On the influence of knowledge societies on the internal structure, content and purpose of current academic education

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Abstract
This article discusses the Western transition from Information Societies to Knowledge Societies, and the implications of this transition for academic education. Attention is given to the characteristic features of both types of societies and the design of current academic education. These two aspects are brought together when discussing the past and future consequences of Knowledge Societies for university education. Finally, the implications of this transition are exemplified by a description of the changes that occurred in the Social Sciences departments of Dutch universities due to the ongoing transition to a Knowledge Society.

Keywords: *Knowledge Societies, academic education, knowledge, change, future*

Introduction

Societies change over time—not only due to their changing populations, but also due to changing technologies and emergent practices. One of the changes that Western societies have seen in the past decades is a shift in focus from static information to interactive knowledge. Whereas information is largely "structured and formatted data that remain passive and inert until used by those with the knowledge needed to interpret and process [its content]," knowledge is more of a "cognitive capability" (David and Foray, 2003, p. 25). The attention shift from information to knowledge has accordingly been characterized as a change from the Information Society to the Knowledge Society (Gilbert, 2010).

The shift from Information Society to Knowledge Society has had and will continue to have important consequences for academic education. To a great extent, it influences learning content, means of transmission and expectations of both teachers and students. Most importantly, however, academic teaching itself is affected by the transition from Information to Knowledge. Several knowledge-driven changes together shape new forms of university education.

The above-mentioned consequences constitute the key components of this article's inquiry into the influence of the emergent and developing Knowledge Society on academic education. After having defined and characterized the concept of Knowledge Society, its implications for university teaching will be discussed. Both past and future changes will be reviewed. Finally, the scope will be narrowed down to the future perspectives of education in the social sciences in order to present a more concrete view of the far-reaching implications of the Knowledge Society on academic education.

Knowledge societies

Knowledge has never been absent in human history, nor has it ever been disregarded as unimportant. Why then do we speak of a recent transition to Knowledge Societies? The emergent features of Knowledge Societies are best defined by contrasting them with the Information Societies that preceded them. At the core of these societies is one of the most powerful information machines that the world has yet seen: the computer (Masuda, 1981). The basic functions of a computer, namely memory, computation and control, are seen as key

processes in the Information Society (Masuda, 1981). Information becomes more readily available through a "media-laden society", in which lots of information is engaged in "social circulation" (Webster, 2006, p. 19). Especially in the latter stages of Information Societies, the use and usability of the Internet as a source of information grew rapidly. The internet became the "information superhighway" (Webster, 2006, p.3).

Although the main emphasis of Information Societies seems to be on the storage, availability and accessibility of information, this is not unrelated to the concept of knowledge: "In the information society, 'an information revolution' (…) make[s] possible *the mass production of cognitive, systematized information, technology, and knowledge*" (Masuda, 1981, p. 31). Thus, Knowledge Societies did not *invent* knowledge - they *reinvented* it.

The content of the concept of knowledge has changed during the transition of Western Societies from Information Societies to Knowledge Societies. Knowledge is no longer a thing or "a noun", but it has become a process or "a verb"; it is more like energy than it is like matter (Gilbert, 2010). When knowledge is spoken of as a verb, it can also be noted that it "happens." This "happening" is not an event confined to expert individuals, but instead occurs within teams of collaborating individuals (Gilbert, 2010). Knowledge thus does emerge within isolated individuals but rather (at least in many instances) within a social context.

Surprisingly, Lyotard anticipated this new type of knowledge in his 1984 book titled *The Postmodern Condition*, where he describes knowledge as entailing some kind of progress, as embodying a certain movement toward future knowledge. The "moving" feature of the knowledge, which has become the key concept of Knowledge Societies, has been characterized by Lyotard (1984) as "performativity" – the "energy or ability to *do* things, the use-value" (Gilbert, 2010, p. 5).

According to Lyotard, it is precisely this performativity that should and probably will cause universities to change their education, albeit with several epistemological and scientific struggles. Academic education should no longer be tied to reproduction of knowledge, but should also be enriched through teaching the performativity of knowledge:

> (…) The transmission of knowledge should not be limited to the transmission of information, but should include training in all of the procedures that can increase one's ability to connect the fields jealously guarded from one another by the traditional organization of knowledge. (Lyotard, 1984, p. 52)

Accordingly, in Lyotard's view, academic students should not be taught static pre-existing professional knowledge. They should instead be taught to "pursue performativity", which will increase the "use-value" of their knowledge and enable them to apply it to different situations (Gilbert, 2006, p. 5).

The performativity of knowledge also has consequences for the academically mediated role of knowledge in the larger society. Since knowledge in Knowledge Societies contains a "moving" element, it can be seen as the driving force behind contemporary innovation. Noting this, Gilbert (2006) states that, at present, knowledge *is* innovation, innovation quality, and quality knowledge management. Knowledge therefore has become the central concept not only in academic education, but also in society as a whole (Delanty, 2001).

In conclusion, emergent and developing Knowledge Societies have three important characteristics (cf. Hargreaves, 2003). First, they "involve complex ways of processing and circulating knowledge and information" (Hargreaves, 2003, p. 17) due to the new content of the concept of knowledge. Secondly, they affect several domains of current societies, among others science, economy and education. Thirdly, they encompass several changes in the functioning of organizations that bring about innovations. These changes will be the focus of the next sections.

Current academic education

Universities as we know them now emerged several centuries ago. During this time, many changes, both gradual and abrupt, have taken place. However, up until a few years ago, the basic structure of university education had remained the same (Hargreaves, 2003). Despite the minor – or sometimes even major – changes in autonomy, innovation and educational expansion, "a basic 'grammar' of teaching and learning persisted in which most teachers taught as they had for generations" (Hargreaves, 2003, p. 12). Professors have always been teaching from the front of the classroom, lecturing behind a lectern, using monologues or question-and-answer methods (cf. Hargreaves, 2003).

According to Gilbert (2010), the current educational system is based on two key ideas: "the importance of traditional knowledge" and the idea of sorting people, "according to their likely employment destinations" or their interests. By meeting these needs, the educational system traditionally has been set up in analogy with production lines as they were known in the Industrial Age. The main characteristics of this academic production line are that students are delivered a "pre-set curriculum (…) by people who specialize in different stages of the production", that students are guided through their learning process and that the design of the production line "actively prevents [students] from seeing and understanding the big picture of what they are learning" due to the minimal size of the information chunks (Gilbert, 2010, p. 6).

The main function of these "production line" academic institutions is the production of knowledge in the realm of society (Delanty, 2001). Throughout history, knowledge production became increasingly engaged in cultural and public aspects of society. Although it might seem that the university has lost its intellectual power or even its identity during this process, this is not how the process of becoming embedded in society is usually perceived. Academic engagement in the cultural and social order is not seen as a threat to the autonomy of the university, but as "responding to outside forces" (Delanty, 2001, p. 56-57). Universities have acquired an important position in the domains of culture and social order and hence have become an influential factor of change themselves. Thus, as Delanty (2001) notes, "[the current university] is not just a knowledge producer, but is also important in shaping and transmitting culture, and is coming to be a central actor in society" (p. 57).

As described above, the university as an intellectual institution has lost its former all-but-indisputable authority as well as its disconnected position in society. Yet, as a "producer of knowledge [that] is deeply embedded in the production of cultural capital" (Delanty, 2001, p. 100), its power in a sense has remained unchanged. Hence academic education is a powerful means to influence society, but it is at the same time to a great extent prone to societal changes, one of these being the transition from the Information Society to the Knowledge Society.

Knowledge societies and academic education

Knowledge Society influences can roughly be divided into changes that have already taken place and those that are possible or probable future consequences for academic education. These will be discussed separately in the next two sections.

Past influences of knowledge societies

Several characteristics of contemporary academic education can be seen as the outcomes of a transition of our present society to a Knowledge Society—although some of these have only recently become self-evident and relatively ordinary characteristics. A first major change that is evident in current university teaching is the shift to teaching of higher order skills (Bereiter, 2002; Hargreaves, 2003; Scardamalia, n.d.), teaching for understanding instead of

reproduction, and teaching authentic problem solving (Bereiter, 2002; Scardamalia, n.d.; Gilbert, 2006, 2010). Related to this is the recent attention to lifelong learning (Bereiter, 2002; Edwards, 2001). Teaching "job retraining" and continuing academic education (Lyotard, 1984) are also gaining ground.

A second change caused by the rise of Knowledge Societies can be seen in the type of knowledge that is transmitted in education. In contemporary education, students are to an increasing extent "encouraged to understand the rules or established procedures of a discipline, profession or trade, not in order to follow them, but in order to see how they might be modified or 'improved'" (Gilbert, 2006, p. 4). Thus, although there is still much progress to be made, education in Knowledge Societies focuses on "methods that support students in the generic skills of scholarship, not the mere acquisition of knowledge" (Laurillard, 2002, p. 143).

An important implication of the described focus on teaching knowledge as a process, not as a product, is that students are encouraged to think creatively (cf. Andreotti and De Souza, 2008). Such a focus dictates that learning is no longer about fixed knowledge (Gilbert, 2005 in Friessen, 2007); students should not depend on professional knowledge, instead they should think for themselves and aim to adopt multiple perspectives (Andreotti and De Souza, 2008). Learning to think critically as a way to explore the origins and implications of ideas has become one of the learning goals for current students. Learning is about collectively (cf. Gilbert, 2006, 2010) exploring the future, rather than simply assimilating the past.

Thirdly, teaching methods have changed. Whereas the teacher or professor as lecturer has been the norm for ages, learning in Knowledge Societies is no longer bound to lecturing—just like Lyotard predicted in *The Postmodern Condition* (1984). Teaching is rejected as a meta-narrative (Hargreaves, 2003); online projects, distance education and the Internet have been introduced in our present university education (Scardamalia. n.d.). New modes of teaching are extensively used by an increasing number of teachers, and multi-modal literacy is promoted as a key skill for participating in Knowledge Societies (Gilbert, 2006, 2010).

Finally, universities themselves have changed as a result of the current transition to a Knowledge Society. Storage and elaboration of knowledge is no longer limited to universities, but has also become integrated into society as a whole (Delanty, 2001). Despite this major change in intellectual authority, the university still possesses a unique role with respect to the now widely available knowledge (Delanty, 2001).

In sum, the transition to Knowledge Societies has changed a great deal as regards several aspects of Western academic education. However, still more changes are likely in store.

Future influences of knowledge societies

As described above, Knowledge Societies have already exerted a profound influence on academic education. Several other changes will probably occur in the future. One of these is the change in the structure of schools. As Gilbert (2010, p. 8) notes, education in the Knowledge Age should focus on "developing *new knowledge*—through real research, not teacher-initiated projects." This statement is supported by Laurillard (2002), who contends that "universities must support a professional teaching approach that mirrors the approach for research." Students might possibly be grouped according to the structure of already existing research groups, which would enable them to investigate real questions and contribute to advancing the research project they are working on (Bereiter, 2002).

There is less agreement regarding the physical design of future Knowledge Society education. Gilbert states that the creation of an educational system for a Knowledge Society has "to happen in individual classrooms, led by individual teachers" (Gilbert, 2005 in

Friessen, 2007, "Where To From Here," para.4). Neef (2001), on the other hand, is not impressed by classroom-based education and its innovative capacity: "classroom-based education seldom provides the type of work-related context that contributes to efficacies or innovation" (p. 153).

Despite this disagreement, the internal design of the learning process is quite clear: "difference and diversity" (Gilbert, 2006, p. 6; Gilbert, 2010, p. 8) and the value of collaborative knowledge-building (cf. Hargreaves, 2003) are collectively seen as essential elements of academic education in Knowledge Societies. Future teaching will hence be more than a mere transmission of scientific knowledge. It will not just be about truths, but also about "justice"; that is, "teaching should be a matter of dialogue rather than the reproduction of a system of thought" (Readings, 1996 in Delanty, 2001).

A third consequence of the Knowledge Society for university education that might take place in the future is that of the disappearance of disciplines (Gilbert, 2006, 2010; Lyotard, 1984). According to Gilbert (2006), disciplines should no longer been seen as "gatekeepers of higher education" (p. 7), but rather as resources for new knowledge generation. This idea relates back to the previously mentioned notions of knowledge as a process – not a product – and the transmission of generic knowledge instead of specific knowledge (cf. Laurillard, 2002). The close connection between these ideas was described very concisely by Lyotard 30 years ago:

> If education must not only provide for the reproduction of skills, but also for their progress, then it follows that the transmission of knowledge should not be limited to the transmission of information, but should include training in all of the procedures that can increase one's ability to connect the fields jealously guarded from one another by the traditional organization of knowledge. (Lyotard, 1984, p. 52)

"Interdisciplinarity," Lyotard envisioned, thus will become one of the characteristics of academic education in Knowledge Societies – a trend that probably can already be seen in current scientific research approaches.

In addition to possible future changes to teaching and learning, Knowledge Societies might also have consequences for the use of Information Technology in academic education. Although several Information Technologies are already extensively used in university teaching, these uses would be different if they were appropriate in respecting the basic assumptions of the rising Knowledge Society (Delanty, 2001). In that case, Information Technologies serve a clearly practical goal: they contribute to the enhancement of technological citizenship and accordingly prepare their users for active technological engagement in society (Delanty, 2001).

Several fairly far-reaching changes to current academic education in general have been outlined above. Although many implications of the transition of our society to a Knowledge Society are quite abstract and often not fully elaborated, some of the ideas can definitely be identified. How are these influences of Knowledge Societies dealt with in the most society-related faculty of Dutch universities – the social sciences?

Knowledge societies and the social sciences

Concrete examples that can be seen in the design of education in the social sciences are the modularization of courses, the "privileging of research over teaching", and the change from "disciplinary research within the context of distinct departments to postdisciplinary research" (Delanty, 2001, p. 136). The social sciences—as part of the larger academic whole—are currently characterized by difference and diversity: several disciplines carry out their activities side by side, research is diverse due to its interdisciplinary approach and teaching is

increasingly placed within the context of research. Knowledge as a creative co-building process has become the norm and Information Technologies have found their way into social science education. Several courses have been reformed into almost exclusively online material, while virtual education is increasingly used by teachers.

A crucial question looms large: Are the social sciences – and the university as an integral scientific enterprise – approaching a new era? Is this our future? Or is this the end of the present and will there be no physical future for academic education? An absolute exodus of scientific education is not very likely, especially when taking the influential role of governmental policies into account (Peters, 2001). At the same time, however, the presence of Knowledge Societies disallows either maintenance or return to the pre-existing forms of university education. According to Readings,

> The University will have to become one place, among others, where the attempt is made to think the social bond without recourse to a unifying idea (...). I (…) propose a shifting disciplinary structure that leaves open the question of how it all fits together. (Readings, 1996, p. 191)

Conclusion

In sum, the recent transition from the Information Society to the Knowledge Society has had fairly far-reaching consequences for academic education. Changes in the content of the concept of "knowledge" have had implications on the transmitted content of the act of teaching, the usability of learned content, and the means by which transmission of learning material takes place. Still more changes will probably be seen in the physical design and internal structure of current university education. However, although societies and education are subject to change and instability, one thing remains the same: whatever happens, we as humans still teach and will be teaching in the future – and we will also continue to learn.

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