The Integration of Sufficiency Economy Philosophy Concepts into Learning Management through a Concept Map for Grade 6 Students at Chareonvich School

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Abstract

The purposes of the study were to (1) study the current situation of integrating sufficiency economy concepts into learning management for Grade 6 students at Chareonvich School in Krabi, Thailand, (2) use a *concept map* to integrate sufficiency economy concepts into the Science and Thai subjects, and (3) evaluate effectiveness of the integration. The subjects for Objective 1 were 12 school directors and 57 teachers from 12 schools responsible for eight subject strands in Grade 6. The subjects for Objectives 2 and 3 were 60 Grade 6 students at Chareonvich School**.** There were seven research instruments (1) a semi-structured interview for school directors, (2) a questionnaire for teachers, (3) Science and Thai lesson plans containing sufficiency philosophy concepts with the use of a *concept map*, (4) a pre-and post-test evaluation of students' knowledge, (5) an observation form for student performance assessment, (6) an assessment form of student *sufficiency* attributes, and (7) a questionnaire on student satisfaction. Data collection was completed in 2012.

The major findings were in three folds: (1) sufficiency economy as perceived by school directors and teachers, (2) the use of a concept map by students to understand sufficiency economy, and (3) evaluation of effectiveness of sufficiency economy integrated into students' learning. As for the first fold, all school directors reported that they put sufficiency economy into visions, missions, and annual goals in their school planning, and they made sure that their staff members were able to realize sufficiency economy into student learning, agriculture activities, self-reliance and career building. The teachers' responses pointed to their integrating sufficiency economy into all learning strands at a moderate level ($\overline{X}$ = 3.16; SD = .60) and their learning management at a high level ($\overline{X}$ = 4.23; SD = .47). The teachers evaluated sufficiency economy in eight subject strands at a high level ($\overline{X}$ = 3.91; SD = .63). They encountered a few problems in the learning management of all subject strand ($\overline{X}$ = 1.85, SD = .66), and in the evaluation of all learning strands ($\overline{X}$ = 2.17, SD = .64). Their problems with student achievement in terms of understanding and application of sufficiency economy were at a moderate level ($\overline{X}$ = 2.55; SD = .67).

The use of a concept map by Grade 6 students of Chareonvich School showed that they were able to use it to holistically analyze seven elements: (1) objective, (2) knowledge, (3) morality, (4) economy, (5) usefulness, (6) Efficiency, and (7) Safety. These elements reflected the students' plan for their learning activities at 83 percent. As for the evaluation of effectiveness of economy sufficiency integration, the students' knowledge of the concept in pre- and post-test scores showed a significant gain at the 0.05 level. They obtained an averaged high performance score in the learning process (86.67%), in sufficiency economy attributes (80%). Their satisfaction with economy sufficiency integration was at a high level ($\overline{X}$ = 4.23, SD = .80).

Keywords: *Integration, Sufficiency Economy Philosophy, Concepts Map, Learning Management*

1. Introduction

The Thai government has set an educational policy on adopting sufficiency economy philosophy to guide the development of educational quality and standards at all levels; morality serves as the basis for the learning process to enhance students'

knowledge, skills and attitudes in keeping daily life in a balanced and sustainable way (Ministry of Education, 2007: 2).

Sufficiency Economy is the philosophy that Thailand's King Bhumibol addressed to his people. The royal speech provides guidelines for a moderate lifestyle to be adopted by people in all walks of life. Families, communities and the state should take the middle path to develop the country into a local as well as globalized economy. It points to the basis of Thai living and traditional lifestyle. This philosophy recognizes the world as a constantly changing system in which people need to learn how to survive from danger and crisis. It ultimately aims at stability and sustainability of development. Sufficiency refers to moderation for generating immunity; it consists of two conditions namely knowledge and morality (Sufficiency Economy Philosophy, http://xn--12cmc4a2ea2ac8bl2czera7lj.net/, 10 August, 2013).

It is the policy of the Office of the Basic Education Commission of Thailand to apply sufficiency economy philosophy to the 2011-2013 teaching-learning management. This policy states that all education institutions use sufficiency economy philosophy by 2013. In Krabi Primary Educational Service Area, only 12 schools are certified as "Sufficiency Economy Education Institutions." It is necessary to expand its scope to cover all other education institutions to put this policy into practice (Wipon Nakpan, http://www.obec.go.th/news/ 23950, 10 August 2013).

Sufficiency economy philosophy can be applied to educational practices in many aspects and forms without any fixed formula, but with appropriateness in its adaptation (Ministry of Education, 2009: 15). It holds an analytical principle prior to practice. However, as primary school students are young learners, they cannot analyze and practice sufficiency economy philosophy. The concept cannot be by direct teaching; teachers have to use learning management as a means to cultivate their sufficiency habit habitually (Bureau of Academic Affairs and Educational Standards, http:// cademic.obec.go.th/web/node/291, 10 August 2013). Apart from holding on to the principle in three loops under two conditions, practitioners may interpret the concept as similar to *Sappurisa Dhamma* (7 Virtues of a Good Man) and *the Noble Eightfold Path* that can also make sufficiency possible (Nattapong Thongpakdi, 2007: 15).

With an awareness of the significance of sufficiency economy in Thai Basic Education, the researcher as the director of Chareonvich School in Krabi would like to study how this concept was used by school directors and teachers in 12 economy sufficiency schools. The focus of study was on the application of this concept to learning management, particularly in the subject strands of Science and Thai. In addition, the researcher would like to integrate this concept into learning management. An analysis of the characteristics of sufficiency economy included objective, knowledge, morality, economy, usefulness, efficiency and safety. The use of a *concept map* was used in learning management that encompassed all these elements.

The concepts of sufficiency economy philosophy are essentially analytical concepts before their implementation. The researchers integrated this philosophy into learning management of Thai and Science. The Thai language requires communication skills for effective learning in the subjects that use Thai as the medium of instruction. Meanwhile, science aims at learning that connects knowledge with the learning process

to enable learners to seek and create new knowledge meaningful to individual learners (The Basic Education Core Curriculum 2008, 2008: 37, 92).

The implementation of the integration was for Grade 6 students in accordance with Piaget's Cognitive Development Theory: learners over 11 years old begin to think like adults and understand abstract ideas and want to be independent (Thailand Knowledge Center, http://www.tkc.go.th/component/ content/article.html?id= 1433, 10 August 2013).

2. Profile of Chareonvich School

Chareonvich School was selected for this research. It is located at 96 Khao Phanom-Thung Yai Road, Moo 8, Khao Phanom District, Krabi province and is under Krabi Primary *Educational* Service Area *Office*. The owner and director of the School, Jessadavuth Puapansawad has been operating the School since 2000. Chareonvich School is a large-sized school with 47 teachers and 998 students, consisting of 409 kindergarten students and 589 primary school students. It has offered education from kindergarten levels 1-3, based on the Early Childhood Curriculum BE 2546 to primary school levels 1-6, based on the Basic Education Core Curriculum BE 2551 of the Ministry of Education, Thailand. The school emphasizes student-centered learning management to develop a whole child physically, emotionally, socially, and intellectually.

The vision of the school is to develop students to have knowledge based on educational standards, morality, ethics, and good health. Students are taught to love democracy and "Nation, Religion, King," sufficiency economy philosophy, and to get prepared for internationalization. Emphasizing King Bhumibol's philosophy of sufficiency economy, the school has implemented it in educational administration, instructional management, and learning activity arrangement to cultivate students' knowledge, skills, and positive attitudes needed for becoming good citizens. In addition, students will be able to apply it to their daily life for a well-balanced living and sustainability.

3. Research Objectives

This research has three objectives:

3.1 To study the current situation of integrating sufficiency economy philosophy concepts into learning management for Grade 6 students in 12 schools certified by the Ministry of Education as *sufficiency economy education institutions* in Krabi

3.2 To integrate sufficiency economy philosophy concepts into Science and Thai learning management through a "Concept Map" for Grade 6 students in Charoenvich School, Krabi

3.3 To evaluate effectiveness of the integration of sufficiency economy philosophy concepts into Science and Thai learning management through a "Concept Map" for Grade 6 students in Charoenvich School, Krabi.

4. Research Methodology

The research methodology of this research is as follows:

4.1 Population and a sample case

The population for Objective 1 consisted of 12 school directors and 57 teachers responsible for 8 learning strands in Grade 6 from 12 schools certified as *sufficiency economy education institutions* in Krabi. As for Objectives 2 and 3, Charoenvich School was purposively selected as a case study from 242 primary schools in Krabi that have not

yet certified as *sufficiency economy education institutions.* Data were collected from 60 Grade 6 students at Charoenvich School.

4.2 Research Instruments

4.2.1 The research instruments for Objective 1 consisted of 1) a semi-structured interview for school directors, and 2) a questionnaire for teachers in 8 strands. The purpose was to collect the data of the current situation of integrating sufficiency economy philosophy concepts into learning management for Grade 6 students in "Sufficiency Economy Education Institutions" in Krabi.

4.2.2 The research instrument for Objective 2 was the lesson plans that integrated sufficiency economy philosophy concepts into Thai and science learning management through the "Concept Map".

4.2.3 The research instruments for Objective 3 were 1) the pre and posttest evaluation of student knowledge, 2) an observation form for assessment of students' performance in the learning process, 3) a student "sufficiency" attribute assessment form, and 4) a questionnaire on student satisfaction towards the integration of sufficiency economy philosophy concepts into learning management through the "Concept Map".

The research instruments were constructed as follows:

1. The research instruments for Objective 1, a semi-structured interview for school directors and a questionnaire for teachers were constructed in the following ways: 1) study the integration of sufficiency economy philosophy concepts into the learning management of the Ministry of Education; 2) study the Basic Education Core Curriculum 2008 and the learning management process as the guidelines for making instruments; 3) construct a semi-structure interview and a questionnaire; try them out with 2 school directors and 10 teachers who were not the sample group, and use the data gained from the tryout for improving the instruments; and 4) submit them to 3 educational experts for their content validity through Index of Item-Objective Congruence (IOC). The acceptable value of IOC for each interview and questionnaire question was between 0.67-1.00.

2. The research instrument for Objective 2, the lesson plans which integrated sufficiency economy philosophy concepts into Thai and science learning management through the "Concept Map" was constructed in the following ways: 1) study the curriculum of the Thai and science learning strands of Grade 6 which can integrate sufficiency economy philosophy concepts into their contents; 2) holistically analyze the elements of the "Concept Map" in accordance with their contents; 3) develop the following unit plans: sufficient reading unit plan, sufficient writing unit plan, sufficient electricity unit plan and sufficient food unit plan; and 4) submit them to 3 educational experts for their content validity through IOC focusing on the completion of content and the appropriateness of learning activities, learning aids, measurement and evaluation. The acceptable value of IOC for each item was between 0.67-1.00.

3. The research instruments for Objective 3 were constructed in the following ways:

3.1 The pre and posttest evaluation of student knowledge: 1) study the contents of 4 unit plans: sufficient reading unit plan, sufficient writing unit plan, sufficient electricity unit plan and sufficient food unit plan; 2) set test objectives, kind and number of questions and scoring criteria; 3) make a 4-choice objective test items for 4 unit plans, 10 items per each, to assess students' understanding, analysis, application and evaluation. Each item has 1 score; 4) submit them to 3 educational experts for their content validity through IOC. The acceptable value of IOC for each test item was between 0.67-1.00; and 5) try out the test with 10 Grade 6 students from Baan Huew Seit School, which was not

the sample school, and use the data gained from the tryout to calculate the reliability of the test by using Kuder-Richardson 21 (KR 21) Formula.

3.2 The observation form for assessment of students' performance in the learning process: 1) prepare the worksheet for the analysis of the "Concept Map"; 2) specify the performance in the learning process according to sufficiency economy philosophy concepts in steps as follows: opinion expression, analysis of the "Concept", practice and presentation; 3) make a score-range observation form for students' performance consisting of 15 items and each item has 1 score; and 4) submit the observation form to 3 educational experts for their content validity through IOC. The acceptable value of IOC for each item was between 0.67-1.00.

3.3 The student "sufficiency" attribute assessment form: 1) study the desirable qualifications prescribed in the Basic Education Core Curriculum, Item 5 "sufficient living," including using money, material/equipment, and resources economically/ moderately and cost effectively, spending time appropriately and usefully, making decision carefully and reasonably, using ICT for information/knowledge search, realizing safety in daily life, and recommending the sufficiency economy philosophy concepts to others for application; 2) set these "sufficiency" attributes as the criteria that students must have/perform in their learning or daily life; 3) make an assessment form and set a score range for performance consisting of 10 items and each item has 1 score ; and 4) submit the student "sufficiency" attribute assessment form to 3 educational experts for their content validity through IOC. The acceptable value of IOC for each item was between 0.67-1.00.

3.4 The questionnaire on student satisfaction: 1) study the learning management process of Thai and science learning strands integrated with the concepts of Sufficiency Economy Philosophy through the "Concept Map"; 2) use it for setting the criteria for students to learn and perform with emphasis on understanding and applying it for their learning and daily life; and 3) make an assessment form to set 5-point Likert rating scale to assess student satisfaction level; and 4) submit the questionnaire on student satisfaction to 3 educational experts for their content validity through IOC. The acceptable value of IOC for each item was between 0.67-1.00.

5. Data Collection

Data collection in this study was conducted in 2012. As for Objective 1, the researchers collected data by interviewing all the school directors of 12 schools certified as *sufficiency economy education institution* in Krabi. The response was 100 percent. Simultaneously two research assistants distributed questionnaires to 57 teachers responsible for 8 learning strands for Grade 6 students in those 12 schools. All completed questionnaires were returned at 100 percent.

For Objectives 2 and 3, the second researcher and two research assistants--teachers of Science and Thai subjects collected data by giving 60 students a pre and posttest to evaluate their knowledge of the sufficiency economy philosophy concepts as integrated into Science and Thai learning units through the "Concept Map. The students were assigned to use the "Concept Map" to apply the sufficiency economy philosophy concepts to their learning activities. The students were observed in terms of group behaviors or performances in dealing with *sufficiency* attribute criteria. After the learning activities, the second researchers and two research assistants assessed the students' satisfaction with the integration of the sufficiency economy philosophy concepts into their learning through the "Concept Map."

6. Data Analysis

Quantitative data were analyzed with the use of mean, standard deviation, percentage, and t-test for dependent samples. Qualitative data were analyzed by frequency and content analysis.

7. Research Results and Discussion

7.1 The research findings for Objective 1 were as follows:

7.1.1 Policy and Operations Plan**:**

The findings revealed that (1) all school directors of the 12 certified schools used sufficiency economy philosophy concepts to formulate school visions, missions and goals and as the guidelines for management of their education institutions; (2) it was found in their operations that there were meetings with teachers and education institution committee to survey and study local conditions in terms of learning resources, career products and expertise in the community in order to provide learning activities related to agriculture, career building, self-reliance and income earning; (3) as for monitoring of the operations, teachers were appointed on the committee to monitor and set the monitoring period; and (4) the operations evaluation dealt with the assessment of students' learning activities, their work performance/ work piece *but not the results of their thinking skills***.**

7.1.2 Curriculum Development, Learning and Environment Management:

The findings revealed that (1) curriculum development was specified in the visions of the curricular of education institutions, and Item 5 *sufficient living* of the desirable attributes in the Basic Education Core Curriculum was used as the guidelines for the analysis of each learning strand; (2) teachers were required to use learning management in planning all learning strands and unit plans. However, the school document analysis pointed to teachers emphasizing their planned teaching methods, *not* learning management, teaching time setting or the economical use of teaching media. The analysis of each element of the sufficiency economy philosophy concepts was rather general—not in focus of students' thinking skills. Teachers tended to analyze and plan learning management primarily in the forms of activities in the Career learning strand and co-curricular activities such as savings co-operative, garbage bank and inventions from recycled local waste materials; (3) Environment management provided learning resources concerning King Bhumibol's addresses and work, local agricultural learning resources, cultivation and animal husbandry; and (4) the community invited parents as to talk about their knowledge about cooking and handicraft and let students shared the obtained knowledge with their family.

7.1.3 Factors for Success and Obstacles:

The findings were as follows: (1) factor for success was the participation of teachers, parents and the education institution committee in planning and procuring budget and requesting supports from various agencies for learning activities; and (2) obstacles in the operation were that teachers did not understand that the analysis of each element of sufficiency economy philosophy concepts should relate to other elements. They did not perhaps have a clear idea about the justification of an analysis in each project and activity. The obstacles also included requests for the transfer and recruitment of teachers who could not put in practice the concepts of sufficiency economy philosophy.

7.1.4 Integration of Sufficiency Economy Philosophy Concepts into All Learning Strands:

The teachers responsible for Grade 6 learning strands in the 12 certified schools reported that they integrated sufficiency economy philosophy concepts into all

learning strands. It was found, however, that the integration was at a moderate level ($\overline{X}$ = 3.16, SD = .60). The integration into learning management was at a high level ($\overline{X}$ = 4.23, SD = .47). The integration into the evaluation and assessment of all learning strands was at a high level ($\overline{X}$ = 3.91, SD = .63). Problems in the learning management of all learning strands were at a low level ($\overline{X}$ = 1.85, SD = .66); problems in the evaluation and assessment were at a low level ($\overline{X}$ = 2.17; SD = .64); and problems in student achievement in terms of understanding and application were at a moderate level ($\overline{X}$ = 2.55, SD = .67).

7.2 The research findings of Objective 2 were as follows:

The integration of sufficiency economy philosophy concepts into the learning management of Science and Thai through the "Concept Map" enabled Grade 6 students of Charoenvich School to holistically analyze its elements at 82.50 percent. These elements were "Objective," "Knowledge," "Morality," "Economy," "Usefulness," "Efficiency," and "Safety" for planning their learning activities.

7.3 The research results of Objective 3 were as follows:

7.3.1 The average score gained from the post-test evaluation of students' knowledge of the integration of sufficiency economy philosophy concepts into Science and Thai learning units through the "Concept Map" was significantly higher than the average score from the pre-test at the 0.05 level.

7.3.2 The total average score of students' performance in the learning process was high at 86.67 percent.

7.3.3 The total average score of students' "Sufficiency" attributes was high at 80 percent.

7.3.4 The total average score of students' satisfaction with the integration of sufficiency economy philosophy concepts into Science and Thai learning units through the "Concept Map" was at a high level ($\overline{X}$ = 4.23, SD = .80).

8. Recommendations

From the results of the study, the researchers would like to recommend the integration of the sufficiency economy philosophy concepts into Science and Thai and learning through the "Concept Map." The integration through the "Concept Map" should be useful to teachers. They can take it as a tool to analyze and plan their learning management and cultivate their students into *sufficiency* habits. As for students, they can use the "Concept Map" as a basis for their sufficiency analysis prior to their action. The analysis of components of the "Concept Map"—Objective," "Knowledge," "Morality," "Economy," "Usefulness," "Efficiency," and "Safety"—can support their analytical thinking skills and develop their ability to apply it for their learning as well as daily life.

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conducted research in the area of sufficiency economy for Thai education during 2000-2013.

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Appendix A: Example of Research Instrument
Semi-structured Interview for School Directors

Objective: To examine the current situation of the integration of sufficiency economy philosophy concepts into learning management for Grade 6 students of the schools certified as "Sufficiency Economy Education Institutions" under Krabi Primary *Educational* Service Area *Office.*

Part 1: Personal Data:

First Name …… Last Name ……..
Position …… Years of Work Experience ……..
Education Degree …… Subject Area/Major…….
School ……. Tel……. Email……..
Interview Date…….. Time …….. Place …….

Part 2: Integration of Sufficiency Economy Philosophy Concepts into Learning Management

2.1 Policy and Operations Plan

2.1.1 How do you implement your policy on the integration of sufficiency economy philosophy concepts into learning management in your school?

……..……

2.1.2 How is the integration of sufficiency economy philosophy concepts into learning management operated in your school?

1) Operations Planning

……..…

2) Operations Monitoring

……

3) Operations Evaluation

……

2.2 Curriculum Development, Learning and Environment Management

2.2.1 How do you apply sufficiency economy philosophy concepts for curriculum development, learning and environment management in your school?

……

1) Curriculum Development (vision, goals, desirable attributes of students, and lesson plans based on sufficiency economy philosophy concepts)

……

2) Learning Management (analytical thinking, practice, and assessment/ evaluation)

……

3) Environment Management (learning resources and involvement of parents and the community)

……

2.2.2 Factors for Success and Obstacles

What are the factors for success and obstacles in the integration of sufficiency economy philosophy concepts into learning management in your school?

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Comments/Suggestions

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Appendix B: Example of Lesson Plan

Unit Learning Topic: Electricity Grade 6 1 hour

Lesson Plan 4: Connection of Electric Cells in Electric Circuit

Learning Standard: Understand the relation between energy and living, energy changes and transformations, interaction between matter and energy, results of energy use on life and the environment, knowledge seeking process, and the communication and use of the learned knowledge

Indicator: Making an experiment and explaining the series connection of electric cells and applying the knowledge (sufficiently)

Learning Objectives:

1. Students can make an experiment on the series connection of electric cells and use the knowledge (K).
2. Students can make an appropriate experiment on the brightness of the electric bulb gained from the number of electric cells in the series connection (P).
3. Students can use the "Concept Map" of sufficiency economy philosophy in their learning activities (A).

Essence: Students will gain knowledge of the series connection through the integration of sufficiency.

Learning Essence:

1. Knowledge

1) The brightness of an electric bulb that occurs in the electric circuit depends on the number electric cells (batteries) and the way the electric cells are connected in the electric circuit.

2) A large number of electric cells in the electric circuit give much electric energy, so a large amount of electric current that goes through the electric bulb makes it much brighter.

3) The series connection is done by connecting the anode (positive electrode) of the first electric cell to the cathode (negative electrode) of the second electric cell. This will make more elect current go through the electric bulb and it will be brighter.

2. Skill/ Process/Thinking Process

1) Ability to think, observe, **and** analyze properly
2) Ability to communicate, explain, write and present clearly and directly
3) Ability to appropriately participate in learning activities (group dynamic)
4) Use of time for learning activities economically (moderately/ appropriately)
5) Use of materials and equipments economically (moderately/ appropriately)

3. Desirable Attributes

Learning behavior and collaborative learning activities according to sufficiency economy philosophy concepts on the basis of morality

Learning Activity Arrangement:

Step 1: Gaining Attention (5 minutes)

The teacher asks questions about the use of a flashlight, its components and the method to connect its circuit so that students can discuss them and exchange their knowledge in the classroom.

Step 2: Learning Activities) (30 minutes)

1) Before making an experiment, the teacher lets each group of students study the series connection of electric cells and discuss whether the connection of 1 electric cell and the connection of 2

electric cells in the electric circuit are different or not.

2) The teacher lets each group of students make an experiment on the series connection of electric cells by connecting 1 and 2 electric cells in the electric circuit, then observe the brightness of the electric bulb and take notes of the result of the experiment and their observation.

3) The teacher lets the students make an experiment on a series connection of electric circuit by using materials of different sizes (electric wire, battery, electric bulb) so that the students can observe and compare the light that occurs from the use of different electric wires and take notes (to create a sudden realization of the proper use).

4) The teacher lets each group of students analyze the proper integration of sufficiency economy philosophy concepts through the "Concept Map" into the series connection of the electric circuit as follows:

Step 3: Presentation and Summary (25 minutes)

(Worksheet)	**Objective**	
Series Connection of Electric Circuit		
Knowledge	**Morality**	
Method of a series connection	8 virtues	
Economy		
Moderate use of materials (electric wire, battery, electric bulb)		
Usefulness	**Efficiency**	**Safety**
Use suitable materials (electric wire, battery, electric bulb) that give equal light.	Choose suitable materials (electric wire, battery, electric bulb) that can give equal light.	Have the proper light that has no short circuit and is not wasteful.

1) The teacher lets each group of students present (speak about/ communicate) the thing that they have observed during the experiment and their notes in order to exchange knowledge in the classroom. Then the teacher gives more knowledge about the series connection of the electric circuit such as a mobile phone, a radio, etc.

2). The teacher lets the students summarize the integration of the sufficiency economy philosophy concepts into the use of materials (electric wire, battery, electric bulb) in their learning activities through the "Concept Map" and asks the students to submit their worksheets in the following hour.

Step 4: Assessment

1) Assess students' knowledge/ideas presented in the worksheets and observe their presentation (speaking/communication) of the series connection in the electric circuit through "Concept Map" analysis.

2) Assess knowledge gained from the students' experiment and notes (performance, time consumption, use of media/ materials.)

3) Assess "sufficiency" attributes of the students.

Aids/ Equipment: 1) Battery of various sizes, 2) Electric bulb of various sizes, 3) Switch, 4) Electric wire of different sizes, and 5) jack and wire clip