

DOCTORAL THESIS ABSTRACT

A. Introduction

Name of Doctoral Candidate: **Nguyen Trung Kien**

Name of Thesis: **Management of STEM Education Activities for primary school students in Hung Yen Province under a participatory approach.**

Specialization: **Education Management**

Code: **9 14 01 14**

Postgraduate Training Institute: **National Academy of Education Management.**

B. Content

1. Research Purposes

Based on the development and systematization of the theoretical foundations of STEM education activities and the management of STEM education activities for primary school students under a participatory approach, together with an investigation, analysis, and assessment of the current status of STEM education activities and their management in primary schools in Hung Yen Province, the thesis aims to identify the achievements, limitations, causes, and factors affecting the management process. On this basis, the thesis proposes a scientifically grounded system of management solutions appropriate to the characteristics of primary education and the local context, with a view to strengthening the participation, coordination, and responsibilities of stakeholders within and outside schools; improving management effectiveness and the quality of STEM education activities for students; contributing to the development of learners' qualities and competencies; and meeting the current requirements of general education reform.

2. Research Subject matter

The management of STEM education activities for students in primary schools in Hung Yen Province under a participatory approach.

3. Research Methods

To achieve the research purpose and accomplish the research tasks, the thesis employs a combination of theoretical research methods, empirical research methods, and mathematical statistical methods. These methods are used in a complementary and mutually validating manner, consistent with the characteristics of educational management research and ensuring the objectivity and comprehensiveness of the research findings.

The group of theoretical research methods is used to collect, analyze, synthesize, systematize, and generalize scientific literature, legal and policy documents, and domestic and international studies related to STEM education, STEM education activities in primary schools, the management of STEM education activities, and the participatory approach. The results of the theoretical analysis provide the basis for establishing a system of key concepts, developing the theoretical framework, identifying management contents, and determining the factors affecting the management of STEM education activities for primary school students under a participatory approach.

The group of empirical research methods includes questionnaire surveys, interviews, observations, experience review, and the expert method. Questionnaire surveys are used to collect data on the current status of STEM education activities, the management of STEM education activities, and influencing factors in primary schools in Hung Yen Province. Interviews and observations are employed to supplement, clarify, and cross-check the quantitative findings; experience review contributes to identifying appropriate practices in management. The expert method is used to obtain opinions on theoretical and practical issues as well as on the system of management solutions proposed in the thesis.

The thesis also employs solution appraisal and experimental methods to evaluate the scientific soundness and practical applicability of the proposed solutions. The appraisal is conducted to determine the necessity, feasibility, and expected effectiveness of the system of solutions, while one selected solution is experimentally tested to verify its practical effects, thereby strengthening the empirical basis for the thesis proposals.

Mathematical statistical methods are used to code, process, and analyze the collected data; calculate descriptive statistical parameters; test the reliability of the measurement scales; and analyze relevant relationships among the research variables. The data analysis results provide the basis for formulating judgments, drawing conclusions, and proposing solutions, thereby contributing to the reliability and persuasiveness of the research findings.

4. Main findings of the thesis

4.1. *The theoretical values*

The thesis develops a theoretical framework for managing STEM education activities for primary school students under a participatory approach, based on an analysis of the contexts, functions and responsibilities, operational contents of public primary schools, and the reform requirements of the primary-level general education curriculum.

The thesis identifies and clarifies the system of management contents for STEM education activities under a participatory approach as undertaken by primary school principals in the context of educational reform. On this basis, the study provides scientific arguments for the development and improvement of programs, contents, and professional development materials aimed at enhancing the competencies of primary school principals in managing STEM education activities in Vietnam.

4.2. *The practical values*

Based on the survey and assessment of the current status of managing STEM education activities in primary schools in Hung Yen Province under a participatory approach, the thesis identifies the strengths, limitations, opportunities, challenges, and causes of the existing limitations. The system of solutions proposed in the thesis for managing STEM education activities in primary schools in Hung Yen Province under a participatory approach has practical reference value.

These solutions can be applied in the direction and management practices of education-sector leaders, educational managers, and principals of primary education institutions, thereby contributing to improving the effectiveness of STEM education management in the current context of educational reform.

The thesis may also serve as a reference for teacher educators at higher education institutions, as well as for teachers and educational managers in general education schools in general and primary schools in particular, supporting their adaptation and application of the research findings to school practice.

5. Conclusion

The thesis has fully achieved its research purpose and completed the proposed research tasks, contributing to a systematic resolution of issues related to the management of STEM education activities for students in primary schools in Hung Yen Province under a participatory approach. The research findings confirm that applying a participatory approach to the management of STEM education activities is consistent with the characteristics of primary education and the requirements of general education reform, because the effectiveness of these activities depends not only on schools' management capacity but also on the level of participation, responsibility, and coordination among stakeholders within and outside schools.

The thesis systematizes and further develops the theoretical foundations of managing STEM education activities under a participatory approach; clarifies key concepts, the contents of STEM education activities, participating stakeholders, and the "lead-coordinate" mechanism; develops a seven-step process for organizing STEM education activities; and applies the PDCA cycle to management. Accordingly, the thesis establishes a theoretical framework for identifying, analyzing, and organizing the management of STEM education activities in primary schools through a multi-stakeholder approach characterized by coordination and continuous improvement.

The survey findings from primary schools in Hung Yen Province provide a relatively comprehensive picture of the current status of STEM education activities and their management under a participatory approach, identifying achievements, limitations, and influencing factors. On this basis, the thesis proposes five closely interrelated management solutions aimed at improving the management mechanism, enhancing the competencies of educational managers, strengthening coordination among schools, families, and the wider community, developing creative STEM education spaces, and organizing evaluation through multi-stakeholder coordination. The results of solution appraisal and experimentation provide initial evidence of the feasibility and practical applicability of the proposed solutions.

Overall, the thesis findings have both scientific and practical significance. They contribute to enriching the theoretical foundations of managing STEM education activities at the primary school level under a participatory approach, while also providing scientific arguments and solutions applicable to management practice in Hung Yen Province. The research findings may also be consulted, appropriately

adapted, and applied in localities with similar conditions, thereby contributing to improving the quality of STEM education and meeting the current requirements of general education reform.

Supervisors

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