Book Review – Knowledge Education and Learning: e-Learning in the Knowledge Society

Reviewed by: Gary Boyd, Concordia University, Canada

The Author

Lars Qvortrup is a professor of media research at the University of Southern Demark and the Director of the Knowledge Lab there. He is an important continuing contributor to the journal, *Cybernetics and Human Knowing*, on many aspects of knowledge media and society.

What Qvortrup provides

In the field of open and distance learning, despite the dictum that 'there is nothing more practical than a good theory,' there actually are very few practical theories of any depth. There is an overwhelming predominance of practical persons who get things done with despatch, but who have little understanding of what their ventures are really doing to people, and, indeed, "don't want to know" because that would make decisions slower and more painful. Our tools and media are now becoming really potent for changing people – and for doing so all over the world. This should give us pause.

Qvortrup is particularly interesting because he does make a good attempt at developing deep understanding of how knowledging (*sic*) proceeds and carries that understanding over into practical advice for e-Learning developers. He offers a distinctive and valuable European perspective to enable us to understand just how we live in a 'knowledge society' and how the development of a knowledge society implies the need for life-long learning with particular kinds of e-Learning support. He offers it in clear and, for the most part, quite readable English.

The main question Qvortrup sets out to answer in this book is: *How does and can information and communication technology mediated life-long learning help us in making the 'knowledge society' vision a reality?* To answer this question, new systemic categorizations of knowledge, learning, and teaching are advanced. These then are carefully related to existing theories of e-Learning. The whole undertaking is done within the large societal systems framework of Niklas Luhmann. There is, however, a worrisome aspect about making epistemology primary, as post-

modernists and neo-pragmatists have pointed out, in that using second and third order epistemic structures is detrimental to meaning when we let them do our interpreting for us (Taylor, 2007).

There are aspects of the so called 'knowledge society,' which Qvortrup seems to accept, and which I believe ought to be seriously questioned. There are important cases where much greater knowledge is not a good thing. For instance, knowledge without power is frustrating and depressing; b) knowledge with power and without compassion and commitment to its socially responsible use is evil. (I define *evil* as whatever gratuitously destroys persons' plausible hopes).

What knowledge is and what it is for?

Qvortrup following Luhmann defines knowledge as "condensed observations." In my opinion, that is an inadequate definition because what is involved is much more complex and creative and collaborative than mere condensation. In any case, the noun 'knowledge' is a questionable reification; it is better to consider us as collaboratively doing `knowledging'. As Qvortrup himself asserts: "knowledge is not just a fixed ability but a dynamic ability."Qvortrup then goes on to assert that "its function is to manage complexity, based on the principle that complexity can manage complexity." I agree! Actually, this is an example of the application of the Ashby-Shannon central cybernetic "law of requisite variety" – the control variety available must equal or exceed the disturbance variety for any system to be controllable (Ashby, 1956; Klir & Weierman,1999).

Managing complexity, or at least coping with and steering complex dynamic processes, is indeed a most important challenge for all of us. However, surely that is not the be all and end all of a person's life? Qvortrup's approach is a very pragmatic and to me, a somewhat depressingly utilitarian view of knowledge. Humanist educators would argue that the elaboration validation and sharing of wonderful knowledge is an essential deeply satisfying part of being human, and as such is an end in itself (Nunan, 1983).

Categories Arising from "Applying Knowledge to Itself Recursively"

Qvortrup argues for four emergent categories of knowledge as being paramount:

1. Simple factual knowledge
2. Recursive, knowledge of how to use one's knowledge = competence
3. Reflective, knowledge of the conditions on which knowledge is based
4. Total knowledge – all that we can know in distinction from what we cannot know

He then explains at length what it takes for educators to enable learners to develop knowledge at those of these levels relevant to agreed goals. Instructors and students, who hope to manage complexity, must be helped to learn how to construct all four kinds of knowledge in turn – at least insofar as they are capable of such learning.

Theoretical structure

Qvortrup supports his analysis, syntheses, and recommendations on three basic perspectives that I believe are of genuinely foundational importance:

1. Contextualisation of learning as embedded in, and constrained by, multiple large societal institution systems – particularly instrumental autopoietic systems as understood by Niklas Luhmann (2005).

2. Models of learners as complexly-coupled non-trivial universe-observer-describer systems – particularly as understood by Heinz von Foerster (1984).

3. A carefully differentiated and stratified understanding of 'knowledge'– in this case as understood by Lundvall (2000) who wrote: "Knowledge is a representation of something according to interpretation standards, which may change from person to person and from teacher to pupil. My knowledge is not equal to your knowledge and it cannot be transported from me to you" (Qvortrup, 2006a, p. 18).

And a new categorization of such knowledge into four very basic successively emergent types: 1) Factual knowledge (know-what and know-why); 2) Recursive knowledge (know-how competencies); 3) Reflective knowledge (creativity capabilities); 4) Meta-reflective knowledge (culture). Each of these basic kinds of knowledge requires specific kinds of learning and evaluation activities according to Qvortrup's prescriptions. Qvortrup's categories can usefully be compared with the recent versions of taxonomy based on the Bloom and Madaus work (Krathwohl, 2002) and with my own system of emergent cybersystemic levels of learning (Boyd, 2000).

Relevance and Value

To assess the relevance and value of Qvortrup's work for e-Learning institutions and developers, let us consider the big challenges now faced by them. What are the main on-going challenges now in open and distance e-Learning venture development? There are two really basic challenges: first, to survive institutionally in a turbulent competitive world; and second to provide enough of their stakeholders, especially students and employers, with good value for time and money spent. Unfortunately, too often it has been possible, at least for awhile, to impress and to please funders and other stakeholders without providing proportionate real value – partly because the beneficiary accountability feedback loops have such long delays built into them. In fact, these delays are getting shorter, so the accountability challenge is increasing. For a current example, look at The Phoenix Online University situation, as reported in the *New York Times* (Dillon, 1997). What of value now, has Qvortrup's book to offer with respect to these two main challenges? A great deal, I believe.

Relevance of Luhmann's theory of society for educational (e-Learning) organisation and venture viability

Qvortrup tackles the viability problem mainly in terms of how e-Learning can meet the needs of the new global knowledge society and how the institutional system imperatives identified by Luhmann must be dealt with by using his ideas. Here a digression about "autopoiesis" is perhaps necessary:

The concept Maturana and Varella (1992) developed in the 1970s to characterize living things "autopoiesis," and which Luhmann applied assiduously to social systems as he conceived them, needs some demystification. Autopoiesis literally means self-production. In order for primitive

living organisms to produce themselves, that is to survive and to reproduce, they must have 'good closing' against chemical and mechanical threats in their environment, which could wreck their metabolism or their DNA. They also have to have 'good opening' to take in food and get rid of waste products. In Maturana's terms, they have to be structurally closed against 'information' which would alter DNA, and so forth. When we come to consider social animals they/we have to communicate to survive and reproduce, but we also have to have good closings against anything that would alter our genetic identity. Thus far 'autopoiesis' holds. However, we also have evolved to feel that we must try to close ourselves off against anything which threatens our personal-cultural identity. So for us, the 'goodness' of openings and closings is not automatically structurally determined, but rather presents formidable choice and action problems (Klapp, 1978). Hence Qvortrup (2006b) refers to structural closure as a problematical construct.

Luhmann, according to Qvortrup's (2006a, p. 99ff.) ". . . distinguished two basic sorts of systems: psychic systems and social Systems." He also asserted that psychic systems do not comprise a society's essence and building blocks, but rather its surrounding world (*Umwelt*). Contra Margaret Thatcher's dictum that "There is no such thing as society!" (Archer, 2002), in Luhmann's view, society is very real and is definitely not considered to be just a sum total of human individuals. A number of highly complex polycentric conglomerates of mutually loosely coupled systems create social order (i.e., constitute meaning based distinctions between themselves and their social environment or *'Umwelt'*). These are our major social systems: Law, Politics, Art, Education, medicine and Religion.

Social order is established when the diversity of communicative systems creates an extremely complex dynamic stability. Society does not exist on the strength of the purity of social order, but rather on the complex impurity of social structures. In other words, a large number of fairly autonomous functional systems such as the legal system, the economic system, the art system, the health-care system, and the educational system, spontaneously emerge from all the complex intercommunication of myriads of groups. These big societal systems are both pre-conditions for each other's existence and competitors. They constantly collide and seek to achieve dominance over each other. Our institutions, our ventures, and our psychic selves, are embedded in them all. In general, the viability of particular e-Learning ventures depends on how the embeddedness is imposed and how it is negotiated. This negotiation occurs through a medium and a symbolic code unique to each big functional system (e.g., the medium of the economic system is money and the code is payment/ non-payment).

Luhmann asserted that the general function of the education system is to change people and therefore that the working medium of the educational system is learner-lifetime (*Lebenslauf*). The 'life-long learner' is a social construction that allows the educator plausible hope that it is possible to change people in ways that are deeply desired. The code which Luhmann asserts is used by the education system is "transmittable/ non-transmittable." This is a bit tricky to grasp, and moreover goes against our current constructivist understanding that education is NOT about transmission, but rather is about co-construction of knowledge and skills, attitudes, and commitments.

As far as I can make out, Luhmann's conception of the education system connects with the understanding that many citizens and most educators wish to either clone the best parts of themselves or transmit something even better along the same lines they have loved and struggled to pursue. Any particular educational organisation has to lay claim to a population of compatible learners and suitable educators, and to claim as legitimate a range of ways (i.e., technologies) by which it can try to transmit changes that most stakeholders agree are for the better. If it can do

that, then the economic system of money can be brought into alignment with the educational system of learners. According to Qvortrup that is the big picture of societal system understanding to which we should continually refer back in setting our strategic and tactical priorities if we wish to carry on viable e-Learning ventures (but cf. Archer, 1979).

Improving the actual learning of our students

Meeting the second Open and distance Learning challenge – to provide enough of our stakeholders, especially students and employers, with good value for time and money spent – requires better learning activity development and better learning environment design and deployment.

Qvortrup's interesting contribution is based on his synthesis of Activity theory and Constructivist theory carried out in terms of his four categories of knowledge. He goes beyond instructivist and the currently fashionable body phenomenological paradigms to what I take to be a revival of Piaget's and George Kelly's uses of the parallel between individuals' learning and the development of knowledge in scientific communities. For him, theoretical epistemology is central to the construction of curriculum and to the design of learning support activities. When seen from my pragmatic point of view, this knowledge-centred approach suffers a certain unreality, because Qvortrup ignores the actual centrality of both intrinsic and extrinsic motivation (Ryan & Deci, 2000) to the generation of knowledging capabilities and, indeed, to all of education.

A great deal more could be said about Qvortrup's understanding of Didactics (off-line) and of Pedagogy – real-time engagement which seems to depend on synchronous communication (i.e., his pedagogy would best apply to interactive online small group teaching).

Qvortrup helpfully exhibits how some actual examples represent realisations of his theory of how higher orders of knowledge can be developed in those e-learning situations where it makes especially good sense (e.g., in social simulations and portfolios supported by teacher-learner discussion).

In Summary:
Why various types of reflective IRRODL readers
might wish to read Qvortrup

Lars Qvortrup's book offers a delightful controversial opportunity to reflect insightfully on topics, which I believe are central to any and all legitimately worthwhile e-Learning. Especially now when we are facing many extraordinary new challenges (see Kurzweil, 2005) Qvortrup's work should, I believe, be of appreciable value to all those who are thoughtfully developing open and distance learning ventures today.

In particular, curriculum developers should read Qvortrup on the categories and forms of most-needed knowledge and how they can be evaluated. Instructional designers should read Qvortrup on "didactics," which he defines as immediate first-order reflection on teaching versus "pedagogy" defined as protracted second order reflection on teaching and media and learning. Open and distance learning administrators, innovators, and developers should read Qvortrup on Niklas Luhmann's exposition of how the systemic imperatives of public education systems as

societal systems in competition with the other major societal institutional systems – Business, Politics, Religion, Art, Law – both constrain us and provide us with new opportunities.

References

Archer, M. (1979). *Social Origins of Educational Systems.* London: Sage.

Archer, M. (2002). Realism and the Problem of Agency. *Journal of Critical Realism, 5*(11). Retrieved March 25, 2007 from: http://www.journalofcriticalrealism.org/archive/JCR(A)v5n1_archer11.pdf

Ashby, R. (1956). *An Introduction to Cybernetics.* New York:Wiley.

Boyd, G. (2000). The Identification of Levels of Action through the Use of Stratified Computer-communications Media; Towards the THOUGHTACTORIUM. *SYSTEMICA, 12*(1), 29 - 41.

Dillon, S. (1997, February 11). Troubles Grow For a University Built on Profits. *New York Times,* Sec. 1., p. 1. Retrieved April 16, 2007 from: http://select.nytimes.com/gst/abstract.html?res=F40B15F6355B0C728DDDAB0894DF404482

Klapp, O. E. (1978). *Opening and Closing: Strategies of information adaptation in society.* Cambridge: Cambridge University Press.

Klir, G. J., Weierman, M. J. (1999). *Uncertainty Based Information.* New York: Physica Verlag/ Springer Verlag.

Krathwohl, D. R. (2002). A Revision of Bloom's Taxonomy: An overview. *Theory into Practice, 41*(4), 212-218.

Kurzweil, R. (2005). *The Singularity is Near.* New York: Penguin.

Luhmann, N. (1995). *Social Systems.* Stanford: Stanford University Press.

Maturana, H. R., & Varella F. G. (1992). *The Tree of Knowledge.* Boston: Shambala.

Nunan, T. (1983). *Countering Educational Design.* London: Croom Helm.

Qvortrup, L. (2006a). Knowledge Education and Learning. Frederiksberg, Denmark: Vorlagetsl.

Qvortrup, L. (2006b). Structural Coupling: A problematic concept. Cybernetics & Human Knowing, 13(2), 56-58.

Ryan, R. M., & Deci, E. L. (2000). Self-determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. American Psychologist, 55(1), 68-78.

Taylor, R. G. (2007). *Learning After the End of Knowledge: Instructional technology in the age of interpretive meaning.* Concordia University: Unpublished MA Thesis.

Athabasca University