according to the results: the group of activities where children answered all questions correctly (a total of 4 activities), which consisted of easy activities and continuity; the group of activities where children answered most questions correctly (a total of 5 activities), where most were introductions of new information, but most children could answer correctly (incorrect or incomplete answers could be because parents and children were misunderstanding to do activity to follow the work sheet); and the last group where most children answered incorrectly or incompletely (a total of 1 activities), which was due to an environmental change that made the children unable to answer – those who answered incorrectly wanted to take part in coloring.

1.4 Parents’ Satisfaction

Most parents were satisfied at an average level in regards to the learning guide, work sheets, equipment, and activities, and felt that improvements were needed in the language used – which should be simple and appropriate for the children, not appropriate for the adults. This is an observation that found that parents would read the words in the learning guide others explanation in order to let the children understand. For example, a question could be “What is the largest part of the tree?”, which adults could answer immediately. However, children may not understand, thus making it necessary for parents to have to expand it by talking about its brown color.

2. Research Recommendations

Recommendations from the Research

2.1 Recommendations in Creating a Learning guide

2.1.1 In creating a learning guide, budget of creation must be considered, such as for paper, printing, and the desired number of learning guides, as these factors involve quality. Therefore, they must be thought of carefully, else the result would be a learning guide with good content but with a form and pictures that are unappealing. This would lower quality and even be a waste of budget and time spent.

2.1.2 In creating the learning guide, the creator needs to ask for cooperation from officers responsible for the areas covered, since if cooperation is not received, the officers may change something in the station of learning, making education unable to meet the objectives of the learning guide.

2.1.3 The creator needs to consider the time of creation, development, and testing, because testing needs to be done many times in order to improve the information and develop a quality learning guide. The creator also needs patience to deal with the many corrections.

2.2 Recommendations in Using the Learning guide

2.2.1 Preparation with parents should be done before letting parents use the learning guide; this is so that parents will be able to understand and engage in the activities as per the learning objectives.

2.2.2 Consideration should be given to the weather and environment during learning. If it rains, this would be an obstacle to learn.

2.2.3 Consideration about location changes should be regarded.

3. Recommendations for Further Research

3.1 There should be research about nature interpretation learning guides for families in various areas, in regards to many environmental issues such as the travel of

ants, what is in the water, and other topics, in order to help primary school children have the opportunity to study nature at the early time of life. The methodology of construction could be based on this research.

3.2 In testing the learning guide, parents should be prepared so they understand the content in the learning guide and the steps in engaging in the activities before letting them use the learning guide so that parents can facilitate in teaching their children as per the learning objectives.

3.3 There should be research on the learning results of children through a comparison of the children by various variables such as age, level of education, parents, and parents' education, for example.

3.4 There should be a comparison between the pre-test and the post-test in order to be confident that the children's learning came from the learning guide.

BIBLIOGRAPHY

In Thai

- กรมวิชาการ.(2540). หลักสูตรก่อนปฐมศึกษา พุทธศักราช 2540. (พิมพ์ครั้งที่ 1)
 เกียรติวรรณ อมาตยกุล.(ม.ป.ป.). สอนให้เป็นอัจฉริยะตามแนวโน้มไอทีวเมนนิส. (พิมพ์ครั้งที่ 5)
 กัญญา ศิริกุล.(2532). หลักการปัญหาและกรณีศึกษาด้านประชาสัมพันธ์. กรุงเทพฯ : รุ่งศิลป์
 การพิมพ์.
- กองสวนสาธารณะ.(2538). จุดสารสำนักสวัสดิการสังคมกรุงเทพมหานคร โรงพิมพ์ห้างหุ้นส่วน
 จำกัด ป.สัมพันธ์พาณิชย์.
- ธรรมปิฎก, พระ (ป.อ.ปยุตโต).(2538) ไทยอนาคตกับป่า. ขวัญสรวง อติโพธิ์ และ อนุชาติ
 พวงคำลี (บรรณาธิการ), เอกสารประกอบการสัมมนาสิ่งแวดล้อม 38 ร่วมใจ...
 ทำกัน...วันนี้ 1-3 ธันวาคม 2538 สิ่งแวดล้อมไทยอนาคตไทยประมวลความคิดแห่ง
 ยุคสมัย.(109)
- ฉลอง น้อยนิม. (2542). การพัฒนาคู่มือสื่อความหมายธรรมชาติและประวัติศาสตร์เพื่อการท่องเที่ยว
 เขิงนิเวศในอุทยานแห่งชาติภูหินร่องกล้า. วิทยานิพนธ์ปริญญาศึกษาศาสตร
 มหาลัยมหิดล, สาขาสังแวดล้อมศึกษา บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.
- บุษบา สุธีธร.(2531). เอกสารการสอนชุดวิชาผลิตงานประชาสัมพันธ์. นนทบุรี:มหาวิทยาลัย
 สุโขทัยธรรมราช.
- พรรณวิภา ดารามาศ.(2543). การสร้างและทดลองใช้คู่มือศึกษาธรรมชาติเขตรักษาพันธุ์สัตว์ป่าโดน
 ปรีวรรตสำหรับเยาวชน. วิทยานิพนธ์ปริญญาศึกษาศาสตรมหาบัณฑิต, สาขา
 สิ่งแวดล้อมศึกษา บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.
- พรรณทิพย์ ศิริวรรณบุศย์.(2536). จิตวิทยาครอบครัว. (พิมพ์ครั้งที่ 2). กรุงเทพฯ: จุฬาลงกรณ์
 มหาวิทยาลัย.
- พิชา พิทยขจรวุฒิ.(2541). การสื่อความหมายธรรมชาติ. เอกสารประกอบการสัมมนาเรื่องการ
 สื่อความหมายธรรมชาติ: (อัดสำเนา).
- เพียงจิต ค่านประดิษฐ์. (2542). ความคิดสร้างสรรค์ของเด็กปฐมวัย. (พิมพ์ครั้งที่ 1). นครปฐม:
 คณะครุศาสตร์ สถาบันราชภัฏนครปฐม.
- พัชรี ผลโยธิน. (2543) .การเรียนรู้ของเด็กปฐมวัยไทยตามแนวคิดไฮสโคป. (พิมพ์ครั้งที่ 1).
 กรุงเทพฯ: สำนักพิมพ์อัมรินทร์.

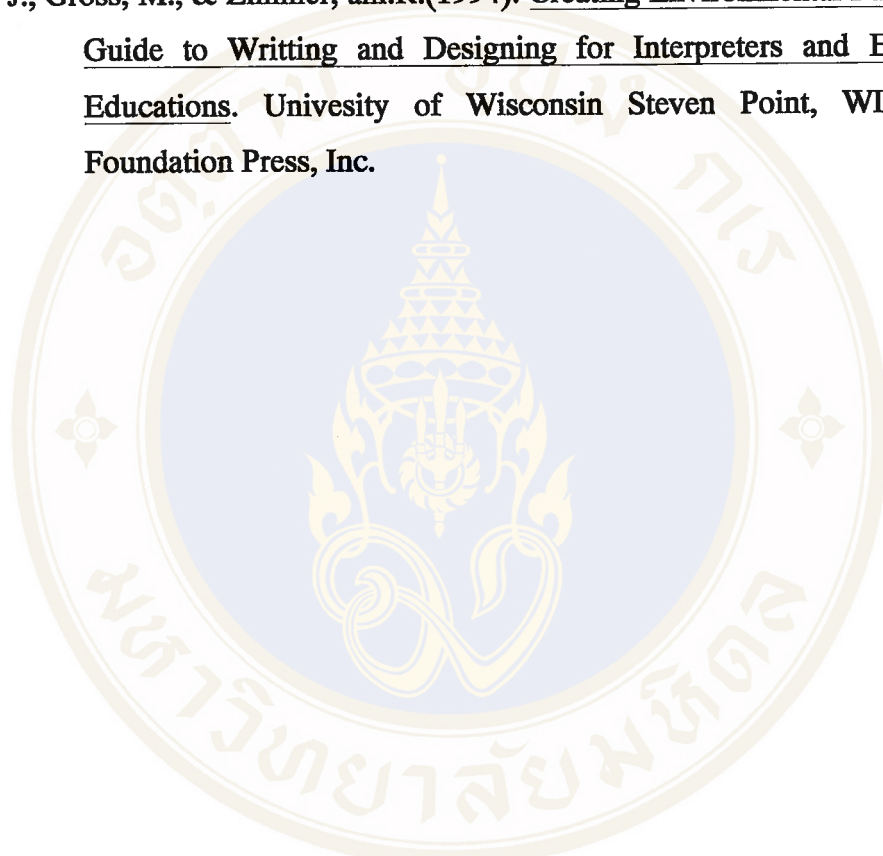
- ยุพเรศ วัชยาขลิม. (2540). การพัฒนาคู่มือศึกษาธรรมชาติประจำเส้นทางเดินป่าในอุทยานแห่งชาติเขาใหญ่. วิทยานิพนธ์ปริญญาศึกษาศาสตรมหาบัณฑิต, สาขาสังแวดล้อมศึกษามหบัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.
- เยาวพา เดชะคุปต์. (2542). กิจกรรมสำหรับเด็กปฐมวัย. (พิมพ์ครั้งที่ 1) .กรุงเทพฯ: สำนักพิมพ์แม่ค. ราชบัณฑิตยสถาน.(2525). พจนานุกรมฉบับราชบัณฑิตยสถาน. กรุงเทพมหานคร.
- วิจิตร อาวะกุล. (2534). เทคนิคการประชาสัมพันธ์. กรุงเทพฯ: พรินต์ติ้ง เฮาส์ จำกัด.
- วินัย วีระวัฒนานนท์ และบานชื่น สีพันธ์อง. (2539). สิ่งแวดล้อมศึกษาเพื่อการพัฒนาที่ยั่งยืน. (พิมพ์ครั้งแรก): บริษัท ส่องสยาม จำกัด.
- สมทรง ศรีตลาขันธ์.(2516). การศึกษาเกี่ยวกับลักษณะหนังสือที่ชอบ. วิทยานิพนธ์ปริญญาโท, จุฬาลงกรณ์มหาวิทยาลัย.
- สุชา จันทน์เอม.(2541). จิตวิทยาเด็ก. (พิมพ์ครั้งที่ 3): บริษัทโรงพิมพ์ไทยวัฒนาพานิช จำกัด.
- เสรี เวชชบุษกร.(2539). ทางเดินศึกษาธรรมชาติ. เอกสารประกอบการประชุมเชิงปฏิบัติการ การสื่อความหมายธรรมชาติครั้งที่ 1 วันที่ 13-18 ตุลาคม 2529.(อัครา).
- สำนักงานคณะกรรมการการศึกษาแห่งชาติ.(2542). การเรียนรู้ของเด็กปฐมวัย. กรุงเทพฯ : บริษัท เซเว่น พรินต์ติ้งกรุ๊ป จำกัด.
- สำนักงานคณะกรรมการศึกษาเอกชน. (2534). คู่มือประเมินพัฒนาการของเด็กอนุบาลชั้นปีที่ 1-3. โรงพิมพ์คุรุสภาลาดพร้าว.
- สำนักงานคณะกรรมการการประถมศึกษาแห่งชาติ.(2540). คู่มือประเมินพัฒนาการเด็กระดับก่อนประถมศึกษา. กรุงเทพฯ : โรงพิมพ์คุรุสภาลาดพร้าว.
- สำนักผังเมือง.(ม.ป.ป.). โครงการจัดหาและพัฒนาสวนสาธารณะ สนามเด็กเล่นและภูมิทัศน์ของเมือง. (พิมพ์ครั้งที่ 2).
- อนันต์ อนันตโชติ.(2531). คำบรรยายวิชาการประชาสัมพันธ์ด้านทรัพยากรธรรมชาติ. ภาควิชาป่าไม้ คณะวนศาสตร์ มหาวิทยาลัยเกษตรศาสตร์.
- อนันต์ธนา อังกินันท์.(2535). การผลิตและ การใช้สื่อเพื่อการประชาสัมพันธ์. กรุงเทพฯ : รุ่งศิลป์การพิมพ์.
- อรวรรณ ชนะพลไกร.(2541). รูปแบบการจัดกิจกรรมการทดลองทางวิทยาศาสตร์แนวผสมผสาน (วิทยาศาสตร์และวัฒนธรรม) สำหรับเด็กก่อนวัยเรียน ณ ศูนย์วิทยาศาสตร์เพื่อการศึกษา. วิทยานิพนธ์ปริญญาศิลปศาสตรมหาบัณฑิต, สาขาวิชาวัฒนธรรม บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

In English

Knudson, D.M., Cable, T.T., Beck, L.(1995). Interpretation of Cultural and Natural Resources. Cato Avenue State College, PA:Venture Publishing, Inc.

Tilden, F.(1987). Intepreting our Heritage. (13th.ed.). Chapel Hill, NC : The University of North Carolina Press.

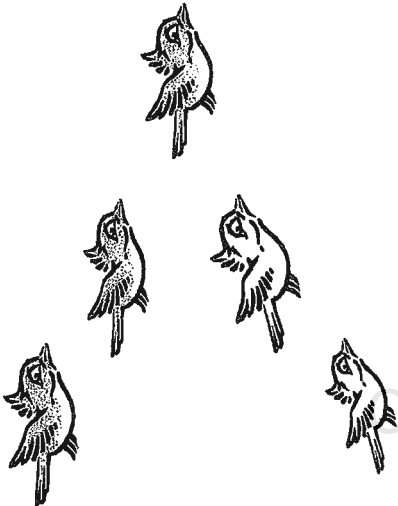
Zehr, J., Gross, M., & Zimmer, am.R.(1994). Creating Environmental Publications : A Guide to Writting and Designing for Interpreters and Environmental Educations. Univesity of Wisconsin Steven Point, WI : UW. Sp Foundation Press, Inc.





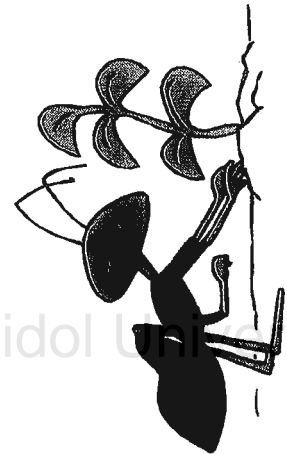
APPENDIX A.
THE LUMPINEE PARK NATURE LEARNING GUIDE
FOR THE FAMILY





ท่านเชื่อหรือไม่ว่า

“ท่านสามารถให้ความรู้แก่บุตรหลานได้ในขณะที่เขาเล่นอยู่”



สารบัญ

| เรื่อง | หน้า |
|-----------------------------------|------|
| คำแนะนำสำหรับผู้ปกครอง | 1 |
| จุดการเรียนรู้สวนตะวันยิ้ม | 4 |
| กิจกรรมที่ 1 มีอะไรในสวนตะวันยิ้ม | 4 |
| จุดการเรียนรู้สะพานเฟื่องฟ้า | 6 |
| กิจกรรมที่ 2 ตามหาเพื่อนรัก | 6 |
| จุดการเรียนรู้สวนหอยอมริมดู | 8 |
| กิจกรรมที่ 3 ปิดตาหาเพื่อน | 8 |
| จุดการเรียนรู้สระสวนปาล์ม | 11 |
| กิจกรรมที่ 4 ดอกไม้ในสวนลุ่ม | 11 |
| กิจกรรมที่ 5 ดินมหัศจรรย์ | 13 |
| กิจกรรมที่ 6 อะไรอยู่ในน้ำ | 14 |
| จุดการเรียนรู้สวนปาล์ม | 17 |
| กิจกรรมที่ 7 ศิลปะจากต้นไม้ | 17 |

4. วัตถุประสงค์การเรียนรู้

- 4.1 เพื่อพัฒนาทักษะการเรียนรู้ของเด็กในการสำรวจ ใช้ความคิด ตาหู หูฟัง มือสัมผัส และจมูกดมกลิ่น
- 4.2 เพื่อให้เด็กทราบว่าต้นไม้แต่ละส่วนมีชื่อและหน้าที่ต่างกัน
- 4.3 เพื่อให้เด็กได้รู้จักและเห็นความสำคัญของสิ่งมีชีวิตต่าง ๆ รอบตัว
- 4.4 เพื่อให้เด็กทราบว่าดินมีความแตกต่างกัน
- 4.5 เพื่อให้เด็กทราบว่าในน้ำมีทั้งพืชและสัตว์อาศัยอยู่

5. กระบวนการเรียนรู้

เด็กจะเรียนรู้จากการสังเกต การสัมผัส ตาหู หูฟัง การระบายสีลงในใบงาน การใช้ความคิดในการตอบคำถาม การตั้งคำถามและการใช้จินตนาการ

6. จุดการเรียนรู้และกิจกรรมต่าง ๆ

| กิจกรรม | จุดการเรียนรู้ | ระยะเวลาที่เสนอแนะ |
|-----------------------------------|----------------|--------------------|
| กิจกรรมที่ 1 มีอะไรในลานตะวันยิ้ม | ลานตะวันยิ้ม | 5 นาที |
| กิจกรรมที่ 2 ตามหาเพื่อนรัก | สะพานเฟื่องฟ้า | 10 นาที |
| กิจกรรมที่ 3 ปิดตาหาเพื่อน | สวนหย่อมริมคู | 10 นาที |
| กิจกรรมที่ 4 ดอกไม้ในสวนลุม | สระสวนปาล์ม | 5 นาที |
| กิจกรรมที่ 5 ดินมหัศจรรย์ | สระสวนปาล์ม | 5 นาที |
| กิจกรรมที่ 6 อะไรอยู่ในน้ำ | สระสวนปาล์ม | 10 นาที |
| กิจกรรมที่ 7 ศิลปะจากต้นไม้ | สวนปาล์ม | 10 นาที |
| | รวม | 55 นาที |

กิจกรรมที่ 1 มีอะไรในลานตะวันยิ้ม

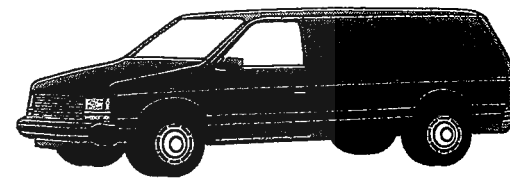
จุดการเรียนรู้ลานตะวันยิ้ม

1. สื่อประกอบคือ ใบงานที่ 1 ใบงานที่ 2 และสีเทียน 1 กล่อง
2. วัตถุประสงค์ เพื่อให้เด็กสามารถบอกลักษณะของสิ่งมีชีวิตได้
3. การนำเข้าสู่บทเรียน

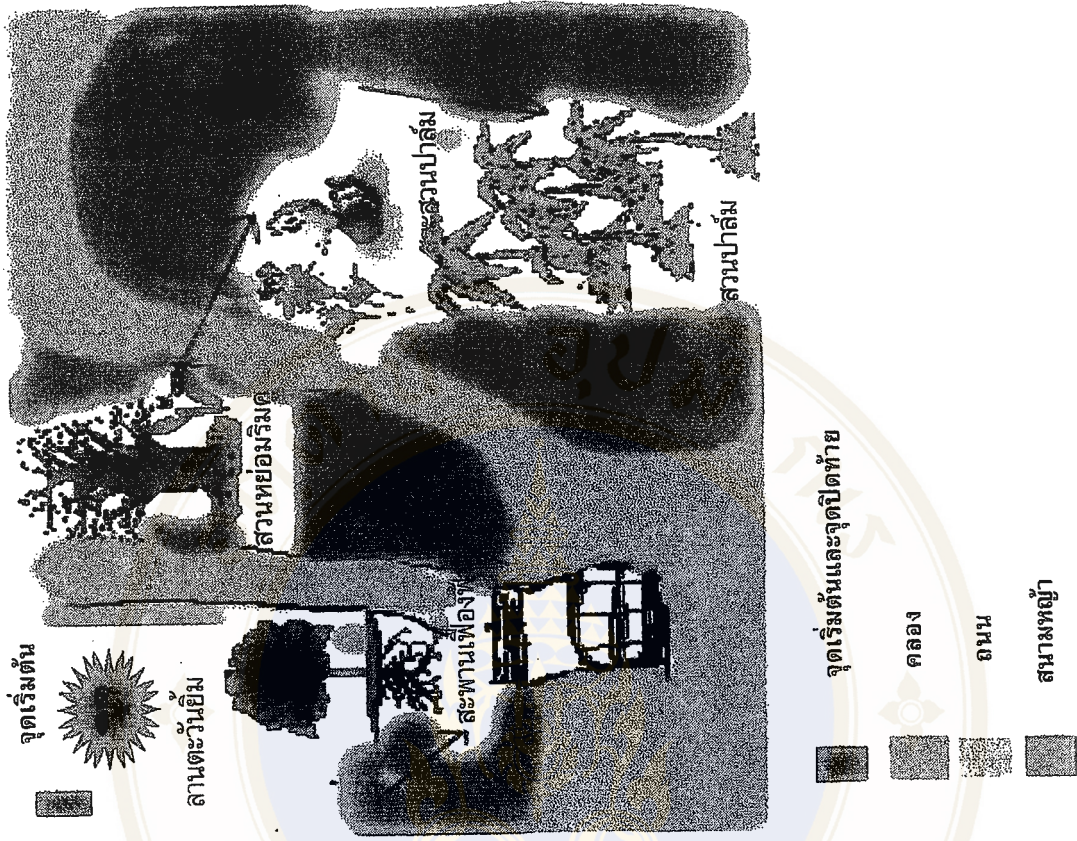
หลังจากที่เด็กเล่นกับเครื่องเล่นต่างๆ จนพอใจแล้วผู้ปกครองชักชวนให้เด็กมานั่งในที่สบายๆ แล้วถามความพอใจของเขาจากการเล่น ถามชื่อของสิ่งต่างๆ ที่มีอยู่ รวมถึงสิ่งที่เขาเห็น เช่น อะไรเอ่ย? ต้องเล่นสองคน ผลัดกันขึ้นผลัดกันลง อะไรเอ่ย? มีสีเขียว อะไรเอ่ย? บินได้ หลังจากนั้นก็นำใบงานที่ 1 มาให้เด็กดู

4. กิจกรรมการเรียนรู้

4.1 ผู้ปกครองชักชวนให้เด็กดูว่ามีอะไรบ้างที่หนูเห็นและมีอยู่ในใบงานนี้ (ให้เด็กทำเครื่องหมาย ✓ ลงใน ใต้ภาพในใบงานที่ 1)



แผนที่เส้นทางการเรียนรู้บูรณาการชาติ

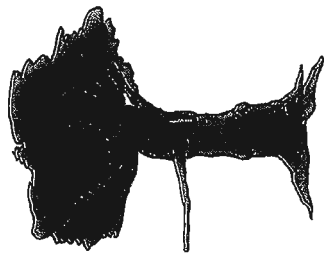


คำแนะนำสำหรับผู้ปกครอง

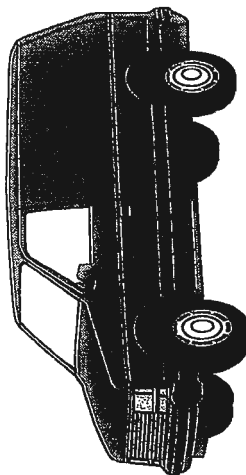
1. บทบาทของผู้ปกครอง
 - ก่อนทำกิจกรรม
 - * ผู้ปกครองศึกษาคู่มือให้เข้าใจพร้อมรับอุปกรณ์ (ใบงาน 10 ใบ แผ่นพลาสติกใช้รองเขียน 1 แผ่น สีเทียน 1 กล้อง ปากกา 1 ด้าม กาว 1 หลอด ฝาปิดตา 1 ฝืน)
 - ขณะทำกิจกรรม
 - * ช่วยเหลือเด็กเมื่อเด็กต้องการความช่วยเหลือ ไม่ว่าจะเป็นการตอบคำถามหรืออธิบายเพิ่มเติมไม่ต้องกังวลเมื่อเด็กตอบไม่ถูก
2. วัตถุประสงค์ของคู่มือ
 - เพื่อให้ผู้ปกครองใช้เป็นคู่มือในการนำเด็กที่มีอายุระหว่าง 3-6 ปีศึกษาธรรมชาติในพื้นที่สวนลุมพินี
3. เส้นทางศึกษาธรรมชาติ
 - ใช้เส้นทางโดยเริ่มจากลานตะวันยิ้ม ผ่านไปยังสะพานเพื่อนฟ้า สวนพยอมริมิด ข้ามไปยังสระสวนปาล์ม และไปสิ้นสุดที่สวนปาล์ม โดยมีจุดเรียนรู้รวม 5 จุด ดังรูป

- จุดเรียนรู้ที่ 1 ลานตะวันยิ้ม
- จุดเรียนรู้ที่ 2 สะพานเพื่อนฟ้า
- จุดเรียนรู้ที่ 3 สวนพยอมริมิด
- จุดเรียนรู้ที่ 4 สระสวนปาล์ม
- จุดเรียนรู้ที่ 5 สวนปาล์ม

4.2 อะไรเอ่ย? ต้องการอาหาร และเติบโตได้ (ให้เด็กระบายสีตามใจชอบ ลงในภาพ ที่เป็นคำตอบลงในใบงานที่ 2)



(ต้นไม้)



(รถ)

4.3 ผู้ปกครองอธิบายว่า สิ่งมีชีวิตเติบโตได้ และสิ่งไม่มีชีวิตเติบโตไม่ได้

กิจกรรมที่ 2 ตามหาเพื่อนรัก
จุดการเรียนรู้สะพานเพื่อฟ้า

1. สื่อประกอบ คือ ใบงานที่ 3 และสีเทียน 1 กล่อง
2. วัตถุประสงค์
 - 2.1 เพื่อให้เด็กสามารถบอกชื่อส่วนต่าง ๆ ของต้นไม้ได้
 - 2.2 เพื่อให้เด็กสามารถบอกหน้าที่ของส่วนต่างๆ ของต้นไม้ได้
3. การนำเข้าสู่บทเรียน

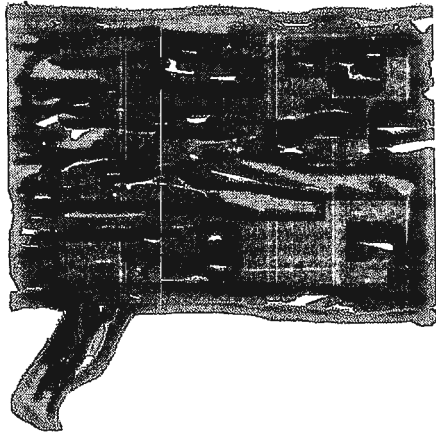
ผู้ปกครองชักชวนให้เด็กสนใจต้นไม้โดยการทักทายปัญหา อะไรเอ่ย? มีใบยังแดดได้ หลังจากรันให้เด็กสังเกตรูปร่างและลักษณะของต้นไม้จากของจริง สังกักัน มีลำต้น และมีราก
4. การใช้ใบงาน

4.1 ถามเด็กว่า “อะไรเอ่ย? อยู่บนต้นไม้ มีสีเขียว อยู่ปลายกิ่งก้าน”
เมื่อเด็กตอบโดยที่รูปในใบงานที่ 3 แล้วผู้ปกครองอธิบายหน้าที่ของใบไม้



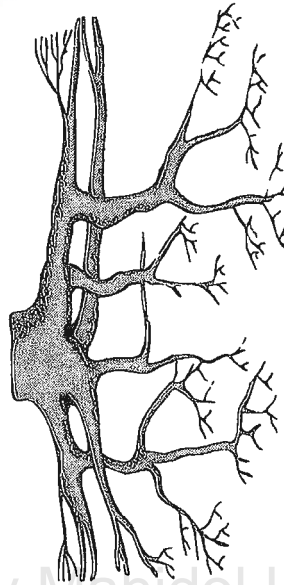
(ใบสีเขียวใจ)

4.2 ถามเด็กว่า “อะไรเอ่ย? มีขนาดที่ใหญ่ที่สุดของต้นไม้”
เมื่อได้คำตอบแล้ว ให้ผู้ปกครองอธิบายหน้าที่ลำต้นของต้นไม้



(ลำต้นเป็นท่อส่งอาหาร)

4.3 ถามเด็กว่า “อะไรเอ่ย? เป็นส่วนหนึ่งของต้นไม้ อยู่ในพื้นดิน”
เมื่อเด็กตอบแล้วผู้ปกครองอธิบายหน้าที่ของต้นไม้



(รากใช้ยึดลำต้น ดูดน้ำและอาหาร)

4.4 นำใบงานที่ 3 มาให้เด็กบอกชื่อส่วนต่างๆ ของต้นไม้แล้วให้ผู้ปกครอง
เขียนชื่อส่วนต่างๆ ของต้นไม้ลงในใบงาน

กิจกรรมที่ 3 ปิดตาหาเพื่อน
จุดการเรียนรู้สวนหย่อมริมคู

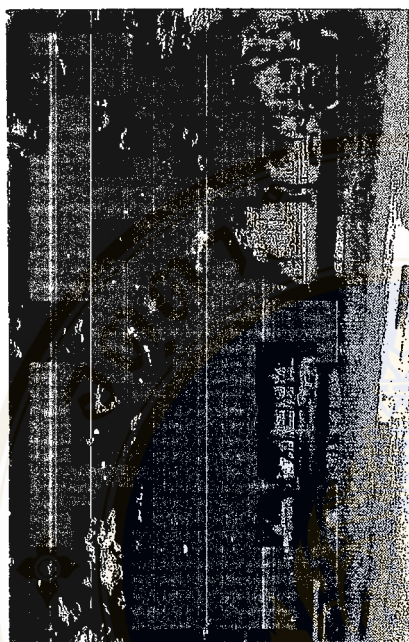
1. สื่อประกอบ คือ ใบงานที่ 4 สีเทียน 1 กล่อง และผ้าปิดตา
2. วัตถุประสงค์ เพื่อให้เด็กสามารถบอกได้ว่าต้นไม้มีลักษณะแตกต่างกัน
3. การนำเข้าสู่บทเรียน
ต้นไม้ในสวนนี้มีหลายชนิด แต่ละชนิดมีลักษณะไม่เหมือนกัน
4. การใช้ใบงาน
 - 4.1 ผู้ปกครองนำผ้าปิดตาจากซองอุปกรณ์มาปิดตาเด็กไว้
 - 4.2 ผู้ปกครองพาเด็กไปที่ต้นจามจุรีที่อยู่ริมคูน้ำ จากนั้นช่วยเด็ก
ให้ใช้มือหรือร่างกายสัมผัสกับต้นไม้ (ต้นไม้ขนาดใหญ่)



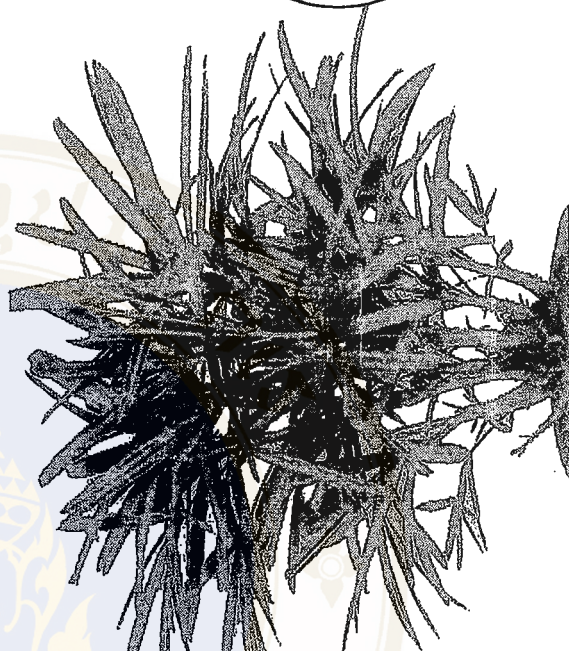
(ต้นจามจุรี)

4.8 ผู้ปกครองพาเด็กออกมกยึนในที่โล่ง แกะผ้าปิดตาออกและให้เด็กสำรวจว่าต้นไม้ต้นใดที่เด็กสัมผัสได้เป็นต้นแรกและต้นที่ 2

4.9 ให้เด็กโยนสิ่งจับคู่หมายเลขกับต้นไม้ ใบงานที่ 4 พร้อมกับระบายสีตามความต้องการ



ต้นที่ 1

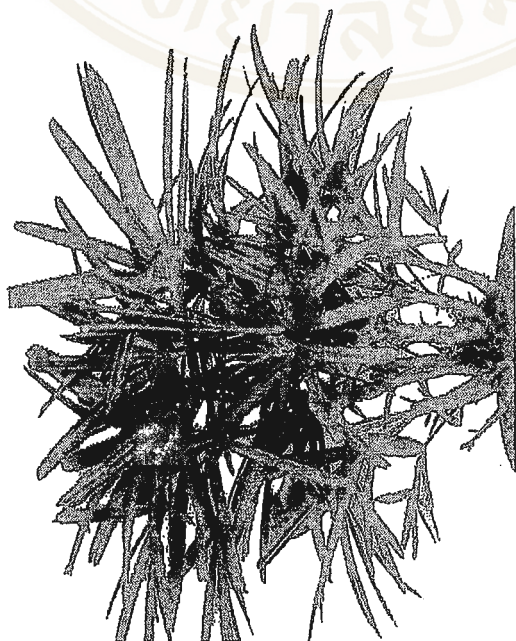


ต้นที่ 2

4.3 ขณะที่เด็กสัมผัสกับต้นไม้อยู่นั้น ให้ผู้ปกครองถามความรู้สึกของเด็กว่าต้นไม้ต้นนี้มีขนาดใหญ่มากหรือน้อย (ใหญ่)

4.4 เมื่อเด็กได้สัมผัสกับลำต้นจนพอใจแล้วให้ผู้ปกครองเก็บใบของต้นไม้ให้เด็กจับ และบอกเด็กว่าเป็นใบของต้นไม้ที่เด็กเพิ่งได้สัมผัสมา

4.5 ผู้ปกครองพาเด็กไปที่สวนหย่อม และพาเด็กไปสัมผัสกับต้นไม้จริง

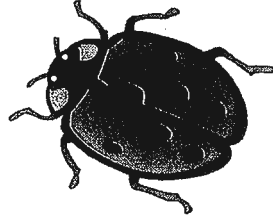
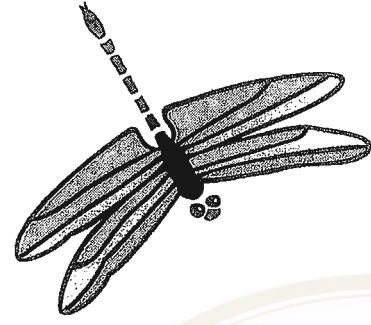


(ต้นไม้จริง)

4.6 ขณะที่เด็กสัมผัสให้ถามความรู้สึกของเด็กว่า ต้นไม้ต้นนี้มีขนาดเล็กหรือ ใหญ่กว่าต้นไม้ต้นแรก (ต้นเล็กกว่า)

4.7 ผู้ปกครองให้เด็กได้สัมผัสกับใบของต้นไม้ แล้วถามเด็กว่า ใบของต้นไม้ต้นนี้ตรงกับใบของต้นไม้ต้นแรกหรือไม่ (ต่างกันเด็กอาจอธิบายความแตกต่างให้ฟัง)

4.2 ให้เด็กสังเกตว่ามีแมลงมาตอมดอกไม้บ้างหรือไม่ (ให้ทำเครื่องหมาย ✓ ใน ได้ภาพพร้อมระบายสีแมลงที่พบลงในใบงานที่ 6)



กิจกรรมที่ 4 ดอกไม้ในสวนลุม
จุดการเรียนรู้สู่สวนป่าลุม

1. สื่อประกอบ คือ ใบงานที่ 5 ใบงานที่ 6 และสื่อที่ยื่น 1 กลอง

2. วัตถุประสงค์

2.1 เพื่อให้เด็กสามารถบอกได้ว่า ดอกไม้มีความแตกต่างกัน

2.2 เพื่อให้เด็กสามารถบอกได้ว่ามีแมลงมาตอมดอกไม้

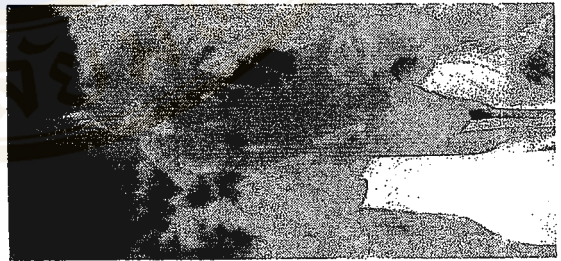
3. การนำเข้าสู่บทเรียน

พาเด็กสำรวจดอกไม้ในสวนลุมที่อยู่บริเวณสระสวนป่าลุม ที่เหมือนกับ

ภาพในใบงาน

4. การใช้ใบงาน

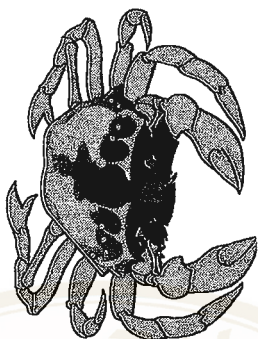
4.1 ผู้ปกครองนำใบงานที่ 5 ให้เด็ก จากนั้นให้เด็กสำรวจว่ามีดอกไม้ชนิดใดที่มีลักษณะคล้ายกับภาพในใบงานที่ 5 (ให้ทำเครื่องหมาย ✓ ลงใน)

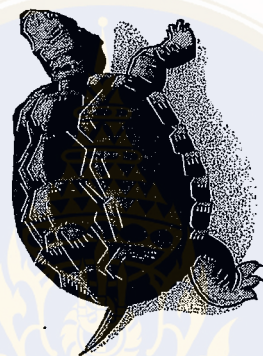


กิจกรรมที่ 6 อะไรอยู่ในน้ำ
จุดการเรียนรู้สาระสวนป่าส้ม

1. สื่อประกอบ คือ ใบงานที่ 8 ใบงานที่ 9 และลิเทียม 1 กกล่อง
2. วัตถุประสงค์ เพื่อให้เด็กสามารถบอกประโยชน์และการดูแลรักษาได้
3. การนำเข้าสู่บทเรียน
พาเด็กสำรวจสัตว์น้ำที่อยู่ในสระสวนป่าส้ม
4. การใช้ใบงาน

4.1 ผู้ปกครองนำใบงานที่ 8 ให้กับเด็กแล้วชี้ชวนให้เด็กสังเกต
ในน้ำว่ามีสัตว์อะไรบ้างที่ตรงกับภาพในใบงานและทำเครื่องหมาย ✓ ลงใน
ใต้ภาพ





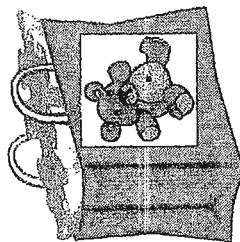
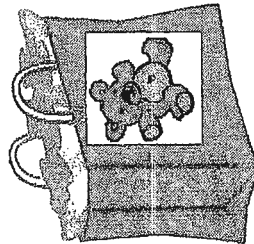
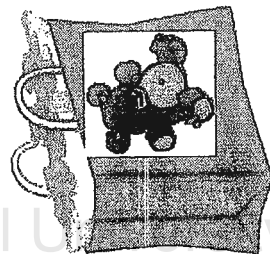
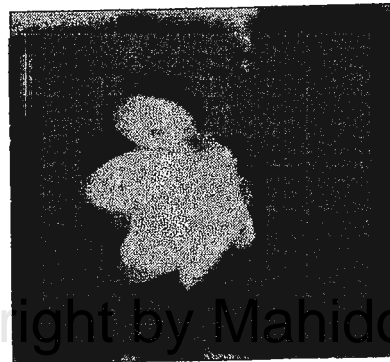


กิจกรรมที่ 5 ดินมหัศจรรย์
จุดการเรียนรู้สาระสวนป่าส้ม
1. สื่อประกอบ คือ ใบงานที่ 7 ลิเทียม 1 กกล่องและ ดูนดินจำนวน 3 ถุง
2. วัตถุประสงค์

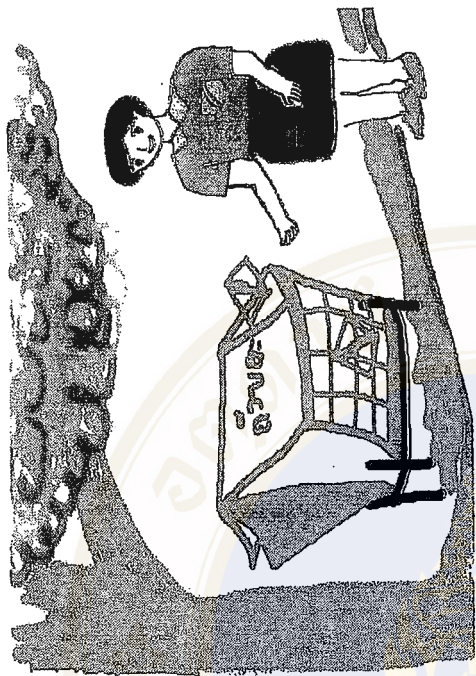
เพื่อให้เด็กสามารถบอกได้ว่าดินมีความแตกต่างกัน
3. การนำเข้าสู่บทเรียน

เรารู้แล้วว่าดินไม่มีดอกไม้ไม่เหมือนกัน ต่อไปเราจะมาดูกันว่าเหมือนกัน
หรือเปล่า

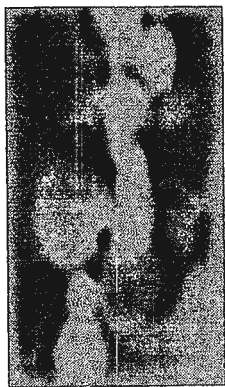
4. กิจกรรมการเรียนรู้
4.1 ให้เด็กสัมผัสและสังเกตดินในถุงทั้ง 3 ถุงก่อน
- 4.2 ให้เด็กมองหาต้นไม้ที่มีดอกไม้เหมือนในภาพ
- 4.3 ให้สังเกตดินที่ต้นไม้ขึ้นว่าเหมือนกันกับดินถุงไหน
แล้วให้เด็กโยงเส้นจับคู่ถุงดินกับต้นไม้



4.6 การอนุรักษ์น้ำ ให้เด็กทำเครื่องหมาย ✓ ลงใน ได้ภาพที่ไม่ควรทำ
ในงานที่ 9



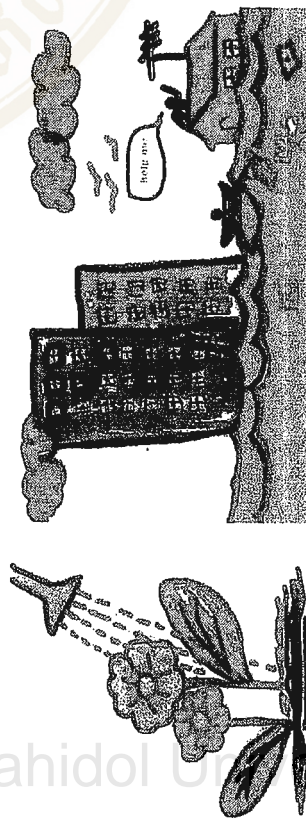
4.3 ผู้ปกครองถามเด็กว่า เต่า ปู ปลา และจอก เป็นพืชหรือสัตว์ (เต่า ปู ปลา เป็นสัตว์ ส่วนจอกเป็นพืช)



(จอก)

4.4 ผู้ปกครองอธิบายว่าสิ่งมีชีวิตในน้ำมีทั้งพืชและสัตว์

4.5 ประโยชน์ของน้ำ ให้เด็กทำเครื่องหมาย ✓ ลงใน ได้ภาพที่เป็นประโยชน์ของน้ำในงานที่ 9



กิจกรรมที่ 7 ศิลปะจากต้นไม้
จุดการเรียนรู้สวนป่าลัม

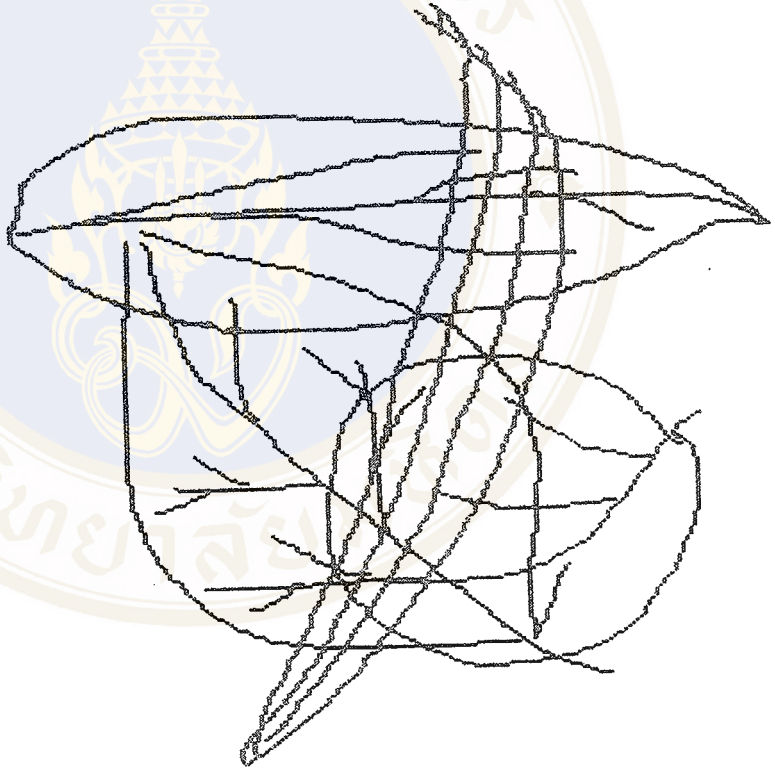
1. ล้อประกอบคือ ใบงานที่ 10 สีเทียน 1 กล่อง และกาว 1 หลอด
2. วัตถุประสงค์ เพื่อให้เด็กสามารถนำส่วนต่าง ๆ ของต้นไม้

มาประดิษฐ์เป็นงานศิลปะได้

3. การนำเข้าสู่บทเรียน

ให้ผู้ปกครองพาเด็กไปเก็บใบไม้ที่แตกต่างกันมาปะติดกับใบงาน

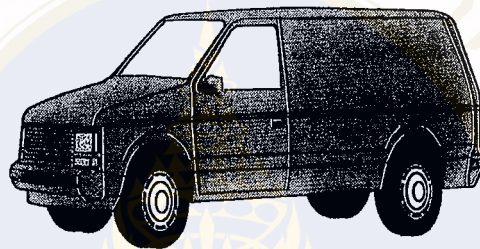
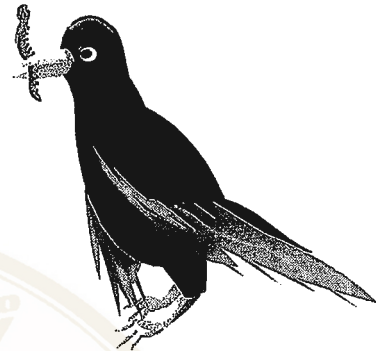
แล้วใช้สีล้อมกรอบใบไม้ต่างชนิดกัน จำนวน 4 ใบ





มีอะไรในสวนวันยิ้ม

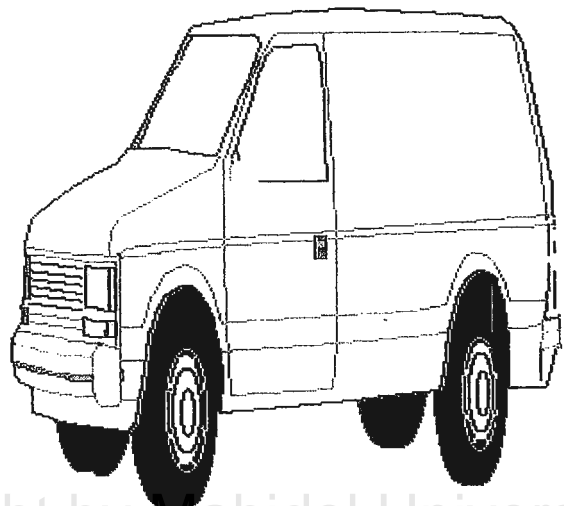
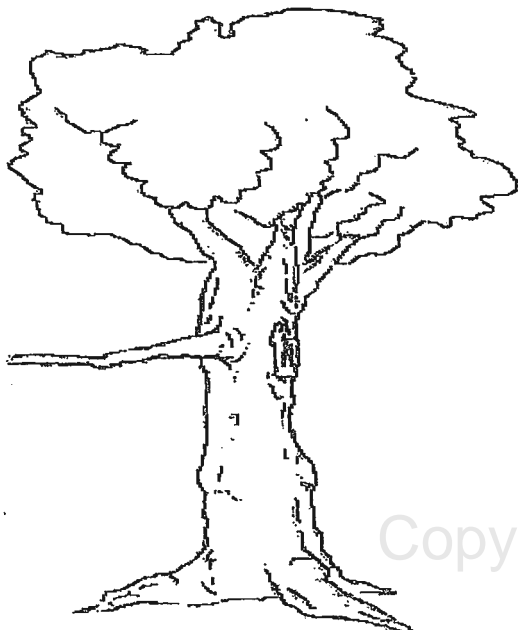
ใบงานที่ 1



สิ่งมีชีวิตในสวนวันยิ้ม

ผู้ปกครองให้ได้ระบายสีสิ่งที่กินอาหารและเติบโตได้

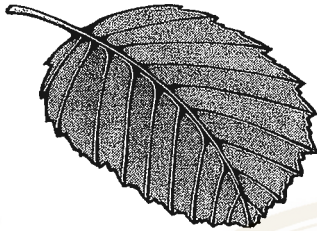
ใบงานที่ 2



ใบงานที่ 3

ส่วนต่างๆ ของต้นไม้

ผู้ปกครองถามเด็กตามคู่มือข้อ 4 หน้า 6 และ 7



ใช้หายใจ



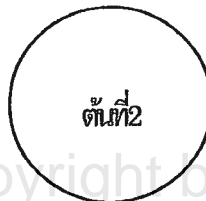
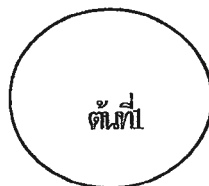
ใช้เป็นท่อน้ำส่งอาหาร



ใช้ยึดลำต้นดูดน้ำและอาหาร

ปิดตาหาเพื่อน

ใบงานที่ 4



ผู้ปกครองบอกเด็กว่า

ต้นไม้แต่ละชนิดมีลักษณะแตกต่างกัน

ใบงานที่ 5

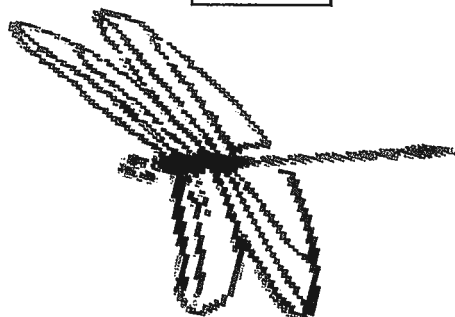
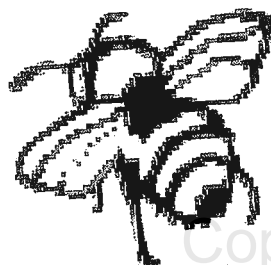
ดอกไม้ในสวนลุม

ผู้ปกครองถามเด็กว่า “เห็นดอกไม้ในสวนลุมรูปไหนบ้าง”



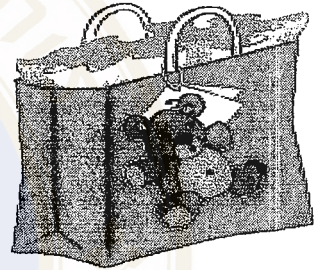
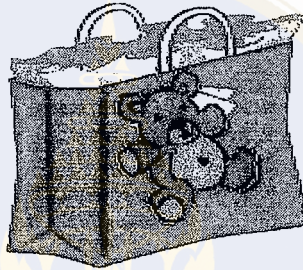
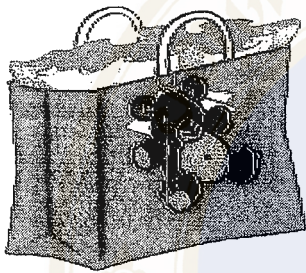
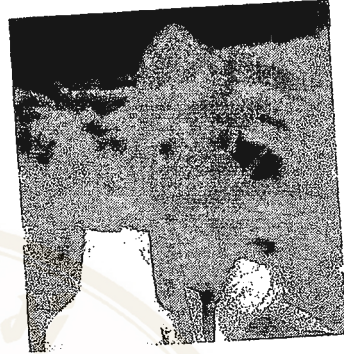
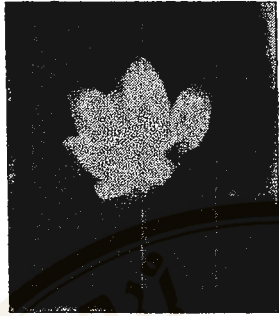
ตามหาแมลง

ใบงานที่ 6



ที่อยู่ของเพื่อน

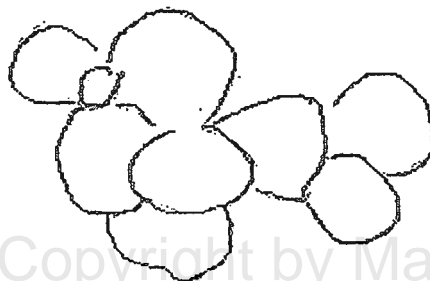
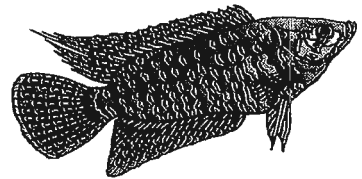
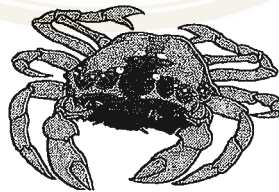
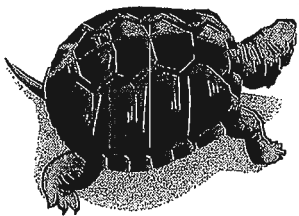
ใบงานที่ 7



ผู้ปกครองบอกเด็กว่า ต้นไม้แต่ละชนิด ต้องการดินไม่เหมือนกัน

ใบงานที่ 8

อะไรอยู่ในน้ำ

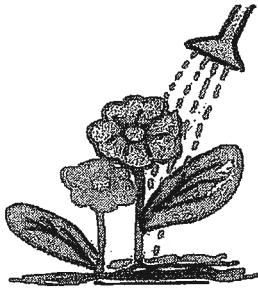


Copyright by Mahidol University

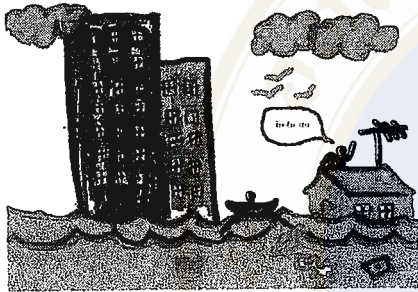
ผู้ปกครองบอกเด็กว่า เต่า ปู และ ปลาเป็น สัตว์ ส่วนจอกเป็นพืช

ประโยชน์ของน้ำ

ใบงานที่ 9



ผู้ปกครองถามเด็กว่า
ภาพใดคือประโยชน์ของน้ำ



ผู้ปกครองถามเด็กว่า
ภาพใดคือสิ่งที่ควรทำ



ศิลปะจากต้นไม้

ใบงานที่ 10

ผู้ปกครองพาเด็กไปเก็บใบไม้ที่ต่างกัันมาปะติดกับกระดาษแล้วทำเส้นล้อมรอบ

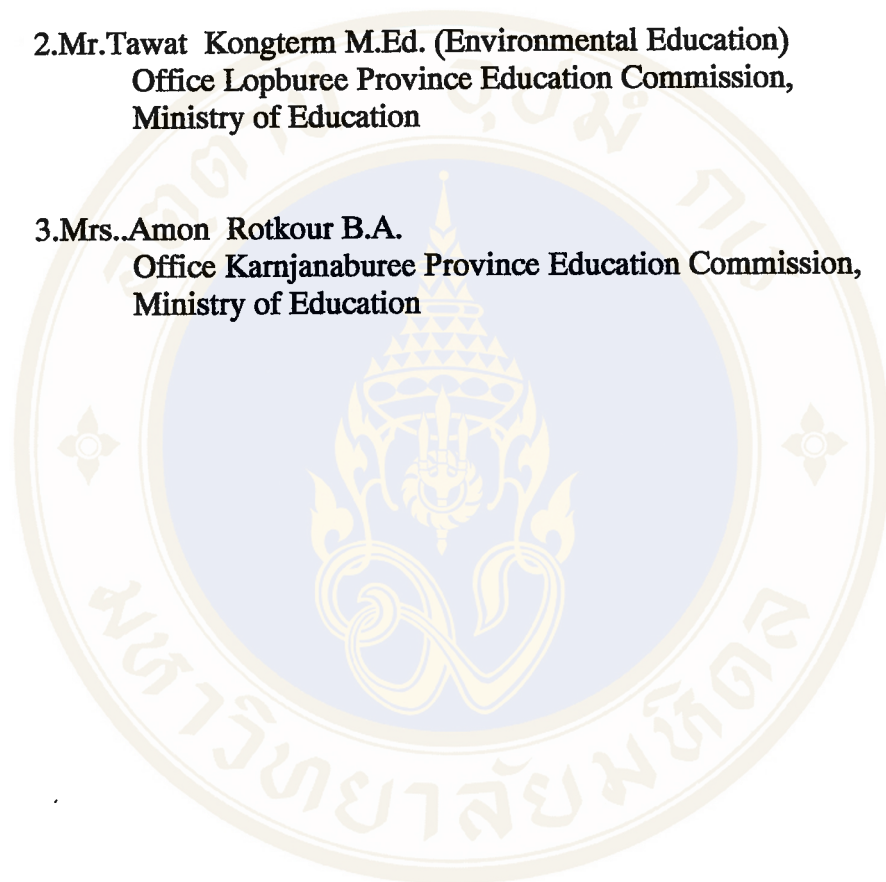


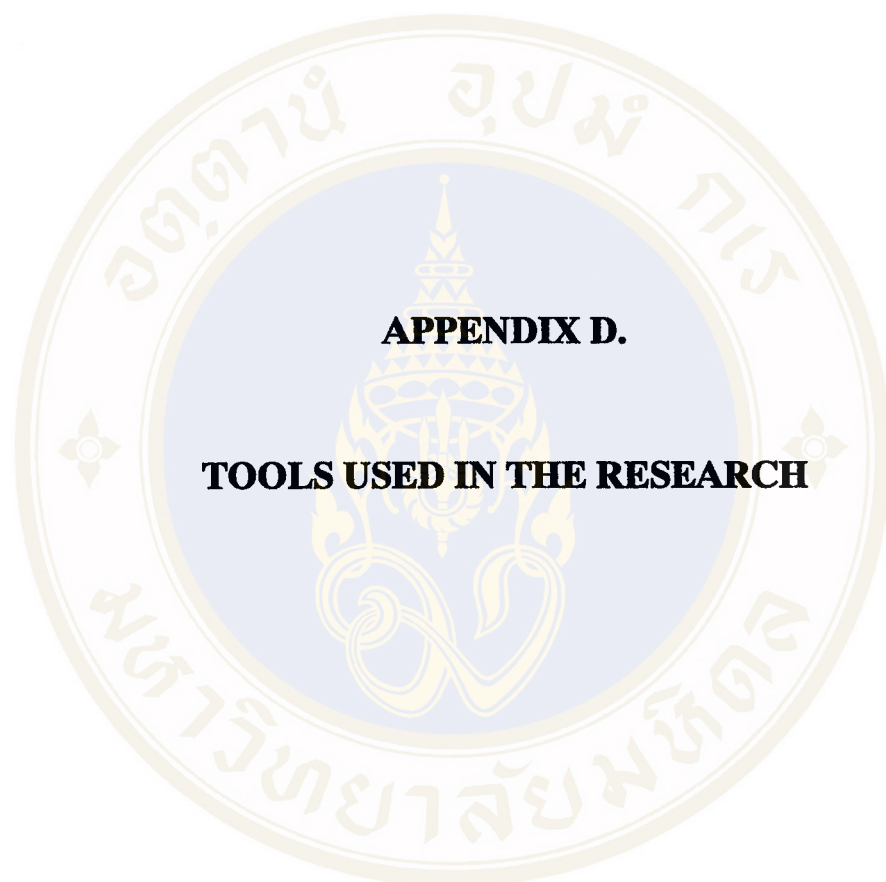
LIST OF THE EXPERTS

- 1.**Mr.Winai Rodchai M.A**
Department of Education Technigues.
Ministry of Education

- 2.**Mr.Tawat Kongterm M.Ed. (Environmental Education)**
Office Lopburee Province Education Commission,
Ministry of Education

- 3.**Mrs..Amon Rotkour B.A.**
Office Karnjanaburee Province Education Commission,
Ministry of Education





- 4 -

| ข้อความในการประเมิน ระยะเวลาในการทำกิจกรรม | เกณฑ์การประเมิน | | | |
|---|-----------------|----|-------|-------------|
| | ดีมาก | ดี | พอใช้ | ควรปรับปรุง |
| 1. กิจกรรมที่ 1 มีอะไรในลานตะวันยิ้ม | | | | |
| 2. กิจกรรมที่ 2 ตามหาเพื่อนรัก | | | | |
| 3. กิจกรรมที่ 3 ปิดตาหาเพื่อน | | | | |
| 4. กิจกรรมที่ 4 ดอกไม้ในสวนลุม | | | | |
| 5. กิจกรรมที่ 5 ดินมหัศจรรย์ | | | | |
| 6. กิจกรรมที่ 6 ชีวิตอะไรอยู่ในน้ำ | | | | |
| 7. กิจกรรมที่ 7 ศิลปะจากต้นไม้ | | | | |

ตอนที่ 7 ความคิดเห็นเกี่ยวกับกิจกรรม

1. ท่านคิดว่ากิจกรรม ควรต้องปรับปรุงแก้ไขหรือไม่ อย่างไร

() ไม่ต้องปรับปรุง

() ต้องปรับปรุงเพิ่มเติม

โปรดระบุ.....

ตอนที่ 8 ความพึงพอใจต่ออุปกรณ์ในการทำกิจกรรมตามคู่มือ

| ข้อความในการประเมิน | เกณฑ์การประเมิน | | | |
|--------------------------------------|-----------------|----|-------|-------------|
| | ดีมาก | ดี | พอใช้ | ควรปรับปรุง |
| อุปกรณ์สำหรับการทำกิจกรรม | | | | |
| 1. กิจกรรมที่ 1 มีอะไรในลานตะวันยิ้ม | | | | |
| 2. กิจกรรมที่ 2 ตามหาเพื่อนรัก | | | | |
| 3. กิจกรรมที่ 3 ปิดตาหาเพื่อน | | | | |
| 4. กิจกรรมที่ 4 ดอกไม้ในสวนลุม | | | | |
| 5. กิจกรรมที่ 5 ดินมหัศจรรย์ | | | | |
| 6. กิจกรรมที่ 6 อะไรอยู่ในน้ำ | | | | |
| 7. กิจกรรมที่ 7 ศิลปะจากต้นไม้ | | | | |

ตอนที่ 9...

ตอนที่ 9 ความคิดเห็นเกี่ยวกับอุปกรณ์ในการทำกิจกรรมตามคู่มือ

1. หลังจากได้ใช้อุปกรณ์ทำกิจกรรมตามใบงานนี้แล้วมีความคิดเห็นว่าอุปกรณ์มีความเหมาะสมกับกิจกรรมหรือไม่เพียงใด

() มาก

() ปานกลาง

() น้อย

() ไม่เหมาะสม โปรดระบุ.....

2. ท่านคิดว่าอุปกรณ์ ควรต้องปรับปรุงแก้ไขหรือไม่ อย่างไร

() ไม่ต้องปรับปรุง

() ต้องปรับปรุงเพิ่มเติม

โปรดระบุ.....

.....

ขอขอบคุณ

ร.ต.ท.หญิง กฤษณา ชูช่วย

**แบบสังเกตพฤติกรรมผู้ปกครองและเด็กขณะเรียนรู้ด้วย
คู่มือการเรียนรู้ธรรมชาติสำหรับครอบครัวในพื้นที่สวนลุมพินี
สำหรับผู้ดำเนินการวิจัย**

| กิจกรรม | ผู้ปกครอง | | เด็ก | |
|---------------------------------|-----------|------------|----------|------------|
| | สนุกสนาน | เบื่อหน่าย | สนุกสนาน | เบื่อหน่าย |
| กิจกรรมที่ 1 มีอะไรในถาดวันขึ้น | | | | |
| กิจกรรมที่ 2 ตามหาเพื่อนรัก | | | | |
| กิจกรรมที่ 3 ปัดตาหาเพื่อน | | | | |
| กิจกรรมที่ 4 ดอกไม้ในสวนลุม | | | | |
| กิจกรรมที่ 5 ดินมหัศจรรย์ | | | | |
| กิจกรรมที่ 6 อะไรอยู่ในน้ำ | | | | |
| กิจกรรมที่ 7 ศิลปะจากต้นไม้ | | | | |

แบบประเมินความพึงพอใจ
คู่มือการเรียนรู้ธรรมชาติสำหรับครอบครัวในพื้นที่สวนลุมพินี
สำหรับผู้ทรงคุณวุฒิ

คำชี้แจง แบบสอบถามแบ่งออกเป็น 3 ตอนคือ

- ตอนที่ 1 ข้อมูลส่วนตัว
- ตอนที่ 2 การประเมินคุณภาพของคู่มือ
- ตอนที่ 3 ความคิดเห็นทั่วไปเกี่ยวกับคู่มือ

โปรดเติมคำในช่องว่าง และทำเครื่องหมาย / ลงในช่องที่ท่านเห็นว่าตรงกับความคิดเห็นของท่านมากที่สุด

ตอนที่ 1 ข้อมูลส่วนตัว

- 1. ชื่อ-สกุล.....
- 2. วุฒิต่างการศึกษา.....
- 3. ตำแหน่ง
- 4. สถานที่ทำงาน

ตอนที่ 2 การประเมินคุณภาพของคู่มือ

| ข้อความในการประเมิน | เกณฑ์การประเมิน | | | | |
|--|-----------------|----|-------|-------------|------------|
| | ดีมาก | ดี | พอใช้ | ควรปรับปรุง | ข้อเสนอแนะ |
| ลักษณะของเนื้อหา | | | | | |
| 1. เนื้อหามีความเหมาะสมกับเด็กอายุ 3-6 ปี | | | | | |
| 2. ความยาวของเนื้อหาเหมาะสม | | | | | |
| 3. เนื้อหามีความสัมพันธ์กับชื่อเรื่อง | | | | | |
| 4. เนื้อหามีความสัมพันธ์ต่อเนื่องกัน | | | | | |
| 5. เนื้อหามีความถูกต้องตรงกับความ เป็นจริง | | | | | |
| 6. การลำดับเนื้อหา | | | | | |

ลักษณะใบงาน...

- 2 -

| ข้อความในการประเมิน | เกณฑ์การประเมิน | | | | |
|---|-----------------|----|-------|-------------|------------|
| | ดีมาก | ดี | พอใช้ | ควรปรับปรุง | ข้อเสนอแนะ |
| ลักษณะใบงาน | | | | | |
| 1. ใบงานเหมาะสำหรับเด็กอายุ 3-6 ปี | | | | | |
| 2. ใบงานเหมาะสมสำหรับในการทำกิจกรรมแต่ละกิจกรรม | | | | | |
| ลักษณะอุปกรณ์ | | | | | |
| 1. อุปกรณ์เหมาะสมสำหรับในการทำกิจกรรมแต่ละกิจกรรม | | | | | |

ตอนที่ 3 ความคิดเห็นทั่วไปเกี่ยวกับคู่มือการสื่อความหมายธรรมชาติสำหรับครอบครัวในพื้นที่สวน
ลุมพินี (สำหรับเด็กอายุ 3-6 ปี)

- เมื่อท่านอ่านคู่มือเล่มนี้แล้ว ท่านมีความคิดเห็นว่าเป็นเรื่องเป็นอย่างไร
() น่าสนใจ () เฉยๆ () ไม่น่าสนใจ
- ท่านคิดว่าคู่มือเล่มนี้สามารถนำไปใช้เป็นคู่มือการเรียนรู้ธรรมชาติสำหรับครอบครัวได้มากน้อย
เพียงใด
() ได้มาก () ได้บ้าง () ไม่ได้เลย
- ท่านคิดว่าคู่มือเล่มนี้ ยังมีส่วนที่ควรปรับปรุงแก้ไขในเรื่องใดบ้าง.....
.....
.....
- ความคิดเห็นอื่นๆ เกี่ยวกับคู่มือเล่มนี้.....
.....
.....

BIOGRAPHY

NAME Police Captain. Kritsana Chuchuy

DATE OF BIRTH April 14, 1972.

PLACE OF BIRTH Nakornsawan, Thailand

INSITUTIONS ATTENEDED Rajaphat Institute Nakornphatom, 1993-1996
Bachelor of Arts.
Mahidol University, 1998-2002
Master of Education (Environmental
Education)

POSITION AND OFFICE Police inspector.

