

Pedagogical Content Knowledge in Higher Education in Indonesia

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ABSTRACT

Classroom teaching in a higher education setting in Indonesia requires not only pedagogical or content knowledge, but the combination of both. Using Shulman's knowledge bases of learning (1986), this paper investigates the importance of pedagogical content knowledge based on teacher cognition and reflected on teaching practice. In a pilot study conducted in a Strategic Marketing in Education Business class in a private university in Surabaya, classroom observation and interviews were conducted to find out the techniques used to create effective learning environment. The finding suggests that questioning becomes an instrumental tool in increasing students' participation and achievement. The aspects of questioning will be discussed extensively as part of teachers' personal practical knowledge. This initial study will serve as a foundation for a larger scale research to look at the transition from personal practical knowledge to pedagogical content knowledge.

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Teacher development is a rich, growing area of investigation and for years, the secrets to become a great teacher have been discussed and argued. Understanding subject matter (content) is essential but it does not make one a great teacher. Possessing pedagogical skills only is also not sufficient. Based on this premise, we would like discuss Shulman's (1986) multifaceted model that includes content knowledge (CK), pedagogical knowledge (PK), and pedagogical content knowledge (PCK). Content knowledge is the “what” to teach while pedagogical knowledge is the “how” to teach, usually acquired through education coursework and experiences (Ball, 2000). Pedagogical content knowledge; thus, is “special amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding” (Shulman, 1986). It is a sophisticated hybrid or an integration of pedagogical and content knowledge (Freeman, 2002). We would like to discuss how personal practical knowledge influences pedagogical content knowledge.

The Nature of Pedagogical Content Knowledge

In addition to teachers' content knowledge and their general knowledge of instructional methods (pedagogical knowledge), pedagogical content knowledge was originally suggested as a third component of teaching expertise (Shulman, 1986; 1987). This idea is a unique blending of how teachers can relate their pedagogical knowledge (how to teach) to their subject matter knowledge (what they know about what they teach). Shulman further states that being experts in a particular subject (High Content Knowledge) does not necessarily make them good teachers in that area. Similarly, a good teacher in one area (High Pedagogical Knowledge) does not mean that s/he is a good teacher in another subject. This overlap between Pedagogical Knowledge and Content Knowledge is then coined and called Pedagogical Content Knowledge. The following figure will show the relationship among PK, CK, and PCK.

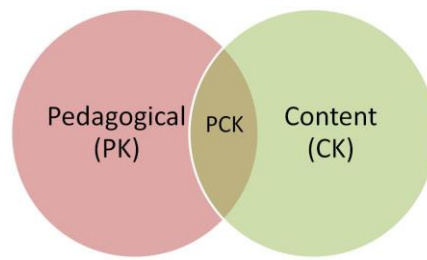


Figure 1

The relationship among, PK, CK, and PCK

A lot of research has revealed that pedagogical content knowledge is modified and influenced by practice (Smith & Neale, 1989; Grossman, 1989; Roth, 1989; Hauslein & Good, 1989; Rovegno, 1992, cited in Turner-Bisset, 1999). They indicate that pedagogical content knowledge is an active process and not simply a set of knowledge bases in combinations (Cochran *et al*, 1993, cited in Turner-Bisset, 1999). It mGolombek (1998, cited in Turner-Bisset, 1999) states that personal practical knowledge is a “moral, affective, and aesthetic way of knowing knowledge life’s educational situations.” Therefore, we conducted a pilot study to investigate how teachers’ personal practical knowledge influences their pedagogical content knowledge.

METHODS

We conducted the pilot study in a Strategic Marketing in Education Business course taught in English Department at a private university in Surabaya. This course aims to enable the students to understand and apply the marketing strategies to the development of a school program. Topics to be addressed and discussed are, among others, marketing segmentation, product and service positioning, pricing, and a variety of strategies for marketing communication and promotion. There are six students (one male and five females) in their 6th semester. Two teachers were assigned to teach the course, one is from the English Department (Ms. T) and the other (called Mr. A) is a non-English department lecturer. He holds a Bachelor of Economics from Indonesia and Master of Arts in International Retail Management from the Netherlands. He never attends any

Education/Teaching courses. Due to his unique education background, we decided to focus on Mr. A.

Qualitative research is more focused on ‘understanding’ various truths that are constantly changing (Wolcott, 1994, pp. 366). Thus, this type of research is where one seeks for ‘a quality that points more to identifying critical elements and wringing plausible interpretations from them’ instead of looking for the ‘ultimate answer’. In this study, the main methods used to gather data are semi-structured interview and questionnaire. Lofland and Lofland (1995) state that interviewing provides an outlet for the participant to reflect on their experiences. According to Freebody (2003, p. 133) semi-structured interviews have ‘a predetermined sets of questions that allow some latitude in the breath of relevance’. Hence, we chose this as our interviewing style as this is the most fitting of all interview styles with its flexibility to veer towards questions that are of interests of the participants or regarded as important by them whilst still within the focus of our research (Freebody, 2003).

We joined the Strategic Marketing in Education Business class for 4 meetings and after the 2nd meeting; we conducted a post-teaching interview to Mr. A to get his insights and interpretation on certain matter that we found interesting during our observation. We also gave out questionnaires (See appendix B) to the students after the 4th meeting to give us feedback on the teaching and learning that has occurred. This ensures that data triangulation can be applied from three different perspectives: the teacher’s, the students’, and the researchers’. Hence, the reliability and validity of the results can be proven.

From our first observation, we found out that Mr. A tended to employ questioning technique in high frequency and thus, we chose it to become the point of interest in our study as it is part of his PPK. Subsequent observations and post-teaching interviews were thus conducted to find out more about his teaching beliefs and his reasoning for employing this technique. The dialogue in the post-teaching interview allows Mr. A to reflect on his teaching methods and beliefs, as well as to examine the effectiveness and practicality of his chosen techniques to stimulate learning. By posing

him questions regarding his teaching practices, it stimulates reflection on his part which ultimately will benefit his future teaching practices.

The importance of Teacher Cognition

Teachers have a significant role in determining the outcome of learning in the classroom and thus, various studies have been undertaken to delve further into the extent of their influence into students' outcomes. The belief that “teachers are active, thinking decision-makers who make instructional choices by drawing on complex, practically-oriented, personalised, and context-sensitive networks of knowledge, thoughts, and beliefs” (Borg, 2003, p. 81) has heightened the importance to find the elements of what Borg terms as teacher cognition. His study suggests there are four core elements which made up and are affected by teacher cognition: Schooling, Professional Education, Contextual Factors, and Classroom Practice (Borg, 2003).

In this study, the interplay between these four factors will be examined to decide the most influential factor in a teacher's teaching cognition and inevitably, the ways it is reflected in the teaching practice which form his Personal Practical Knowledge (PPK). We further argue that this PPK will become the teacher's Pedagogical Content Knowledge (PCK) in the classroom as it is the teaching method that he believes to be effective. Our conceptual flowchart is illustrated in Figure 2 below:

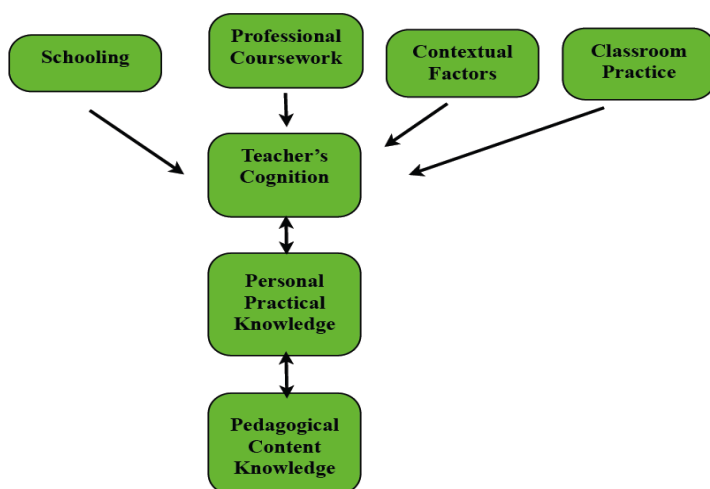


Figure 2: The relationship between the elements of teacher cognition, personal practical knowledge, and pedagogical content knowledge

FINDINGS

This pilot study reveals a few significant findings, which are:

1. The usage of Questioning technique as the main tool in the process of learning
2. The change in his teaching behaviour was precipitated by his professional education
3. This change moulds his PPK which leads to his PCK

Figure 3 below is a modified flowchart which illustrates the interaction between teacher cognition, pedagogical content knowledge, and personal practical knowledge through the questioning technique that the subject teacher adopts and adapts in his classroom practices.

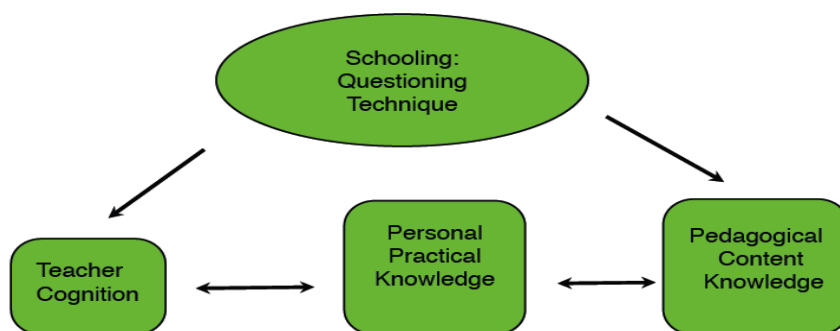


Figure 3: The interconnection between Questioning Technique, Teacher Cognition, Personal Practical Knowledge, and Pedagogical Content Knowledge

FINDINGS & DISCUSSIONS

Teacher Cognition and Personal Practical Knowledge

After Mr. A's masters degree study in the Netherlands, he admitted that he made the decision to change my teaching method to become more communicative because he found it more useful to the learning process (A.8). Due to his newly-found belief that teaching is a dialectical process, he adjusted the method he received from his professors during his study abroad to suit his

classroom context in Indonesia. His enjoyment from receiving this type of teaching from his schooling has allowed him to adopt the questioning technique and adapt it to his own practice.

The frequent use of questioning in the classroom has been deliberately implemented by Mr. A because he strongly believes that only through direct questioning can the students “learn more interactively and effectively” (A.2). The students are also aware that questions were plentiful in the classroom such that one respondent (I) called it as “communicative learning” where “students are asked to take part in the thinking process by being given questions’, whereas others share her views by giving these following comments:

‘What I like from Mr. A’s method is the way he seems to be asking us to discuss the problems. So it’s not just a one-way teaching.’ (F)

‘The interaction between the lecturer and students is what I enjoy the most from this class’ (R)

‘There are plenty of Q and A sessions which make the class become more interactive.’ (K)

They further commented that by being asked lots of questions, they were being intellectually stimulated which helped the process of learning in the classroom. It was difficult for them to understand the concept and theories of marketing because most of them were not familiar with the subject matter. However, these 6 students acknowledged that by having Mr. A pose many questions, the lessons became more interesting and comprehensible for them. This is aligned with Cotton’s theory (1988) of a variety of purposes of teachers’ classroom questions:

- * To develop interest and motivate students to become actively involved in lessons
- * To evaluate students’ preparation and check on homework or seatwork completion
- * To develop critical thinking skills and inquiring attitudes
- * To review and summarize previous lessons
- * To nurture insights by exposing new relationships

* To assess achievement of instructional goals and objectives

* To stimulate students to pursue knowledge on their own

Due to the positive feedback that he has thus far received from his former students, he continues to apply this questioning technique as a core element in his teaching practice because he believes in the effectiveness of it to develop students' critical thinking and understanding. He further explained the reason why he vehemently supports the use of questioning:

"I believe it (questioning) works. Some students came to me after they had graduated just to let me know that my class has helped them a lot in their lives. A few of them have also told me that they enjoyed my class the most because it was interactive and interesting....very different from the other classes they had taken here." (A.3)

As his belief on the importance of posing questions in his practice is heightened by the validation that his students have given him, it builds on his teaching cognition and as a result, it serves as an interpretive framework for his PPK. Golombek (1998) summarises the role of PPK by stating that it "filters experience so that teachers reconstruct it and respond to the exigencies of a teaching situation" and acts as "teachers' knowledge in action" (p. 459). Therefore, given the context of this Strategic Marketing class which was aforementioned, Mr. A modifies his usual point-based questioning to suit his small audience:

"I usually appoint a point-based system to my classes. In every lesson, students will be given a chance to answer my questions and if they can answer correctly, they will be given a point. These points will be accumulated at the end of the semester to be added to their overall score. To ensure fair opportunity for all students to get extra marks, every student only gets one chance to answer in every lesson. However, because this class only has 6 students, I do not implement this rule on them." (A.2)

It is thus can be concluded that Mr. A's PPK actively affects and is affected by his teaching cognition in order to ascertain the most effective method of teaching and learning in the classroom.

Personal Practical Knowledge and Pedagogical Content Knowledge

In the higher education setting, knowledge of the pedagogy is equally significant to knowledge of the subject matter but unfortunately the importance of pedagogical knowledge is often ignored. The mastery of subject matter often comes at the expense of pedagogical knowledge and thus, this study looks into the conception of Pedagogical Content Knowledge (PCK), which is the combination of both expertise in teaching methods and subject matter through the teacher's Personal Practical Knowledge (PPK) that he or she has the potential to develop from experience and beliefs. Ulichny (1996) extrapolates that teachers' knowledge is insufficient to explain teacher's methodology because they have the capacity to interpret their classroom environment based on their experiences (teacher cognition). Therefore, each classroom setting might require different approaches and this is when PCK comes to fore. Teachers' ability to perceive what should be ideally implemented in the context of their work, to relate their past act of teaching to their current one, and to practise the knowledge they obtain from their PPK to their classroom generate what is considered to be the elements of an expert teacher (Tsui, 2003).

In this study, Mr. A has successfully integrated his PPK to become an element of his PCK when he was required to teach a Strategic Marketing class in English. Despite having the occasional difficulty of delivering the content in his second language, his questioning technique and subject matter expertise helped him to overcome this problem as proven by his students' comments:

"Mr. A is such an expert in this subject and it makes me want to learn more about promotion and marketing, especially when his teaching method is so different from the other lecturers. Well, at least from all the courses I have taken in the English Department. Despite his lack of fluency in English language, I think I have enjoyed this class and I have learned a lot." (K)

“The teacher always asks for some pre-questions before going to the materials and the usage of case studies really helps us to understand the application of the theories.” (V)

“Mr. A’s vast experiences have made the class interesting during class discussions and Q&A sessions. Sometimes, his jokes are not funny, though, because he tries to translate them into English. I also think he needs to improve his grammatical skills.” (F)

“I like the content of this course because of his delivery makes me not sleepy in the classroom because I am required to answer or give my opinions.” (R)

The other two students did not mention any comments regarding Mr. A’s teaching method on the questionnaire and thus, it can be gathered that they are probably content with his teaching methods and content of the course.

Given the classroom setting of this course, Mr. A has contextualised his PPK to make meaning of this knowledge so that it can be effectively applied for the learning process. This shapes his understanding of how teaching methods should be administered despite not having any formal training or education in this matter. There is a dialectical relationship between a teacher’s PPK and PCK as one’s knowledge influences the practice of the other, which ultimately reflects the nature of the teacher’s teaching practice as a whole.

CONCLUSION & SUGGESTIONS

We have focused on teachers' pedagogical content knowledge and how it influences the teaching process. As for the implication in language teacher development, we believe that it is important to improve their pedagogical content knowledge, which can be gained from practical personal knowledge, teaching experience, formal education and so on. We have yet, however, to fully understand the interrelationship among Teacher Cognition, PCK, and PPK in teacher education. We

also know very little about how to enhance pedagogical content knowledge in pre-service and in-service programs for higher education level. Therefore, further research needs to be done to gain us more insights into this matter.

REFERENCES

- Ball, D. L. (2000). Bridging practices: Intertwining content and pedagogy in teaching and learning to teach. *Journal of Teacher Education*, 51(2), pp. 241-247.
- Borg, S. (2003) Teacher cognition in language teaching: A review of research on what language teachers think, know, believe, and do. *Language Teaching*, 36, pp. 81-109.
- Cochran, K. F., DeRuiter, J. A., & King, R. A. (1993). Pedagogical content knowledge: An integrative model for teacher preparation. *Journal of Teacher Education*, 44(4), 263-271.
- Cotton, K. (1988). *Classroom Questioning*. North West Regional Educational Laboratory.
- Freebody, P. (2003). *Qualitative research in education*. London: Sage Publications.
- Golombek, P.R. (1998). A study of language teachers' personal practical knowledge. *TESOL Quarterly*, 32(3), 447-64.
- Hlas, A. & Hildebrandt, S. (2010). Demonstrations of pedagogical content knowledge: Spanish liberal arts and Spanish education majors' writing. *L2 Journal*, 2(1), pp. 1- 22.

- Lofland, J. and Lofland, L. H. (1995) *Analyzing social settings: A guide to qualitative observation and analysis*. California: Wadsworth Publishing Company.
- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4- 31.
- Tsui, A. (2003) Chapter 10: Understanding expertise in teaching. In: *Understanding Expertise in Teaching*. Cambridge University Press, pp. 245-282.
- Turner-Bisset, R. (1999) The knowledge bases of expert teacher. *British Educational Research Journal*, 25 (1), pp. 39-55
- Wolcott, H.F. (1994) *Transforming qualitative data: description, analysis, and interpretation*. London, Sage.