

# The Study of Lemongrass Plants to Develop the Innovative Learning on the Computer Network via the Constructivist Theory of Local Wisdom in Chowraka Village, Tambon Na-Fai, Mueang Chaiyaphum District, Chaiyaphum Province

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**Abstract** - This research objectives were: 1) to study the urban context, local wisdom of lemongrass plants to develop innovative classes on computer networks via the constructivist theory of local wisdom in Chowraka Village, Tambon Na-Fai, Mueang Chaiyaphum District, Chaiyaphum Province, 2) to create a local science lesson on the computer network via the constructivist theory 2 levels, including higher education and basic education, and 3) to study the satisfaction of students after learning the lessons on a computer network via the constructivist theory of quality for life sciences subject and group of learning science subject.

**Phase 1:** Studies with the local community context of the lemongrass plants and lead to innovative planting, expansion and processing of lemongrass plants in Choraka Village communities in Mueang Chaiyaphum District, Chaiyaphum Province. The sample was one of 45 people villager. The second were 60 students and the third group was first year students at Chaiyaphum Rajabhat University of 30,

Equipment used to collect data includes questionnaires form, interviews form and focus group discussions.

**Phase 2:** Development to create a science lesson on the local network at two levels: basic education to teach on science subject and the science for quality of life subject on computer networks using constructivist theory for the higher education level. And conducted for effectiveness tests on a science lesson on the computer network using Google classroom.

**Phase 3:** Studied the results of a science lesson on computer networks. The lemongrass plant lesson for learners to basic education and higher education. Proceeding science lessons on computer networks for effectiveness index tested. The samples were 30 students of each Mathayomsuksa one and four years of Kanchana Wittayalai Chaiyaphum School, and the first year of 30 students. Analysis the data using the mean, standard deviation, and T value.

**The studied found that: 1) Urban context and local wisdom of lemongrass plants studied to develop innovative learning on computer networks consisted of: (1) The history of lemongrass herbs plants; (2) How to grow and reproduction of the lemongrass plant; (3) The maintenance of lemongrass plants; and (4) The processing plant lemongrass, 2) The lessons on computer networks were E1 / E2 equal to 83.82 / 85.74 and the effectiveness index of the lesson through the computer network were the E1 / E2 equal to 86.60 / 89.44 that meant the lesson was more effective than 80/80 as of criterion, 3) According to the results of the lessons on computer networks were: (1) 30 students of Mathayomsuksa one and four received average score of learning achievement after learning posttest score higher than pretest and (2) A higher education undergraduate first years received average score of learning achievement after learning posttest score higher than pretest with significant, and 4) The study of satisfaction: (1) The students of Mathayomsuksa one and four 30 people were satisfied with the highest level at mean value at 4.60 (S.D.=0.28) and 4.51 (S.D.=0.31) respectively and (2) The first years students 30 people were satisfied with the highest level at mean 4.53 (S.D.=0.28).**

**Keywords - Lemongrass Herbal Plants, Innovative Learning on the Computer Network, Constructivist Theory, Local Wisdom**

## I. INTRODUCTION

The era of information society. Communicate in different ways has been developed to meet human needs, comfortable, faster, teaching process and the education method would have to be changed accordingly. Each school need to be creative knowledge. Education and development were appropriate to the situation and the changes taking place. The role of teachers must be creative and encourages students to recognize the media for education with efficiency [1] teaching most often were taught in regular

classes. The learning method used for such lectures, teaching discussions, demonstrations, WBI was a teaching method that has gained widespread popularity quickly, [2] said global computer network, on www. can create a learning environment for teachers and thousands of students can learn and develop themselves. Improve writing skills, communication skills to solve important problems. Encourage critical thinking on the importance matter [2, 3] pointed out that teaching needs to be based on educational theory, and not in the content of education alone or the technology used to provide information only. But also expected learning theory would gradually evolve along the old technology with a resolution of more complex. This facilitates knowledge to transfer and encourage new forms of teaching as well.

Constructivist theory was another theory of learning. Whose name was called theory of knowledge by the students themselves, Students met between the environment and culture, individual learning there would be different levels. In a sense, the environment was more influential order, and the students would learn self-control, create a new theory of knowledge the study itself was the principle that learning was the resolved solution, which was based on explore of individual learners were internal motivated [4].

Chaiyaphum Rajabhat University, we recognized the responsibility and vision for local development to respond to such visions. We were in collaboration with schools and communities in this research project. To institutions and local students together to learn about local herbs, lemongrass. In terms of medicinal herbs learn how to plant, maintain the species. And used through lessons on networks of researchers have developed a theory of constructivist.

## II. THE RESEARCH OBJECTIVE

1. To study urban context local knowledge of lemongrass and develop to innovative classes on computer networks. According to constructivist theory, at Choraka Village,

Mueang Chaiyaphum District, Chaiyaphum Province.

2. To create the science lesson on the local network. Theoretical knowledge of constructivist 2 levels, including higher education and the basic of education level.

3. To provide students with knowledge about the lemongrass herbs more than ever. The learning process that takes into account the different levels of educational goals and assesses the quality of the science lesson on the local network.

4. To promote the use of science lessons on the local network. Study lemongrass herb to innovative learning through lessons based on network of constructivist theory.

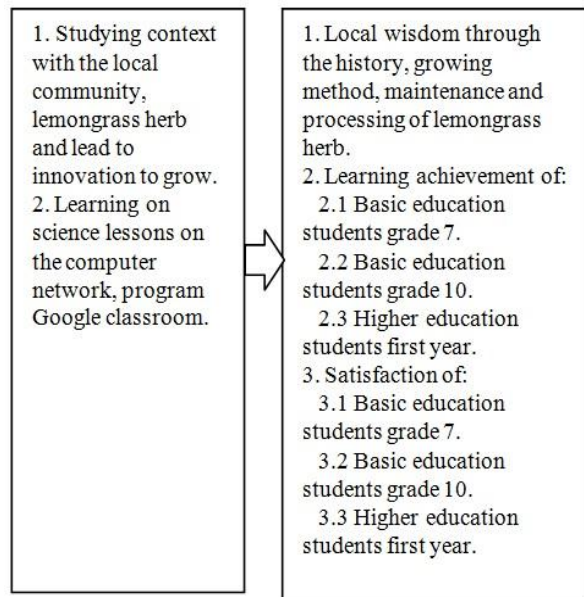
### III. SCOPE OF RESEARCH HAD DESIGNED A THREE STAGE BELOW

**Phase 1:** Study context with the local community. Study lemongrass herb and lead to innovation to grow. The extension and processing of lemongrass plants in Choraka Village, Mueang Chaiyaphum District, Chaiyaphum Province.

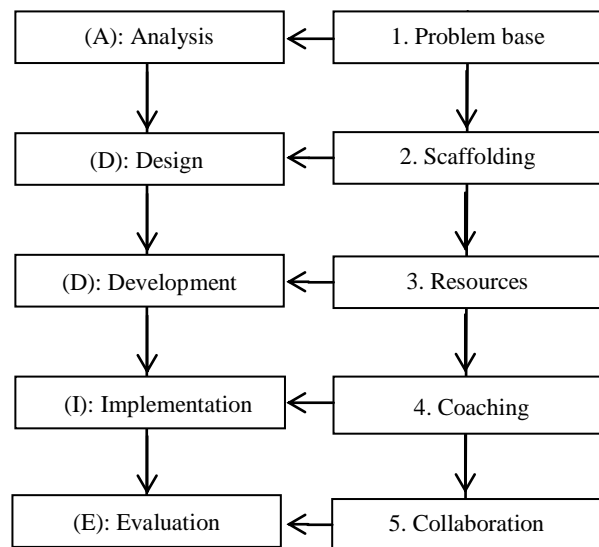
**Phase 2:** Development step, create a science lesson on the local network for two levels: basic education Mathayomsuksa one and four for the teaching of science and higher education for teaching of science for quality of life subject.

**Phase 3:** Study results of a science lesson on local networks built by using the constructivist theory. The herb lemongrass learner's level of basic education and higher education.

### IV. RESEARCH FRAME WORK OF THIS RESEARCH



**Fig. 1** Research Framework



**Fig. 2** Shown ADDIE and Constructivist Constructivist Theory.

ADDIE principle related to constructivist theory as following:

- Analysis related to the problem base part.
- Design related to the scaffolding part.
- Development related to the resources part.
- Implementation related to the coaching part.
- Evaluation related to the collaboration part.

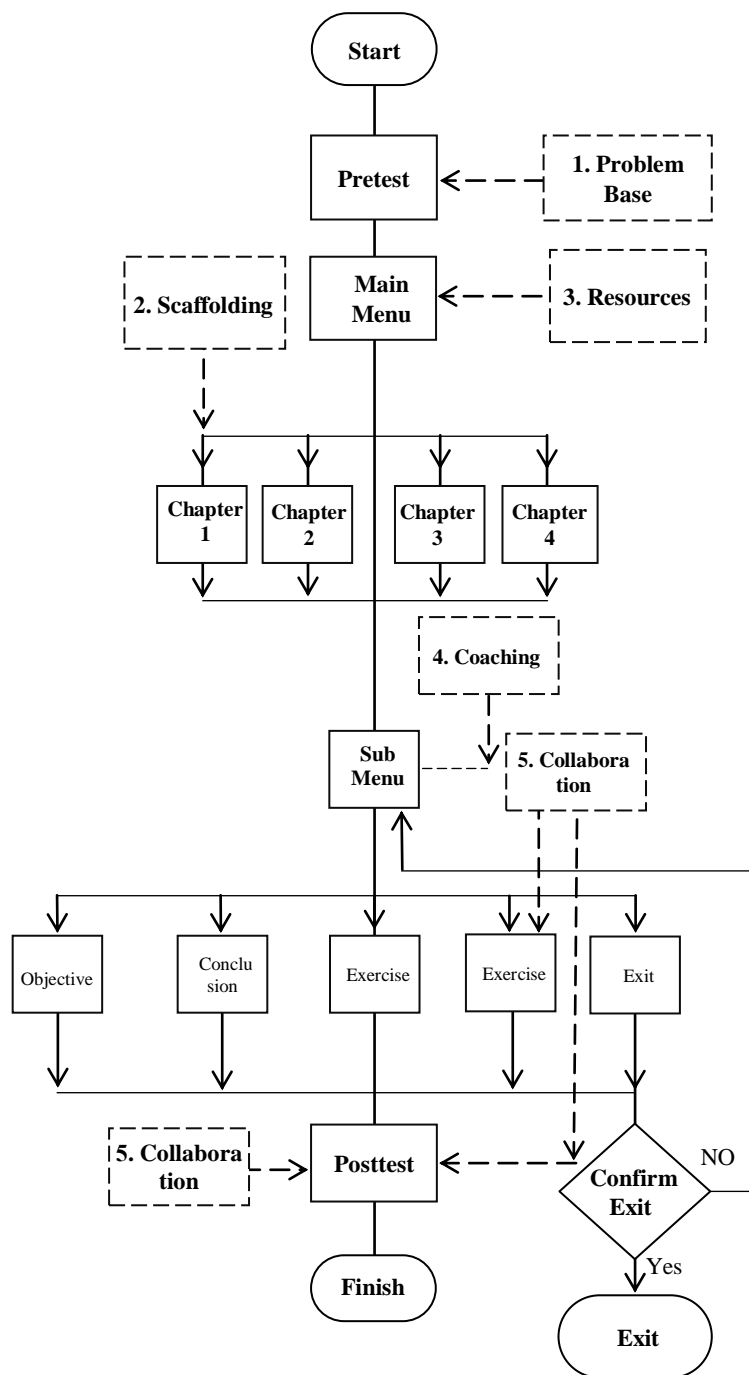


Fig. 3 Shown Lesson Learning through

## V. RESEARCH METHODOLOGY

• Phase 1: Study context with the local community: 1) The contents consisted of learning basic science lesson of Kanchanapisek School and 1<sup>st</sup> year students of Chaiyaphum Rajabhat University for sciences quality of life course, teaching for students with a science lesson local network using constructivist theory. And the learners were evaluated by learning achievement test before

and after classes, and a satisfaction questionnaire rating scale at the ended study. Both tests were closed and open-ended questionnaire type and 2) Population and sample were defined as follows: (1) In community, including Choraka Village and PaPhalang Village, Mueang Chaiyaphum District, Chaiyaphum Province; (2) Sample of Choraka Villages, Mueang Chaiyaphum District, Chaiyaphum Province. One of villages to select by a simple random sampling

total of 45 people; (3) The tools used to collect the data base: Questionnaires test, Interviews form, and Focus groups discussion form; and (4) The studies of educational framework to analyze concept of stakeholders on growing of lemongrass plant to expand innovation and transformation in community Choraka Village, Chaiyaphum Province.

- Phase 2: Development step, create a science lesson for two levels: Mathayomsuksa one and four and higher education students consists of: 1) Design a science lesson on local network for two levels, using the data from those studied phase 1, analysis and synthesis, the principle and various theories that related to the context of local communities by planting lemongrass herb. Determined the suitability of a science lesson on network for both a basic education and higher education, and proceed lessons from a certified network professionals to test effectiveness index forms of E1 and E2 [5], The tools consist of the following, 2) Science lesson on local networks built using the constructivist theory through the herb lemongrass for two levels, 3) Learning achievement form, and 4) Satisfaction questionnaire test.

- Phase 3: Study results of a science lesson on local networks built using the constructivist theory for two levels as following steps: 1) Importing a science lesson on the local network, the two levels of effectiveness index tested successfully and treated to actual students in the sample group, 2) Population and sample using a science lesson on local network level. Include first year students who registration on science for quality of life courses in the first semester of the year 2015 a total of 120 people, 3) Samples were the first year students who enrolled for science for quality of life consisted of 30 students using a simple random sampling, according to the percentage of the total population of the sample of at least 25 percent [6], and 4) Using local science lessons as following: (1) Population were high school students Mathayomsuksa one and four of Kanchanapisek School enrolled

in science subject on first semester using 30 percent of the class; (2) Sample including students Mathayomsuksa one and four of Kanchanapisek School, enrolled on science subject of 1<sup>st</sup> semester year 2015 of 30 people by means of selecting specific purposive sampling, which was appropriate on the basis of the total population in the hundreds to sample at least 25 percent [6]; and (3) Lesson were consisted of following: Chapter 1, the history of lemongrass; Chapter 2, the method of growing of lemongrass; Chapter 3, the way to take care and maintenance of lemongrass; and Chapter 4, how to privatize and processing of lemongrass.

- Duration of data collection in 1 semester.
- The data were analyzed as the following:

Chapter 1: The first results of the development and effectiveness index of lessons over the network science for quality of life course in first semester of the academic year in 2015 with students from Mathayomsuksa four students Kanchanapisek School were 30 students and general science of 1<sup>st</sup> year, Chaiyaphum Rajabhat University for total of 25 people.

Chapter 2: The results of learning achievement test before and after class on lessons learned to Google classroom program of sciences for quality life course, the first semester 2015 academic year, students with the first years of 30, Chaiyaphum Rajabhat University. Students of Mathayomsuksa one and four for 30 students of each class of Kanchanapisek School.

Chapter 3: Analyzed the effectiveness of the index via Google classroom lessons to science for quality of life course of academic year 2015.

Chapter 4: The satisfaction of first year students Chaiyaphum Rajabhat University on activities with lessons learned through Google classroom of academic year 2015.

- The result of analysis of data for the creation and effectiveness index test of science for quality of life lessons as following:

**TABLE I**  
**THE CREATION OF THE LESSONS LEARNED THROUGH THE USE OF A FORM OF NETWORK COMPONENTS USING GOOGLE CLASSROOM-BASED APPROACH TO CONSTRUCTIVIST THEORY OF SCIENCES FOR QUALITY LIFE COURSE, WAS PRESENTED TO THE EXPERTISE TO ASSESS THE LESSONS**

List of Assessment	$\bar{x}$	S.D.	Result
1. Content and operational matters	4.55	0.30	Highest
2. The image and sound	4.60	0.15	Highest
3. Content and contents processed, the font and color	4.57	0.35	Highest
4. Learning achievement test	4.60	0.40	Highest
5. Management of learning lessons.	4.50	0.30	High
6. Manual of learning lesson.	4.48	0.15	High
<b>The total average</b>	<b>4.55</b>	<b>0.28</b>	<b>Highest</b>

Table I shown, the quality of lessons over the network using Google classroom found that the total average at the highest level (= 4.55, S.D. = 0.28), considering that aspect. The content and the story had the highest average at the highest level (= 4.55, S.D. = 0.30) and the lowest average, manual of learning lesson was at high level (= 4.48, S.D. = 0.15).

**TABLE II**  
**THE QUALITY OF LESSONS OVER THE NETWORK USING THE GOOGLE CLASSROOM ACCORDING TO THE CONSTRUCTIVIST THEORY OF SCIENCES FOR QUALITY OF LIFE COURSE OF EXPERTISE ON THE DESIGN PART OF LESSON**

List of Assessment	$\bar{x}$	S.D.	Result
1. Section 1: Contents part.	4.55	0.20	Highest
2. Introduction part.	4.62	0.25	Highest
3. Contents part.	4.48	0.36	Highest
4. Conclusion part.	4.60	0.21	Highest
5. Section 2: Graphic and design.	4.58	0.15	High
6. Section 3: technical part.	4.35	0.22	High
<b>The total mean</b>	<b>4.53</b>	<b>0.23</b>	<b>Highest</b>

Table II shown, the result of evaluated lesson by design expertise, found that the average total value of 4.53 (S.D. = 0.23) at a highest level and separately were the content of the lessons. The mean was 4.55 (S.D. =

0.20) at a highest level and divided into three areas: 1) The introduction was average of 4.62 (S.D. = 0.25) at a highest level, 2) Content, the mean was 4.48 (S.D. = 0.36) at high level, and 3) Summary, the mean was 4.60 (S.D. = 0.21) at a highest level. The second aspect of the graphics and design. The mean was 4.58 (S.D. = 0.15) at a highest level. The third technical aspects with a mean of 4.35 (S.D. = 0.22) at a high level.

1. General science subject for Mathayomsuksa one students of 30 people.

2. General science subject for Mathayomsuksa four students of 30 people.

3. Science for quality of life for higher education 1<sup>st</sup> year students of 30 people.

**TABLE III**  
**A COMPARISON OF LEARNING ACHIEVEMENT FOR MATHAYOMSUKSA ONE STUDENTS OF 30 PEOPLE**

Learning achievement	Min score	Max score	Mean score	S.D.	t	p
Pretest	30	40	35.50	3.06	-11.720	0.00
Posttest	39	47	43.03	2.47		

\*p≤.05

Table III shown, that the mean test scores of students posttest Mathayomsuksa one students of 30 people through the Google classroom showed that the pretest min scores 30 and max scores 40, mean scores 35.50 and S.D. 3.06 in posttest scores of the min scores 39 and max scores 47, the mean score was 43.03, S.D. 2.47, t value at -11.720, and p value at 0.00.

It was seen that the value t was to -11.720, p value at 0.00, that p values less than 0.05 as of assumption. The results show that the mean scores of student's posttest of Mathayomsuksa one was significantly higher than the level of 0.05 means making students' learning achievement posttest scores higher than the pretest.

**TABLE IV**  
**A COMPARISON OF LEARNING**  
**ACHIEVEMENT FOR**  
**MATHAYOMSUKSA FOUR**

Learning achievement	Min score	Max score	Mean score	S.D.	t	p
Pretest	31	41	36.53	3.09	-11.498	0.00**
Posttest	40	48	44.07	2.47		

\*p≤.05

Table IV shown, that the mean test scores of students posttest Mathayomsuksa four students of 30 people through the Google classroom showed that the pretest min scores 31 and max scores 41, mean scores 36.53 and S.D. 3.09 in posttest scores. The min scores 40 and max 48 scores, the mean score was 44.07, S.D. 2.47, t value at -11.498, and p value at 0.00.

It was seen that the value t was to -11.498, p value at 0.00, that p values less than 0.05 as of assumption. The results show that the mean scores of student's posttest of Mathayomsuksa four was significantly higher than the level of 0.05 means making students' learning achievement posttest scores higher than the pretest.

**TABLE V**  
**A COMPARISON OF LEARNING**  
**ACHIEVEMENT FOR HIGHER EDUCATION**  
**STUDENTS OF 30 PEOPLE. USING GOOGLE**  
**CLASSROOM FORMULA T-TEST (DEPENDENT**  
**SAMPLES STATISTICS)**

Learning achievement	Min score	Max score	Mean score	S.D.	t	p
Pretest	30	42	36.93	3.03	-11.525	0.00**
Posttest	39	48	44.20	2.44		

\*p≤.05

Table V shown, that the mean test scores of higher education students of 30 people through Google classroom showed that the pretest min scores 30 and max scores 42, mean scores 36.93 and S.D. 3.03 in posttest scores of the min scores 39 and max scores 48, the mean score was 44.20 and S.D. 2.44, t value at -11.525, and p value at 0.00.

It was seen that the value t was to -11.525, p value at 0.00, that p values less than 0.05 as of assumption. The results shown that the

posttest mean scores of higher education students was statistically significantly higher than the level of 0.05, means making students' learning achievement posttest scores higher than the pretest.

In summary: 1) Mathayomsuksa one student of 30, found a learning achievement at the difference was statistically significant at the 0.05 level, 2) Mathayomsuksa four student of 30, found a learning achievement at the difference was statistically significant at the 0.05 level, and 3) a higher education undergraduate 1<sup>st</sup> year student, found that a learning achievement at the difference was statistically significant at the 0.05 level. That mean values all three levels students' obtained learning achievement posttest scores higher than the pretest as of assumption.

**TABLE VI**  
**AN EFFECTIVENESS INDEX OF LESSONS**  
**OVER THE COMPUTER NETWORK**  
**IN ACCORDANCE WITH CONSTRUCTIVIST**  
**THEORY, SCIENCES COURSES FOR 30**  
**MATHAYOMSUKSA FOUR STUDENTS IN FIRST**  
**SEMESTER OF ACADEMIC YEAR 2015**

E1 = Effectiveness index of formative scores

$$E1 = \frac{\sum X}{N} \times 100 = \frac{33.53 \times 100}{40} = 83.82$$

$$E2 = \frac{\sum f}{N} \times 100 = \frac{42.87 \times 100}{50} = 85.74$$

Table VI, Indicated effectiveness index analysis of lessons over the computer network through formative exercise, mean value was at 33.53 and percentage (E1) was = 83.82, and mean posttest scores was at 42.87 and percentage (E2) was = 85.74, that mean the lesson's gained effectiveness index higher than 80/80 as of criterion.

**TABLE VII  
AN EFFECTIVENESS INDEX OF LESSONS  
OVER THE COMPUTER NETWORK  
IN ACCORDANCE WITH CONSTRUCTIVIST  
THEORY, SCIENCES FOR QUALITY OF LIFE  
COURSES FOR 30 HIGHER EDUCATION  
1<sup>ST</sup> YEAR STUDENTS IN FIRST SEMESTER  
OF ACADEMIC YEAR 2015**

E1 = effectiveness index of formative scores

$$E1 = \frac{\sum X}{N} \times 100 = \frac{A}{A} = 86.60$$

$$E2 = \frac{\sum f}{N} \times 100 = \frac{B}{B} = 89.44$$

Table VII, Indicated effectiveness index

List of Questionnaire	$\bar{x}$	S.D.	Level of Satisfaction
1. Contents sequence easy to understand.	4.48	0.35	Highest
2. The students pay more attention on lesson.	4.62	0.40	Highest
3. The students enjoy on the wbi. lesson.	4.50	0.25	High
4. The students pay more understand on wbi. lesson.	4.81	0.14	Highest
5. The students enable to select on wbi. lesson as they require.	4.63	0.25	Highest
6. The learner trend to easy learning on wbi. lesson.	4.70	0.05	Highest
7. The utilization of wbi. lesson comfortable.	4.67	0.35	Highest
8. The learner can learn by themselves.	4.64	0.10	Highest
9. wbi. lesson provide detail of learning guide	4.50	0.35	High
10. The alphabet on wbi. lesson easy understand.	4.49	0.23	High
11. The sound track on the wbi. lesson clearly.	4.48	0.34	High
12. The sub title language shown clearly.	4.66	0.22	Highest
13. The picture for detailed suitable with the contents.	4.55	0.45	Highest
14. A good interactive on the wbi. lesson.	4.62	0.32	Highest
15. Provide a progressive on learning appropriated.	4.72	0.40	Highest
<b>Total of mean</b>	<b>4.60</b>	<b>0.28</b>	<b>Highest</b>

Fig. 1. shown, the satisfaction’s analysis of Mathayomsuksa one students through network lesson on the Google class program of semester 1, academic year 2015 that total of mean at 4.60, (S.D.=0.28) at highest level of satisfaction. On detailed, highest level of satisfaction was No.4 item: mean value at

analysis of lessons over the computer network through formative exercise, total mean value was at 34.64 and percentage (E1) was = 86.60, and mean posttest scores was at 44.72 and percentage (E2) was = 89.44, that mean the lesson’s gained effectiveness index higher than 80/80 as of criterion.

The satisfaction’s analysis of the learner three levels consisted of Mathayomsuksa one, Mathayomsuksa four students and 1<sup>st</sup> year of higher education level at Chaiphum Rajabhat University as following:

1. The satisfaction’s analysis of 30 people Mathayomsuksa one students shown at fig. 1.

4.81, (S.D.=0.14). The lowest level of satisfaction was No.1 item: mean value at 4.48, S.D. at 0.35 and No.11 item: mean value at 4.48, and S.D. at 0.34 respective.

2. The satisfaction’s analysis of 30 people Mathayomsuksa four students shown at fig. 2.



List of Questionnaire	$\bar{x}$	S.D.	Level of Satisfaction
1. Contents sequence easy to understand.	4.48	0.35	Highest
2. The students pay more attention on lesson.	4.55	0.40	Highest
3. The students enjoy on wbi. lesson.	4.46	0.25	High
4. The students pay more understand on wbi. lesson.	4.45	0.14	Highest
5. The students enable to select on wbi. lesson as they require.	4.52	0.25	Highest
6. The learner trend to easy learning on wbi. lesson.	4.50	0.35	Highest
7. The utilization of wbi. lesson comfortable.	4.51	0.35	Highest
8. The learner can learn by themselves.	4.53	0.10	Highest
9. wbi. lesson provide detail of learning guide	4.51	0.35	High
10. The alphabet on wbi. lesson easy understand.	4.49	0.23	High
11. The sound track on the wbi. lesson clearly.	4.48	0.34	High
12. The sub title language shown clearly.	4.66	0.22	Highest
13. The picture for detailed suitable with the contents.	4.40	0.45	High
14. A good interactive on the wbi. lesson.	4.49	0.32	High
15. Provide a progressive on learning appropriated.	4.51	0.40	Highest
<b>Total of mean</b>	<b>4.51</b>	<b>0.38</b>	<b>Highest</b>

Fig. 2. shown, the satisfaction's analysis of Mathayomsuksa four students through network lesson on the Google class program of semester 1, academic year 2015 that total of mean at 4.51, (S.D.=0.38) at highest level of satisfaction. On detailed, highest level of satisfaction was No.12 item: mean value at 4.66, (S.D.=0.22). The lowest level of

satisfaction was No.1 item: mean value at 4.48, (S.D.=0.35) and No.11 item: mean value at 4.48, (S.D.=0.34) respectively.

3. The satisfaction's analysis of 30 people 1<sup>st</sup> year students to network lesson shown at fig. 3.

List of Questionnaire	$\bar{x}$	S.D.	Level of Satisfaction
1. Contents sequence easy to understand.	4.48	0.35	Highest
2. The students pay more attention on lesson.	4.62	0.40	Highest
3. The students enjoy on wbi. lesson.	4.50	0.25	High
4. The students pay more understand on wbi. lesson.	4.45	0.14	Highest
5. The students enable to select on wbi. lesson as they require.	4.52	0.28	Highest
6. The learner trend to easy learning on wbi. lesson.	4.59	0.05	Highest
7. The utilization of wbi. lesson comfortable.	4.55	0.35	Highest
8. The learner can learn by themselves.	4.52	0.10	Highest
9. wbi. lesson provide detail of learning guide	4.50	0.55	High
10. The alphabet on wbi. lesson easy understand.	4.49	0.23	High
11. The sound track on the wbi. lesson clearly.	4.48	0.34	High
12. The sub title language shown clearly.	4.62	0.22	Highest
13. The picture for detailed suitable with the contents.	4.45	0.45	High
14. A good interactive on the wbi. lesson.	4.51	0.32	Highest
15. Provide a progressive on learning appropriated.	4.62	0.40	Highest
<b>Total of mean</b>	<b>4.53</b>	<b>0.28</b>	<b>Highest</b>

Fig. 3. shown, the satisfaction's analysis of 1<sup>st</sup> year of higher education students through computer network lesson on the Google class program of semester 1, academic year 2015 that total of mean at 4.53, (S.D.=0.28) at

highest level of satisfaction. By detailed, highest level of satisfaction was No.2, No.15 item: mean value at 4.62, (S.D.=0.40), and No.12 item: mean value at 4.62, (S.D.=0.22) respectively. The lowest level of satisfaction

was No.13 item: mean value at 4.45, (S.D.=0.45) and No.4 item: mean value at 4.45, (S.D.=0.14) respectively.

## VI. SUMMARY AND DISCUSSION

1. The effectiveness index of computer network. Lessons via constructivist theory on the science for quality of life subject of both two education level had mean scores of formative test at 33.53 of 63.62 percent (E1) with the full score of 40 points and mean scores of post-test (summative) at 42.87 points of 85.74 percent (E2) which is higher than the criterion of 80/80.

2. The learning achievement of learner on computer network lesson of both two education level, posttest higher than pretest was statistically significant at the 0.05 level.

3. The satisfaction of Mathayomsuksa one towards learning lessons with computer network, Google classroom. The total mean's was at = 4.60 (S.D.=0.28) that based on the assumptions. When considering on sub-items were found to be satisfactory at 4.48 to 4.81.

The satisfaction of Mathayomsuksa four towards learning lessons with computer network, Google classroom. The total mean's was at = 4.51 (S.D.=0.38) that based on the assumptions. When considering on sub-items were found to be satisfactory at 4.48 to 4.66.

The satisfaction of 1<sup>st</sup> year students towards learning lessons to Google classroom. The total mean's was at = 4.53 (S.D.=0.28) that based on the assumptions. When considering on sub-items was found to be satisfactory at 4.45 to 4.66, indicating that the students were satisfied with lessons on Google classroom due to learning tools was the modern classroom.

4. The effectiveness index analysis of lessons over the computer network Google classroom by Mathayomsuksa four students through formative exercise, mean value was at 33.53 and percentage (E1) was = 83.82, and mean posttest scores was at 42.87 and percentage (E2) was = 85.74, that mean the

lesson's gained effectiveness index higher than 80/80 as of criterion.

5. The effectiveness index of lessons over the computer network Google classroom by 1<sup>st</sup> year higher education students through formative exercise, total mean value was at 34.64 and percentage (E1) was = 86.60, and mean posttest scores was at 44.72 and percentage (E2) was = 89.44, that mean the lesson's gained effectiveness index higher than 80/80 as of criterion.

## VII. SUGGESTIONS

### A. Suggestions on the Educational

Instructional technology and communications, education programs via the internet according to Google classroom theoretical constructivist in first semester of academic year 2015, there were various other forms of technology. Can be applications designed in teaching on social media, or lessons on networks such as Google classroom lessons through internet programs guided by the theory of constructivist in first semester of academic year 2015, as well as other social media.

### B. Suggestions for Teaching

- Instruction on the technology and communications through lessons on networks such as Google classroom lessons via internet programs guided by constructivist theory. On general science subject and sciences for quality of life for higher education level in first semester of academic year 2015. There is the creation product of learners to achieve self-knowledge through materials technology for creating the conditions for learning. Teachers need to have more time to interact through computer networks and web and motivate learner's curiosity and the search for self-knowledge.

- Teaching Lessons on networks like Google classroom lessons through internet programs guided by constructivist theory, general science subject and sciences for quality of life for higher education level. The teachers and the students should be prepared to

ready and learning to be flexible with time. And self-directed learning with themselves potential.

- Should have been the approach of the study. Lessons on networks such as Google classroom lessons through internet programs guided by general science subject and sciences for quality of life for higher education level applied to other subjects. Depending on the nature of the content itself to adapt the thinking processing of the students to create their own knowledge.

### **C. Recommendations for Next Research**

- Development of applications via the Internet according to Google classroom general science subject and sciences for quality of life for higher education level. Should take into awareness on the different levels of intelligence of students.

- Should develop programs through internet according to Google classroom via constructivist theory courses that the students have to pass. Or not to understand in the normal course. For the students can learn a lesson from the complementary via computer network interface.

- Google classroom lessons through internet programs guided by constructivist theory on general science subject and sciences for quality of life subject for higher education level. Should apply to the course that instructors need students to practice their skills. Prior to the actual practice. And subjects which we are at risk of damaging practice.

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**(Arranged in the order of citation in the same fashion as the case of Footnotes.)**

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