Creative Thinking Development Program for Learning Activity Management of Secondary School Teachers

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Abstract

The objectives of this research were: to design a creative thinking development program for learning activity management of secondary school teachers, and to study the program's efficiency and effectiveness of usage. The results of the study were as follows: the program includes the vision, principles, objectives, content, program development process, evaluation of performance and effectiveness. The process development had 5 stages and 8 activities of construction. The efficiency of the development program in learning activity management of secondary school teachers by 82.15/80.81 was an established requirement. The findings indicated that the teachers attained knowledge, skill and attitude towards creative learning activity management after using the program at a higher than before using the program at .05 significant level.

Keywords: creative thinking development, creativity in learning, learning activity management

1. Introduction

After the National Education Act 1999, and the Revised Issue (the Second Issue) 2002 were announced, the Ministry of Education of Thailand concluded the overall Educational Reform in the first decade. There were many emergent problems to be solved concerning students' quality, teachers, faculty members, educational staff, efficiency of administration and management, students with low achievement and without desirable characteristics in analytical thinking and interest in studies. It was also found that the people with major role in promoting learning to achieve its goal based on guidelines for Educational Reform were largely the teachers, since they had to use the curriculum with their students.(The Office of Educational Accreditation and Quality Assessment, 2007). According to the supervisory report, follow up, and evaluation of educational management, it was found that most teachers didn't adjust their teaching methods. They lacked self leadership, and self confidence for learning management. They were not courageous about making decisions in using new techniques. They lacked self-confidence and creativity in learning management in their class, especially in secondary schools of Thailand.

However, the creative learning activity management would occur efficiently and effectively, when the major factor was the teachers' competency in efficient instructional management through learning by doing in real context, and direct experience which would lead to sharing as well as improving individuals and student group knowledge level (Chantarasombat, 2007). It was necessary to improve teacher development by encouraging development of skill for learning activity management as well as creative thinking for design of learning activities appropriate for the students.

Many scholars (Kersensteiners, 1925; Hibnere, 1998; Lubart & Georgsdottir, 2004) note that great influence, by stimulating and developing the students' creative activity, can be exerted by a lecturer's personality and the quality of teaching. In his article about Singapore's creative education, Tan indicates the responsibility of teachers:

"Teachers must acquire pedagogical competence (e.g., planning lessons, selecting suitable teaching models and managing behaviors). They should process sufficient content knowledge and skills and must be interested in teaching effectively and creatively. In addition, they should also acquire creative skills and techniques, as well as cultivate dispositions related to fostering creativity (Tan, 2004)."

The development of creative activity of teachers taps into teachers' interests, prior knowledge, learning styles,

strategies in an attempt to nurture knowledge construction, perseverance, intrinsic motivation and stages of creative process.

Regarding stages of creative process, many scientists (Groborz & Necka, 2003; Lubart, 2000-2001; Mace & Ward, 2002; Norlander, 2000-2001; Sawyer, 2006; Slahova & Cacka, 2009) have distinguished four stages of the creative activity:

(1) Preparation is the initial phase of preliminary work: collecting data and information, searching for related ideas, listening to suggestions.

(2) Incubation is the delay between preparation and the moment of insight; during this time the material prepared is internally elaborated and organized.

(3) Insight is the subjective experience of having the idea–the "aha" or "eureka" moment.

(4) Verification includes two sub-stages: the evaluation of the worth of the insight, and elaboration into its complete form.

Therefore, the researchers were interested in developing teachers' creative thinking in learning activity management in secondary school, which concerning teachers lacked development and with which they had problems in learning activity management. Researchers have designed activities to develop the creativity of teachers into program development, in terms of the framework of stages of creative activity. The study investigated two research objectives:

(1) To construct the creative thinking program in learning activity management of secondary school teachers.

(2) To study the efficiency and the effectiveness in using the creative thinking program for learning activity management of secondary school teachers.

2. Method

For the creative thinking development program in learning activity management of secondary school teachers, the researcher constructed the development program applied from the ideas-frame of Groborz & Necka (2003), Lubart (2000-2001), Mace & Ward (2002); Norlander (2000-2001), Sawyer (2006) and Aleksandra, Slahova & Maris Cacka (2009) which was classified into 4 stages of creative activity *(Preparation, Incubation, Insight and Verification)*. The researcher added Stage 5 as *Enhancement of Strength* as major conceptual framework, so the program was classified into 5 stages of creative activity and 8 activities of construction for creative thinking development program in learning activity management of secondary school teachers. The research using, Research & Development methodology, is as follow:

(1) The sample consisted of 37 teachers from Wangluangpittayasan secondary school, in Nongkai Province, under the Office of Nongkhai Educational Service Area 21; Thailand during the first semester of academic year 2012, obtained using the purposive sampling technique.

(2) Creative thinking development program includes the vision, principles, objectives, content, program development process, and evaluation of the performance and effectiveness of the program.

(3) Evaluation by 7 experts to provide feedback and assessment of creative thinking development program in learning activity management of secondary school teachers.

(4) Implementation in trying out the creative thinking program for learning activity management of secondary school teachers with the non-experimental group as 8 teachers of Sermpittayakom School, in Nongkai province. Evaluation of the efficiency of the development program in learning activity management of secondary school teachers.

(5) Implementation in using the creative thinking program for learning activity management of secondary school teachers in Nongkhai Province, with the experimental group as 37 teachers from Wangluangpittayasan secondary school, in Nongkai Province, under the Office of Nongkhai Educational Service Area 21,Thailand during the first semester of academic year 2012. Four months were spent in trials. (July - October 2012).The principle consisted of 2 Phases of implementation as follow:

Phase 1 Creative thinking development program in learning activity management of teachers in simulation situation.

Stage 1: *The Preparation* consisted of --

Activity 1: Survey of former experience

Activity 2: Collaboration in planning.

Stage 2: *The Incubation* consisted of --

Activity 3: The development of creative teacher conceptions.

Stage 3: *The Insight* consisted of --

Activity 4: The application of thinking approach.

Activity 5: Practice in classroom.

Phase 2 creative thinking development programs in learning activity management of teachers in field work situation.

Stage 4: *Verification and Evaluation* consisted of --

Activity 6: Supervision, follow up, and evaluation.

Stage 5: *Enhancement for Strength* consisted of --

Activity 7: Feedback and reinforcement.

Activity 8: Seminar for enhancing strength.

(6) The evaluation in effectiveness of the program, including the evaluation of --

(6.1) Knowledge and comprehension of teachers in creative learning management at secondary school.

(6.2) Teachers skill in creative learning management at secondary school.

(6.3) Teachers attitudes in creative learning management of teachers.

(7) The conclusions, discussions, and performance report could be written as the model of program development as shown in Figure 1:
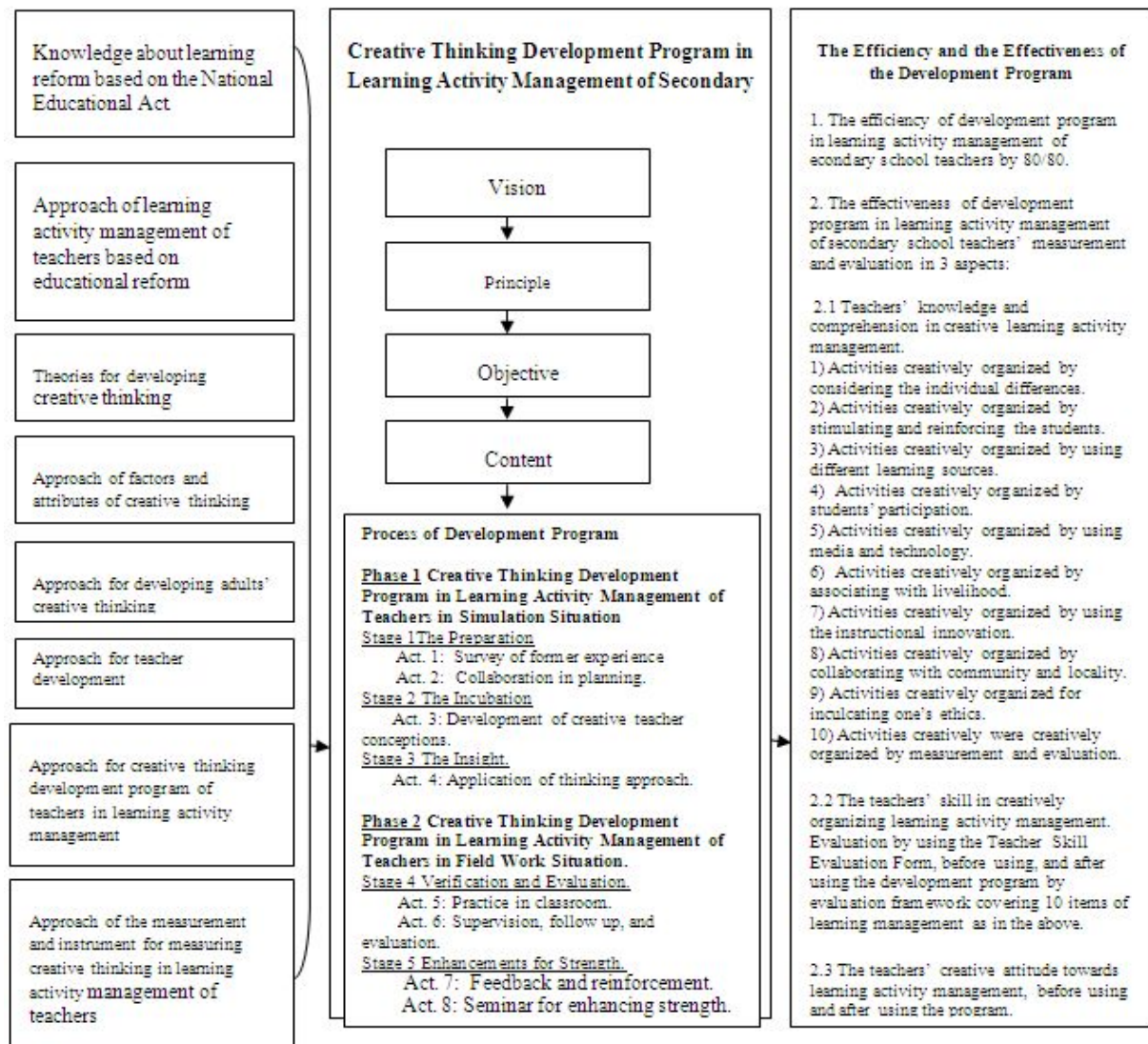
Figure 1. Model of creative thinking development program in learning activity management of secondary school teachers

3. Research Instruments and Data Analysis

Analysis of the data was carried out using some descriptive statistics, which included frequency distributions, means and standard deviations.

In this research study, the researcher classified the research instruments into 2 kinds as:

(1) The instrument using for developing secondary school teachers' creative thinking in learning activity management, was the creative thinking development program in learning activity management of secondary school teachers.

(2) The instrument use for data collection included:

(2.1) Knowledge and comprehension inventory regarding the creative development program in secondary school

(2.2) Skill inventory was the teachers' skill inventory in organizing the creative learning activity.

(2.3) The attitude inventory was the teachers' attitude inventory of creative thinking.

4. Results

The researcher classified the research findings into 2 parts as follows:

Part 1: The conclusions of development for creative thinking development program for learning activity

management of secondary school teachers.

The construction of creative thinking development program in learning activity management of secondary school teachers, consisted of:

(1.1) Result of the handbooks for using creative thinking development program in learning activity management of secondary school teachers, inclusive of vision, principles, objectives, content, program development process, evaluation of performance and effectiveness of the program, as in Figure 2:
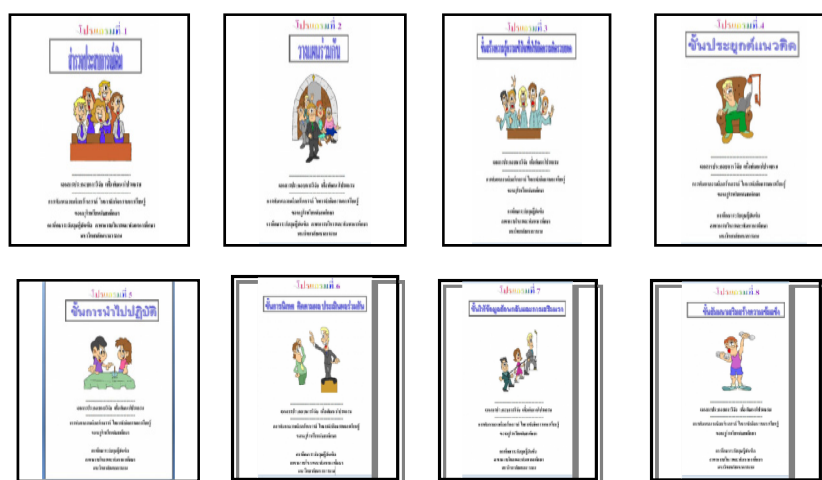
Figure 2. The 8 activities handbooks for using the creative thinking development program in

Learning activity management of secondary school teachers

(1.2) The results of the development program for learning activity management of secondary school teachers had 5 stages and 8 activities as follows:

Stage 1: The Preparation consisted of 2 activities

Duration	Activity 1: Survey of former experience.
(1 week)	Sub-Activity 1: Towards the creative teachers.
	Sub-Activity 2: Keeping pace with self-evaluation.
	Sub-Activity 3: Various experiences leading to sharing.
	Sub-Activity 4: Towards learning to new age teachers.
Duration	Activity 2: Collaboration in planning
(1 week)	Sub-Activity 5: Adjustment for change.
	Sub-Activity 6: Learning as adults.
	Sub-Activity 7: Understanding of one's own teaching style.
	Sub-Activity 8: Advancement by development plan.

Stage 2: The Incubation consisted of 1 activity

Duration	Activity 3: Development of creative teacher conceptions.
(1 week)	Sub-Activity9: The study of teachers' written learning management plans.
	Sub-Activity 10: The study of teachers' written learning management plans based on the Educational Reform.
	Sub-Activity 11: The practice for thinking to change.
	Sub-Activity 12: The practice for modifying into new things.

Stage 3: The Insight consisted of 1 activity

Duration	Activity 4: Application of thinking approach.
(1 week)	Sub-Activity 13: The observation of creative learning activity management model.
	Sub-Activity 14: The practice for applying and modifying the creative learning activity.

Stage 4: The Verification and Evaluation consisted of 2 activities.

Duration	Activity 5: Practice in classroom.
(4 weeks)	Sub-Activity 15: Writing of creative learning management plan in classroom.
	Sub-Activity 16: Design of creative learning activity based on Educational Reform in classroom.
Duration	Activity 6: Supervision, follow up, and evaluation.
(4 weeks)	Sub-Activity 17: Suggestions for practice, and thought.
	Sub-Activity 18: Demonstration by teacher's development model.
	Sub-Activity 19: Supervision as close friends.
	Sub-Activity 20: Follow up and evaluation of the findings from creative learning activity management.

Step 5: Enhancement for Strength consisted of 2 activities

Duration	Activity 7: Feedback and reinforcement.
(2 weeks)	Sub-Activity 21: The establishment of exhibition field, the teachers' creative learning activities.
	Sub-Activity 22: Teachers presented the best practices for creative learning activity management.
	Sub-Activity 23: The reward for teachers with excellent creative learning activity management.
Duration	Activity 8: Seminar for enhancing strength
(2 weeks)	Sub-Activity 24: Classrooms visit.
	Sub-Activity 25: Seminar for learning activity management of small group creative teachers.
	Sub-Activity 26: Seminar for learning activity management of large group creative teachers.

Stages for creative thinking development in learning activity management of secondary school teachers. Five stages as shown in Figure 3:
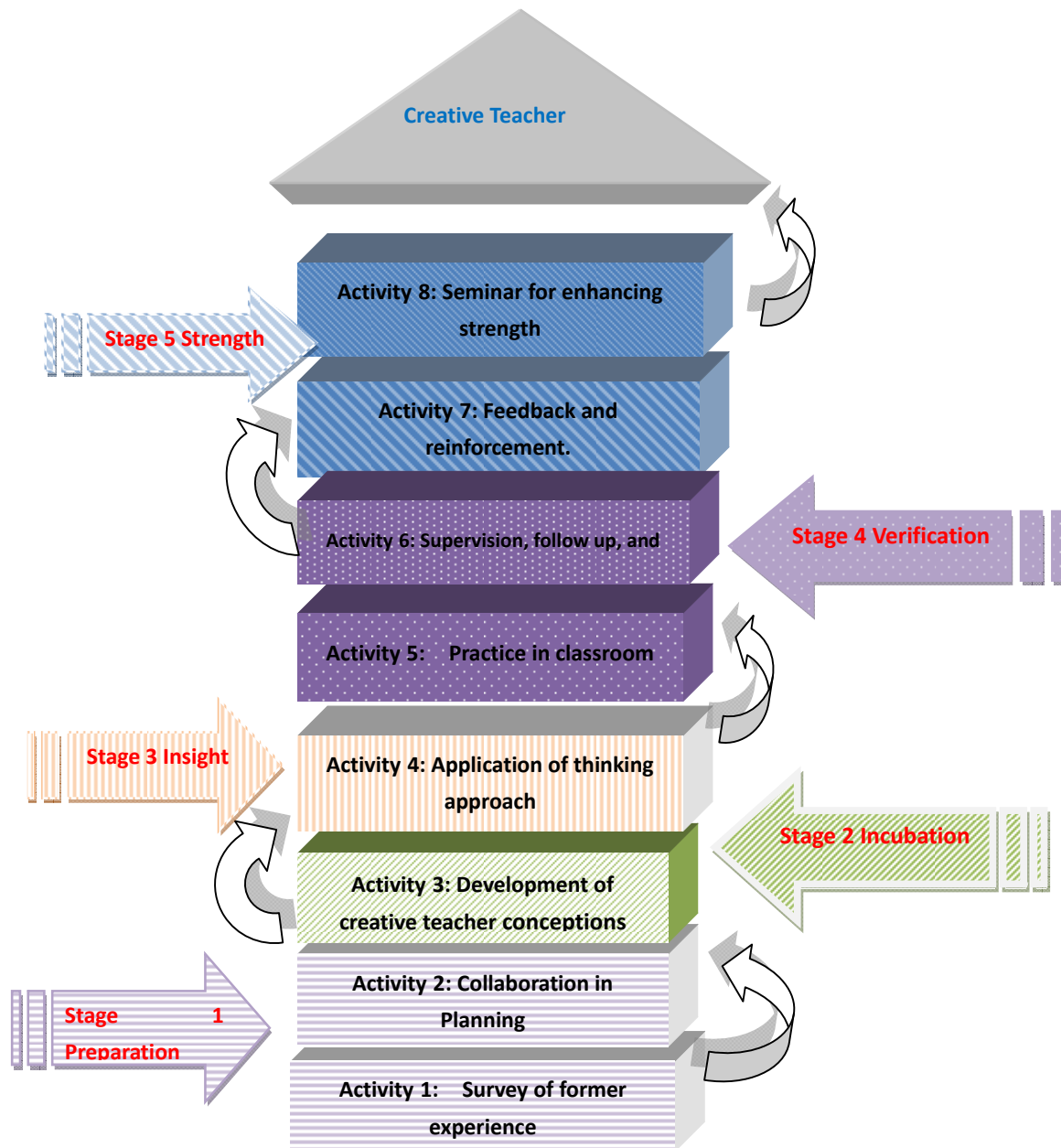

Figure 3. Stages for creative thinking development in learning activity management of secondary school teachers

(1.3) Regarding the results of the evaluation by 7 experts to provide feedback and assessment of the creative thinking development program in learning activity management of secondary school teachers and findings of creative thinking development program in learning activity management of secondary school teachers, the appropriate statement in the program, the handbooks of the program, the suitability of development activities in the program, the appropriate learning materials, and the appropriate assessment program overall were appropriate at "Good," level ($\overline{X}$=4.11)

(1.4) Regarding the results of the evaluation in efficiency of development program in learning activity management of secondary school teachers by 82.15/80.81as was established requirement; the scores of the experimental group teachers practice in program development were 82.15% of the total score, and scores of the

experimental group teachers of cognitive tests after the program development were 80.81% of the total score, as shown in Table 1:

Table 1. The findings of the evaluation in efficiency of development program in learning activity management of secondary school teachers

Order	Pre-test (30)	Points Between Activities								Total (160)	Post-test (30)
		Act. 1 (20)	Act. 2 (20)	Act. 3 (20)	Act. 4 (20)	Act. 5 (20)	Act. 6 (20)	Act. 7 (20)	Act. 8 (20)		
1	14	16	16	17	17	16	16	16	17	131	24
2	14	17	15	16	17	16	15	15	15	126	21
3	15	16	17	16	15	15	16	16	15	126	24
4	13	16	15	15	16	15	15	16	17	125	27
5	15	18	16	15	17	15	15	16	15	127	21
6	13	17	15	15	15	17	15	15	17	126	24
7	13	17	15	17	16	15	15	16	16	127	27
8	12	18	17	16	15	16	17	16	17	132	24
9	13	16	15	16	17	16	15	17	16	128	25
10	14	18	17	18	17	16	17	18	17	138	23
11	13	16	16	16	17	16	15	15	17	128	24
12	14	16	15	17	15	16	16	17	16	128	24
13	13	16	17	18	16	15	17	15	16	130	25
14	14	17	16	18	18	16	17	15	15	132	25
15	15	18	16	16	16	17	15	15	16	129	25
16	14	17	18	16	17	16	16	17	16	133	23
17	15	15	15	17	17	16	15	16	18	129	27
18	14	16	17	17	16	18	16	16	16	132	26
19	13	16	17	17	18	17	17	18	17	137	24
20	14	18	17	17	16	17	15	17	17	134	23
21	15	16	15	18	17	17	16	15	17	131	24
22	14	16	16	16	17	17	18	16	17	133	24
23	12	15	15	17	17	15	15	15	16	125	26
24	14	18	17	16	15	16	17	17	16	132	24
25	15	16	16	17	15	17	18	16	14	129	23
26	14	18	17	16	18	17	16	17	17	136	25
27	15	16	16	17	17	17	16	16	18	133	25
28	14	15	17	17	16	18	18	17	17	135	25
29	15	16	16	16	18	15	16	18	18	133	22
30	14	17	17	18	17	16	17	15	17	134	23
31	15	16	16	17	17	17	17	18	16	134	24
32	14	18	17	19	18	17	16	17	16	138	25

33	13	16	16	17	17	18	17	16	15	132	24
34	14	18	19	17	18	17	16	16	17	138	26
35	13	18	16	17	18	18	17	15	17	136	23
36	14	16	17	16	17	18	16	17	16	133	24
37	14	17	17	17	17	18	16	16	15	133	24
Total	514	616	602	618	617	609	597	599	605	4863	897
$\overline{X}$	13.89	16.65	16.27	16.70	16.68	16.46	16.14	16.19	16.35	131.43	24.24
S.D.	0.84	0.98	0.96	0.91	0.97	0.99	0.95	0.97	0.95	3.79	1.42
Percent	46.31	83.24	81.35	83.51	83.38	82.30	80.68	80.95	81.76	82.15	80.81

Part 2: The conclusions of study in effectiveness of usage in creative thinking development program for learning activity management of secondary school teachers which included details of research findings were as follows:

(2.1) The teachers obtained higher post-test score ($\overline{X}$= 24.05, S.D.= 1.87) of knowledge and comprehension (full score 30 points) in creative learning activity management in secondary school than the pre-test score ($\overline{X}$= 15.68, S.D. = 1.89) at .05 significant level as shown in Table 2.

Table 2. The findings of evaluation in knowledge and comprehension of creative learning activity management in secondary school of teachers, before and after using the development programs

Knowledge and Comprehension	N	$\overline{X}$	S.D.	t	p
Pre-test	37	15.68	1.89	32.467	0.000*
Post-test	37	24.05	1.87		

* Level of statistical significant .05

(2.2) The teachers had skill in creative learning activity management in secondary school (full score = 5 points) the post-test ($\overline{X}$= 4.05, S.D.= 0.36) was higher than the pre-test ($\overline{X}$= 2.49, S.D.= 0.07) at .05 significant level as shown in Table 3.

Table 3. The findings of evaluation in skill for learning activity management in secondary school of teachers, before and after using the development program (the pre-test and post-test)

Skill for learning activity management	N	$\overline{X}$	S.D.	t	p
Pre-test	37	2.49	0.07	92.57	0.000*
Post-test	37	4.05	0.36		

* Level of statistical significant .05.

(2.3) The teachers' attitude towards creative learning activity management, the post-test ($\overline{X}$= 3.66, S.D.= 0.25) was higher than the pre-test ($\overline{X}$= 2.84, S.D.= 0.19) at .05 significant level as shown in Table 4.

Table 4. The findings of evaluation in teachers' attitude towards creative learning activity management in secondary school, between the pre-test and post-test

Teachers' attitude towards learning activity management	N	$\overline{X}$	S.D.	t	p
Pre-test	37	2.84	0.19	20.395	0.000*
Post-test	37	3.66	0.25		

* Level of statistical significant .05.

5. Discussion

There were 2 aspects of issues in implementation of research study for developing the secondary school teachers' creative thinking in learning activity management. These are as follows:

1) The construction and development of secondary school teachers' creative thinking development program in learning activity management.

2) The effectiveness of secondary school teachers' creative thinking development program in learning activity management.

The details of discussions were as follows:

The construction and development of secondary school teachers' developed creative thinking development program in learning activity management included the researchers' implementation of the analysis of demographic data regarding the situation of problems in secondary school teachers' learning activity management as well as teacher development in order to specify issues needed for use in development. The approach, theories, and related literature relating to development of learning activity management were studied by synthesizing the development of creative thinking activity. Tentative program and supplementary document of program were established and presented to 7 experts to investigate quality. The investigated findings were considered for improvement and correction according to the recommendations. According to the above, it could be seen that secondary school teachers' creative thinking program in learning activity management, was systematically developed, and based on approach, theory, and research findings as guidelines for development as well as investigation by experts. As a result, the secondary school teachers' creative thinking program in learning activity management, was both effective and efficient and served for objectives of the program focusing on enhancing teachers' knowledge, comprehension, good attitude, and skill in organizing creative learning activity management. It was supported by Cyrilo (1996) and Sookkal (2000) as suggestions for guidelines in program development in that the program development should include the rationale, approach, and theory, for instance, the adult's theories of adult' psychology of learning since the development of teachers who were knowledgeable as well as highly experienced persons, research studies for hypothesis testing as well as quality testing in its usage in daily life, as conducted by either designing the program to be widely used or with specific objective. In the secondary school teachers' creative thinking program in learning activity management, the researcher had rationale for selecting and considering the program to accomplish the desirable goal.

For the construction and development of secondary school teachers' creative thinking program in learning activity management, the researcher focused on Beghetto (2006) and Jomhongpitak (2010) who suggested their viewpoints as well as rationale in constructing and designing the program for staff development for 2 issues as follows:

1) The construction and development of the program should be planned. The researcher should determine the vision of program as well as outline the structure for implementing the program as direction and strategy would achieve its goal, and those who made progress would be able to develop their knowledge, comprehension, good attitude, and skill in being teachers with creative thinking in learning activity management.

2) The design and application of the development program should be performed with high probability to accomplish the goal since the study of approach, theory, and related research literature relating to the program development, were studied as well as used and developed by program implementation, including the instrument, resource, and facilities. The researcher establishes the supplementary documents of program as the handbook of the program which could be helpful for step by step practice as well as useful for the program implementation or usage which was not a burden for those who implemented the program. This is because the supplementary document is easily understood, and has been checked by experts. The usage of program was based on the

principle of participation in development from related people. So, the researcher believes there is high probability that teachers who have made progress will accomplish the objectives of the developed program.

Both evaluation and investigation were performed as the motivation for the participants who made progress. Their motivation for is encouraged learning throughout the process of the program. The basic approach used for determining the activity for development according to the process of program includes: the approach of participation, teaching method, and learning by action, friendly supervision by providing support, guide, feedback, adult' theory of learning, congruent with the teachers' nature of learning which would help the participants to have morale for developing their own learning throughout the time.

Besides, the researcher constructed the development program by using the conceptual framework from activity management for developing the creative thinking of Groborz & Necka, 2003; Lubart, 2000-2001; Mace & Ward, 2002; Norlander, 2000-2001; Sawyer, 2006; Aleksandra, Slahova, & Cacka, 2009, who classified the development into 4 stages as: 1) Preparation 2) Incubation, 3) Insight, and 4) Verification and Evaluation. The researcher added stage 5 as the Enhancement of Strength as major conceptual framework. Consequently, the secondary school teachers' resultant Creative Thinking Program in Learning Activity Management had both efficiency and effectiveness which could serve the objective very well.

The data analysis findings by trying out the secondary school teachers' resultant Creative Thinking Program in Learning Activity Management, in overall consideration, found that the secondary school teachers' developed Creative Thinking Program in Learning Activity Management could be able to enhance one's knowledge, comprehension, good attitude, and skill in creative learning management. After using the program, progress was higher than before using the development program at .05 significant levels. It might be due to the activity based on the process of developed program, Phase 1; the secondary school teachers' Development Program in Learning Activity Management, in simulation, emphasized teacher development for knowledge, comprehension in stimulation for self-direction as well as self-development by self-control for organizing the creative learning activity, being aware of responsibility, role, and duty of teachers who had to create new learning activities regularly. They should be encouraged to modify their learning activity management, express their creative behavior in learning activity management, have interaction and share knowledge as well as analysis and synthesis to know and understand themselves, develop self-understanding, create motivation for change, organize learning through various activities including discussion, case study, analysis and synthesis of knowledge, focusing on participants in the learning process. Then, demonstration by model would help the participants to obtain more precise knowledge and comprehension through the observation of the model, practice in sub-skill in simulation, coaching and feedback provision. Each activity would enhance the participants' knowledge and comprehension of content. They would organize more creative learning activity. It was supported by adult Instructional Theory on the basis of belief that each adult had maturation. So, they would have need and competency for self-direction in using experience in learning, specifying their readiness for learning, and organizing their learning for solving their own life problems. It was also supported by Sanrattana's (2005) rationale that teacher development had to: 1) consider the adult's Theory of Learning, 2) consider the potential effect on students after teacher development, 3) allow teachers to think systematically without separating into parts, 4) organize teacher development to be actors by self-studying more, 5) change the paradigm of teacher development from the traditional one to a new one, 6) view teacher development as the teachers' own daily work practice, 7) emphasize classroom learning from co-worker teachers as well as other staff in the school and community. Therefore, when the teachers obtained teacher development based on the above conceptual framework and approach, they obtained knowledge, comprehension, and good attitude towards creative learning activity management.

Acknowledgements

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