Roles of Administrators in Supporting to Science Study for Basic Education of Secondary Educational Office Bangkok

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Abstract
The purposes of this research were to study factors that affects the development of science study and the roles of administrators in supporting science study in basic education of Secondary Educational Office Bangkok. The sampling groups are the school directors and head of science departments or science teacher of secondary educational office Bangkok total 400 questionnaires and 15 person for interview. The research tools were interview form and 5-level questionnaires. Statistic tools used in analysis are frequency, percentage, mean, standard deviation, factor analysis and content analysis. The results of the study were as follows: 1) Factors that influence the development of science study were the education institute, scientific skills, course management, and student factors. 2) Role of administrators in supporting science study are 2.1 manage course to efficiently improve scientific learning skills by focusing on learning activities and teaching innovation in accordance to scientific learning skills, problem solving skills, and analytical skills of students. 2.2 develop students' competencies along with science course management in relevance to measurement and evaluation. 2.3 design course by focusing on knowledge application skills so that students have scientific attitude and scientific learning skills to apply in daily life and 2.4 to give importance and encourage science study course continuously.

Keywords: Roles of administrators, Science Study, Basic Education

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Introduction

Science is important roles in our lives and work, because nowadays science is relevant to everyone in everyday, as well as the technology, tools, appliances and productivity. These are the result of scientific knowledge to combine with creativity and other science. Science has helped mankind develop the ideas, thinking, creative, critical thinking, skills of research, problem solving systematically with a variety of information. (Ministry of Education, 2008, Online)

At present, scientific and technological progress is widespread and rapid. It is also a tool to raise the standard of living of the people. Knowledge of science also enhances economic development and competition in the world. One of the important elements is the education that prepares people for society, science and technology, both for the producer and the consumer. It is reliable (Ministry of Education, 2008, p. 92). The future development of the country depends on knowledgeable people. Scientific and technological capabilities must be considered that cultivate interest in science is the most important.

Basic science learning learn to understand, appreciate and see the importance of nature and environment. The study of Thai children is worrisome. The average knowledge of Thai children is weakened, especially in the education of science. The quality of the output is not required by the labor market and the global community. According to the World Economic Forum (WEF) data, a total of 144 countries have indicated the quality of basic education in Thailand. leading to the 31st rank in the world and third in ASEAN, behind Singapore.

In terms of quality of basic education in Thailand, 2014 was 7th ranked in ASEAN (6th ranked in 2013) and the quality of the higher education system 8th ranked, although mathematical capabilities - science is quite good at 5th ranked. When analyzing that, Thailand is the third richest country in ASEAN (GDP per capita). But poorer countries can better manage their education.

The reason and support mentioned above. It's time for Thai children to improve their skills and develop their learning process, to step up to be the leading alternative to the labor market in the future. Assessments have raised the standard of quality of education. The learning process will necessarily involve the involvement of both public and private sectors in the skills needed to develop. Thai children, by way of arrangement, learning and teaching, the environment, attitude change, skills and processes will be change and develop of full potential learning that is essential to the learning process of students who are the future of the nation in preparation for recognition in the regional and global labor market.

Objectives

1) to study factors that affects the development of science study in basic education of Secondary Educational Office Bangkok.
2) to study the roles of administrators in supporting science study in basic education of Secondary Educational Office Bangkok.

Methodology

The population used in this study was the school directors and head of science departments or science teacher of secondary educational office Bangkok. The sample size of this study were 400 for questionnaires and 15 person for interview. The instruments used in this research were 1) questionnaire consisting of 4 topics, namely, the teaching and learning management of science teachers. The questionnaire is divided into 3 episodes, part 1: on the general status of the respondents, part 2: discusses the factors influencing science teaching, it is a 5-level rating scale 80 items, part 3: attitudes towards the learning process in science education in basic education, under the Office of the Secondary Education Service Area Bangkok. 2) interview form about the roles of administrators in supporting science study.

Data collection, for the convenience of collecting data, 410 questionnaires were sent to sampling and the 400 questionnaires were returned, accounting for 97.56%. Statistic tools used in analysis are frequency, percentage, mean, standard deviation, Pearson's Product Correlation Coefficient, Content Analysis, And Confirmation Analysis. Confirmation factor analysis by using LISREL program.

Research results

The current status of science teaching practice management was found to be in accordance with the four science-based teaching principles consists of course management factor, student factor, education institute factor and scientific skills factor. In each factor, there were 2 sub factors in each, course management factor consist of science learning management, learning activity arrangement, and measurement and assessment criteria. Student factor consist of learner competency, science attitude and skill from science learning. Education institute factor consist of role of school principle, learning center and curriculum. Scientific skills factor consist of skill of problem solving, synthesis analysis skill and knowledge skills applied consecutively.

The state of teaching science in basic education in secondary education, Bangkok The results are shown in the following table.

Table 1: Mean and standard deviation of factors affecting the development of teaching skills in science. In the management of basic secondary education. In the whole of Bangkok.

Factors affecting skill development. Instructional Science	$\bar{x}$	S.D.	Meaning
Course management factor	4.11	.481	high
Student factor	4.01	.565	high
Education institute factor	4.13	.496	high
Scientific skills factor	4.23	.361	high
Total	4.12	.424	high

From the table 1, it was found that the factors affecting the development of teaching skills in science in the management of basic secondary education in Bangkok, the overall was high ($\bar{x}$=4.12,S.D.=.424).Scientific skills factor was at the high level ($\bar{x}$=4.23,S.D.=.361). Education institute factor was at the high level

($\bar{x}$=4.13,S.D.=.496). Course management factor was at the high level($\bar{x}$ = 4.11, S.D. = .481) and student factors was at the high level   ($\bar{x}$ = 4.01, S.D. = .565) respectively.

Table 2 : Results of the relationship analysis of factors affecting the development of teaching skills in science, in the management of basic secondary education, in Bangkok.

Factors affecting skill development. Instructional Science	Course management factor	Student factor	Education institute factor	Scientific skills factor
Course management factor	1.000	.809	.814	.646
Student factor		1.000	.721	.578
Education institute factor			1.000	.737
Scientific skills factor				1.000

** statistically significant at 0.01.

From the table, it was found that Pearson's product moment correlation coefficient (r) of factors influencing the development of teaching skills in science, in the management of basic secondary education, in the metropolitan area, course management factor have a positive relationship at a high level with the education institute factor, the correlation coefficient is .814. There is a high level of positive relationship with student factors, the correlation coefficient is .809 and the Education institute factor have a positive relationship at a high level with scientific skills factors, the correlation coefficient was .737. Student factor have a positive relationship at a high level with the Education institute factor, the correlation coefficient is .721. Course management factor have a positive relationship at a high level with scientific skills factor, the correlation coefficient is .646 and the student factor have a positive relationship at a high level with scientific skills factor, the correlation coefficient was .578, respectively, at the 0.01 level of significance.
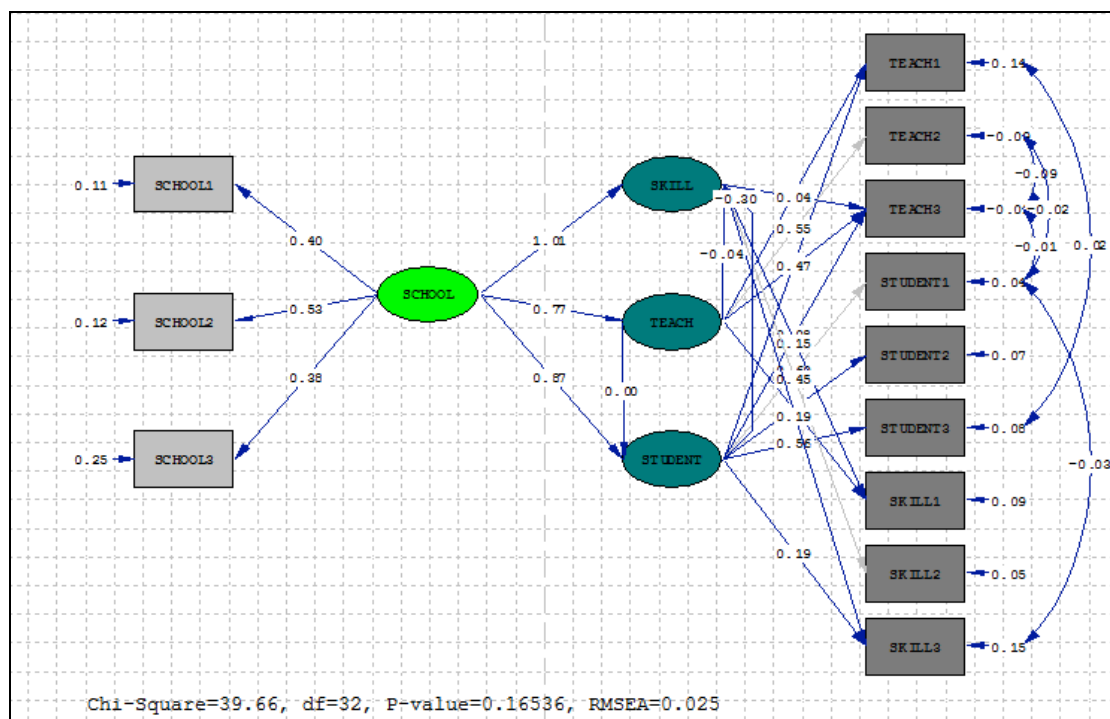

Figure 2 The results of hypothesis analysis.

The causal models of direct correlation coefficients are (1) the education institute factor and the observation variable in three variables, namely, the curriculum (SCHOOL1), the learning center (SCHOOL2) and The role of school principle (SCHOOL3) (2) Scientific skills factor (SKILL) the internal observation variables of the three variables: namely skill of problem solving, synthesis analysis skill and knowledge skills applied consecutively SKILL1, SKILL2 and SKILL3. (3) the course management factor with 3 observation variables, namely, science learning management, learning activity arrangement, and measurement and assessment criteria TEACH1, TEACH2, TEACH3.

From the picture, the causal models of direct correlation coefficients are (1) SCHOOL1, SCHOOL2 and SCHOOL3. (2) SKILL and TEACH3 direct to SKILL1, SKILL2 SKILL3 (3) TEACH direct to TEACH1, TEACH2, TEACH3 and TEACH3 are also directly related to SKILL1 and (4) STUDENT factors direct to STUDENT1, STUDENT2 and SKILL. In addition, there is a direct correlation between TEACH1 and TEACH3 and have a direct correlation with SKILL3.

Role of administrators in supporting science study in basic education of Secondary Educational Office Bangkok for the development of science learning skills in basic education management at the secondary level in Bangkok are as follows.

1) Learning management can increase students' ability to learn science effectively organized by the focus on activities and design learning. Related to the skill of learning science. Problem solving skills (1) to focus on the practical experience of learning by doing and self-learning; (2) to undertake the inquiry-based learning (3) collaborative learning for greater knowledge sharing. (4) Project-based learning. (5) Problem-based learning (PBL). (6) Brain-based learning. (7) Learning management and (8) educational management focusing on the integration of science, technology, engineering And mathematics (STEM), focusing on the use of knowledge to solve real life problems.

2) Develop students' competencies along with teaching and learning science were related to measurement and evaluation.

3) Teaching and learning management focuses on the application of knowledge give students a scientific attitude and the skills of learning science can be used in daily life. Guidelines for the management of science teaching students are effective. This is because of different learners. (1) Teachers focus on the importance of the learner or individually. (2) Focus on the students to get the most out of the practical experience. (3) Group the students to practice together. They are divided into different groups for students with different aptitudes. (4) Flexible learning management. (5) Provide a variety of modern issues related to the daily life of the students. (6) Focus on practical examination rather than theoretical. (7) Use modern teaching materials. (8) Ask questions and engage students in teaching and learning activities. (9) Reduce learning time, learn time in activities that are appropriate for students.

Guidelines for developing science skills. (1) To encourage the production of teaching and learning materials that are more modern and diverse. (2) Promote the development and examination of scientific experimentation equipment and (3) develop research resources access to the media or teaching resources is easy.

Conclusion and Discussions

1) Factors that influence the development of science study were the education institute, scientific skills, course management, and student factors. 2) Role of administrators in supporting science study are 2.1 manage course to efficiently improve scientific learning skills by focusing on learning activities and teaching innovation in accordance to scientific learning skills, problem solving skills, and analytical skills of students. 2.2 develop students' competencies along with science course management in relevance to measurement and evaluation. 2.3 design course by focusing on knowledge application skills so that students have scientific attitude and scientific learning skills to apply in daily life and 2.4 to give importance and encourage science study course continuously.

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