

Elements of a Model of Effective Teachers

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Abstract

Much research in teacher education has concentrated on individual elements of effective teaching such as the best way to teach content. There has been less emphasis on understanding the complex process of effective teaching in its entirety. Teacher educators are in the business of creating effective teachers and as such need a clear, evidence based model of an effective teacher. We believe that current models of effective teachers are limited because they fail to give sufficient emphasis to many important aspects of effective teachers and fail to integrate these components into a coherent whole and so provide a language for discussion of and a conceptual framework for developing teacher education.

This paper discusses the elements needed for a model of an effective teacher. This model emphasises not only the domains of effective teaching which receive most of the attention in teacher education and evaluation, namely content knowledge, pedagogical knowledge and, more recently, pedagogical content knowledge but also takes into account the teacher's personal knowledge and knowledge of context. We suggest that it is not just this knowledge that teachers have in these domains but the way this knowledge overlaps and interacts both within the teacher and with the teacher's physical, social, intellectual and emotional environment.

An examination of the effective teacher challenges not only teacher educators to rethink the way we educate both preservice and inservice teachers; but also the way we assess, judge and reward teachers.

1 Introduction

It may be worth inquiring how it is that most of us are able to remember great teachers but not have routine ways to talk about what great teaching is.

This study arose from our individual PhD researches, which involved in depth interviews with, respectively, primary science teachers and elite sports coaches. It emerged that these two very different groups of highly effective teachers (yes the coaches were overwhelmingly also teachers) were remarkably similar. Some of the common features, which emerged, were:

1. strong discipline content knowledge;
2. pedagogical skills appropriate to the environment and discipline;
3. personal knowledge which included: the ability to forge strong relationship with the students, a concern for individual students and a firm moral code.
4. intimate knowledge of the context in which they were teaching.

We have tried to put these components together in a coherent model and then develop this model using observations and interviews with a more diverse sample of effective teachers.

2 Why a model?

A model must of necessity simplify complex phenomena and make the abstract concrete without losing those essential elements which are needed for explanations to be developed and observations to be interpreted. As such they are a powerful tool for generating new ideas and interpretations.

The production and revision of models - has been seen as the essence of the dynamic and non-linear processes involved in the development of ...
knowledge

This model is an attempt to create a coherent map of effective teachers so that our analysis can go beyond a mere shopping list of attributes or behaviours. It attempts to provide a language for discussing not just the knowledge that effective teachers possess but also the way in which this knowledge interacts. It also attempts to give tools to analyse the dynamic manner in which the environments: physical, intellectual, social and emotional, interact with the teacher to make them more or less effective.

3 What is an effective teacher?

How do we judge a teacher as effective? A number of lines of evidence have been used in different studies including; certification, the results their students achieve, the assessment of colleagues, students or the community, the classrooms they establish, and their status in the profession. distinguishes between pragmatic effectiveness measured by correlation, usually with student academic achievement measures, and normative effectiveness measured by correspondence, usually with a model or conception of good teaching. Our study, by its very nature, is normative but builds on the data from pragmatic studies.

The long history of pragmatic research, which correlates a sample of effective teachers in a particular educational system or discipline with various practices and qualities, has produced many lists of characteristics that are correlated to effective teachers (see for example: . Although many lists of these components have been produced, putting them together and studying them as a dynamic feedback system and their response to different contexts has rarely been systematically explored.

4 The components of a model

There are many ways of characterising the components that make up an effective teacher. proposes a teacher knowledge base which consists of:

- content knowledge;
- general pedagogical knowledge;
- curriculum knowledge;
- pedagogical content knowledge;
- knowledge of learners and their characteristics;
- knowledge of educational ends, purposes and values; and
- knowledge of educational contexts.

Anne Jasman characterises components of teacher professional expertise as:

- theoretical, practical and pedagogical knowledge;
- focus of concern on students;
- pedagogical reasoning;
- understanding of context;
- reflection and research on their knowledge and practice;
- collaboration with colleagues and community;
- a sphere of influence beyond the classroom;
- being a change agent; and
- orientation towards improvement of student learning.

National Board for Professional Teaching Standards in the United States established a set of core propositions for teaching (as cited in .

- Teachers are committed to students and their learning.
- Teachers know the subjects they teach and how to teach those subjects to students.
- Teachers are responsible for managing and monitoring student learning.
- Teachers think systematically about their practice and learn from experience.
- Teachers are members of learning communities.

Other researchers emphasise particular aspects of teachers' personal qualities such as ability to relate to students or honesty and communication .

We have chosen to classify these characteristics into four clusters: content (discipline) knowledge, pedagogical knowledge and skills, and knowledge of context and personal knowledge. The important construct of pedagogical content knowledge (PCK) is classified in the intersection of discipline knowledge and pedagogical skills. The other intersections include such elements as: the teacher's personal epistemology; the teacher's knowledge of curriculum and their students; and the relationships that the teacher forges with colleagues and students.

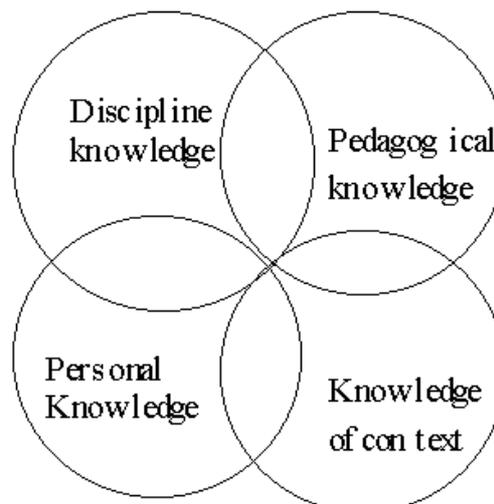


Figure 1: Foundation of a model of effective teachers

4.1 Discipline knowledge

Well, first of all, [effective teachers] must have a great deal of knowledge ... not just to rely upon their background ... We all have bits and pieces of

knowledge and it is only after a time that we can put it into a proper context and see where it fits (Bill, science teacher).

Often the public debate about teachers and teaching standards is reduced to the claims of inadequate discipline knowledge. The question of the range and depth of discipline knowledge teachers need for students of differing maturity is accentuated by what is perceived as a time of rapid increase in knowledge in most disciplines.

Discipline knowledge encompasses an understanding of the salient concepts, relations among concepts, ideas and skills of a subject and has always been acknowledged as the first prerequisite of ability to effectively teach a discipline. Teachers are often described in terms of a specific discipline knowledge. Discipline knowledge is a necessary component of most theories of teaching whether they are traditional transmission models, constructivism or even behaviourist. This discipline knowledge is usually a significant part of a teacher's education.

Research investigating discipline knowledge in teaching has examined the difference between novice and expert teachers in how they store, access and use specific discipline knowledge. The effective teacher is more likely to chunk information, access relevant information and attach deeper meaning and extract more information from the environment in a more significant way. In effect the research is about processing information as opposed to its impact on the teaching process.

Discipline knowledge is also a crucial prerequisite in the development of teacher self-confidence (Tisher, 1990). Understanding and being able to apply discipline knowledge builds self-confidence, and self-confidence is crucial in the development of an effective teacher.

Although discipline knowledge is an expectation, when it comes to choosing and judging teachers it is the combination of discipline knowledge, application, interpersonal skills and motivational style that is valued. There is also an increasing realisation that discipline knowledge and pedagogical skill are inextricably linked; "must emphasise the relationship between particular instructional arrangements and particular subject matters". As observed "Never is method something outside the material" (p.165)

4.2 Pedagogical skills

I think you have to be organized, I think that's very much the key to it. Mind you, you've got to be seen to be organized. So that the players or the group feel that you know what you are doing and they feel that there is a purpose not only in what you're doing but in what they're doing. (Meg, coach and teacher)

With the rise of professional teachers rather than the tradition of practitioners who apprenticed students, notably with the Sophists in classical Greece, the distinction between the practice of a discipline and the teaching of the discipline gave rise to the notion of skills and knowledge independent of the discipline and particular to teaching. This art and science of teaching became known as pedagogy. Pedagogical knowledge is defined as consisting primarily of knowledge about classroom management, the organization of classrooms, assessment, methods for the motivation of students, personal knowledge about particular students and their families, and social-interactive skills. Research investigating effective teachers verifies that pedagogical expertise resembles expertise in other fields, is a very sophisticated form of knowledge that is not easily gained or mastered, and not available to everyone that seeks it

There remains however a tension over the separation of the categories of discipline and pedagogical knowledge. Lusted as cited in proposed that how one teaches cannot be separated from how one learns and the nature of the subject matter. Therefore instruction cannot be separated from learning or curriculum. postulates that to study pedagogy independent of discipline knowledge is to miss something of the intimacy of the relationship. He also draws attention to the question of transfer of pedagogical skills across disciplines. has pointed out that the learning of new discipline knowledge is of itself a pedagogical exercise. Different subjects have different epistemologies, hence an expert physical education teacher is not automatically going to transfer their expertise into the teaching of English. In each field there are also specific and explicit and implicit prescriptions and proscriptions of behavior for teacher and student.

The separation of pedagogical skills and personal qualities is also artificial. Taking a more people centered view, Van Manen (1994) describes pedagogy as the relational knowledge of children, that one understands children and youths: how young people experience things, what they think about, how they look at the world, and how each child is a unique person. He also notes that neither the European nor the North American scholarship of teaching seems to have fully explored the significance of the 'pedagogical relation' for the practice and teaching of learning. In this description the relationship between the teacher and the student is paramount. The teacher establishes the relationship with the student, cares for the student by caring for what they may become, and makes adjustments to their interactions based on the situation and experiences of the student. For the student the teacher provides opportunities for heightened experiences, a sense of self, and a real growth and personal development.

4.3 Knowledge of context

The classroom, school culture, community, educational system and students can all significantly influence the effectiveness of a teacher. A teacher who may be effective in one context may struggle in another. Any model of effective teaching must be situationally contingent . Any theory of contingency will need to involve such factors as the volatility of the environment , the discipline taught, the community, the school and departmental organisation and philosophy and the backgrounds of the students. As the context changes the weight or degree of importance accorded to the various components of teacher knowledge may vary rather than the components themselves. Thus in a highly academic environment discipline knowledge becomes more important while for marginalised students personal qualities come more to the fore. For example, Perry (personal communication, September 14, 2001) found that academically gifted students often had a self-perceived need for teachers to concentrate on discipline knowledge while found that the overwhelmingly important qualities for effective teachers of Eskimo and Indian students were personal warmth and concern.

4.4 Personal knowledge

I feel like I am really helping players as people as well, not just as players. ... The importance of a strong character, the importance of simple virtues of honesty, dress, punctuality and politeness, caring for friends ... doing the right thing basically, you need to do that in life ... I would like all my students to be great human beings or better human beings, as compared to when I first met them. (Mal, coach and teacher)

describing effective teachers, states that what we receive from a great teacher is less a particular body of knowledge or set of skills, than the way in which this subject matter was

represented or embodied in the person of this teacher; his or her enthusiasm, self discipline, dedication, personal power, and commitment.

The teacher's personal qualities are recognized as being influential in the overall picture of an effective teacher . Two components of personal qualities are: a moral code of behaviour such as honesty, and integrity, and the teacher's personal philosophy and self-belief, which is best described within a motivational framework. Understanding the role personal qualities play and how they interact with other characteristics of effective teaching addresses and provides insight into the "who question" which claims has been ignored in research on teacher effectiveness. The behaviours most cited as reflecting effective teaching and leadership are honesty, and integrity . In combination these behaviours provide the foundation for a trusting relationship between the teacher and his or her students .

Effective teachers and leaders are driven by a strong and coherent philosophy, and influenced by their self-efficacy beliefs . Not unexpectedly these teachers reveal a holistic philosophy that centres on educating students for life . These teachers also have positive self- efficacy beliefs and are comfortable with innovation and risk taking . Self-efficacy beliefs are powerful predictors of behaviour and explain the choices people make, their aspirations and persistence in difficult situations . Developing positive self-efficacy beliefs is a slow process built up over time through experience, exposure and a deeper understanding of self.

Dealing with the individual it is just a one on one situation, so your time is entirely spent with that one person and you build up a rapport with that person, you can work on their individual needs. It is more mental to a certain degree because you have to treat each one of those people as individuals in a specified time, so they have got different needs and requirements and you have got to deal with those individually within a group within a time limit.
(Fred, coach and teacher)

5 The embedded nature of teachers knowledge

Teachers' knowledge does not exist in isolation they are part of a greater shared knowledge and practice and have a continuing dialogue with it. Fig. 2 is an attempt to locate it within the physical, social, intellectual and emotional environment that a teacher inhabits. Thus the content knowledge is but a subset of the whole discipline knowledge and forms (albeit a small) part of it. The pedagogical knowledge is intrinsically bound to the community of practice that the teacher contributes to. The teacher's knowledge of context exists in a continual dialogue with the actual context: classroom, school and community. The teacher's personal knowledge is bound into their relationship with those they relate to, both emotionally and socially.

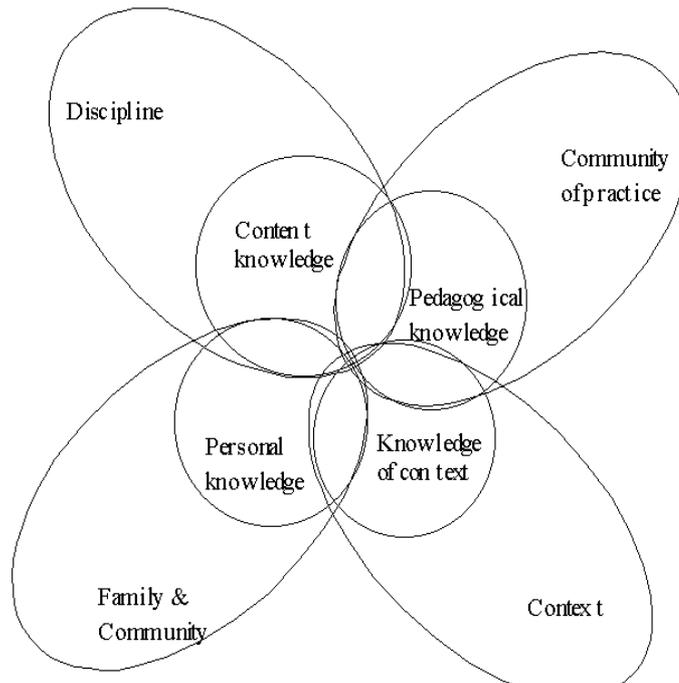


Figure 2: The context of the components of effective teachers

6 Dynamics

...a teacher is someone who orchestrates learning activities and mediates the social climate while diagnosing and remediating student performance

This model is not just a way of conceptionally organising the shopping lists that are normally given to describe effective teachers. Knowledge and skills exists in real human beings not in isolation and thus interacts both within the teacher and with the teacher's intellectual, social, emotional and physical environment. This model provides a basis of discussing and analysing these interactions in specific teachers. Such relationships are elaborated in Fig. 3. It is not our aim, in this paper, to catalogue these exhaustively but we will briefly discuss some important components.

Figure 3: A model of effective teachers (PCK = pedagogical content knowledge)

6.1 From personal to discipline knowledge (and vice-versa) (5)

Teachers' personal qualities are profoundly affected by the discipline that they have mastered and vice-versa. "We teach who we are" ; "we become [as teachers] what we love" . For example, in the novice stage of teacher development self-efficacy is enhanced through understanding and application of the discipline knowledge, pedagogy and context are valued less. Once self -efficacy is established within this framework students or beginner teachers can place emphasis on other knowledge components. Jasman (2002) claims that even very experienced teachers could only change one component of their teaching at a time, and it was important for maintaining confidence that other areas remained stable. Hence the importance of control and application of discipline knowledge in novice teachers for the growth of personal knowledge .

6.2 From discipline to pedagogical knowledge (pedagogical content knowledge) (6)

The discussion of pedagogical content knowledge has enjoyed a rapid growth in popularity, particularly in science education, ever since Shulman proposed the construct . This is partly because it represents a way of arguing for a specialised professional knowledge that teachers (only) possess but also that it is consonant with other intellectual currents that are occurring in the discussion of teachers and teaching . Pedagogical content knowledge is the intersection between discipline and pedagogical knowledge. defines it as "subject matter *for teaching* ... powerful analogies, illustrations, examples, explanations, and demonstrations - in a word, the ways of representing and formulating the subject that makes it comprehensible for others" (italics in original)

It is revealing that pedagogical content knowledge for all its seduction as way of thinking about teachers professional knowledge has proven difficult to explicitly identify , not only because it draws on two separate areas of research but also because it is embedded in the long term process of teaching and learning concepts and skills; it is embedded in the community of practice.

6.3 From pedagogical knowledge to knowledge of context (7)

This includes components of curriculum knowledge and knowledge of learners and their characteristics. has emphasise the importance of this link in building teacher expertise.

Berliner (as cited in Berliner 1991) described five stages of teacher development from novice through to expert teacher. As teachers moved through the different stages, the context played a bigger role in determining choice of appropriate pedagogical knowledge.

6.4 From knowledge of context to personal knowledge (8)

Relationships bridge knowledge of context and personal knowledge. The relationships with students and colleagues are particularly important because they allow for feedback cycle of change. It also mediates the enjoyment that the enables the teacher to continue to grow and develop. The ability to mould one's teaching so that it most closely aligns with students' learning needs is developed and enhanced through better understanding the students. This understanding is based on developing relationships with students on a personal basis both as individuals and as a group. Knowing one's students is fundamental to helping each individual strive to learn for understanding. Teachers need to know individuals and the ways they interact and develop within their group because, as the group develops, so relationships within the group continuously develop. Building relationships begins with a genuine concern to listen, to be aware of the changing nature of the classroom context, and to be interested in, and responsive to, the needs of students . Relationships are built and enhanced through trust and are important if learning is to be more than knowing and if teaching is to be more than telling. Trust is a two-way process and is equally important from the learners' perspective as the teacher's .

7 Research issues

7.1 The research project

This model is as dynamic and evolutionary as teachers' knowledge and is part of a continuing research program of the authors. As such we welcome comments and collaboration; use and abuse of our model. We plan to:

- develop and test the model so that it usefully describes effective teachers across a range of disciplines;
- over the next year confirm the model and its components against observations and interviews with twelve effective teachers across a range of disciplines;
- explore the relationships and interactions between the commonly acknowledged components of effective teachers in our data and the literature;
- examine more deeply the role of personal qualities in the development of effective teachers;
- explore the effect of self-confidence on teacher growth;
- explore the importance of context on effective teaching; and
- Investigate teachers' perceptions of their knowledge development during their career.

7.2 Relationship to other models

This model is consistent with other models of knowledge acquisition such as the , SECI model (see Fig. 4). Nonaka and Toyama a cycle of knowledge acquisition that describes the movement from tacit to explicit knowledge using empathising, articulating and connecting and from explicit back to tacit by embodying. There is the same movement between tacit and explicit knowledge within a teacher, although Nonaka and Toyama are far more prescriptive about the direction and steps by which knowledge moves than we are prepared to allow in the context of varied individuals in diverse environments. We have also been more concrete about trying to describe the context and environment (Fig. 2) that teachers acquire knowledge as opposed to Nonaka and Toyama's rather mystical "ba": the place where knowledge acquisition occurs.



Figure 4: A model of effective teachers placed in relation to the SECI model of knowledge conversion .

7.3 The model in use

Teachers evolve over their life history and both the components and the relationships between them change. One of the important challenges for a model of effective teaching is to give expression to the evolving teacher. The model presented here could be viewed as a frame from a movie of a teachers professional life with the relative significance of the components growing (and diminishing) over time and in relation to the environment.

Over a teacher's career knowledge is acquired from both teacher educators (hopefully profoundly as a preservice teachers and then by occasional inservicing) and the profession (during their preservice practicum and then throughout their professional life). Fig. 5 provides a way of thinking about this growth. Effective teachers do not arise ex nihilo; they grow over many decades and we need to acknowledge this and provide a language and tools for teachers themselves and teacher educators to discuss this process of evolution.

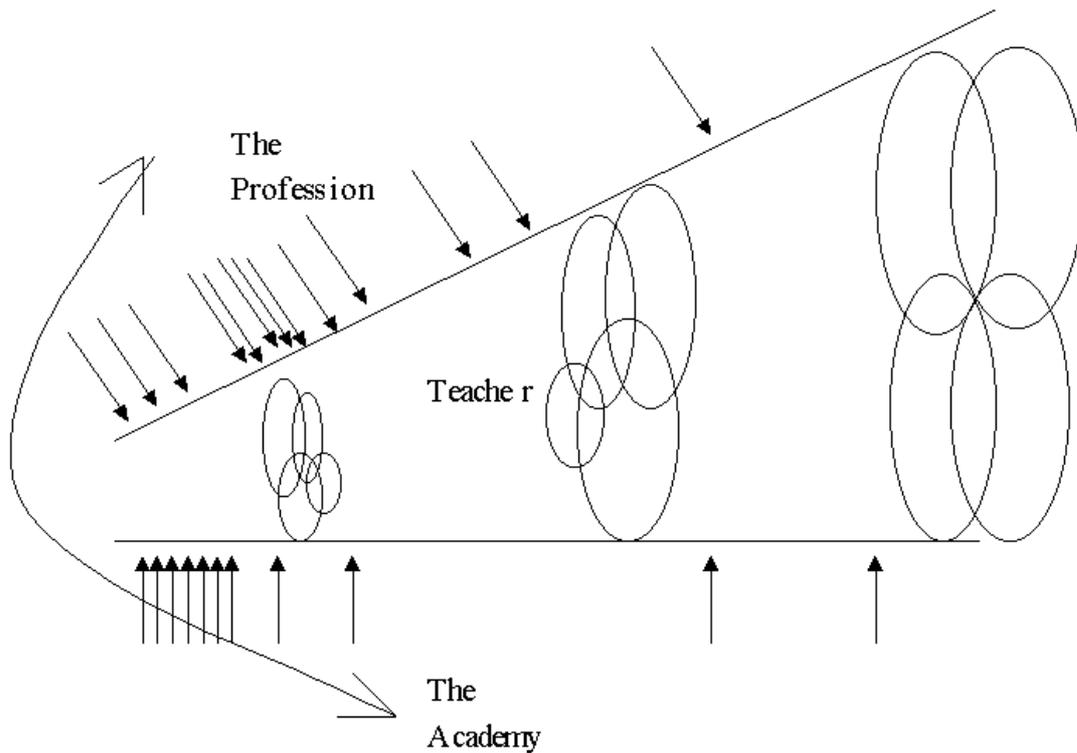


Figure 5: The professional growth of teachers under the influence of both teacher educators and the teaching profession. The model represents the contribution from the profession and academy (e.g. university, teaching college) over the duration of a persons teaching career, and the dynamic and interactive development of teacher knowledge. It also illustrates communication directly between the profession and the academy and differential rates of growth of the various components of teacher knowledge.(adapted from .

This model underpins the philosophy in many education courses; the quote below being from one such.

What I had learnt from previous cohorts of students enrolled in the teacher education degree was that very few of them were able to see the connections between units taught and their future career until they were in their last semester of study. They had no understanding how different types of teaching knowledge accumulated during their degree and more importantly their career. As we were introducing a new degree there was an opportunity to address this with the development of new units. The course development team spent a great deal of time building in connections between the units. In the first core unit we spent time explaining the course and what type of knowledge they would expect to develop from the different units, and the connections between the units. The knowledge areas we concentrated on were, the subject major, teaching skills, knowledge of the school system and communication skills and personal resilience. We also explained that different students come into the course with strength in some of these areas of knowledge; however, they need to develop all areas and make the connections between knowledge areas. Also there are some areas that only

really develop when they are in their own school and this base of knowledge grows with experience. The most important point we try to get across to the students is that growth in these areas will be different for each one of them, it does not all happen at university; that with different schools they will need a different repertoire of skills. We want these students to have a better understanding of the big picture and where they are at this point in time.
(teacher educator, BEd (primary))

Our task as teacher educators is to produce effective teachers and improve the effectiveness of existing teachers. To do this we all use models, often implicit, and one of our challenges is to assemble the constituent components of good teaching into evidence based model, which can be used to make teacher education more effective.

References