Principals’ and Teachers’ Use of Evaluation Results for Student Learning in Science

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Abstract

This study aimed to promote the use of evaluation results by principals and teachers to support and engage students in learning science. Using the concepts of collaborative working and needs assessment, the study specifically designed a three-phase, firstly to complete needs assessment then to imply the programs and to focus on the conclusion and reflection in the third phase. Both quantitative and qualitative data were collected and analyzed using the mixed methods research framework. The results revealed that teachers and administrators partly use the evaluation results as a benchmark to improve the instructional activities.

Keywords: use of evaluation results, student learning in science, collaborative working, need assessment;

1. Introduction

Schools are important institutions for education reform as operators. Operation-level education is important for overall education reform. Therefore, school-level education reform strategies drive education reform into the right direction. In the Middle Years Research and Development (MYRAD) Program and the Innovation and Best Practice Program (IBPP) organized in Australia (Hill & Russell, 1999 cited in Stobart & Stoll, 2005) indicated that one of the six strategies of high school education reform was that education reform strategies should emphasize learning and instruction. Teachers and principals directly affected learners’ educational quality. As education managers, they must promote and develop learners through learning processes so that learning outcomes are consistent with goals and desirable characteristics of learners according to curriculum.

Evaluation results of schools, principals, teachers and learners reflect educational quality. If teachers and principals implement the results to develop learning management, learners’ quality will be improved and changes will be created in policy making and activities in schools.

Implementation of evaluation results must be done in a systematic way. Strategy planning, work strategies and success criteria are important mechanism that helps determine visions of schools when using evaluation results.
Short-term and long-term strategies create opportunities for success with a focus on resource efficiency (QSI International Service, 2002).

One of the strategies of successful evaluation results was that teachers, principals and concerned parties work together all through the process. With collaboration, all parties receive the same benefits. Additionally, Altschuld and Witkin (2000) main elements of needs assessment related to operation planning, which is a way to receive information and a process of personnel participation. Concerned parties accept self-evaluation results and performance because evaluation results come from their information about work. Schools are able to develop knowledge and understanding and attract concerned parties into development process. This research focuses on collaboration and complete needs assessment related to operation planning in order to promote use of evaluation results for learning management and make changes in learning management, which is the goal of educational development and reform.

2. Research Objectives

This study aimed to promote use of evaluation results by principals and teachers to support and engage students in learning sciences.

3. Literature review and conceptual framework

3.1. Use of evaluation results

Definition of use of evaluation results or implementation of evaluation results can be divided into two dimensions: operations and concepts. Kanjanawasee (2011) stated that implementation of evaluation results to operations referred to concrete use, which is a reaction happening right after evaluation results are known. Information from evaluation is a change instrument influencing decisions of principals regarding plans, projects and tasks. Use of evaluation results can be seen from a report of decisions and commands as a result of evaluation. Conceptual use of evaluation results refers to evaluation results of information, enlightenment influencing ideas of principals or concerned parties instead of plans, projects or tasks. Evaluation results can be for conceptual use to collect new ideas and bring about an instrument impact.

3.2. Collaboration

Educational collaboration means collaboration between schools or schools and communities, etc. (Webster’s New Twentieth Century Dictionary, 1983; Encyclopaedia Dictionary of Psychology and Education, 1996; Collins Thesaurus: The Ultimate Wordfinder, 2003; Wikipedia, 2006; Collins COBUILD Advanced Learner’s English Dictionary, 2006). Collaboration can be done at two levels: individual-level and organization-level.

Organization-level collaboration means collaboration between two organizations for the same purpose or for mutual benefits. Collaboration means sharing funds, information, intellectual property and research and development experiences, and working independently under shared rules, norm and organizational structure such as development of the Mekong Basin (Dragoon, 2004; Imperial, 2004).

Individual-level collaboration means collaboration between personnel in the same organization or in different organizations to produce a piece of work that everybody owns. Everybody partakes in planning, decision making, goal setting, responsibility determination, working, clear communication and coordination. Everybody has equal status and opportunities to express their opinions, and creates good and trustful relationships. Importantly, they shares responsibility of their work or in another word, they collaborate from the beginning to the end (Gardner, 2004; Imperial, 2004; Suangsuwan 2005). Additionally, individual-level collaboration can be formal and informal. There is no agenda. Everybody is responsible for their work, creates power and helps each other (Schultheiss, 2005). For efficient collaboration, everybody involved must be willing to improve and see importance of collaboration and trust each other. They also should have a conflict management plan and work as a team (Keskomon 2002).
Wiratchai, Reungtrakun and U-naisin (2008) explained that collaboration meant that all teachers in a faculty had shared missions, goals and benefits. Each teacher is the owner of a piece of work and is of an equal status to discuss, argue and provide information to exchange and share to find the best conclusion. Thus, this research features collaboration because it creates a win-win situation.

3.3. Needs assessment related to operation planning

Altschuld and Witkin (2000 cited in Wongwanich, 2007) presented main components of needs assessment related to operation planning included three activities. The first activity was an understanding of needs assessment. The second activity was collection of data to determine needs. The third activity was selection of strategies used to respond to needs. In order to assess needs, management and personnel related to implementation of strategies must be considered. Since participation of internal personnel is worth their time, they accept evaluation results derived from their own information.

This research determined a conceptual framework implementing evaluation use to manage learning of teachers and principals. With this framework, teachers were able to design and manage evaluation-based learning that was consistent with goals and fulfill learners. Promoting teachers and principals so they have plans, operations, reports and evaluation results is consistent with collaboration and needs assessment. Self-analysis, activities leading to planning and operations leading to operation assessment support and fulfill implementation of evaluation results to learning development. Therefore, in this research an evaluation checklist was developed according to Scriven (2000 cited in Wongwanich, 2007). This checklist is an instrument helping teachers and principals to see strengths and shortcomings of themselves. Information is used to develop assessing ability to manage learning. The checklist includes desirable practices used as a benchmark.

4. Research Methodology

4.1. Participants

The participants in this study were K-12 principals and teachers in Tesaban 3 Wat Chantrawat Community School, Phetchaburi province of Thailand

4.2. Data collection instruments

Instruments used to collect data included: 1) integrative learning management checklist; 2) Prathum-6 ONET preparation checklist; and 3) focus group discussion. Details are as follows.

4.2.1. Integrative learning management checklist

An evaluation checklist according to Scriven (2000) helps teachers and principals see strengths and shortcomings of themselves. Information is used to develop assessing ability to manage learning. The checklist includes desirable practices used as a benchmark. Section 1 of the checklist is primary information of respondents with four questions. Section 2 is use of evaluation results to manage learning. Section 3 is obstacles and recommendations for self-evaluation and school evaluation. This checklist passes the content validity test by experts and its reliability is 0.88.

4.2.2. The diagnostic test of sciences in preparation for Prathum-6 ONET test

This diagnostic test has 40 multiple choice questions. This checklist was used before the research was begun. There were two dimensions in the research. The first dimension was an instrument used to consider knowledge and ability of learners in order to determine goals of developing learners of teachers. The second dimension was an instrument reflecting behavior of using evaluation results to manage learning process of teachers and analyze and evaluate themselves and things that should be improved of learners. Diagnosis results of the checklist were as follows.
4.2.3. **Focus group discussion**

There were many focus group discussions before, during and at the end of research processes. Discussion before research processes was done with teachers, principals and scholars from local university. Discussion during research processes was done continuously to achieve collaboration, learning and operations of teachers. Discussion at the end of the research was about collaboration to analyze change in behavior and ability to evaluate learning benefits.

4.3. **Research processes**

This research was an R&D with three main processes. The first process was a complete needs assessment. The second process was implementation of the project. The third process was conclusion and review. Details are as follows.

Step 1 Complete needs assessment included three activities. The first activity was need identification to see importance of evaluation results and manage learning of schools. The second activity was need analysis. The third activity was need solution. The three activities used a checklist to evaluate results together with group discussion.

Step 2 Implementation of the project determined normal operations of teachers and principals, who planned together to implement the personal development project to develop students’ scientific learning.

Step 3 Conclusion and review – Principals and teachers in pioneer schools discussed and exchanged ideas throughout the research.

4.4. **Data collection**

Quantitative and qualitative data were collected during March-July 2012 to answer research questions regarding teachers’ tasks affecting learning, promoting teachers’ ability to integrate their duties with learners’ learning.

4.5. **Data analysis**

Quantitative data were analyzed using SPSS and basic statistics such as frequency, percentage, mean and standard deviation and PNI modified. Qualitative data were done using content analysis.

5. **Findings**

5.1. **Needs assessment results of learning management result implementation**

An adjusted priority needs index - modified (PNI modified) was used with a formulae suggested by Nonglak Wiratchai and Suwimon Wongwanich. Items with at least .30 PNI or 30% needed development. Analysis results showed that six items were in urgent need of development. The first item was development of evaluation tools and learning result evaluation, followed by planning to evaluate schools, exchange of evaluation results among teachers, individual learners’ analysis, organization of an information system of school evaluation results and utilization of technology to evaluate learning with PNI’s of 0.53, 0.47, 0.39, 0.38, 0.35 and 0.31, respectively.

5.2. **Use of evaluation results for learning management of teachers and principals**

Teachers and principals used evaluation results to manage learning at a medium level. Principals used evaluation results as a guideline to determine the learner development policy for the next year. This guideline appeared in the annual operations plan. Teachers used ONET results to improve their teaching, followed by use evaluation results they gave to students. Implementation of evaluation results to learning management was still at a medium level. Teachers opined that they should use more evaluation results to plan their teaching processes. Information that teacher received regarding evaluation was a report on educational management of schools. Other kinds of
information were not recorded in the database but evaluation results from different sources was sent to teachers on a regular basis.

5.3. Main reason for a lack of evaluation results

The main reasons why teachers lacked evaluation results were a lack of participation in the project, boredom of being evaluated by schools and workload of teachers. These reasons applied to both teachers and principals. It was clearly shown that teachers were not involved in planning of school development using evaluation results. They were informed of the plan in a meeting when it was finished.

5.4. Results of promotion of evaluation result use to manage learning

Results of promotion of evaluation result use employing needs for cause analysis as the best strategy are as follows. (1) Principals and schools increased quality and channels of distributing information to involved parties. (2) Teachers and principals made evaluation results as part of designing and executing learning processes. (3) Activities were organized to reflect implementation of information to development of learning and learners.

6. Conclusion and Discussion

The results revealed that teachers and administrators partly use the evaluation results as a benchmark to improve the instructional activities. However, the participants later learned that the evaluation result could be used to better analyze weaknesses and strengths of and also provides the information that can be used to help teachers and administrators improve and develop the design of learning management and implement the development of learning management in a way that is closely aligned with the evaluation result of student quality. Discussion of the analysis is as follows.

Individual reflections of teachers on the workshop and what was learnt provide a means of developing understanding about factors influencing evaluation use. We explicitly sought to develop a process that addressed factors influencing engagement and individuals’ development project to develop students’ scientific learning. Participants’ comments in this research activity emphasize these points, especially the individuals’ development project. Comments are presented as they relate to factors influencing evaluation use; that is, the context of information provision, engagement and interaction and individual decision-making context. The second viewpoint for discussing the determinants of the use of evaluation concerns the actors’ strategies, actions and reactions in relation to evaluation activities. Preskill, Zuckerman, and Matthews (2003) conducted an exploratory study of process use. The study identified several factors that appear to affect process use: (a) facilitation of evaluation processes; (b) management support; (c) advisory group characteristics; (d) frequency, methods, and quality of communications; and (e) organization characteristics. The “actual use” of evaluation according to Patton (1997) is the best way to understand the value of activities and the efforts dedicated to it. In this research this principle is applied to develop students’ scientific learning. Evaluation use activity in participants’ school classifying them into these categories (generating knowledge, accountability and improvement) according to evaluation uses.

7. Recommendations

(1) Principals should encourage mutual learning among teachers to create a good learning atmosphere in schools and implement learning development activities to classrooms.

(2) Teachers/committees in schools should be appointed to replace scholars who stimulated implementation of strategies and help other fellow teachers learn and develop themselves. Evaluation results of different dimensions could be used to guarantee teaching quality and school quality in a continuous and sustainable manner.

(3) Collaboration between principals and teachers was still based on a command chain. Teachers and principals did not have equal roles of implementation of evaluation results to develop learners. However, a win-win situation was featured in this collaboration between the two parties.
(4) Future research should study teachers and schools on a case-by-case basis to identify strategies of implementation of evaluation results to learning processes. Learning results of learners should be monitored how learning changed.

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References

Altschuld, J. W., & Witkin, B. R. (2000). *From needs assessment to action*. Thousand Oaks, CA: Sage Publication.

Dragoon, A. (2004). Collaboration. *The CIO Service Center*, 15, 12-14.

Gardner, D. B. (2004). *Ten lessons in collaboration*. Retrieved from http://www.medscape.com/viewarticle/499266_print

Imperial, M. T. (2004). *Collaboration and performance management in network settings: lessons from three watershed Governance efforts*. Retrieved from http://www.businessgovernment.org/pdfs/Imperial_Report.pdf

Kanjawanawsee, S. (2011). Evaluation Theory. Bangkok: Chulalongkorn University.

Keskomon, T. (2002). A research and development of the evaluation system of student nurses’ learning based on the collaborative evaluation approach (Unpublished doctoral dissertation). Chulalongkorn University, Bangkok, Thailand.

Patton, M. (1997). *Utilization-focused evaluation*. Thousand Oaks: Sage.

Preskill, H., Zuckerman, B., & Matthews, B. (2003). An exploratory study of process use: Findings and implications for future research. *American Journal of Evaluation*, 24, 423-442.

Schultheiss, D. E. (2005). *University-urban school collaboration in school counselling*. Retrieved from: http://findarticles.com/p/articles/mi_m0KOC/is_4_8/ai_n13698353/pg_11

Scriven, M. (2002). *Key Evaluation Checklist*. Retrieved from: http://www.wmich.edu/evactr/checklist/

Stobart, G., & Stoll, L. (2005). The Key Stage 3 Strategy: What Kind of Reform is this? *Cambridge Journal of Education*, 35, 225-238.

Suangsuan, J. (2005). A development of the indicators, and the cause and effect model of collaboration of primary school teacher in Phra Nakhon Si Ayutthaya province (Unpublished doctoral dissertation). Chulalongkorn University, Bangkok, Thailand.

*Webster’s new twentieth century dictionary*. (1983).

Wikipedia, (2006). *Collaboration*. Retrieved from http://www.answer.com/topic/collaboration-1

Wiratchai, N., Reungtrakun, A., & U-naisin, W. (2008). *Collaboration working Process*. Bangkok: Icon printing.

Wongwanich, S. (2007). Needs assessment research. Bangkok: Chulalongkorn University.