THEORY OF LEARNING OR THEORY OF EDUCATION? COMMENT ON MACLELLAN AND SODEN FROM A TEACHER'S PERSPECTIVE

COLIN A. SMITH

ABSTRACT

Maclellan and Soden (2003) rightly argue that teachers' expertise includes knowledge of learning theory. However, there are possibly some assumptions underpinning the form of their argument that, when examined more closely, suggest that the applications of learning theory to teaching, and to questions of teacher expertise, are more complex than a reading of their article suggests.

INTRODUCTION

Within the current focus on CPD, Maclellan and Soden (2003) make timely observations on the need for teachers' acquaintance with learning theory. Teachers' knowledge of academic theories would be one test of the validity of their own learning theories and the practices based upon them.

Following von Glaserfeld (1995), the authors distinguish between trivial and radical forms of constructivism. The former sees knowledge construction as a process of individual mental activity that is dependent upon previously acquired knowledge. Radical constructivism, what they claim teachers should adopt, includes these features but goes beyond them to argue that,

> …there is no objective, absolute reality that is 'out there' waiting to be discovered and that all cognitions are personal and idiosyncratic (page 117).

There is also a social dimension in this view of constructivism. Knowledge construction is a dialectical process grounded in a system of social relations that provide the learner with new tools and signs. These mediate and shape thought through emphasising what should be valued, along with particular processes of reasoning.

> …radical constructivism implies that knowledge will be tested against ideas in the community using appropriate cognitive tools/ways of knowing (page 117).

In this context, the authors are concerned that the teachers in their study — a self-selected group about to embark on a Master's module — showed little prior awareness of radical constructivist principles and so are unlikely to apply them. However, applying any learning theory to practice is complex. This response is based mainly around assumptions that appear to underpin Maclellan and Soden's argument. I apologise if they do not actually make the assumptions attributed. Nevertheless, the issues are important and worth discussing.

ASSUMPTION 1: TEACHERS WOULD WANT TO CHANGE THEIR PRACTICE IF THEY KNEW CONSTRUCTIVIST THEORY

There are many sub-issues here: more than can be adequately dealt with in the space available. Firstly, teachers operate in value systems that are not those of academic research and which may, indeed, conflict with them (Ebutt, *et al*., 2000). Furthermore, it can be argued that the development of, let us call it, practitioner theory develops in response to value conflicts within it, not through confrontation between different explanatory theories as in academic research (Smith, 2002; Whitehead, 2000). Among the 'signs and symbols' (to use this terminology) or value systems that

shape teachers' thought are the types of exam questions that their students will sit; the structure of the syllabus; demand to cover content; and school, local and national policies. For example, syllabi may, for science at least, have a behaviourist tone to them (Bryce, 1993, 1996). Also, many of the values that would need to be taken up by teachers in order to apply Maclellan and Soden's argument (for example, promoting problem solving, trust in collaboration as a support for learning, risk taking, cultivating creativity and ingenuity among students) are undermined by the focus on national standards and targets (Hargreaves, 2003). They may be right to expect that the ethos created by policy frameworks would determine teachers view of learning but, perhaps, this ethos is not as constructivist as Maclellan and Soden imagine. This is as good a reason as any to open up teachers' awareness of research theory, but even if they know and accept constructivist principles, there is no guarantee that teachers can successfully apply them in all their classes and at all times. Teachers' choices are not always simple to make.

A classroom example illustrates aspects of this complexity. A Learning Support teacher, with a science background, discovered that some of my second year students had some idiosyncratic ideas about stars. Among these were that stars switch off during the day, or that they were like solar lights in the garden that are charged up by the sun during the day and shine at low light levels. This seemed a good opportunity to let them research and explore their own theories, to gently challenge them to consider how adequate they are, and, hopefully, to come closer to the scientific view for themselves. I have planned to allow time for this within the constraint of having to cover the course within a deadline. To create that time I have speeded up the coverage of the required course by taking a more didactic approach than normal. Why? I know from experience that this will not really affect their assessment outcomes on the tests used, even though, influenced by constructivism, I suspect less secure or meaningful learning would also normally result. However, the class concerned is difficult behaviourally and, consequently, difficult to engage at all. They are not much interested in learning the prescribed course – by enquiry or otherwise. Students have intentions and goals as well as teachers (Olson and Bruner, 1996). An important part of the motivation for creating additional time for them to reflect on their own theories and puzzles is not only to apply constructivist principles but also to improve relationships with the class. Motivations arise and judgements are made in complex and variable classroom relationships that are set in the wider contexts of school, curriculum, targets and standards, and policy frameworks and, at best, compromises often have to be made. Knowing learning theory increases the options but does not necessarily determine all the practice.

So, there are a number of questions that arise at this point.

- What structural changes need to be made to the whole system if it is agreed that the values implied by a theory such as radical constructivism should be consistently applied? Biggs' (1999) concept of constructive alignment is relevant here.
- Are the values implied by radical constructivism those that we want to dominate all our classroom practice or educational system?
- Indeed, should we base our entire educational value system upon one academic theory of learning?
- How do we reconcile required course work, time issues and the principles from learning theory?
- How do we model the complexity of motivations, intentions and other factors that affect outcomes in educational learning to avoid over simple prescription for practice? (See Entwistle and Smith, 2002, for one attempt at this).

- What exactly are the relationships between research and practitioner theories (Smith, 2002)?

Most of what follows below is also connected to the above issues.

ASSUMPTION 2: OUR EDUCATIONAL SYSTEM ONLY EFFECTIVELY PROMOTES LEARNING WHEN TEACHERS LISTEN TO RESEARCHERS

Given some of the political rhetoric of recent times, lay people could be forgiven for thinking that students never learn effectively in our schools due to reasons of teacher incompetence. Maclellan and Soden presumably do not hold this assumption. However, in common with other researchers, they occasionally use a tone of language that sounds judgemental. Commenting upon the themes in the teachers' responses, they note:

> Such a theoretical eclecticism is worrying because it suggests a lack of expertise (page 116).

In what do we lack expertise? In the system as it operates at present, or in the one that would emerge from universally adopting constructivism?

> Constructivism encompasses a range of theories that share the powerful message that learning is likely when there is a culture of enquiry aimed at developing a deep and flexible understanding (page 120).

Conversely, is learning likely without some sort of culture of enquiry among students? There are times when I can simply tell them even quite complex ideas, concepts and theories and they understand them and see their implications. What is necessary is that they want to understand these things and are ready to do so. In that sense, there is a spirit of enquiry among them. I might help foster it by organising my exposition around questions such as, "Why do we think this?' Nevertheless, it is just a form of traditional teaching. Constructivism, as a learning theory, may explain why it works on these occasions but does not justify the practice any more than notions of good didactic teaching[1]. This is not to deny the usefulness of research, only that teacher expertise does not depend on it alone. More likely, I think, is that we are very expert with some pupils, and in some contexts, and less so with others. Research theories may be one, but not the only, aid to development of expertise in those areas where it is most necessary. Again, difficulties leading to the need to develop expertise are most likely in conditions of mismatching goals, values, policies, and so on, that occur within the classroom or impinge upon it from elsewhere. Suggestions from researchers should take this into account.

More immediately relevant to practice, in this context, may be research that draws attention to the different ways students may experience the same learning activity in the classroom (see, for example, Entwistle, 1987; Marton and Booth, 1998; Marton, Hounsell and Entwistle, 1997). The question then becomes one of what sort of learning is occurring and, what sort of understanding or awareness each pupil is developing. For this, we need a theory of understanding in educational contexts, not a general theory of learning. Such a theory would have to take account of the issues – particularly those concerning educational values – raised in this article, along with the complexity mapped out by Entwistle and Smith (2002). Indeed, Entwistle and Smith speculated that a theory covering all educational contexts may be very elusive and that we have to select theories that suit specific purposes. Similarly, Smith (2002) described how teachers sometimes tailor research theories and findings to their own purposes and problems and values, thus raising further issues for academics to explore (see, also, Sachs, 2003), and how all of this requires a partnership between researchers and teachers in theory building.

Maclellan and Soden note the difficulty in deriving teaching methods directly

from constructivism since it is primarily a theory of learning. Should this not lead us to suspect that educational theory consists of more than an application of learning theory to practice?

ASSUMPTION 3: CONSTRUCTING EDUCATIONAL THEORY IS NECESSARILY UNIDIRECTIONAL

This follows from the above. Maclellan and Soden seem to imply that that the direction of theory construction is from academic research to practice. In this case, teachers should, without question, adopt and apply radical constructivism to their practice. It is fair to say that the partnership process argued for in Smith (2002) requires teachers to become more active in engaging with research than most are at present. However, I would also hope that I have done enough here to make the case for recognising that the process of educational theory building, and it application should not be thought to be unidirectional. The question is how to promote the necessary dialogue so that both teachers and researchers engage jointly in theory building.

ASSUMPTION 4: WE CAN BASE EDUCATIONAL THEORY ON DEBATABLE PHILOSOPHICAL POSITIONS

I raise this question because it is beginning to exercise my mind, is implied by the above discussion, but is outwith my competence to deal with adequately. According to Maclellan and Soden, radical constructivists do not deny that there is an objective reality, only that we cannot know it for sure on the basis of our experiences. Our theories and concepts are viable as long as they help us to explain the world. Obviously, this is not the only philosophical stance. Ellis (2002), for example, argues for a form of scientific realism. In this view there are natural kinds that we do know for sure are real and absolute. For example, entities such as atoms, molecules, electrons, electron shells, elements and compounds are real and absolute because they explain far more than they were designed to do.

> If we were to assume that these objects and processes were all fictitious, then we should be at a loss to explain how the explanations in which they feature could possibly be so useful, for it would be astounding if theories with fictitious entities were able to account for anything beyond what they were developed to do… Each postulated entity features in many different scientific explanations, in a number of different areas, just as we should expect if it were a real thing. Moreover, each has been found to have properties that it had not at first been thought to have (page 25).

The simple assumption, according to Ellis, is that if things behave as if they are real, then they are. Many ideas that underlie research endeavours can be traced directly to contestable philosophical ideas (Bechtel, 1988) and constructivism is no exception. The question that concerns me is one similar to that of cultural bias in subjects such as history, modern studies, religious education, and so on. Through the theories that it adopts to underpin its practice, education promotes a particular worldview – in this case, concerning our relationship with reality. If radical constructivism is generally adopted, it stacks the odds in the continuing debate on this issue in favour of its own philosophical underpinning. Of course, this extends into other issues about the nature of mind, knowledge and society. What are the potential long-term consequences and could they be serious?[2] As was asked above, should we allow one academic theory to dominate the education system?[3] If we should, how adequate is constructivism to this purpose? Is it possible to have an educational theory that is philosophically neutral on such matters? I doubt it, but what, if anything, should we do about it?

CONCLUSION

In summary, Maclellan and Soden are right to highlight the need for teachers to engage more with learning theory, in part to validate their rationales for what they do but also to increase their options for action in the complexities of interactions between pupils, teacher, policy, local norms, and so on. Nevertheless, the application of academic learning theory to teaching, and consequently to concepts of teacher expertise, is less direct than it may appear. A theory of learning is not sufficient to determine educational practice and the necessary theory of education may be elusive and/ or controversial in various ways. However, how teachers and researchers can combine their efforts to construct a theory of education, or contrive to live with multiple ones if this proves necessary, is the question we should be asking. This theory, or theories, could still encompass a constructivist theory of learning but, nevertheless, look very different from the form that prescriptions for teaching take in the literature (Richardson, 2003).

One last question: What are the implication of this partnership approach for how university courses, such as those in the traditional masters' degrees or the new forms for the Chartered Teacher Programme, are delivered?

NOTES

1 For an argument that constructivism serves mainly to provide a new language for recommending long known (though not necessarily practised) educational approaches and techniques (eg. self-directed learning, discovery learning, practical learning and co-operative learning in groups) see Terhart (2003). Fox's (2001) argument that constructivism is not as much of an advance on previous theories as many believe is also interesting. According to Richardson (2003), the fact that students can make meaning even in classes based on a transmission model of teaching is an unresolved issue for constructivism.

2 A good place to start consideration of this issue would be Burbules (2000).

3 Let us imagine a scenario in which Ellis convinces us that molecules, atoms and their sub-particles are indeed natural kinds perceived independently of social purposes and language, but also that we still find constructivist descriptions of the working of biology and the social sciences more apt. That is, we are not convinced that a universal pattern of essentialist explanations emerges or that Ellis' argument has any significance in these other contexts. Chemistry and (some of?) physics would then be categorised as being unique among the academic disciplines. We can hypothesise that an argument for different forms of education (ie. practices that would reflect, in part, applications of different learning theories) in different subjects could emerge.

REFERENCES

Bechtel, W. (1988) *Philosophy of Mind: An Overview for Cognitive Science,* Hillsdale, New Jersey: Lawrence Erlbaum.

Biggs, J.B. (1999) *Teaching for Quality Learning at University*, Buckingham: SRHE & Open University Press.

Burbules, N.C. (2000) Moving beyond the impasse. In Philips, D.C. (Ed) *Constructivism in Education: Opinions and second opinions on controversial issues*, Chicago: Chicago University Press.

Bryce, T. (1993) Constructivism, knowledge and national science targets, *Scottish Educational Review*, *25*, pp 87-96.

Bryce, T. (1996) Towards the achievement of scientific capability, *Scottish Educational Review, 28*, pp 90-99.

Ebutt, D., Robson, R. and Worrall, N. (2000) Educational Research Partnership: differences and tensions at the interface between the professional cultures of practitioners in schools and researchers in higher education, *Teacher Development, 4*, pp 319-337.

Ellis, B. (2003) *The Philosophy of Nature: A Guide to the New Essentialism,* Chesham: Acumen.

Entwistle, N. (1987) *Understanding Classroom Learning*, London: Hodder and Stoughton.

Entwistle, N. and Smith, C. (2002) Personal understanding and target understanding: Mapping influences on the outcomes of learning, *British Journal of Educational Psychology, 72,* pp 321-342.

Fox, R. (2001) Constructivism examined, *Oxford Review of Education, 27*, 23-35.

Hargreaves, A. (2003) *Teaching in the Knowledge Society: Education in the age of uncertainty,* Maidenhead: Open University Press.

Maclellan, E. and Soden, R. (2003) Expertise, Expert Teaching and Experienced Teachers' Knowledge of Learning Theory, *Scottish Educational Review, 35,* pp 110–120.
Marton, F. and Booth, S. (1998) *Learning and Awareness,* Mahwah, N.J: Lawrence Erlbaum.
Marton F., Hounsell D.J. and Entwistle N.J. (eds) (1997) *The Experience of Learning* Second edition, Edinburgh: Scottish Academic Press.
Olson, D.R. and Bruner, J.S. (1996) Folk Psychology and Folk Pedagogy. In Olson, D.R. and Torrance, N. (eds) *The Handbook of Education and Human Development,* Oxford: Blackwell.
Richardson, V. (2003) Constructivist pedagogy. *Teachers College Record*, *105*, pp 1623–1640.
Sachs, J. (2003) *The Activist Teaching Profession*, Buckingham: Open University Press.
Smith, C.A. (2002) Supporting Teacher and School Development: learning and teaching policies, shared living theories and teacher-researcher partnerships. *Teacher Development, 6,* pp 157-179.
Terhart, E. (2003) Constructivism and Teaching: A New Paradigm in General Didactics? *Journal of Curriculum Studies, 35*, pp 25-44.
Von Glaserfeld, E. (1995) *Radical Constructivism: A way of Knowing and Learning,* London: The Falmer Press.
Whitehead, J. (2000) How Do I Improve My Practice? Creating and legitimating an epistemology of practice, *Reflective Practice, 1,* pp 91-104.