Presentation of a Teacher’s Practical Knowledge from Professional Learning to Instructional Innovation:

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Abstract: This paper is about professional learning and instructional innovation in the context of becoming a progressive-looking teacher on his way to integrating technology into instruction. It presents narrative accounts expressed by a vocational school progressive-looking teacher that show how he has created professional knowledge through inquiry. These narrative excerpts present the voices of the progressive-looking teacher as he dealt with his most pressing issues and concerns, examines prior knowledge in the light of new understandings, and constructs new knowledge through the processes of reflection, dialogue and inquiry. The details of the narratives are illustrative of the ways in which this progressive-looking teacher has learned to question the taken-for-granted in their lives, to find patterns and connections, and to think critically and creatively. They also provide insights into the processes of creating an ethically-based professional knowledge in teaching that is unique to others.

1. Research Background

With the coming of the information era and the rapid development of the Internet, international communication has become more frequent as well. Therefore, information technology plays a more and more important role day by day as we can see. In order to cultivate the 21st-century new generations, and make them possess the abilities of information and foreign language(s), Ministry of Education in Taiwan has put the new curriculum of junior high school into practice in 1998, including the course of English, renewed all the teaching materials of the subjects, and included the computer science into the new curriculum standard. Besides, Ministry of Education has also carried out Grade 1-9 Integrated Coordinated Curriculum of Junior High School and Elementary School in 2001, advanced the date of English learning to the fifth and sixth grade, and mapped out integrating Information Technology into every field course instruction (MOE, 2000), hoping to help our new generation, on the basis of English communication, to get with the information society. Therefore, in 2000 Taiwan had made every school have its computer classroom(s) and get to the Internet, hoping that teachers can make the best of the just-constructed information teaching environment to enrich their subject instruction and students’ learning activities.
For the time being, teachers’ information competence development can be divided into pre-service training and in-service training. In terms of pre-service teacher training, many colleges and universities, which are responsible for teacher education, establish the courses in information education in order to nurture teachers in the new century to apply information technology in teaching for promoting their teaching quality. However, except teachers’ lacking of appropriate information literacy, information technology integrated into instruction is still at the beginning for the time being. Confronting its diversity, it’s hard for those who are experienced but not familiar with information technology to deal with it. Consequently, it’s essential and imperative to assist teachers in reinforcing their computer competence and searching for suitable instructional technology and strategies, but it is still unknown how IT personnel assist teachers in putting IT integration teaching into practice. Through stories, the paper presented the problems of a vocational school teacher encountered and the content of practical knowledge in vocational courses of the dealing process during instructional innovation. Using the narrative inquiry approach, we explored the presentation of this practical knowledge in the process of integrating technology into instruction as his way of instructional innovation.

Much like other researchers of narrative inquiry try to give the experience in the lives of the subjects shape, our own work on teacher narratives has tried to capture the very something invisible in teacher thinking and theorizing. As for narrative inquiry in Taiwan, much like other researchers of narrative inquiry in the west, it has also become a tool for research into teaching as well as in theses and dissertations by master’s and doctoral students, but seldom did they focus on vocational school teachers’ stories and stories of vocational schools in Taiwan. This paper presents narrative accounts expressed by Chen, a vocational school progressive-looking teacher that show how he has shape his personal practical knowledge through inquiry in the process of professional development through the teaching life experienced and the stories lived.

2. The Way We Look, the Place We Stand

Traditionally speaking, it was widely considered subjective, not theoretical, trifling, and worthless that teachers narrate their own stories or lived experiences of teaching lives in schools. But over the past two and half decades or so, a significant body of narrative inquiry has been produced which studies the lives of teachers and the practice of teaching in K-12 settings around the world (Elbaz-Luwisch, 2007). Especially right after the conception of criteria and language for narrative inquiry had been promoted (Connelly & Clandinin, 1990), numerous qualitative researchers emphasized that teachers’ narratives is of great use in the context of teachers’ professional knowledge landscapes (Clandinin & Connelly, 1995) and professional learning (Beatie, 2000), contextualizing teacher knowledge (Craig, 1999), describing teachers as curriculum planners (Conle, 2000), and rationalizing the research on professional development (Conle, 2001).

As to teachers’ knowledge, some researchers (Clandinin & Connelly, 1987; Elbaz, 1981) have shown the best way to investigate teachers’ knowledge is narrating teachers’ personal stories in the teaching field for the sake of holding back their own viewpoints and voices. Therefore, there are many narrative studies on teachers’ knowledge by the method of interview and observation. On the research of teachers’ thinking, culture, and behaviors, more and more researchers proceed the study of teachers’ narratives; that is, to look into teachers’ own stories. Along the way, Connelly & Clandinin (1990) would be one of the typical examples to take
narrative inquiry as the research method.

3. Method

According to Clandinin & Connelly (1995), it would be better to narratively understand the professional knowledge landscape as a changing one with a history of its own. Over Wei’s past 10 or more years of involvement with the school as one of the faculty, he has seen a shift in the school’s professional knowledge landscape. Wei noted the shift by searching back through the school’s stories, teachers’ and Wei’s own stories of their experiences on the landscape. For example, the principal lived and told a story of the school as a “demonstration” school (Clandinin & Connelly, 1995) in which he hoped to renew all the equipment, hold various kinds of activities or conferences assigned by the government, and raise the students’ academic literacy. Besides, teachers had expert practices that could be demonstrated to other teachers from other schools and to preservice teachers just graduated from universities.

In studying the effects of integrating technology into instruction on teachers’ personal knowledge, the study employed a qualitative design on the basis of in-depth interview and classroom observation using an intact class of students from Department of Refrigeration and Air-conditioning in National YLCS Industrial Vocational High School, Taiwan. More specifically, the qualitative design adopted in this research was the nonrandomized case study.

The participants included a vocational high school teacher and his students. The subjects of this study were vocational high school tenth grade students. Forty (40) subjects from Department of Refrigeration and Air-conditioning enrolled in a Fundamental Electronics Course were initially selected for the study. Due to personal reasons, however, the final number of students involved was 39 in this nonrandomized case study. As to the teacher, Mr. Chen, graduated from Provincial Taichung Industrial Vocational High School in 1987, National Taiwan Normal University in 1992, and Graduate Institute of Electric Engineering, Da-Yeh University in 2004, was also the home tutor of those students who participated in this study.

4. Data Collection & Data Analysis

No special requests on the presentation of the lesson were given to each class of Chen’s instruction before classroom observation. Two class sections, including a theoretical subject on Basic Electronics and a practice course, taught by Mr. Chen were recorded and audio- and video-taped as close as possible. Besides, the researcher also took notes on the key points of instruction in class for something inefficient on audiotaping and videotaping. In the meanwhile, the researcher interviewed Mr. Chen by asking him the questions about his backgrounds and conception in teachers’ knowledge from the outline of the questionnaire preliminarily designed in advance. Furthermore, some of the students were also interviewed for their response and feedback toward integrating information technology into Chen’s instructional innovation.

After a series of classroom observation, videotaping, and interviews, a corpus of several fifty-minute tapes of classroom interaction between the teacher and the students in the classroom were transcribed and analyzed. Data was mainly analyzed in a more qualitative way, since the boundaries during classroom interactions within
the teachers’ talk are difficult to be clearly divided. These narrative excerpts from classroom observation and the interviews with Chen, his students, or even his colleagues present the voices of the progressive-looking teacher as he deals with his most pressing issues and concerns, examines prior knowledge in the light of new understandings, and constructs new knowledge through the processes of reflection, dialogue and inquiry.

5. Result

First of all, we illustrated how the elements of teachers’ personal practical knowledge, proposed by Connelly et al. (1997), work in these excerpts collected to describe Chen’s personal practical knowledge on his way to instructional innovation although Shulman (1987) and Elbaz (1984) both also initiated “teachers’ practical knowledge.” They are described as follows: image, rules, principles, personal philosophy, metaphor, cycles, rhythms, and narrative unity.

1 Image: When Chen immersed himself in the instructional innovation by integrating technology into instruction, I thought the “rolling wheel” was a significant image because he would like to go wherever he wanted to go in order to keep the dynamic force for instructional innovation going. Besides, he could think creatively from different angles at which he viewed and reflected by moving around.

1 Rules, principles, and personal philosophy: Derived from the personal practical knowledge, we tried to inductively rule out Chen’s rules, principles, and personal philosophy from his lived stories based on instructional innovation. As to his rules, he found out “leading students to think and inquire scientifically about everything available around them” and “giving students time and chances to speak out what their thoughts are.” Similarly, he also focused his principles on “students’ feelings and reactions during the interaction between the teacher and his students” and “students’ understanding the relationships between scientific learning and themselves.” Finally, in terms of his personal philosophy, Chen considered it quite significant that the content of the subject matter should be linked up with students’ experience in their daily lives.

1 Metaphor: This part came from Chen’s teaching images in which we considered “guardian soldier” as one of Chen’s important metaphors. During the class, Chen would find the chances as many as possible to go along the aisles among the students’ desks in order to check whether they were concentrating on the topics or themes in the teaching process.

1 Cycles and rhythms: During the cycle of each period of his class, Chen had the rhythm of “from the explanation to the whole class via PowerPoint with students’ note-taking on personal handouts, to students’ practicing in person and teacher’s answering or feedback.” During the cycle of each week, Chen had the rhythm of “a series of six period class on Fridays” for students to integrate theory into practice.

1 Narrative unity: The stories narrated by Chen from Sept. 2007 to Dec. 2007 represented his personal practical knowledge and original motives for instructional innovation.

Secondly, although early as Katz (1972) has proposed the “Stages of Teachers’ Development and Training Needs of Preschool Teachers”, according to Lesgold’s Maturity Model (2003), we analyzed Chen’s personal practical knowledge on integrating information technology into instruction to evaluate Chen’s instructional innovation, not the roles the teacher played in a school supported by technology. The analyses are as follows.
**Instructional Maturity:** Chen has been teaching for over 15 years and at least 10-year experience in leading the selected contestant to compete with those from other schools in various skill and artistry competitions.

**Technology Infrastructure Maturity:** The principal has devoted himself to the promotion of the technologic equipment, which not only generally enhanced the hardware equipment of that school but also specifically facilitated Chen’s integrating technology into his instruction as a way of the instructional innovation. Compared with their prior classmates at other schools in the neighborhood, the students at CSVS mainly feel that they are quite proud of the instructional hardware and equipment they can make use of.

**Educational Software Product Maturity:** All kinds of software would be available as soon as possible once the teachers in the school are in need of it. That is, the administrative system of this school would try to supply the software, as soon as possible, for the teachers in need of it. Since the school had joined various kinds of activities, such as conferences or ceremonies funded by the educational authority, the teachers in CSVS were able to design and make their own educational products or even its related software maturely. Some teachers with their students had attended some competitions for designing some topic-related teaching materials and were awarded thereafter.

**People Maturity:** Many related seminars were held in the school after each midterm exam, in which teachers learned the knowledge and skills related to instructional technology and other else. Based on the interviews with student participants, they all agree about the effectiveness on learning and instruction. Besides, parents and their children are equipped with desktop personal computers with which they can log on and surf the Internet without difficulty. And all the faculty at CSVS would do their paperwork with the word processing software on the computers.

**6. Conclusions and Implications**

Preliminary speaking, classroom observations and in-depth interviews have revealed many possibilities for development open to the prospective teachers in faculty professional development and classroom interaction. Teaching experience has provided teachers with a personal instructional syllabus of considerable interest. This syllabus grows throughout life as new experiences are met and new ways are developed to talk about them.

After analyzing classroom observations audiotaped in a series of Chen’s classes and the interviews with the subject teacher, his students and his colleagues, some conclusions from professional leaning to instructional innovation throughout this teacher’s professional development have been drawn and they also gave us some recommendation for teacher education. Moreover, these findings had significant implications for how we consider and deliver pre-service and in-service teacher education programs. Further, the findings in this study would supply some recommendations to other research on teacher narratives in Taiwan. They are discussed and listed as follows:

**Planning for each unit of the curriculum properly:** The purpose to integrate technology into instruction is to apply for computer technology as a learning-assisted tool, to enlarge the learning in each domain and to promote students’ ability to do the research. However, not all of the units in any subject matter are suitable for integrating technology into instruction. Therefore, it is necessary for us to choose the unit of the subject matter cautiously for integrating technology into instruction.
Controlling the exact teaching flow: The teaching activities into which technology is integrated should be finished within the time arranged. However, teachers often confront the situation as follows: it’s hard for teachers to accomplish the instructional unit within the limited time when they integrate technology into their instruction.

Offering sufficient time for learning: In the beginning of teachers’ designing for teaching activities, they should draw up and allocate suitable combination to both the traditional instruction and the instruction integrated with technology for providing students’ sufficient time to learn.

Making the best use of the instructional media: According to Roblyer (2003), teachers need to design their own teaching materials, which become the heaviest burden. However, the Internet now is available for teachers everywhere to search for their teaching resources (Chenuuu, 2000), which will decrease the time for teachers to design the self-made instructional materials. Afterward, teachers who are interested in integrating technology into instruction can be encouraged to devote themselves to instructional innovation.

References


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