Teaching Development—
Experience and Philosophy (Using the Three Rs)

By Peter Gossman

Introduction

This article attempts to synthesize teachers' conceptions-of-teaching and integrate them into a structure for professional development. It presents one route by which a teacher might become more expert at the practice of teaching. Various conceptions-of-teaching theories are considered in the light of how they impact on the practice of teaching. How the conceptions influence and are linked with the progression from novice to expert as outlined by Drefus and Dreyfus in 1986 is discussed. The novice/expert progression is overlaid with Haigh's three Rs methods for the promotion of professional development. Some methods for progression are suggested.

Is teaching primarily about the teacher, about the content, or about the student? Or is it about all three? The mission statements of educational institutions tend to focus on the learning undertaken by students. For example, Yale University School of Medicine (2006) aims "To educate and inspire scholars and future leaders …" (Mission Statement and School Wide Objectives section para. 1), and Cambridge University (2004) aims to promote "the encouragement of a questioning spirit" and to provide "education which enhances the ability of students to learn throughout life" (The University's Mission and Core Values section para. 3). The challenge for teacher trainers and educational developers is to

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seek ways of enhancing the abilities of current and future teachers to pursue such aims. Germano (2003) notes that university staff are required to deliver lectures but are not given training in the task. The same could be said of all teaching skills. The tendency is for teachers to develop a teaching style that closely mirrors the way they were taught (Biggs, 2003).

The present article will review literature firstly, about, conceptions-of-teaching and secondly, about the professional development stages proposed by Dreyfus and Dreyfus. A teacher development strategy is then proposed, aimed mainly at college and university staff but suitable for others. This strategy seeks to advance teachers through the Dreyfus and Dreyfus stages and to change their conceptions-of-teaching. In a comprehensive review of research evidence relating to teachers' professional development in New Zealand universities, Prebble, Hargraves, Leach, Naidoo, Suddaby, and Zepke (2005) state that "through a variety of academic development interventions, teachers can be assisted to improve the quality of their teaching" (p. 23). They assert that there is no evidence to support the development model that suggests teachers "change their focus of attention over the course of their career, from self to subject to student (passive) and finally to student (active)" (p. 54). They draw several conclusions, summarised by Rivers (2005).

> Evidence for the long term impact of in-depth teacher preparation is promising but limited, and it is not yet strong enough to justify a compulsory scheme for the entire sector. (p. 7)

If "inspiration," "a questioning spirit," and "lifelong learning skills" are broad aims for institutions, teaching staff need to be shown they can develop them in the students. Prebble et al (2005) recommend further research into the linkage between teacher professional development, teacher practice, and student learning. A study by Trigwell, Prosser and Waterhouse (1999) revealed that the way a teacher teaches influences the way students approach their learning. They examined the relationship between learning, using a modified Biggs (1987, cited in Trigwell et al, 1999, p. 62) study process questionnaire, and teaching, using their own 'approaches to teaching inventory.'

> The results indicate that in the classes where teachers describe their approach to teaching as having a focus on what they do and on transmitting knowledge, students are more likely to report that they adopt a surface approach to the learning of that subject. Conversely, but less strongly, in the classes where students report adopting significantly deeper approaches to learning, teaching staff report adopting approaches to teaching that are more oriented towards students and to changing the students' conceptions. (Trigwell et al, 1999, p. 57)

Conceptions-of-Teaching

In their article on lecturers' views on teaching and learning, Trowler and Cooper (2002) suggest that there are three domains that influence the adoption of a

teaching approach. The first domain is conception of teaching, the second is subject discipline. Martin, Proser, Tigwell, Ramsden, and Benjamin (2000), considering the first domain, sum up the issues: "Simply put, we argue that the critical issue is not how much teachers know or what their level of teaching skill is, but what it is they intend their students to know and how they see teaching helping them to know" (p. 387). Neumann, Parry and Becher (2002) note that disciplines involving "hard pure curricula (physics and chemistry are examples) tend to be conceived as linear and hierarchical" (p. 407) and "hard pure degrees are based on large group lectures" (p. 411) and these influence the first domain. The third domain focuses on reflective practice showing that how teachers review their work influences their teaching approach. Trowler and Cooper pose several questions: How can teachers be moved along the conceptions continuum? How do disciplines socialize their teachers? And how do effective lecturers think about their practice?

Various writers have discussed conceptions-of-teaching and these are summarized in Table 1. Entwistle and Walker (2000) discuss a range of teaching conceptions from the simple to the more sophisticated. In all cases they note that "studies often identify three main aspects of teaching, firstly, understanding the subject matter, secondly, teaching and managing learning, and finally, relationships with the learner" (p. 343). Kember (1997) summarizes the research into conceptions-of-teaching and polarises the classifications as teacher-centered/content-orientated to student-centered/learning-orientated. Ramsey and Fitzgibbons (2005) also suggest three distinctions of classroom experiences, "doing something *to* the students, doing something *with* the students, and *being* with students" (p. 335). The first of their distinctions can be aligned with a teacher-centered approach and the last with a student-centered approach. They stress that "all forms of teaching and learning; doing, doing with, and being are valid and indeed complementary" (p. 337). Further authors' (Trigwell et al, 1999; Biggs, 2003; Ramsden, 2003; Kugel, 1993) work can also be placed within the table.

The final column, outside the teacher centered / student centered continuum, is a stage where the teacher is sufficiently skilled to recognise, explain and apply the most beneficial teaching approach to a particular situation. It is perhaps summed up most succinctly by Ramsden

> Teaching involves finding out about students' misunderstandings, intervening to change them and creating a context of learning that encourages students to engage with the subject matter. (Ramsden, 2003, p. 110)

Martin, Proser, Tigwell, Ramsden and Benjamin (2000) describe teachers' approaches to teaching in a different way and identify six categories or variations (see Table 2 below). These variations are defined in terms of the teachers' intentions and strategies for teaching. In the first three categories the strategies are teacher-focused as follows: (A) the teacher presents given content, (B) the teachers cover a required curriculum, and (C) the teacher seeks to clarify and explain the knowl-

Table 1. Conceptions-of-Teaching: A Selected Comparison

	Teacher-centered	Student directing focus on subject	Student-centered	Mastery (an appropriate mix of all three)
Entwislte and Walker (2000)	Teacher-focused, content orientated (reproducing correct information)	-	Student-focused, learning orientated (concerned with conceptual development)	-
Kember (1997)	Teacher-centered / content orientated	-	Student-centered / learning orientated	-
Ramsey & Fitzgibbons (2005)	Doing something to the students	Doing something with the students	Being with the students	-
Van Dreil, Verlop, Van Werven & Dekkers (1997)	Teacher-centered	Student-directing	Student-centered	-
Trigwell, Prosser & Waterhouse	Information transmission / teacher-focused approach	-	Conceptual change / student focused approach	-
Biggs (2003)	Level 1: Focus on what the student is - transmitting information (differences in learning due to student ability)	Level 2: Focus on what the teacher does – transmission of concepts and understanding)"the blame is on the teacher")	Level 3: Focus on what the student does - process and product	Level 3: Focus on what the student does – teaching as supporting learning
Ramsden (2003)	Teaching as telling or transmission	Teaching as organising student activity	-	Teaching as making learning possible
Kugel (1993)	Stage 1 focus on Self (Transition 1 self to subject)	Stage 2 focus on subject (Transition 2 subject to student) and Stage 3 focus on student	(Transition 3 student as receiver to student as active learner) Stage 4 focus on student learning	(Transition 4 student as active learner to student as independent learner) Stage 5 focus on the student as an independent learner

edge to ensure "that the correct information has been transferred" (p. 395). For the second three categories the strategies are student-focused. For D) the authors note that "through the demonstration of the principles to be understood, the student will discover and develop the concepts of the discipline" (p. 395). In E) teachers seek to actively engage the students in discipline-specific ways, and in F) the aim is the promotion of conceptual understanding through challenging students' existing discipline conceptions.

A phenomenographic study of the conceptions-of-teaching-of-science teachers by Prosser, Trigwell and Taylor (1994) also presents a gradation. From teacher interview data collected (n=22), the authors derived a hierarchy of conceptions-of-teaching beginning with "transmitting concepts of the syllabus" and moving through "transmitting the teachers' knowledge," "helping students acquire concepts of the syllabus," "helping students acquire teacher's knowledge," and "helping students develop concepts" to "helping students change conceptions."

Table 2. Categories of Description of Approaches to Teaching.

Strategy	Intention		
	Information transmission	Conceptual Development	Conceptual Change
Teacher Focus			
Presenting material	A		
Covering material	B		
Clarifying material	C		
Student Focus			
Engaging with discipline knowledge		D	
Practicing discipline knowledge		E	
Challenging discipline understanding / professional practice			F

Dreyfus Professional Development Stages

In 1986 Hubert and Stuart Dreyfus published research into stages of professional development. They suggest "that professionals grow in their chosen career as they gain experience within the context of their work setting" (paraphrased by Daley, 1998, p. 1). Eraut (1994) summarizes the work of Dreyfus and Dreyfus and notes that they identify five levels of skill acquisition that relate to a professional's ability to work within a context, e.g. teaching. The levels began with novice and progress through advanced-beginner, competent, proficient to expert. As professionals gain experience and additional training their professional decision making becomes more intuitive, less easy to explain, less stepped (i.e., less a part of a process), and more instinctive. An expert, therefore, has knowledge, can apply it, and can make appropriate decisions based on her or his application of that knowledge (Eraut, 1994). An obvious question, then, for any teacher educator in any education setting is how to aid the progression of individuals through the five Dreyfus and Dreyfus stages to allow them to become more competent and proficient in their work. Tying the Dreyfus and Dreyfus levels to Haigh's three Rs provides one answer.

Haigh and the Three Rs

Haigh (2005), in a paper presented to the 10th Biennial Conference of the International Study Association on Teachers and Teaching, outlines a rules, reflection, and research (three R) model of personal development. Haigh notes some core concepts that inform his own theory of teaching. For example, teachers can best facilitate learning in others if they have, amongst others things, a range of teaching skills, a capacity and desire to reflect on their practice, sensitivity to factors that influence the appropriateness of teaching methods, and an awareness that their own teaching choices are influenced by their view of the purpose of education. He describes the professional development of a teacher, through the five Dreyfus and Dreyfus levels, as a journey that progresses as the individual recognizes what she or he wants and needs to know about teaching. The three Rs are aspects of that journey that have

prominence for teachers at various stages. Haigh argues that in order to learn, a novice needs to isolate the factors affecting teaching activities and to formulate a set of rules that apply and guide her or his work in that situation. As experience is gained, novices reflect upon their practice and refine their rules and develop new ones. Finally, as proficiency and experience increase, an individual may engage in research into teaching.

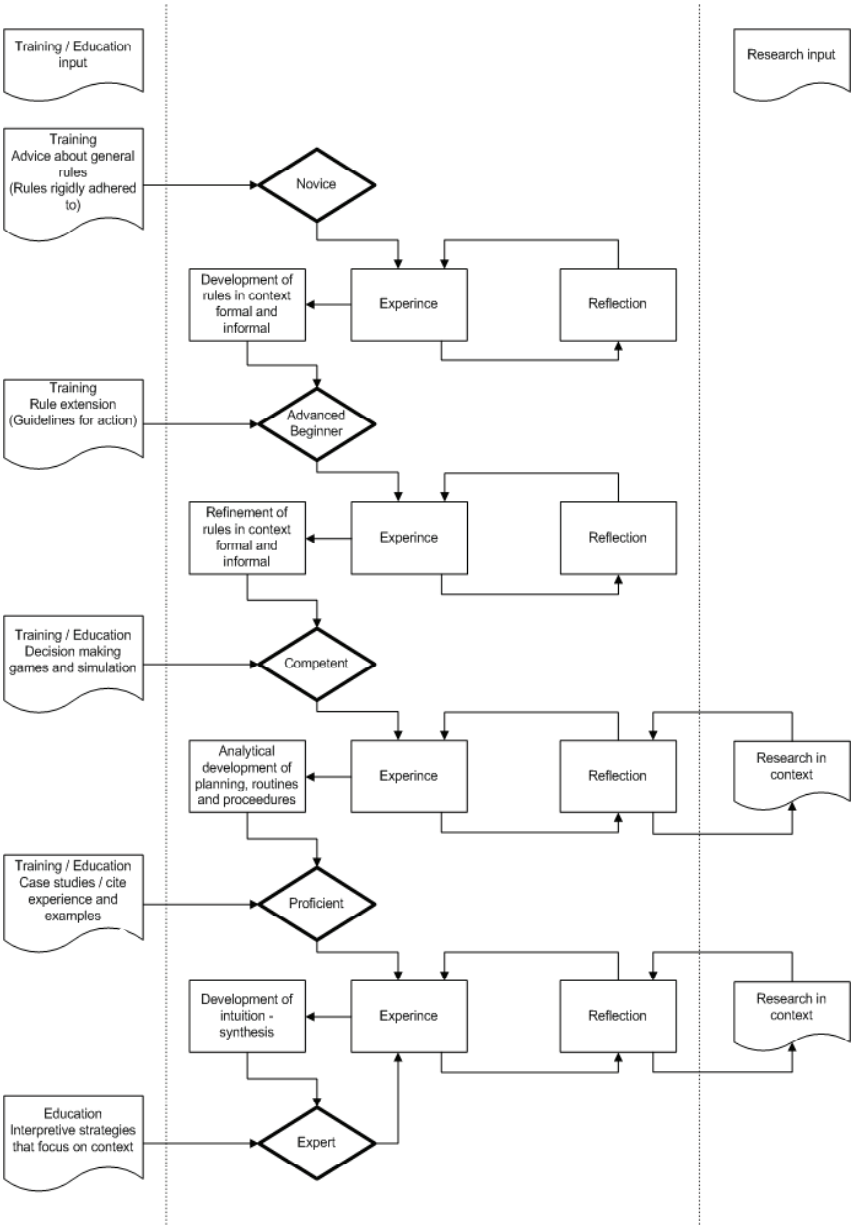
By incorporating these two models of Dreyfus and Dreyfus and of Haigh, a model for the change and growth of individuals as teachers can be constructed (Figure 1). However, prior to considering such a model, it is worth drawing a distinction between two types of practice. The first is static, where practice aims to develop or maintain expertise in performing a specific set of actions. The second is dynamic, where the task varies each time and the actions consequently required also change (Guest, Regehr, & Tiberius, 2001).

> Dynamic tasks require that the individual decide on appropriate strategies and adapt to various contingencies (as in a hockey game, jazz improvisation, or diagnosing and treating a complicated medical case). Dynamic experts have expertise that goes beyond mastery of the mechanics of the task. They are skilled in dealing with problems. (p. 79)

Guest et al. recommend that basic skills should be performed automatically to allow an individual to focus upon the complexities of a dynamic situation. They also suggest, like Haigh, that "an aspiring expert could strive to improve their understanding … by reflecting upon his or her activities and thought processes" (2005, p. 174). They go on to note that expertise is gained through experience (experiential learning) and that each encounter with a situation results in learning. However, a law of diminishing returns applies, with each individual exposure to the problem or situation producing less learning. Thus, for an experienced teacher each new lesson is increasingly less likely to produce a situation that they cannot deal with. This type of learning can be applied to the novice to advanced-beginner and the advanced-beginner to competent progressions.

Beyond the competent level, a different model is required to explain how improvement takes place. Guest et al. (2001), refer to the work of K. A. Ericsson, which suggests that expertise both depends on practice and how that practice is approached. According to Ericsson (as cited in Carson, 2002), deliberate practice that enhances experience and is dynamic occurs when four conditions are met. These conditions are: that the task is well defined, that it is at an appropriate level of difficulty for the individual, that informative feedback is provided, and that *opportunities for repetition and correction of errors* are provided. "Total amount of deliberate practice is a good predictor of level of absolute expertise" (p. 2). Carson goes on to note that, again according to Ericsson, the "relationship appears to be causal and not simply correlational" (p. 2).

Figure 1.A Model Integrating Dreyfus and Drefus's Levels and Haigh's Three Rs.



Blending Dreyfus and Dreyfus and Haigh

The blended model in Figure 1 suggests that progression through the Dreyfus and Dreyfus levels can be promoted by using one or more of Haighs three Rs (rules, reflection and research). Movement from the novice to advanced-beginner level can be achieved by individuals developing and then refining, via reflection, a set of rules as they increase their experience. These could be as simple as checking the marker pen before writing on the board. Progression to the next level will be similar, although the rules will become progressively more complex as the advanced-beginner takes slightly less information from each new experience. For progression beyond the level of competent within an individual's profession, some research into practice must take place. For teachers this will be engagement with the scholarship of teaching and learning. Figure 1 illustrates the distinction between the training/education input, the Rs of rules and reflection (left hand column), and the R of research (right hand column).

One problem with presenting the model as a stepped process is that it suggests an homogeneity within each level and a sharp boundary between the levels. In reality progression through stages is unlikely to be so distinctly definitely and is more likely to be gradual and incremental.

The approach advocated by Haigh suggests that one of the first considerations for any teacher should be a reflection on how students construct knowledge. How then does all this relate to the conceptions-of-teaching outlined at the start of the article? Haigh (2005) in his personal theory of teaching and other authors in literature relating to teaching portfolios (Green, 1996; Seldin, 1997; Hurst & Wilson, 1998) suggest that it is not possible to develop capacity without first having some conception of your professional role to reflect upon. The following section suggests how changes in Dreyfus and Dreyfus levels can be mapped against teachers' role conceptions.

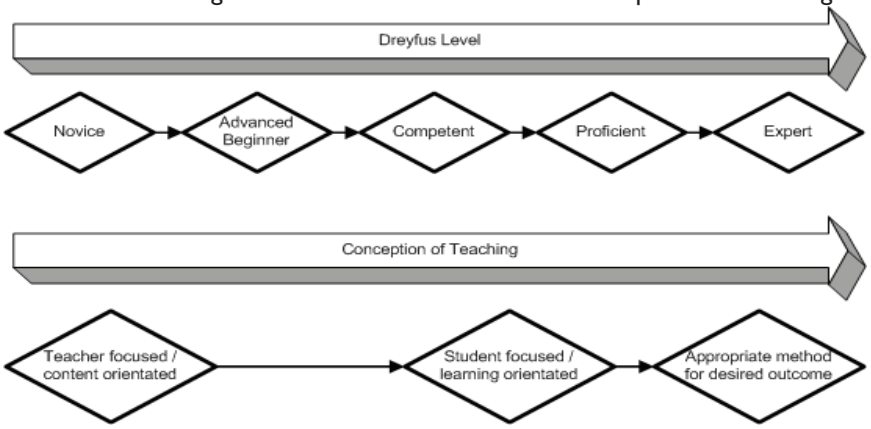
Dreyfus and Dreyfus and Conceptions-of-Teaching

Figure 2 illustrates how progress along a developmental journey (novice to expert) is accompanied by teachers' changing their teaching methodology and their role conception.

Research by Sheppard and Gilbert (1991) notes that a teacher's theory of learning influences students' beliefs about subject knowledge structure which in turn influences the students' learning approach (Trigwell, Prosser & Waterhouse, 1999). It is axiomatic that a teacher's theory of learning will also influence their conception-of-teaching. Sheppard and Gilbert's interviewed students and identified different epistemologies which were then tabulated by subject with a link suggested between epistemology and discipline. Interestingly subjects that included some historical and philosophical perspectives on knowledge resulted in the students' holding a more relativistic epistemology. For one particular course, Fine Art Philosophy, the authors' note:

> Data suggested that the Philosophy course could be seen as explicitly addressing

Figure 2.
A Model Associating Drefus and Drefus Levels with Conceptions-of-Teaching.



> the problem of student epistemology, by means of presenting alternative conceptions of knowledge to students—and, thus, a view of knowledge as relative—and by requiring students to engage in discussion, drawing upon their own personal experiences and conceptions. (p. 246)

Sheppard and Gilbert conclude their work by observing that where teaching addresses epistemology, student learning is more likely to be based on personal meaning; and when this takes place the learning outcomes are also likely to be enhanced. Kember (1997, citing Kember & Gow, 1994) also suggests that teaching style directly influences student learning style: "Departments with high mean scores for the knowledge-transmission orientation tend to depress the use of a deep learning approach" (p. 269). Kember and Kwan (2000) develop the argument further by concluding that "teaching approach is strongly affected by the conception of teaching" (p. 498). They also state that "fundamental changes to the quality of teaching and learning may only result from changes to conceptions-of-teaching" (p. 498).

By hypothesising that a change in competence is reflected in a change in conception (and vice versa), one might embrace as a proxy measure of the effectiveness of staff development the extent to which it moves a teacher up the Dreyfus and Dreyfus levels and along the range of conceptions-of-teaching. Kember and Kwan (2000) in their study of approaches to teaching and good teaching suggest that the "goodness of a teacher" is related to the conception she or he holds. Dreyfus and Dreyfus would consider expertise to be a mastery of approaches (to teaching) that can be appropriately applied in a given situation. Indeed, Dreyfus and Dreyfus consider an expert to be someone who has transcended the structures of knowledge within her or his subject and is operating intuitively (Eraut, 1994).

Entwistle and Walker (2000) note the following:

> A sophisticated conception of teaching stems from the teacher's own deep understanding of the subject, but depends on much more. It requires an act of imagination through which the teacher first envisages the subject from the students' perspective, and then devises ways of helping the students across the initial gulf of comprehension which separates them from the discourse of the discipline or profession. (p. 343)

It is possible diagrammatically to represent these dimensions. Each axis in Figure 3 represents one of three scales, conception-of-teaching (teacher centered/student centered), novice/expert (Dreyfus and Dreyfus) position for teaching, and novice/expert position for the teacher's subject expertise. The last one of these might also reflect the individual's placement along Perry's nine position scale that starts at dualism and moves through multiplism to relativism.

For teacher trainers and staff developers, the diagram suggests that an appropriate forms of development might be applied at different stages. A framework for professional development of higher education teaching is suggested by Orrell (2004) who tabulates educational level (induction, foundation, graduate certificate, masters) against aspects of teaching. For example (see Table 3), at the start of a teaching career an individual practices their teaching (dimension) and gains valuable teaching knowledge, skills and resources (domains) producing, amongst other things, confidence (outcomes).

Figure 3. Dreyfus and Dreyfus's Level (within a Teacher's Subject and within Teaching) and Conception of Teaching.

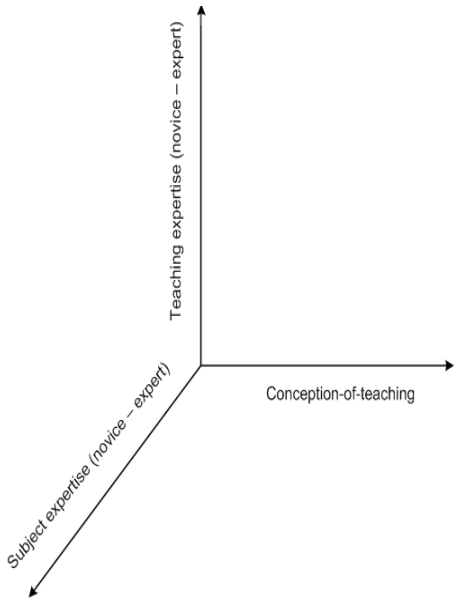


Table 3. Framework for Professional Development—Orell (2004, p. 36).

	Induction	Foundation	Graduate Certificate	Masters
Dimension	Practice	Reflective practice	Scholarly practice	Scholarship in and of practice
Domains	Skills Knowledge Resources	Philosophy Understanding Interpretation Reflection Planning and design Ethics	Student of higher education Exposure to research and theory Analysis Interpretation Integration Innovation	Researchers of higher education Investigation Critical evaluation Dissemination Transformation
Outcomes	Confidence Information Support Control	Self efficacy Networks Plan of Action	Reading Communities of practice	Research publication

A teacher development model can be suggested from Orell's framework and a combination of Dreyfus and Dreyfus and Haigh. For example, novices need to be given the opportunity to practice their teaching (induction, Table 3 above) and develop in the above domains, in doing so they gather more information for refining their practice. The column on the left hand side of Figure 1 suggests the training / educational input required to progress individuals through the stages. At the novice stage advice about general rules is suggested as the developmental input and at the competent stage (graduate certificate, Table 3) teachers might benefit from the use of simulations and game playing (see Figure 1) to help them build their contextual analytical skills. Note that Orell, like Haigh, implies a change in the conception of knowledge in relation to teaching. For Haigh, the initial Rules stage is dualistic, and at a latter stage teachers recognize that the knowledge is relativistic with some teaching techniques suitable in some situations but not in others.

For beginner teachers, the search for working rules, tips, and strategies has lead to a market for manuals that present solutions. McKeachie (2002) states in his book of teaching tips that it was originally written to help new university teachers start in their teaching role by answering the questions that individuals posed, but he acknowledge that "effective teaching demands more than the acquisition of skills" (p. xvii). In a similar book, Race (1999) notes that "teaching is one of the most complex processes known to humankind" and that "a hints and tips approach should not replace the need for good practice to be informed by the findings from research" (p. vii). The answer for teacher trainers and academic staff developers would, therefore, seem to be to answer a new teacher's desire for hints and tips as the starting point for their professional development journey through different teaching conceptions and up the Dreyfus and Dreyfus levels (Figure 2).

At the expert level, Smith and Tiberius (nd) suggest that expertize in any field has three dimensions: knowledge, intuition, and progressive problem solving. For the first dimension, it is possible to argue that no teacher will become expert in teaching without some injection of formal knowledge of education. The intuition dimension is illuminated by the following quote:

> Highly experienced teachers ['experts'] can sense whether to use another example or to move on after asking a few questions or pausing to gather information. In contrast, novice teachers are often rigidly focused on their notes. (Smith & Tiberius, nd, p. 1)

With regard to problem solving Smith and Tiberius note:

> Experienced teachers, characterised by instant recognition of problem situations and efficient actions, tend to make decisions without deliberation, without being aware of the rule, or without having rules. Such teachers often have difficulty explaining to students their thoughts or action that constitute expert practice. They make decisions on the basis of subtle, contextual features of the situation, features that are unavailable to the novice. (nd, p. 1)

Conclusion

The profession of teaching requires two fields of expertise: that of the subject a teacher teaches and that of the science of teaching. Does this interaction confound the model above? Are people good teachers because they are competent, proficient or expert in their chosen disciplines? Some are, and this in turn leads to a debate—are good teachers born or taught? Most teachers would agree that they have been taught about their subject area but not necessarily taught to teach. This in turn provokes the debate about the apparent resistance to certification of teachers in the tertiary sector. Kift (2004) has suggested that "[academic staff resistance] is based on reluctance by some staff to adopt a more professional approach to tertiary teaching and a failure to engage in scholarly teaching practices" (p. 9). Martin et al. (2000) conclude their paper with the following statement.

> Programs of academic development for teachers in higher education need to focus on the vexed question of subject matter and how it is constituted for students before considering how teachers should approach their teaching. (p. 409)

This article offers a starting point: teacher development must include active reflection on conceptions of knowledge; and if an individual views teaching as the transfer of information, no amount of professional development about the practice of teaching will be beneficial. What the above model suggests is a methodology for development to occur in the practice of teaching. It does not address other changes that may occur for individuals as they teach, for example, consideration of the purpose of education. The Dreyfus and Dreyfus levels imply that an individual's professional competence can be measured and therefore the effectiveness of an

intervention (e.g., one of the three Rs) to increase that competence could also be measured. It would perhaps be a more interesting area of research to consider the three Rs within different epistemological contexts to see if and how professional development within teaching needs to relate to the subject discipline. The model might also provide a structure for individual reflection on the factors influencing one's own participation in teaching professional development.

However, before tackling the issue of what or how to develop teachers' practice, the teacher must be ready at the stepping-off point. Gilbert (2002, p. 6) notes this problem in the following way:

> Q: How many staff developers does it take to change a light bulb?
>
> A: One, but the light bulb has got to want to change.

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