On Professional Knowledge
- what do we need as teachers in the 21st century?

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Abstract
There has been a well-established literature about teachers' professional knowledge offered by scholars, educators, researchers and teachers in the world. However, many suggestions seem to focus more on general or technical issues. In this paper, three major models of teacher education applied in the international education context are discussed in a historical perspective. They are the craft model, the technical rationalism model and the humanistic model. They are compared in the aspects of assumptions of learning, teacher-student relationships, types of knowledge and training implications. The knowledge types in the humanistic model are highlighted and mapped in seven categories - intellectual, practical, intrapersonal, interpersonal, process competence, emotional and ecological. The re-defining of the professional knowledge base and some suggestions offered as possible means to obtain the knowledge are based on a careful literature study and supported by the interview data of the informants from different cultural backgrounds.

Key words: professional knowledge, teacher training models

Introduction

We are currently in the midst of unperceived change in education and the role of teachers will be different in the future from what it has been in the past. In fact, the issue of the teachers of the future has become a global concern. How we see teachers today will apparently affect how we predict the image of teachers tomorrow. There have been tremendous changes especially during the past two decades and teaching as a profession
and teachers as professionals are no longer what they used to be. The speed of change and
the explosion of knowledge are requiring people to learn afresh at intervals throughout
their lives. In an age of new information technology where a lot of things can be done
with the touch of a key, the teachers' position seems to be endangered by the powerful
computer. The only chance which leaves teachers to stand still without being washed
away by the powerful tide of great transformation seems to "do the things that a human
being does better than a computer" (Dean 1991). Therefore, we need a new vision to see
our roles and ourselves as we are approaching a new century, a time characterized by
indeterminacy and unpredictability. And the questions raised here are "What important
professional knowledge do we teachers need to possess in such an unusual time?" and
"How can we obtain all this knowledge?"

Actually, there has been a well-established literature about teachers' professional
knowledge offered by scholars, educators, researchers and teachers in the world. Some
suggestions concerning professional development for the end of the century and beyond
are put forward by writers such as Watkins & Drury (1994) and Hargreaves (1994). These
suggestions include:
- developing a new mind-set
- learning to promote and market one's skills, networking and cultivating
  relationships
- developing self-insight and taking personal charge
- developing a range of competencies.

These above ideas find similar interpretations from their Chinese counterparts. Some
educators predict that the new century's teachers are expected to have the following
qualities or competencies (Chen 2000):
- progressive thinking (including being caring, responsible, committed, honest and
  rational, persistent)
- creative knowledge (professional and academic competence and creativity)
- creative competence (analytic, self-reflective).
However, many of these suggestions seem to focus more on general or technical issues. In this paper, I shall explore further the issue of professional knowledge which concerns teachers of the 21st century in a broader international education context. Three models of teacher education are analyzed. The advocated professional knowledge bases is highlighted in the third model, the humanistic model, and some suggestions are offered as possible means to obtain the professional knowledge supported by the first-hand interview data of the teachers from different cultural backgrounds whom I worked with when I was doing my doctorate study in the U.K. during 1996–2001.

1. Three Models of Teacher Education

In a historical perspective, there are three major models of teacher education applied in the international education context: the craft model, the technical rationalist model and what I shall term the "humanistic" model (Table 1). I shall follow this sequence and go through each model addressing their assumptions of teaching, teacher-student relationships, types of knowledge and training implications.

The craft model

This model can be traced back to the very early stage in human history. It has different names during its stage of evolution, including sitting with Nellies model, master-apprentice model and mentoring and coaching model. Actually, it has been observed across professions and cultures during which learning relies largely on down-to-earth hand-on experience. In general, in this model, teaching is perceived primarily as a craft and an art (Stenhouse 1980). The teacher is the expert who possesses the wisdom of the profession. The master teaches by demonstrating, coaching and monitoring the learning process while the apprentice learn through observing, imitating and rehearsing (trial and error). In Confucius’ times, this hands-on teaching and learning was very common and the apprentice-master relationship was more of a father-son type. The types of knowledge and skills involved are largely intuitive and practical.
The technical rationalist model

Based on philosophy of positivism in the nineteenth century as an account of the rise of science and technology, the technical rationalist model is very much influenced by behavioral psychology. Within this instrumental model, teaching is seen as a technology or applied empirical science. Learning is therefore divided into separate/isolated activities. Knowledge or skills is transmitted from the knowledgeable and skilled expert who knows or can to the ignorant or unskilled. Knowledge in this model is regarded as received, academic and research-based, being fixed and eternal rather than tentative and temporary. It is very often sub-divided and fragmented into irrelevant items and transmitted through teacher to students. Teacher training guided by this model is competence/performance based. It reduces teaching to discrete chunks that can be isolated, practiced and ultimately mastered and it is believed that this mastery of discrete knowledge could improve teacher's effectiveness and competence in teaching.

However, scientific knowledge honored in academia has failed to offer what teachers really need in their own educational setting. The current teacher training in the west is "all too often locked in a competence-based model, with a focus on basic skills and knowledge of value to a world that has already been by-passed by change" (Thomas and Wright 1998). Meanwhile, the technical rationalist model also has impact on the Chinese teacher educational. The pre-service and in-service teacher education is often dominated by the top-down approach which largely neglects teachers' personal experience and knowledge. The trainees in teacher practice stage have to follow exactly the instruction given by the trainers. However, what those educators and teacher trainers fail to realize is that in their attempt to seek for so-called scientific, replicatable laws in education they are repeating the same mistake made by some Western researchers, that is, the denial of the value of personal knowledge of people, especially teachers and students, who are directly involved in the education scenario.

To do their justice, the two above-mentioned models do have their merits. For instance, the craft model is successful in school-based initial teacher education and beginning teachers; and the technical rationalist model is useful in terms of necessary input in initial
teacher training. However, they do have some major limitations, such as the inadequate chance of interaction in the craft model and the denial of human value in the technical rationalist model. It is due to these limitations, they have failed to provide professional knowledge needed by today and tomorrow's teachers, and have failed to prepare them for a fast-changing post-modern world. Therefore, we need to move on to a new model of teacher education which can provide us with more alternatives. In the following, I will argue for a third model, the humanistic model, as an alternative model for teacher education in the Chinese context and will focus particularly on its knowledge components.

**The humanistic model**

The humanistic model is sometimes called the *progressive-personalized* approach (Dewey 1938, Diamond 1991) from the Western tradition. It brings a new view of teaching, educational relationship and knowledge type and transfer. It recognizes the importance of personal development and attempts to foster selfhood and human growth. Teaching in this model is considered as relationship and moral activity and thus teacher-student relationship has a nurturing/caring nature. Learning is done through dialogue, action research and has the characteristics of being experiential, collaborative, reflective, and constructs development and change.

Teacher training, in this model, is learner-centered, process/problem-oriented and hypothesis generating. It is an attempt to make up the missing component of personal development in teacher education. The challenge is to personalize the mechanism of teacher education so as to take account of the human beings in them. Educating effective teachers involves promoting their 'becoming' or their personal discovery rather than training them precisely in how to teach. Being a highly personalized affair, teacher education depends on the prospective teachers' development of appropriate systems of beliefs leading to greater psychological maturity. There seem to be remarkable compatibility of humanistic elements in the humanistic model in both the Western and the traditional Chinese thinking, both acknowledge that humanity development as the
fundamental need to improve human life, and the primary mission of education is to promote these qualities.

In order to present a holistic picture, I shall discuss in details of the knowledge types in this third model and explore potential ways to generate the knowledge supported by the personal learning experience of the teachers’ research.

2. Knowledge Types in the Humanistic Model and Knowledge Generation

To identify professional knowledge needed for teachers is a big issue in professional learning and development. Let us look again the two questions raised at the beginning of the paper: 1) what important professional knowledge do we teachers need to possess? 2) how can we obtain all this knowledge? Based on a careful study and supported by the teachers’ personal experience, a list is presented in Table 2 as an attempt to answer the first question, while Table 3 summaries the various means of generating the knowledge base with reference to my informants' learning experiences.

With regard to the issue of generating professional knowledge, it should be pointed out that since teachers have different learning orientations they tend to find their own ways which work best for them. For instance, some teachers are more self-contained, who are able to process and develop theories relating to their own teaching experiences, some feel more confident working with others. While some are more of an intellectual inquiring type, others are more sensitive and intuitive who are able to learn by going through their own feelings and emotions. All these factors could be seen in the interview data presented below.

**Intellectual knowledge**

In a general sense, this type of knowledge refers to knowledge applied in the profession which has been accumulated and proved over time to possess a universal truth. It is acquired mainly through formal training courses. However, the pre-service training experienced by the informants across countries has exposed some serious problems. A
consequence is that the beginning teachers often find themselves helpless and lack professional confidence when they start teaching. As Jing and Paul indicate, the initial training input is necessary in the sense of providing introductory professional knowledge. But it could only be really useful when being internalized by teachers in teaching.

**Practical knowledge**

Practical knowledge is also called teacher knowledge or working knowledge. It is built up on a personal basis of experiential, reflective and collaborative learning. The analysis of the data shows that teachers' practical knowledge is largely acquired in actual teaching by transforming intuition into theories. In addition, the spirit for change and a critical way of thinking seem to be the major motivations in conceptualizing teachers' experiences.

Gloria is an example of "teacher researcher". She takes teaching as a very important means of conceptualizing personal experiences. She initiated and organized many research projects and published a number of papers based on her theorizing personal experiences of teaching and research. She always wanted to try new things and make changes, not for their own sake, but in order to improve herself. Hong, a teacher with twenty years of teaching experience, felt that it was teaching that helped her become more mature professionally and to be more confident about what she was doing. Like Gloria, she always explored new, creative and interesting ways of teaching which would really work with her students. This indicates that teachers' personal knowledge is a very important part of overall professional knowledge and has a unique education value in teacher education.

**Intrapersonal knowledge**

Intrapersonal knowledge is knowledge about oneself. The study of my informants shows that self-inquiry is not only an important way to develop and sustain intellectual awareness and capacity but also a way to generate intrapersonal knowledge. Serge's academic diary-writing well illuminates this particular experience. He thought that it was important for a teacher to be able to constantly ask oneself questions. Over the years, he developed an ability of being in constant dialogue with himself by wring personal
journals. He looked at this diary writing as an important part of his life, a way of teacher development, a personal expression for important concerns, and a way of thinking. Like Serge, Jing tended to ask herself questions of important concerns throughout the process of her own learning. She felt that such questions very often lead to unexpected discovery which gave her a kind of "shake-up" and made her begin to think more about her roles as a teacher trainer. Kay thought that self-inquiry helping teacher trainees develop their critical thinking. It "keeps you alive and keeps you ever looking forward'.

**Interpersonal knowledge**

Knowledge about others is termed as interpersonal knowledge. According to my informants' experiences, interpersonal knowledge is acquired largely through collaborative learning - a shared professional and personal experience. This type of learning distinguishes itself by the characteristics of social and human interaction (Nixon et al. 1996). More informants have positive than negative collaborative learning experiences and some claim that they benefit most from an informal collaborative way of learning rather than a formal way, that is, by simply "being with people" whom they enjoy working with. This suggests that a good working relationship is the precondition for collaborative learning and growing. People need to understand and trust each other before real interactive learning happens.

Maggie looked at group interaction not just as an efficient way to help get rid of one's egotism but also a way of appreciating different cultural values. Both Maggie and Serge considered collaborative learning as a gateway to obtain both interpersonal and intrapersonal knowledge. Weng thought that it was very beneficial to be in a dynamic group who shared the same enthusiasm for professional learning and development. Paul believed that one could get new ideas by listening to other people because "even if you don't agree, your brain is probably taken away to something you had never thought before". The Chinese informants seem keener on group learning. Xueli found doing joint research a good way to monitor and better understand her own teaching because other people's feedback set up a mirror which enabled her to discover something she was not aware of.
In addition, the interactive process of informants' acquiring interpersonal knowledge also involves their students. They claim that they have learned a lot from the feedback of their students. Paul believed that the learners' new ideas could also influence the teacher. The important implication of interpersonal knowledge is that it helps promote professional dialogue and establish and maintain a commonly shared teacher development culture.

**Knowledge of process competence**

This type of knowledge is defined as a combination of abilities: 1) the understanding of individuals and the capacity to create and organize groups, 2) the understanding of learning process, 3) process management, 4) the knowledge and skills to manage the implication of change (Legutke and Thomas 1991; Thomas and Wright 1998). It involves interpersonal and intrapersonal knowledge as well as project experiences. It has particular implications for teacher trainer training in terms of increasing teachers' capacities of managing their own learning and change. Some informants who had gone through a teacher trainer training program felt that this special training opportunity had a far-reaching effect on their personal and professional development.

Maggie is labeled as a group learning facilitator. She found that the most important key factor in learning with others was to have knowledge about the process of interaction, about oneself and about other people. In particular, she regarded this particular interactive experience as a way of finding out and appreciating the richness of differences, a way of finding about herself, and a way of understanding at depth the process of her own thinking, and the interaction of different ideas. It significantly reshaped her perspective about teacher learning. For a long time, she thought individual learning was "the only way of learning". However, the experience of working with her coursemates suddenly made her realize not only the limitation of individual learning but also how much more she could learn by listening, talking to people and by interacting. To her, it was a kind of "opening up to something like embracing complexity" which made her move away from simplicity in thinking and become more aware of various perspectives on issues of important concern.
**Knowledge of emotional intelligence**

Emotional intelligence is sometimes called emotional competence. It is about people's feeling about themselves and others. In a sense, education is an emotional experience, which involves both teacher and learners to share their emotions together. Without it, education would become depersonalized and teachers then become technicians whose job is to transmit knowledge. Many informants stress the influence of this important element on their own teaching and development. They tend to acquire emotional knowledge by learning through problems and making sense of their own feelings.

For instance, Maggie's emphasis on the emotional side of teaching is reflected in her view about teaching which is not only "a doing and thinking job, but also a feeling and sensitivity job". Gloria thought teachers should not wear masks in front of students. She wanted her students to see her as what she was - fallible but willing to learn from her mistakes. In her research experiment, she shared frustration, excitement and joy with them. The sense of sharing made her feel more confident professionally in trying new things. Because even if she failed, she could accept it with her students and find out what went wrong and what else could be done. Hong regarded her teaching as including an important process of maturing emotionally. Through learning to deal with tough but very spontaneous students, she discovered the shining part in them. She was very touched to see these problematic students who used to hate English learning become completely devoted to the classroom activity. She came to realize that they were actually so talented, creative and had very good ideas but just did not have the chance to explore them. She felt that the key thing was that the teacher had to understand their feelings and use the right stimulation and then "everything just came out very naturally". Lin, a young Chinese teacher, expressed her view in very straightforward language. She said," I don't know much about teaching methodology, but I think feelings are very important. Knowledgeable does not mean the language knowledge but life knowledge. A teacher doesn't need to know a lot about teaching methods, the only thing is that you should follow your feelings, follow your heart ".

The above-mentioned experiences of my informants suggest a very important role for emotional knowledge in terms of helping develop a harmonious interaction of teachers' professional and personal growth. However, their possession of emotional knowledge does not mean that they always have ready solutions to problems of their personal and professional lives. But they never stop exploring and learning from their emotional world.

**Ecological knowledge**

Ecological knowledge is referred as knowledge about the relationship between individual and environment or context. It enables us to relate ourselves to the social, cultural and working context we are in and to orient directions of our development. The study of my informants' experiences has shown that two factors are important in ecological knowledge acquisition: **self-awareness raising** and **external involvement**. Awareness raising involves learning from both positive and negative environments in order to fit oneself in the particular social settings. It also includes the study of the particular macro and micro environment which teachers are in. Kay's experiences as a 'change agent' suggests that awareness and knowledge about context is critical in order to make real change happen. She believed that it is important for teachers, especially those who are in management, to have sufficient knowledge of context in terms of how systems at various levels, e.g. background of students, school, society and education policy, are operated. Since teachers vary a great deal in terms of different stage of teacher development and different level of professional maturity, they need the external stimulation of involvement and support of the leadership acting with farsightedness, global thinking, and interpersonal management skills. Apart from the support of the whole system of the society, creating a desirable learning environment and extending professional community is crucial in promoting teacher development. Therefore, the awareness of the social and political power would add to teachers' ecological knowledge.

**Conclusion**

Today, the teaching profession worldwide is facing an ever big challenge with the stunting development of technology and sincere, especial the computer science. In order
to survive well, we need to redefine and update our professional knowledge. The main
purpose of this paper is to provide alternatives to design a framework which could be
related to the local setting. The list of professional knowledge types suggested in the
humanistic model of teacher education is by no means a 'perfect' recipe; as such a thing
does not exist in reality. And a further in-depth study is need for improvement. However,
it is hoped to contribute to map a workable professional knowledge base which would
benefit teachers in coping the fast-changing world.

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