The development of teacher training curriculum on learning management to develop students’ analytical thinking in Thailand

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Abstract

The purposes of the present research were 1) to develop a teacher training curriculum on learning management to develop students’ analytical thinking, 2) to implement the teacher training curriculum and to assess its effectiveness and 3) to study the students’ analytical thinking as a result of learning management emphasizes analytical thinking. The research employed Research and Development Design consisting of 3 phases of study. The first phase involved the development of a teacher training curriculum. The second phase was for the implementation and assessment for the effectiveness of the curriculum. The target group consisted of 24 teachers who taught Science, Thai Language, Social Studies, Religions and Culture learning areas in the schools under the Office of Khon Kaen Primary Education Service Area 1, Ministry of Education, Thailand. The third phase was for the study the students’ analytical thinking as a result of learning management emphasizes analytical thinking. The target group in this third phase consisted of 824 students in grades 2, 4, 6, 7, 8 and 9 from 24 classrooms who were taught by the 24 teachers that had been trained for learning management emphasizing analytical thinking. Results of the research are as follows:

Keywords: Teacher Training Curriculum, Learning Management, Analytical Thinking, Thailand

1. Introduction

The trend of changes in our current information age in which scientific and information technology keep moving swiftly has inevitably compelled all countries of the world to find schemes for the development of their young students to develop in such a way as to be able to think analytically, synthetically and critically, to know how to solve problems, to be creative, to know how to search for knowledge from various learning sources, to be able to learn and construct a new knowledge, to adapt one’s self to constant changes and to face up to challenges, and to be able to live a life of happiness amidst pressures of change. These constant changes have in a way forced educators

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around the world to pay greater interest in the learning management for a continuous development of their students. In learning management process emphasis is placed on the arrangement of subject content and learning activities that would suit the learners’ needs and aptitude while at the same time individual differences are also taken into account. Such educational schemes would provide training for thinking and management skills, and the skills to cope with changing situations and to provide the learners an opportunity to learn from authentic situations. Information technology utilization as a tool for searching for knowledge also has been emphasized (Pamphilon, 2000).

Jones (1997) had aptly described the need for thinking skill that, as new things constantly come into being or brought to our knowledge and it has become increasingly difficult for one to decide which is true, correct or even better, we therefore need to be able to examine and to judge the existing situations and to decide which data support or are in conflict with the conclusions. It is therefore necessary to help develop in the learners the analytical thinking skills when they are very young. Paziotopoulos and Kroll (2004) had also written in their article “Hooked on Thinking” that learning management for the development of thinking is one of the most crucial tasks of teachers, especially the analytical and creative thinking, as it is going to be an essential tool for the learners to apply to their work and for living a successful life in the 21st century.

Thailand has been giving priority to the learning management for the development of the learners’ thinking ability. The National Education Act 1999 and Amendments 2002 (Second National Education Act) had clearly stipulated that teachers should organize subject content and learning activities in such a way as to suit the learners’ interest and aptitude, to provide them with the opportunity for training in thinking process and the management skills, the skill to cope with existing situations and the skill to apply what they have learned for preventing as well as for solving problems (Ministry of Education, 2003). On top of that, the Core Curriculum of Basic Education of 2008 had also stipulated 5 significant areas of competence of a learner one of which is his thinking ability, especially the ability to think analytically, synthetically, creatively, critically and systematically, so that he’d be able to form a knowledge or information for making suitable decision (Ministry of Education, 2008).

Analytical Thinking was a competency in identifying and classifying different aspects of anything which might be an object, story, or incidence into small parts that what would be included, and find the relationship of those components how they would be associated, what were the cause or effect, in order to comprehend and see relationship of given things. There were 3 kinds of analytical thinking: analysis of elements, analysis of relationships and analysis of organizational principles (Bloom, 1956).

Despite the Ministry’s repeated efforts to encourage the teachers to help develop the learners’ analytical thinking, if was found by several studies that the schemes for the development of the learners’ analytical thinking have been carried out at a rather low level and therefore haven’t reached the needed ultimate goal (Ministry of Education, 2006). In addition, findings by The Office for National Education Standards and Quality Assessment (ONESQA) (2007), Wiratchai at. al. (2004) all pointed to the fact that the learners’ achievement in the area of thinking ability was still at the “unsatisfactory level,” especially the analytical thinking. The problem of quality in analytical thinking of Thai Children should be emergently improved (Ministry of Education, 2006).

Results of the above assessment and research findings clearly show that Thai students are in a difficult situation to develop their analytical thinking which is a serious matter that requires an immediate remedy by all concerned. It has been generally recognized that the learners’ inability to do analytical thinking stems from the teachers’ lack of knowledge and experience in the preparation of preparing learning management for the development of analytical thinking (Erwin, 1993; Kammanee, 2003; Art-in, 2011). These findings were also in consistent with findings by Wolfskill (1986) in his study of teaching methods used by Alabaman teachers. It was found that the teachers rarely arranged learning management that would promote thinking ability in their students. One of a reliable ways of remedying the situation is for the teachers to improve the quality of their teaching by placing greater emphasis on the development of their own analytical thinking before they can teach their students how to think analytically (Shelly & Wilen, 1988; NCSS, 1989).

Teacher development was very important, as Fullan (1993 cited in Mitkovska, 2010) statement that: “High-quality teacher is always ready to learn-siqua non is facing dynamic complexity, key to the creation of citizens who can manage their lives and be connected with others around them in ever-changing world. There is no
substitute for good teachers... We cannot have a society that teaches, without teachers who teach profession.” The teacher training is a way to develop knowledge, understanding and necessary skills to apply them in working efficiently (Smithigrai, 2005). According to the research about the teacher training, it found that the training enables the teacher development effectively (Goldberg at. al., 2001; Sittisomboon, 2003; Olkin, 2004; Jeanpierre, Oberhauser & Freeman, 2005; Chaiyabhan, 2005; Castle, Fox & Souder, 2006; Soonklang, 2008; Morge at. al., 2010 and Prarajrattanamongkon [Yangthisan], 2011).

The findings as mentioned above had led the present researcher to believe that a great number of Thai teachers had an urgent need to develop their learning management to develop students’ analytical thinking, hence his development of a teacher training curriculum is to develop teachers’ learning management to develop students’ analytical thinking efficiently.

2. Research Objectives

2.1 To develop a teacher training curriculum on learning management to develop students’ analytical thinking.

2.2 To implement the teacher training curriculum and to assess its effectiveness.

2.3 To study the students’ analytical thinking as a result of learning management emphasizes analytical thinking.

3. Research Methodology

This research for the development of a teacher training curriculum on learning management to develop students’ analytical thinking is based on the Research and Development Design consisting of 3 phases as follows:

**Phase 1: The development of a teacher training curriculum on learning management to develop students’ analytical thinking.** In the first phase, the National Education Act 1999 and Amendments 2002 (Second National Education Act), the Core Curriculum of Basic Education of 2008 and related literature were thoroughly studied for the purpose of drafting up a teacher training curriculum papers and supplementary papers which included handbooks for both the trainers and trainees. The curriculum was tried out after it was scrutinized and adjusted by experts. The collected data were then analyzed by means of computing arithmetic mean, standard deviation and percentage.

**Phase 2: The implementation and assessment for the effectiveness of the curriculum.** In this phase, a training workshop for teachers was held with the main purpose of enhancing their learning management to develop students’ analytical thinking. The target group consisted of 24 interested teachers of Science, Thai language and Social Studies, Religion and Culture learning areas in the schools under the Office of Khon Kaen Primary Education Service Area 1, Ministry of Education, Thailand, from February 23-25, 2011, at Kwan Moh Hotel of Khon Kaen University. Training activities concentrated on 3 areas of the basic knowledge in analytical thinking, the process of analytical thinking practice and the learning management that emphasize analytical thinking. The assessment for effectiveness of the curriculum was done by means of assessing the effects of the training on the teachers by 1) administering a post-test on the teachers’ analytical thinking and 2) assessing the lesson plans that emphasize analytical thinking. The instruments used for the study consisted of two categories of training tools and data collection tool. The training tools included the teacher training curriculum and supplementary handbooks for the trainers as well as trainees, and the data collection tools included an analytical thinking test and a form for the assessment of the lesson plans. The collected data were analyzed by means of computing arithmetic mean, standard deviation and percentage. It was prescribed that the mean score of the teacher trainees must be 70% or better, and result of the assessment of the lesson plans must be at the “good” level or better.

**Phase 3: A study of the students’ analytical thinking as a result of learning management emphasizes analytical thinking.** The target group consisted of 824 students in grades 2, 4, 6, 7, 8 and 9 from 24 classrooms at 4 schools, under the Office of Khon Kaen Primary Education Service Area 1, Ministry of Education, Thailand, during the first semester of the 2011 academic year. These students had been taught by the teachers who had received training in learning management to develop students’ analytical thinking prior to this study. The study was started by a meeting, on March 3, 2011, at the Faculty of Education of Khon Kaen University, between the present researcher and the teachers of the present researcher, Thai Language, Social Studies, Religion and Culture learning areas in grades
2, 4, 6, 7, 8 and 9 to work together to prepare lesson plans on the subjects, placing emphasis on analytical thinking. The lesson plans, 12 in number and taking 12 instructional periods to complete, were intended for the teachers to implement in teaching the subjects to their classes. Following the completion of learning management the student was administered a post-test to assess their analytical thinking and a study to assess their satisfaction towards the learning management that emphasized analytical thinking. The data collection tools included a test on the students’ analytical thinking and a questionnaire to elicit their opinions towards the learning management that emphasized analytical thinking. The collected data were then analyzed by means of computing arithmetic mean, standard deviation and percentage.

4. Conclusion and Discussion

4.1 Results of the development of a teacher training curriculum on learning management to develop students’ analytical thinking

The teacher training curriculum as has been developed consisted of 6 components, i.e. the rationale, curriculum aims, content structure, training activities management, measurement and evaluation, and passing criterion for the training which represent all the major components of an acceptable curriculum (Taba, 1962; Tyler, 1970 cited in Marsh & Willis, 2003). The resulted curriculum is consistent with research study results by Aerarunchot (2008); Soonklang (2008); Punprasert (2008); Anekwit (2009) and Prarajrattanamongkon [Yangthisan] (2011) which demonstrated that at least 4 components must be incorporated in an acceptable curriculum, i.e. the curriculum aims, content structure, training activities management, and measurement and evaluation.

The teacher training curriculum aims 1) to provide teachers with basic knowledge and comprehension of analytical thinking and to be able to develop analytical thinking on their own and 2) to possess sufficient knowledge and comprehension about learning management for the development of students’ analytical thinking and to be able to prepare lesson plans that emphasize analytical thinking. The training activities as prescribed in the curriculum aim at the 3 aspects of providing the teachers with basic knowledge about analytical thinking, for practicing the process of analytical thinking and for learning management that would develop one’s analytical thinking as it is obvious that for a teacher to be able to teach his/her students to learn how to think analytically, he/she must first understand the process of thinking and to be able to think analytically (Baldwin, 1984; Paul, 1985; Shelly & Wilen, 1988; NCSS, 1989).

4.2 Results of the implementation and assessment for the effectiveness of the curriculum

4.2.1 It was found that the teacher trainees made a mean post-test score of 35.46 out of 45 or 78.80% of the full marks which is higher than the prescribed criterion of 70%. The results seem to verify the principle of development which states that an individual’s thinking process can be developed (Kammanee, 2003). Besides, the training activities which consisted of the 3 aspects of 1) the provision of basic knowledge in analytical thinking, 2) a knowledge about learning model or the steps in the preparation of learning management emphasizing analytical thinking and 3) a practice in the analytical thinking process as has been stipulated in the training curriculum must also have helped develop the teacher trainees’ analytical thinking which was shown by their higher-than-criterion post-test score of 78.80%.

4.2.2 Nineteen of the teacher-trainees, or 79.17% of the group, were able to prepare learning management plans, with an emphasis in analytical thinking, at the level of “Very Good” quality, while the remaining 5 others, or 20.83% of the group, were able to make a “Good” level of lesson plans that emphasized the same analytical thinking. The achievement seems to validate the effectiveness of the training activities the teacher trainees had gone through which provided them with an opportunity to learn the knowledge about analytical thinking, to practice actual planning for learning management with an emphasis on analytical thinking and to participate in group discussions and exchange of ideas among themselves. The session for presenting learning management plans by each of the trainees provided another opportunity for an open discussion and criticism of the plans. Furthermore, a study of the qualitative data reflecting the trainees’ opinions about the training activities indicated that they were satisfied with their gaining a clear knowledge and understanding about how to think analytically. They had learned how to do analytical thinking on their own, had learned about the models and steps of learning management that
emphasize analytical thinking, and to practice writing lesson plans by focusing on analytical thinking. Such experiences had no doubt caused the teacher trainees to feel confident that they would in the future apply what they had learned to the preparation of learning management for their students with an emphasis on analytical thinking. These findings are consistent with the findings of research works by Goldberg at. al. (2001); Sittisomboon (2003); Olkin (2004); Jeannipierre, Oberhauser & Freeman (2005); Castle, Fox & Souder (2006); Soonklang (2008); Morge at. al. (2010) and Prarajjatanamamongkon [Yangthisan] (2011) which found that a training workshop can effectively help develop teachers.

4.3 Results of the study of the students’ analytical thinking as a result of learning management emphasizes analytical thinking

The students made a mean post-test score on analytical thinking of 77.20% which was higher than the prescribed criterion of 70%. The three classes that made the highest scores were grade 9 (79.53%), grade 6 (78.51%) and grade 8 (77.15%), successively. These achievements can be attributed to learning management that emphasize analytical thinking that they had gone through. The activities had allowed the students an opportunity to do analytical thinking for finding solutions by using situations, subject contents, stories, documents, and interesting occurrences and phenomena which rouse the students to think, to become curious about things and to find solutions. Also during the learning sessions every students took part in practicing analytical thinking, individually as well as in group, to analyze the significance of and the relationship between things and phenomena and to analyze principles. Such activities had no doubt allowed the students the opportunity to learn together and to exchange their ideas and experience which, in turn, created the atmosphere that promotes thinking development among the students (Pollack, 1987; Tarkington, 1989). Furthermore, the sessions for presenting their thinking and results of their thinking would no doubt help develop the students’ thinking process as interaction between teacher and student, between student and student, would lead to the expansion of the students’ scope of thinking to become larger and more complex (Gall & Gall, cited in Dillon, 1984).

In addition, the researcher also studied about the level of satisfaction towards the learning management and found that the students, as a whole, indicated their “Very High” level of satisfaction towards the learning management that emphasized analytical thinking ($\bar{X} = 4.58$, S.D. = 0.79). When each item of student satisfaction towards the learning management was scrutinized separately, the three items that showed highest mean score included 1) learning activities that allowed the students to practice analytical thinking in group for finding solutions ($\bar{X} = 4.75$, S.D. = 0.78); 2) the students were able to learn subject content as prescribed in school curriculum and while at the same time can practice analytical thinking ($\bar{X} = 4.73$, S.D. = 0.81) and 3) during the learning activities the students were allowed to do analysis of elements, analysis of relationships, and analysis of organizational principles ($\bar{X} = 4.71$, S.D. = 0.70), respectively. Therefore, suffice it to say that these satisfactory results as shown by the students’ high levels of satisfaction were caused by the analytical thinking based learning management that hold students as the centred of learning. The students had personally participated in the activities and thereby being able to create a new body of knowledge on their own. Their participation in the activities had enabled them to practice analytical thinking according to the situations, the stories, or prescribed occurrences. They had learned the subject content while at the same time were able to practice analytical thinking. They enjoyed learning activities and became eager to learn with the result of making high learning achievement that met the prescribed aims.

5. Suggestions

5.1 For policy makers

5.1.1 As findings from this study has succinctly proved that the training of teachers in the learning management for develop analytical thinking has been successful in helping the teachers to develop their analytical thinking and to manage learning for analytical thinking purpose, the responsibility is now rest with policy makers to decide to fund training workshops to upgrade the teachers’ learning management ability so that they’ll be able to upgrade their students’ analytical thinking as well. The teachers’ primary authorities such as Ministry of Education, the Basic Education Board, provincial offices of education services or even the school themselves should embark on a training
workshop such as this so that their teachers would be able to develop themselves in analytical thinking and to learn how to manage learning emphasizes on analytical thinking for their students which, in a direct way, would allow them to work in accordance with the conditions as stipulated in The National Education Act 1999 and Amendments 2002 (Second National Education Act). Both Acts stipulate that learning management should be geared for the students to practice analytical thinking, to learn the process of thinking, to learn how to manage things, to cope with challenging situations and to apply what they have learned to daily life.

5.1.2 Following the training on learning management to develop students’ analytical thinking of teachers, the primary authority offices should do a follow-up inspection of their performance in regard to their students’ analytical thinking. The offices can also help the teachers to sustain what they have learned from their training and to continuously enlarge their learning management through regular supervision activities in order to learn about the problems they encounter in the implementation of the learning management to develop students’ analytical thinking and to help solve the problems.

5.2 For the application of the teacher training curriculum

5.2.1 In order to make the application of this training curriculum effective, persons in charge of the task should be make a thorough study of the 6 components of the curriculum, i.e. the rationale, curriculum aims, content structure, training activities management, measurement and evaluation, and passing criterion for the training. Handbooks for trainers and trainees should also be examined so that they can conceive a full scope of the training and proceed to act accordingly.

5.2.2 In training teachers for the development of learning management to develop students’ analytical thinking, the training activities should include all the 3 significant parts of 1) to provide the teachers with basic knowledge about analytical thinking, 2) to practice analytical thinking process and 3) to learn how to manage learning for the development of analytical thinking. As it is evident that before a teacher can teach his/her students to learn analytical thinking, the teachers themselves must possess a clear knowledge about the process of analytical thinking and have experienced analytical thinking before (Baldwin, 1984; NCSS, 1989).

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