



# Cultivating the disposition to understand in 21st century university education

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## ABSTRACT

This article discusses the need, in 21st century university education, to encourage a 'will to learn' in students, and explores its meaning using a variety of empirical evidence. It draws on previous studies related to academic understanding to introduce the idea of a *disposition to understand for oneself* and to consider how teaching–learning environments can be adapted to encourage this *consistent tendency* to want to understand deeply and to be alert to ways of developing that understanding further and using it appropriately. In discussing such environments, particular emphasis is placed on the role of Web 2.0 technologies and how they can be used to support the disposition to understand.

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## 1. Understanding for the 21st century

In a recent analysis of the demands being placed on universities by rapid changes in society and employment, Barnett (2007) has argued that people have to learn to cope with what he calls *supercomplexity*.

This is an age that is replete with multiplying and contradictory interpretations of the world; it is a world that is discursively open. If complexity is a term that we may apply to the open-endedness of systems, supercomplexity is a term that we may apply to the open-endedness of ideas, perspectives, values, beliefs and interpretations. This is the world with which students struggle to come into a new relationship, as the student's being ... has to reside within a felt sense of complexity, and, in turn, that being ... has [itself] to become complex (Barnett, 2007, pp.36–37).

Barnett is thus suggesting that university education in the 21st century has to enable students to cope not just with the levels and kinds of complexity familiar to students over the years, nor just with the additional complexity that comes from facing more and more unanswerable questions, but also to cope with the personal demands created by existing in such a climate of uncertainty. So, the types of understanding we have to address in university education not only involve the familiar conceptual understandings and disciplinary ways of thinking and practising (McCune & Hounsell, 2005), but also the development of types of understanding that go beyond these to enable students to engage intellectually and emotionally with super-

complexity. Dealing with such complexity depends according to Barnett (2007) on students having 'a will to learn'.

In considering the ways in which students may need to develop in order to cope with supercomplexity, we look, first, at earlier research into approaches to learning and studying, before looking at contrasting forms of knowledge and understanding. This leads to the idea of a *disposition to understand for oneself* and its relevance for the 'will to learn' that Barnett believes to be so important for the future of university education. The later parts of the paper concern how teaching can adjust to the demands of the 21st century, beginning with a brief overview of what general aspects of existing university teaching–learning environments are most likely to cultivate the disposition to understand, before examining more specific approaches to teaching and learning, including Web 2.0 technologies, which seem likely to strengthen this effect. The article concludes by recognising the lack of current research into these possibilities and suggests what research might be carried out.

## 2. Approaches to learning and studying

Our starting point is the long-standing work on *approaches to learning and studying*. The original investigations of Marton and his colleagues in Gothenburg (Marton, 1976; Marton & Säljö, 1997) established the crucial difference between *deep* and *surface* approaches, which depended on marked contrasts in students' intentions – either to understand the meaning or to spot the information that had to be learned. These differing intentions lead, inevitably, to different learning processes, with the deep approach being characterised, in general terms, by relating ideas and using evidence.

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Subsequent research in Britain and Australia used inventories to operationalise the distinctive approaches, and this work, in combination with interview studies, indicated that students showed evidence of a certain stability in their approaches, at least where experiences of teaching were similar (Biggs, 1987; Entwistle & Ramsden, 1983). The Gothenburg researchers had argued strongly that approaches were necessarily relational: they depended on the *content* of the task set and the students' perceptions of the *context* within which the task was being carried out. The subsequent research did not challenge that conclusion, but showed that there were elements of both variability and stability in the approaches. The stability came, in part, from students' establishing routine ways of studying that they found effective but also, as we shall see later, from a continuing disposition to look for meaning.

The intentional aspect of the approaches to learning was found to be associated with distinctive forms of motivation (Biggs, 1987) with the deep approach depending on intrinsic motivation and interest in the content, and the surface approach being related to instrumental forms of motivation and fear of failure. Even where the intention was to understand, that had to be supported both by the necessary learning processes and by application, in the form of effort, concentration, time management, and organised studying (Entwistle & McCune, 2004).

Although the descriptions of the learning processes involved in a deep approach have tended to be described in general terms, it is important to recognise that the range and type of learning processes required to achieve a thorough understanding will vary markedly across disciplines and subject areas (Entwistle, 2009). Nevertheless, the intention to understand is a consistent defining feature of the deep approach across all areas.

### 3. Contrasting forms of knowledge and understanding

Subsequent interview studies carried out in Edinburgh explored students' experiences of seeking understanding for themselves, as they prepared for final examinations (Entwistle & Entwistle, 1997; 2003). It was concluded that students described their understanding in ways that varied in terms of its breadth (how much material was integrated), depth (the amount of effort put into establishing patterns of relationship), and structure (the extent to which the understanding had been independently constructed). But, above all, understanding for oneself involved a sense of coherence, connectedness, and permanence that brought with it feelings of pleasure and self-confidence, although students also recognised that an understanding was a temporary state that could evolve subsequently.

More recent work by Perkins (2008) draws attention to three qualitatively different kinds of knowledge or understanding that can be related to academic study. The first is *possessive knowledge* in which students have a conception of learning as the accumulation of bits of knowledge, leading to a surface approach to learning with the intention of simply reproducing the material learned so as to complete requirements, with little interest or engagement with the subject matter. The second is *performative knowledge* in which students recognise the need to understand the material they are learning, but are more focused on the need to obtain good grades than on engaging with the subject matter deeply, using a strategic approach to studying. The last category is *proactive knowledge* in which students expect learning to enable them to see things in an importantly different way, depending on the active engagement with the subject matter and a deep approach, so as to achieve an understanding that they find personally satisfying. From Perkins' perspective, this latter form of understanding goes further, as the understanding is seen to develop continuously and to be directed forward to deal with future situations. So, proactive knowledge and understanding seems to fit the requirements for coping in an age of supercomplexity. Perkins (2008) describes it as depending on a

combination of having a personal reasoned perspective (Perry, 1970), being able to see things in a different way (Säljö, 1979), using a deep approach, having a spirit of inquiry and creativity, and opportunistic deployment — being on the lookout for opportunities to make use of earlier understandings and to further develop those existing understandings.

A good example of the distinction between performative knowledge and proactive knowledge can be seen in a recent study of medical students in which contrasting forms of understanding were clearly identified, with equivalent differences in approach (Fyrenius, Wirell, & Silén, 2007). While all the students in this study were using a deep approach, some were satisfied with an understanding that would suffice in the examinations and were reluctant to unsettle it by considering additional aspects — a *holding approach*. In contrast, other students expressed a readiness to expand and restructure their initial understanding to meet the new challenges they were encountering in their clinical work — a *moving approach*.

The holding approach, although focused on understanding, is still 'performative' in Perkins' sense and, indeed, even has aspects of a surface approach, such as syllabus-boundness and anxiety about being academically inadequate. While the moving approach is focused partly on examination demands, it is also forward looking, with a clear recognition that the goal is a professionally useful form of understanding, however incomplete it may seem at first. This moving approach thus has two elements that suggest that it is 'proactive', looking forward and having a goal that sees academic knowledge as both worthwhile in its own right, and a valuable commodity for future use. In the case of medical students, the moving form of understanding proved to be crucial when seeking to apply academic understanding to diagnosing the problems encountered by patients.

### 4. The disposition to understand for oneself

Another aspect of understanding that runs through all students' descriptions of having reached their own, personally satisfying, and flexible forms of understanding (Entwistle & Entwistle, 1997, 2003; Fyrenius et al., 2007) is that the learning processes are associated, not just with a characteristic form of motivation, but also a distinctive feeling tone. This can also be seen in the research on *thinking dispositions* that resulted in Perkins' description of proactive knowledge (Perkins & Ritchhart, 2004; Perkins & Tishman, 2001). While a deep approach brings together motivation and learning strategies, thinking dispositions combine three elements, two of which are similar to those in the deep approach. Perkins and his collaborators carried out a series of experimental studies that enabled them to describe dispositions in the following terms:

Effective deployment of a particular pattern of thinking or disciplinary practice requires (1) *alertness* to occasions, (2) a positive *attitude* towards its potential relevance, and of course (3) possession of it and the *ability* to apply it. For instance, an open-minded person has to notice situations when other views are, or even might be, in play (alertness), take them seriously (attitude), and think them through (ability) (Perkins, 2008, p. 9).

Perkins and Tishman (2001) see thinking dispositions as going beyond ability through their dependence on sensitivity or alertness to opportunities for using or developing critical and creative thinking, and in the consistency of the positive attitude towards carrying out such thinking in both academic and everyday contexts.

These ideas prompted us to look again at our previous research into approaches to learning, which had involved both large-scale analyses of inventories and interviews on students' experiences of seeking understanding in the run up to final examinations. The inventory research established clear links between deep approach and

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