Application of the Critical Friends Concept for Evaluation Capacity Building in Test Construction of Elementary School Teachers

Pinda Varasunun[*], **Siridej Sujiva and Suwimon Wongwanich**

ABSTRACT

The purposes of the research were: 1) to create a learning community of teachers for test construction using the critical friends concept, 2) to study teachers' test construction capacity, and 3) to study the results of using the critical friends concept and features for creating a learning community. A sample of 18 science teachers participated in this project, and websites were used as the channel to create the learning community. Applying the critical friends concept, a network of teachers participated in test construction. The results showed that the teachers had constructed the tests via websites, by sharing their knowledge regarding test construction while employing the critical friends concept. In addition, the same method was used by teachers within their schools to improve the quality of tests. After the project, teachers had more knowledge, better skills, and more positive attitudes towards test construction. Most critiques of teachers concerned the cognitive domain learning level but most critiques of experts were academic suggestions aimed at improving the test. Teachers used the critical friends concept to develop their teaching skills, improve test creation and teaching methods, and create a learning community. Factors contributing to the creation of the learning community were teachers' determination to develop their skill and teachers' colleagues, supervisors/heads of learning groups and schools that supported teachers in sharing knowledge with other teachers.

Keywords: critical friends, evaluation capacity building, test construction

บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อ 1) สร้างชุมชนแห่งการเรียนรู้ด้านการสร้างข้อสอบของครูโดยใช้แนวคิดมิตรวิพากษ์ 2) ศึกษาความสามารถในการสร้างข้อสอบของครู และ 3) ศึกษาผลการใช้แนวคิดมิตรวิพากษ์และปัจจัยที่เกี่ยวข้องกับการสร้างชุมชนแห่งการเรียนรู้ กลุ่มที่ศึกษาคือ ครูวิทยาศาสตร์ระดับชั้นประถมศึกษาที่สมัครใจเข้าร่วมโครงการ จำนวน 18 คน โดยใช้เว็บไซต์เป็นช่องทางในการสร้างชุมชนแห่งการเรียนรู้ให้ครูร่วมกันออกข้อสอบและวิพากษ์ข้อสอบด้วยแนวคิดมิตรวิพากษ์ ผลการวิจัยสรุปว่าครูมีการสร้างข้อสอบและร่วมวิพากษ์ข้อสอบด้วยแนวคิดมิตรวิพากษ์ผ่านเว็บไซต์ ตลอดจนการแบ่งปันความรู้และร่วมวิพากษ์ข้อสอบตามแนวคิดมิตรวิพากษ์กับเพื่อนครูในโรงเรียนเดียวกันเพื่อพัฒนาคุณภาพข้อสอบ โดยหลังเข้าร่วมโครงการครูมีความรู้ ทักษะและทัศนคติต่อการสร้างข้อสอบสูงขึ้น

Department of Educational Research and Psychology, Faculty of Education, Chulalongkorn University, Bangkok 10330, Thailand.
* Corresponding author, e-mail: doypinda@hotmail.com

ทั้งนี้คำวิพากษ์ของกลุ่มครูส่วนใหญ่เป็นความคิดเห็น
เกี่ยวกับระดับการเรียนรู้ด้านพุทธิพิสัยแต่คำวิพากษ์
ของกลุ่มผู้เชี่ยวชาญส่วนใหญ่เป็นข้อเสนอแนะในเชิง
วิชาการเพื่อพัฒนาข้อสอบให้ดีขึ้น ครูนำแนวคิดมิตร
วิพากษ์ไปใช้ในการมองสะท้อนตนเอง พัฒนา
ข้อสอบให้มีคุณภาพมากขึ้น นำมาประยุกต์ใช้ในการ
เรียนการสอนและพัฒนาชุมชนแห่งการเรียนรู้ ปัจจัย
ที่ช่วยส่งเสริมการสร้างชุมชนแหล่งการเรียนรู้ครั้งนี้
คือ ปัจจัยระดับผู้สอนที่มีความสนใจและต้องการ
พัฒนาตนเอง ปัจจัยระดับเพื่อนร่วมงาน ปัจจัยระดับ
หัวหน้างาน/หัวหน้ากลุ่มสาระและปัจจัยระดับ
โรงเรียนที่มีนโยบายส่งเสริมสนับสนุนให้ครูขยายผล
องค์ความรู้กับครูท่านอื่นในโรงเรียน

คำสำคัญ: มิตรวิพากษ์ การพัฒนาศักยภาพทางการ
ประเมิน การสร้างข้อสอบ

INTRODUCTION

Teachers should continuously strive to improve their teaching skills. The National Education Act AD (2008) included the goal of continual development of the skills of teachers, professors, and education-related personnel. Section 4 of Article 26 of the Education Guidelines, requires that schools evaluate learners based on their development, behavior, learning results, activity participation, test results, and education level. A synthesis of documents and research on the problems regarding measurement and evaluation in Thailand using the Thailis database from 1990 to the present show that critical issues include insufficient measurement and evaluation skills of teachers and also a focus on test memorization (Chongrak, 2000), and negative attitudes towards the measurement and evaluation of teachers (Chaitahan, 1995).

Test construction is essential for the development of teaching skills. Research regarding foreign countries identified the use of the critical friends concept to develop teachers, transforming schools into learning organizations and evaluating

feedback for better pedagogical practices (Swaffield, 2005, 2007, 2008; Dahlgren et al., 2006; Gibbs, 2008; Foulger, 2009; Baskerville & Goldblatt, 2009; Vo & Nguyen, 2010). According to Gardner (2008), the critical friends concept is a way to continuously develop a learning community and expand professional opportunities by allowing community members to interact with each other despite being separated by distance. Additionally, the concept offers alternative perspectives (Foulger, 2009) that encourage sharing of experience, reduce pressure and isolation, and create good relations at work (Vo & Nguyen, 2010).

It can be concluded that teachers lack sufficient measurement, evaluation, and test construction skills and that most tests were designed to evaluate knowledge levels (as opposed to comprehension and analytical skills). Thus, the study aimed to use the critical friends concept to improve the skills of teachers.

Research objectives

1. To create a learning community of teachers for test construction using the critical friends concept.

2. To study teachers' test construction capacity including knowledge in test construction, skill in test construction, and attitude towards test construction.

3. To study the results of using the critical friends concept and features to create a learning community.

Research scope

In this test critiquing process, a website was developed as a communication channel for teachers in accordance with the concept of Wenger et al. (2002, cited in Gunawardena and Richmond, 2009) who stated that the construction of a social network that constitutes a community of practice should consist of community, practice, and domain. In the current research, these three areas were: 1) community: 18 science teachers from 11

elementary schools, 2) practice: the critical friends concept, and 3) domain: evaluation of capacity building in test construction.

Research limitations

The study group was composed of 18 science teachers from 11 elementary schools who were interested in joining the program. Since Foulger (2009) commented that researchers had to receive consent from participants and Franzak (2002) stated that a critical friends group should consist of 10–12 teachers, the research was limited in that the research findings could not be inferred back to the population.

RELEVANT CONCEPTS AND THEORIES

The relevant concepts and theories in this research consisted of 1) the learning community, 2) evaluation of capacity building (ECB), and 3) the critical friends concept.

Learning community

The learning community is defined as a group of people sharing information and learning who participate in a project they are interested in (Baghdadi, 2011). People in the group trust and value each other (Hargreaves, 2007 cited in Cranston, 2011). Importantly, they must actively participate in the community (Baghdadi, 2011). In addition, Baghdadi (2011) stated that evaluation methods of a learning community depended on learning objectives, which could be both quantitative and qualitative. For this research, a 'learning community for test construction' means teachers constructing and critiquing tests using the critical friends concept via a website and sharing their knowledge with other teachers.

Evaluation capacity building

Evaluation capacity building forms the basis of the evaluation capacity development (ECD) concept (Boyle & Lemaire, 1999). The highest expectation of evaluation capacity development is sustainability and the utility of the evaluation system. This belief led to evaluation capacity building (ECB). Preskill and Boyle (2008) stated that the objectives of ECB were to let individuals/groups of people or organizations evaluate and pose questions, collect and analyze data, and interpret the results of analysis, which were followed in the decision-making process. In addition, Hauge (1998, referred to in Compton, Baizerman, & Stockdill, 2002) opined that ECB could help personnel achieve success in their work and construct an evaluation system that was continuous and sustainable. Evaluation capacity building in this research is a process that allows teachers to exchange their opinions regarding scientific tests via a website and use their knowledge to construct tests and develop work processes.

Critical friends concept

Traditionally, 'criticism' is considered to have a negative connotation. Most people consider it to be not different from judgment (Costa & Kallick, 1993). The critical friends concept states that 'friends' are those who are close and help each other while overlooking each others' shortcomings (Handal, 1999). The critical friends concept is a combination of two concepts—friendship and critique. Critique-related teaching first came into existence during the educational reforms of the 1970s. Costa and Kallick (1993) stated that teachers and students needed somebody whom they could trust and who asked thought-provoking questions. Previous research has explored the application of the critical friends concept to the learning process and school development (Swaffield, 2005, 2008; Dahlgren et al., 2006; Gibbs, 2008; Foulger, 2009; Baskerville & Goldblatt, 2009; Vo & Nguyen, 2010). The objectives of the critical friends concept were competency development and cooperation for goal achievement and personal development (Baskerville

& Goldblatt, 2009). Furthermore, the concept suggests alternative perspectives, prevents biases and self-misunderstanding (Foulger, 2009), reduces pressure and feelings of isolation, and creates good relationships at work (Vo & Nguyen, 2010). The critical friends concept in the current research refers to teachers giving suggestions or presenting alternatives regarding tests that other teachers or the researcher have constructed, to achieve a higher learning level of cognitive domain or to make those tests more appropriate. The tests were evaluated through a website constructed by the researcher and were not judged as being bad/wrong/inapplicable.

The critical friends model included five steps: 1) pre-action: roles were clarified, processes were explained and desired goals were created; 2) action: teachers constructed tests in a blog; 3) teachers critiqued the tests in the blog; 4) experts critiqued the tests in the blog; and 5) teachers selected alternatives to improve tests (adapted from the ALACT model of reflection of Korthagen & Vasalos, 2005).

RESEARCH METHODOLOGY

Research participants

The study involved 18 science teachers from 11 elementary schools in Bangkok, Nonthaburi, Pathum Thani, and Chumphon provinces who volunteered to participate in the project.

Research Process

In the research by Vo and Nguyen (2010), the critical friends process to develop the professionalism of teachers lasted 10 weeks. Therefore, this research was conducted to cover a three-month period (June–August 2011). The process was:

1. Teachers were recruited into the project by snowball sampling and public relations letters via mail/website.

2. Research instruments included training guidelines, a website for knowledge exchange and questionnaires. Details of the research instruments follow.

2.1 Training guidelines. The guidelines were reviewed by five research/education experts in evaluation and instruction.

2.2 Questionnaire. A questionnaire of knowledge on test construction, satisfaction and attitudes towards test construction was constructed and reviewed for validity by six experts. Selected items with an Item Objective Congruence (IOC) index of more than .7 were tested with 30 elementary school science teachers in Nakhon Sawan. The Cronbach's Alpha coefficients of the questionnaire were sorted into five dimensions: 1) test construction = .72; 2) cognitive domain learning level = .63; 3) satisfaction with knowledge of the critical friends concept = .94; 4) satisfaction with practices of test critiques using the critical friends concept = .92; and 5) attitudes towards test construction = .73.

2.3 Website. The researcher studied aspects suitable for an educational website applied from research by Vongdontree (2002). Three experts verified the suitability of the website and tested it with a nonsample group to obtain additional recommendations for convenience and usage.

3. A one-day workshop was organized to educate participants about test construction, the critical friends concept, and test critiques via website. Then, teachers and experts critiqued tests using the critical friends concept via website for about 3 months. Additionally, documents/books and posted links to sample tests from foreign countries were provided via website and e-mail.

Data collection and analysis

Data were gathered from the website, questionnaires mailed to respondents' addresses, phone calls, and interviews. Then, the data were analyzed using content analysis for the qualitative data and descriptive statistics for the quantitative data.

FINDINGS

Creation of a learning community

Teachers accessed knowledge sources by regularly clicking on links to foreign sample tests. Even after the project, they still had access to the sources via website. Teachers and experts produced 164 questions,715 critiques and clicks on sample tests with the latter being as high as 3,194 clicks. To improve the test quality, the teachers shared data, discussed and exchanged knowledge of test construction using the critical friends concept, and participated in test critiques using the critical friends concept together with teachers in the same school. Quantitative data analysis was at a high level (mean = 3.94) and consistent with the qualitative data, as illustrated in the teacher's memo below.

"Let other teachers participating in the project and in the same school critique the test. Critiques were discussed to improve the test. I had more chances to talk to teachers in the same school that participated in the project."

(Teacher C, Memo, 1/09/2011)

Teachers' test construction capacity

It can be concluded that after the project, teachers had more knowledge about test construction, and the percentage of tests that were used purely to measure the knowledge level was lower. On the other hand, the percentage of tests used to measure comprehension and analysis were higher. Teachers also had better attitudes towards test construction after the project.

Critical friends concept and features of learning community creation

The five steps of critical friends concept implementation were:

Step 1 Pre-Action: Understanding was built and roles were clarified in a one-day workshop.

Step 2 Action: Teachers regularly posed questions on the website.

Step 3 Teachers critiqued tests in a blog: There were 274 critiques from teachers.

Step 4 Experts critiqued tests in a blog: There were 341 critiques from experts. It can be concluded that the majority of critiques from experts were academic-related, but the majority of critiques from teachers were about general matters.

Step 5 Teachers selected alternatives to improve tests: After the project, the teachers had greater capacity regarding test construction. They were satisfied with the critical friends concept because it helped them to develop their skills (mean = 4.53). In addition, this concept is suitable for teacher capacity development at a high level (mean = 4.47), which is consistent with the qualitative data analysis as illustrated below.

"The critical friend concept encouraged teachers to critique their fellow teachers and accept critiques from them like friends talking to friends. Teachers got to know their weaknesses and strengths and the things that helped them improve themselves."

(Teacher D, Memo, 1/09/2011)

"The concept made me more open to other people's opinions, see one's shortcomings better and consider one's actions more."

(Teacher C, Memo, 1/09/2011)

The interview results of teachers in schools where a learning community was created were: 1) Teacher-level factor: Teachers were interested in personal development; 2) Colleague-level factor: Teachers exchanged knowledge on a regular basis; 3) Supervisor-level factor: The supervisor/learning group leaders understood the processes and became close advisors to teachers in the learning groups. The supervisor/learning group leaders were also responsible for test construction and became outstanding teachers in the schools; and 4) School-level factor: Teachers were encouraged to share their knowledge with other teachers in schools and emphasize work quality as can be seen in the following interviews.

"Teachers were very enthusiastic about the training. They said they would apply knowledge to their work right away. They were particularly interested in test construction and teaching standard improvement. It is a school policy that any teacher attending a training session has to implement what they learn. The school organizes a meeting for them to share their new knowledge. Private schools value performance. If a teacher's work is presented and he is correct in what he does, he will be recognized and rewarded."

(Teacher D, Interview, 1/10/2011)

"The critical friends concept was popular among teachers. Department heads also asked teachers about their visits to the website."

(Teacher B, Interview, 11/10/2011)

Even though the learning community allowed teachers to exchange their ideas, there were obstacles to its development due to time constraints on the teachers, some of whom were not familiar with the technologies. Moreover, some schools sent only one teacher to the training session meaning that the single teacher could not exchange ideas with other trained teachers in the school. Additionally, teachers thought that advanced test construction required a certain level of time and experience. Some teachers were worried about test critiques as can be seen in the memos below.

"I hardly go online to critique tests because of my workload. Some days I have to bring work home with me."

(Teacher G, Memo, 1/09/2011)

"Advanced test construction takes time and requires much more experience."

(Teacher C, Memo, 1/09/2011)

"I dared not critique other teachers because I was not sure if I was right or wrong."

(Teacher H, Memo, 1/09/2011)

Most teachers were impressed with the project. They found that the project was different from previous ones because it included the critical friends concept and the project was conducted in an ongoing manner. The project also reflected real problems confronted by teachers.

"This project is very good and different from previous ones, which were mostly organized by publishers and were not ongoing projects like this one."

(Teacher B, Memo, 1/09/2011)

"This project is the beginning of primary school evaluation development."

(Teacher J, Memo in E-mail, 20/06/2011)

DISCUSSION AND RECOMMENDATION

Discussion of findings

Knowledge and documents were shared among teachers in accordance with the learning community concept with an emphasis on feeling and value sharing and mutual learning promotion (Baghdadi, 2011; Gardner, 2008). After the project, teachers had greater capacity for test construction and applied this to improve test construction. Preskill and Boyle (2008) stated that the objectives of ECB were to let individuals/groups of people or organizations evaluate and pose questions, collect and analyze data, and interpret the results of the analysis, which were followed in the decision-making process. In addition, the research results showed that three months after the project was completed, teachers still logged on to the website to study foreign sample tests and the sample tests posted by the researchers. This shows that a website can be an effective way to encourage teachers to develop their skills on their own.

Regarding the test critique results of teachers, it was found that the test critiques tended to address general matters. This may have been because teachers were not precise about the content necessary to produce tests having a higher cognitive domain learning level. This supports the findings of Gibbs (2008) and Foulger (2009), who stated that critical friends teachers had to have knowledge and experience regarding the content they critiqued.

Likewise, Foulger (2009) found that the data analysis and planning processes were complicated, so time and resources should be appropriately allocated. However, teachers were satisfied with the critical friends concept at the highest level. They found that the concept encouraged them to develop their skills and that using this concept, they felt more comfortable when critiquing the tests of their fellow teachers. This was consistent with Vo and Nguyen (2010) who found that teachers participating in the project had an opportunity to exchange their experience and they did not feel under pressure and alienated. Further, Dahlgren et al. (2006) found that the person who received positive critiques could feel empowered, which was also backed up by the research findings of Swaffield (2004), Dahlgren et al. (2006), Gardner (2008), and Vo and Nguyen (2010). Nevertheless, some teachers were worried that their critiques might not be correct. This was consistent with the research by Dahlgren et al. (2006) who used the critical friends concept in their medical teaching. They found that this concept was difficult because people had to be careful when critiquing to maintain a good relationship with friends.

Recommendations

Based on the findings, the following recommendations are proposed:

1. Supervisors/learning group heads should join the workshop to help address the problems of teachers and create learning communities in schools.

2. An evaluation capacity building process should be conducted over more than one semester in order to obtain more concrete results regarding teachers' evaluation capacity building.

3. To enhance the sustainability, future research should provide alternative and ongoing activities for teachers to maintain teacher enthusiasm for online activities after the project is finished.

4. The learning community in this study was limited to a learning group of science teachers at the elementary school level. Considering the variety of subjects that elementary school teachers have to teach, future studies of a learning community in other subjects would be beneficial to teachers.

ACKNOWLEDGEMENTS

REFERENCES

Baghdadi, Z. D. (2011). Learning community in online education. *Turkish Online Journal of Distance Education-TOJDE, 12*(4), 12–16.

Baskerville, D., & Goldblatt, H. (2009). Learning to be a critical friend: From professional indifference through challenge unguarded conversations. *Cambridge Journal of Education, 39*(2), 205–221.

Boyle, R. & Lemaire, D. (1999). *Building effective evaluation capacity*. Retrieved from http://www.google.com/books?hl=th&lr=lang_en&id=822G7119hhoC&oi=fnd&pg=PA1&dq=evaluation+capacity+building&ots=KAmC01k59A&sig=ox9e99YgAKKL_imjFuRwdY2gbuw

Chaitahan, T. (1995). *Problems of measurement and evaluation in health education subject in secondary schools under the jurisdiction of the Department of General Education, Educational Region Six* (Unpublished master's thesis). Chulalongkorn University, Bangkok. [in Thai]

Chongrak, T. (2000). *Measurement and evaluation process in primary school: A case study of schools under the Educational Reform Project, the Office of Provincial, Primary Education, Nongkhai Province* (Unpublished master's thesis). Khon Kaen University, Khon Kaen. [in Thai]

Compton, D. W., Baizerman, M., & Stockdill, S. H. (2002). *The art, craft, and science of evaluation capacity building*. San Francisco: Jossey-Bass.

Costa, A. L., & Kallick, B. (1993). Through the lens of a critical friend. *Educational Leadership, 51*(2), 49–51.

Cranston, J. (2011). Relational trust: The glue that binds a professional learning community. *Alberta Journal of Educational Research, 57*(1), 59–72.

Dahlgren, L. O., Eriksson, B. E., Gyllenhammra, H., Korkeila, M., Rothoff, A. S., Wernerson, A., & Seeberger, A. (2006). To be and to have a critical friend in medical teaching. *Medical Education, 40*, 72–78.

Foulger, T. S. (2009). An unexpected discovery about the critical friend in action research inquiries. *Action Research, 1*(1), 1–18.

Franzak, J. K. (2002). Developing a teacher identity: The impact of critical friends practice on the student teacher. *English Education, 34*(4), 58–70.

Gardner, M. (2008). *Building the SCDN learning community: Using the critical friends model to explore RTI – An approach to meet the needs of all students*. Retrieved from http://scdn.wsboces .org/documents/BuildingtheSCDNLearning Community UsingCriticalFriendsRelatedto RTIrevised2.ppt#256,1,Building the SCDN Learning Community: Using the Critical Friends Model to Explore RTI – An Approach to Meet the Needs of All Students

Gibbs, P. (2008). Understanding friendship between critical friends. *Improving Schools, 11*(3), 213–225.

Gunawardena, C. N., & Richmond, M. B. H. C. (2009). A theoretical framework for building online communities of practice with social networking tools. *Educational Media International, 46*(1), 3–16.

Handal, G. (1999). Consultation using critical friends. *New Directions for Teaching and Learning, 79*(1), 59–70.

Korthagen, F., & Vasalos, A. (2005). Levels in reflection: Core reflection as a means to enhance professional growth. *Teachers and Teaching: Theory and Practice, 11*(1), 47–71.

Preskill, H., & Boyle, S. (2008). A multidisciplinary model of evaluation capacity building. *American Journal of Evaluation, 29*, 443–459.

Swaffield, S. (2004). Critical friends: Supporting leadership, improving learning. *Improving Schools, 7*(3), 267–278.

Swaffield, S. (2005). No sleeping partners: Relationships between headteachers and critical friends. *School Leadership and Management, 25*(1), 43–57.

Swaffield, S. (2007). Light touch critical friendship. *Improving Schools, 10*(3), 205–219.

Swaffield, S. (2008). Critical friendship, dialogue and learning, in the context of leadership for learning. *School Leadership and Management, 28*(4), 323–336.

Vo, L. T., & Nguyen, H. T. M. (2010). Critical friends group for EFL teacher professional development. *ELT Journal, 64*(2), 205–213.

Vongdontree, P. (2002). *A presentation of appropriate content components in education network websites* (Unpublished master's thesis). Chulalongkorn University, Bangkok. [in Thai]