A theoretical geography of online education

Conference Paper · April 2014

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A Theoretical Geography of Online Education

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Abstract

Educational practitioners do not always have time to study bodies of theory which may be influencing practice for good or ill. This paper presents a number of theoretical ideas that have influenced online education, particularly that sector which concentrates on the part-time postgraduate education of mature adults. It tries to relate these ideas to educational practice. The areas of theory covered include action learning, behaviourism, theories of reflection, the Community of Inquiry Framework, Bloom's Taxonomy, andragogy, e-moderating, and part of the philosophy of adult education. The revolution in ideas that brought about the acceptance of distance education is also touched upon. This paper provides a theoretical geography in that it seeks to set out a map of ideas and to help the educational practitioner relate this to actual practice.

1.0 Introduction

The quality of our educational practice is partly influenced by the quality of the theory that underpins it. Our ability to critically evaluate theory and, indeed, to create our own based on a synthesis of current ideas, is an important part of the online teaching practitioner's art.

Some educational theory has actively and consciously influenced practice in online education. Often the theory has been modified in the light of the evidence garnered from years of teaching in a virtual environment. Yet other ideas wait to be explored and their precise relationship to practice defined.

Practitioners often have a focus that is geared up to the delivery of certain specific outcomes. This sometimes does not allow a great deal of time for the consideration of a wide range of theoretical ideas. And yet this dialogue between practitioners and the different bodies of theory can be particularly fruitful, moderating the wilder excesses that are not supported by empirical evidence and yet adding something new to practice where there can be a clear justification. It is also valuable to understand the historical shifts in theoretical positions that have made online education possible.

In this paper a number of actual and potential theoretical influences will be outlined briefly and some suggestions made about their possible relationship to the practice of online education. Particular emphasis will be placed on part-time higher education for mature adults which employs asynchronous online discussions, although many of the ideas presented have a wider application.

2.0 Action Learning

Reg Revans coined the phrase "action learning" in 1945 in a report for the Mining Association of Great Britain in which he outlined plans for a staff college for managers to learn with and from each other in tacking workplace problems [1]. The term was subsequently associated with the idea of small groups of managers or other employees, known as action learning sets, discussing operational problems. It attracted more attention from the 1970s. Revans felt that in the educational sphere his ideas implied an emphasis on active involvement, in exploring one's own ignorance and uncertainties in tackling ill-defined problems rather than in just passing on a fixed body of "programmed knowledge" [2]. People have to develop the ability to ask fresh and useful questions [3]. There is to be a focus on learning for the purposes of problem solving [4].

Online education has taken from this tradition the concept of working adults learning from each other as well as from a teacher. It has broadened the idea to acknowledge that learning can be enhanced by discussions with industry professionals from around the world rather than just those in one particular organization. The breadth of experience that is drawn upon in such situations can lead to the acquisition of new ideas about how to solve problems.

3.0 Distance Education

Holmberg saw the roots of distance education residing in the demand for study alongside paid work [5]. This was initially based on correspondence courses employing individual student-tutor interaction. The Pitman correspondence courses in shorthand started in the UK in 1840, assisted by the introduction of the penny post. This is often cited as the earliest example of this form of distance education, but there are even earlier candidates.

In the UK, the University of London starting offering external degrees from 1858, and thus transformed university provision. Students could obtain tuition from

wherever they chose and then sat the university's exams for a degree [6]. From the 1880s a number of correspondence colleges sprang up to provide such tuition through distance learning. The most successful was the University Correspondence College (UCC) which initially attracted large numbers of unqualified teachers keen to study for a degree without having to interrupt their careers [7].

Klein was able to identify 73 colleges and universities in the United States conducting correspondence courses in the early 20th century [8]. These were often referred to as home study courses, reading courses or club study courses. In the latter case, students would meet with an instructor face to face at periodic intervals. Today this is often referred to as blended learning. Courses would sometimes attract university credits, but often consisted of freestanding units that could often be classified under the heading of university extension.

"…individual adults with jobs, families and social commitments prefer this mode of study because it gives them a possibility to study in their spare time. They can usually draw on knowledge acquired in an informal way and on job experiences which are often relevant in their study." [9].

In modern times it is difficult to envisage how controversial the idea of distance higher education was for much of the 20th century. These developments may be thought of being of only historical interest, driven by innovations in communication technology. However they also implied a revolution in ideas.

The typical liberal ideal of a university involved full-time students taking up residence in or near a university. This was referred to disparagingly by critics as the boarding school or monastic ideal [10]. The idea that university degrees could be completed part-time at a distance was not easily accepted. The fact that so many students engaged in distance education for vocational motives re-ignited the philosophical debate about the nature of a liberal education and about whether there could be a liberal vocationalism [11]. I shall return to this subject later.

When the Open University was launched within the United Kingdom in 1969, it was not without opposition, because it did not conform to a classical view of the function of a university. Nova Southeastern University in the United States probably ran the first online (but at that time not WWW) degree in 1983. Since then, online distance education has flourished.

This has not just been the result of technological developments, which merely provided certain opportunities. It was because what students, parents, employers and taxpayers wanted from a university, and hence their mental model of higher education, tended to triumph over that of academics who favoured a system that was overwhelmingly full-time, non-vocational and for younger people.

The development of distance education also highlighted the importance of innovation in the theory of educational administration which opened the way for online students to be treated in the same way as those studying on campus. The

University of London introduced the device of designating certain teachers in other institutions (notably in the nineteenth century London polytechnics) as recognized teachers of the university. This had the effect of transforming the status of their students so that they became internal (rather than external) students of the university.

The University of Liverpool initially offered external University of London degrees to its students while it had University College status. When it became a fully-fledged university, able to offer its own degrees, it used the same device with lecturers in local teacher training colleges so that their students could gain internal University of Liverpool degrees [12]. Then in the modern era, instructors on online degrees from around the world were designated as recognized teachers of the university so that online students would have the same status as those studying on campus.

4.0 Behaviourism

Behaviourism was, amongst other things, an attempt to address the problem of verifiability in deciding whether students had learned something in the course of their education. It sought to move away from the idea that learning resided somewhere inside a student's mind, which made such knowledge difficult to access or verify. For some, behaviourism overreacted in locating learning exclusively in some behaviour, usually created by operant conditioning – behaviour reinforced by its consequences [13]. For behaviourists, if a student could do something, the learning resided in that behaviour, and it was unnecessary and undesirable to talk about anything other than the displayed behaviour (such as what was going on in the student's mind).

Skinner confirmed "the behavioristic principle that ideas, motives, and feelings have no part in determining conduct and therefore no part in explaining it" [14]. Online practitioners have generally rejected this view, believing that conscious reflection can have a significant effect on behaviour.

Under the influence of behaviourism, online education has widely adopted the concept of the learning outcome, something the student will be able to do if learning has been successful. However, the displayed behaviour is usually interpreted as a verifiable indicator that learning has taken place. There is not normally an attempt to deny the existence or significance of mental cognitive processes. It is simply that if a student really knows something or knows how to do something, it can be reasonably expected that he or she will be able to do something to demonstrate the fact.

5.0 Theories of Reflection

David Kolb is possibly best known for his Experiential Learning Cycle whereby concrete experience is followed by reflective observation, the formation of abstract hypotheses (abstract conceptualization), and then active testing [15]. A shorthand

version of this cycle has been expressed in the terms experiencing, reflecting, thinking and doing. The situation is however complicated by the fact that Kolb has developed a Learning Styles Inventory (LSI) which sees different learners as placing different emphases on different parts of the cycle. The latter theory has been the subject of a number of technical criticisms [16] [17].

The influence on online education has been largely in terms of its emphasis on the adult learner reflecting on his or her experience and seeking explanations for what has been observed. It has been attractive in emphasising the need for adults to be problem solvers rather than just absorbers of a received body of wisdom.

Donald Schön gave us the idea of the reflective practitioner [18]. His main insight is that giving professionals a number of general principles to determine the most technically rational solution is an increasingly inadequate approach to education. Problems are becoming messier and involve a wider range of ethical, economic and political issues. Instead of being asked to find the most technically efficient way to achieve an agreed end, professionals may be asked to define the ends we should be pursuing. Professionals are increasingly operating under conditions of uncertainty. Now the obvious conclusion is that decisions require professionals to take into account a wider range of more complex principles, and the application of these principles may vary subtly depending on the particular circumstances involved. That is insufficient to support Schön's call for a "new epistemology".

In fact the professions are rising to the challenge, and the British Computer Society, in accrediting degrees in UK universities, has insisted that legal, ethical, professional and social issues be seen as equally important with the technical aspects of Computing degrees. In online education which makes use of asynchronous discussions, students are increasing given opportunities to engage in practical reason (giving reasons of different kinds for some course of action). The problems which Schön outlined are no longer baffling to online students. They now know that they are operating in a changing, uncertain world and, in reflecting on each other's arguments under the probing of a teacher-moderator, are increasingly able to cope with it.

6.0 Community of Inquiry Framework

Garrison, Anderson and Archer outlined a framework for understanding online education employing asynchronous online discussions [19]. They later described such discussions as "reflective, precise and lean"[20]. According to the authors there are three forms of presence in an online classroom.

"Cognitive presence is operationalized through the Practical Inquiry (PI) model based on the more elaborate phases of Dewey's notion of reflective thought. Dewey believed that a worthwhile educational experience should be based on a process of reflective inquiry… it appears that teaching presence in the form of designing learning activities that require solutions and that provide facilitation and direction

will ensure students move through the phases of the PI model in a timely manner" [20].

We therefore return once more to the concept of reflection, and this part of the framework has much to commend it in the eyes of online practitioners. A little less widely accepted is the concept of social presence.

"…it is argued that the three dimensions of social presence may be defined in terms of the participants identifying with the community, communicating purposefully in a trusting environment, and developing interpersonal relationships" [20].

The experience of long serving online teachers is that some students will engage enthusiastically in such social relationships. Others will do so only in the context of an assessed asynchronous discussion or group project. The blunt fact seems to be that some students will regard people around them as the equivalent of the emergency services. When they have a problem (they want a fire putting out), they would like their fellow students to be around to lend a hand. That does not necessarily mean that they will enter into extensive social interactions when there is no fire. There is therefore some debate about the extent of students' perceived need for social involvement.

Teaching presence is seen as a significant determinant of student satisfaction. It is viewed as having three dimensions – design, facilitation and direction. Although teachers may tend to exaggerate their own importance, practitioners' experience does indicate that without clear direction and support, online students can feel isolated, and even the most intelligent of students can become disorientated and confused.

The outstanding question mark over the framework is the extent to which students need a community rather than just support in times of trouble. Being part of a community clearly involves more than just shouting "Help!" when you need a fire putting out. To extend the metaphor, that need could be met by a small number of people interested in being part of a volunteer fire service. It does not necessarily imply that all students want to interact with others outside of situations where assessments have to be submitted.

7.0 Bloom's Taxonomy

The Taxonomy of Educational Objectives relating to the Cognitive Domain (usually just referred to as Bloom's Taxonomy) has had a great influence on assessment in online education [21]. It was claimed to be an educational-logical-psychological classification system. It encouraged teachers to set out behavioural objectives which could be achieved by students after completing some course of instruction. Objectives were classified on a number of different levels. These were hierarchical, in that the higher levels would help students display deeper and more sophisticated learning. The higher levels presume mastery of the lower levels.

At Level 1 (Knowledge), students would be tested on their ability to remember (by recognition or recall). At Level 2 (Comprehension), students are expected to understand information that is communicated to them, and make some use of it. Level 3 (Application) involves the application of some abstract principle to solve a problem, without the student being prompted as to which principle to apply. Level 4 (Analysis) would, for instance, involve breaking a problem down into its constituent parts, and detecting the relationship of the parts to each other. Level 5 (Synthesis) might involve putting together elements or parts to form a whole that constitutes a pattern or structure that was not apparent beforehand. Finally, Level 6 (Evaluation) entails judging the value of ideas, works, solutions, methods or material in achieving some purpose.

Modern elaborations of the taxonomy suggest active verbs that are relevant at each level. They are designed to assist in the creation of assessments. For instance, the verbs choose, decide and recommend are often seen as being appropriate to Level 6 (Evaluation). In higher education, the emphasis is very much on the higher levels of the taxonomy.

Now the mere presence of certain active verbs in an assessment description is not a guarantee that the learning outcomes will be aligned with some part of Bloom's Taxonomy, but the use of such verbs is often seen as a useful or necessary first step. They are guides to students to convey the idea, for example, that a purely descriptive account will be insufficient to meet the learning objectives. In an asynchronous discussion, for instance, students may be tempted to just report information they have found through research. Under the influence of Bloom's Taxonomy they will be urged to add value by comparing, contrasting, commenting on, criticising, and analysing the material.

8.0 Andragogy

Andragogy is the method and practice of teaching adult learners. It implies that such an approach is different from pedagogy, which involves the education of children. Possibly the first use of this term was in the German translation, andragogik, in the early nineteenth century [22].

Dusan Savicevic has written an interesting history of the development of the term in ten European countries [23]. It was Savicevic who introduced the word andragogy to the American academic, Malcolm Knowles, in the 1960s [24][25]. Knowles, who is often regarded as the "father" of modern andragogy, brought together a number of ideas and popularised the concept.

His andragogical model went through a number of changes, but eventually settled on six features that characterised the subject.

1. The need to know – adults need to know why they need to learn.
2. The learners self-concept – adults see themselves as being responsible for their own decisions.

3. The role of the learners' experience – adults have differences in the quantity and quality of experience they possess on becoming learners.
4. Readiness to learn – adults are ready to learn those things they need to know in order to cope with real-life situations.
5. Orientation to learning – adults are task or problem-centred rather than subject-centred.
6. Motivation – adults are driven by internal motivators such as job satisfaction and self-esteem.

It is possible that the difference between andragogy and pedagogy on these points is a matter of degree. In terms of online education, teachers have noticed a marked difference in the quality of contributions to asynchronous discussions by those who are over 25 years of age and have had a few years work experience. The use of examples which draw on first-hand experience tends to enrich the debate. Students learn from each other as well as from the teachers.

One of the reasons why these real-life examples seem to be so important to learning is because people sometimes find it easier to use induction or abduction to move from specific instances to general principles, than to start with general principles and then apply them to specific situations [26]. Another reason is that because of the vocational motivation of online learners (whether that be to get more money or to move into more interesting work), a particular value is placed on solutions that have actually achieved the desired objectives in a real-life situation.

9.0 E-Moderating

Gilly Salmon has had an enormous influence on the way that teachers moderate asynchronous online discussions [27]. In the most recent edition of her book she extends the scope of moderation to other forms of virtual interaction. Salmon has developed a 5-Step Model which shows how participation in computer mediated conferencing can become more sophisticated as time progresses. The steps are as follow:

1. Access and motivation
2. Online socialization
3. Information exchange
4. Knowledge construction
5. Development

The argument is that learners move from simply accessing the relevant system and being motivated to return, up to the final step, where they become more independent and responsible for their own learning. It is possible to derive much of practical value from Salmon's work without committing oneself to the specifics of the 5-Step Model. In more technical subjects such as Computing, it is likely that the first step will be of limited duration, and without specific incentives for busy adults to participate, the final steps may never be achieved.

Some controversy will surround the language used in Step 4. Most analytic philosophers will regard the language of constructivism as hopelessly muddled. I have argued elsewhere that the use of such terminology is unnecessary and unhelpful [28]. Students may well engage in a discussion and draw conclusions. They will form beliefs and hopefully many of those beliefs will be true. That is not quite the same as saying they will construct knowledge.

Each individual will build up a body of knowledge through transmission (as in learning the syntax of a programming language), or by solving problems on their own, by discussion or otherwise. What students learn was almost certainly true before they learned it. What they learn may be new to them but not new to others (and hence is usually not new knowledge). Their learning it did not make it true. They did not, therefore, in any meaningful sense, construct knowledge. They may well have discovered something. If every instance of the word "construct" can be replaced, without any significant loss of meaning, by the word "discover", then it is little more than a metaphor. It is an inconvenient metaphor because it blurs the distinction between discovering that which is actually true, and a fabrication.

10. The Philosophy of Adult Education

When the education of adults became popular in Britain at the end of the 19th and beginning of the 20th century, many prominent figures sought to ensure that the term "adult education" was synonymous with non-vocational education. Albert Mansbridge, a key figure in promoting working class adult education, believed that

"In its purity, Adult Education, has little or nothing to do with any ulterior motive, except the increasing strength and happiness of the individuals who participate in it. The early classes could not have been formed if there had been any appeal of a material nature. If they had been advocated as a means of getting on in life they would have failed." [29]

In a sense, Mansbridge was correct. The political support of leaders in the trade union and co-operative movements would not have been forthcoming, distrustful as they were of promoting vocational skills that could be of benefit to the employer. They were more interested in the coal miner using his newly acquired knowledge to assume part-time leadership positions in labour organisations rather than becoming upwardly mobile and leaving the mines.

However, this may well have been a top-down view of the situation and not representative of actual students' views. Tutorial classes were a form of part-time adult education designed to be of a higher education standard. Some of these were organised by Cambridge University, and their records show that a more typical view was that of one miner who felt that "no sane person would re-enter a Coal Pit as an employee if he could avoid it" and that "locals would have regarded it [a return to previous employment] as a sign of failure" [30].

Birkbeck College, now part of the University of London, has played a very important role in part-time adult education, but its contribution has often been neglected by those writing about the subject [31]. This is partly because, in the formative years of the early 20th century, its students were more likely to be clerks, civil servants and teachers taking courses for the purposes of vocational advancement. To some, they were the wrong kind of people taking the wrong kind of courses for the wrong reasons.

Modern online education is often undertaken for vocational reasons. This is no longer widely viewed as aesthetically distasteful. We should not, however, underestimate the changes in attitudes and theories which had to take place in order to make such vocationally motivated education possible.

There persists a debate about the value of a liberal education. The term liberal here is not used in a political sense, but relates to the kind of education that would have been appropriate for a free man in Ancient Greece (and in modern times that would become a free person). This would be a broad education which would prepare people to be good citizens. It would be sharply distinguished from vocational education.

In terms of adult education, a tremendous contribution to this philosophical debate was made by academics at the University of Nottingham. Of these, a prominent figure was Kenneth Lawson of the university's Department of Adult Education. For him, one feature of a liberal education was that students learned not only that certain things are the case, but also to manipulate concepts, apply principles, formulate and test hypotheses, and apply solutions to problems. There should be an emphasis on tested belief [32].

"A liberal education involves more than the remembering of propositions or the repeating of standard performances in standard situations; it includes the development of the ability to use and to modify our learning repertoires in the light of changing circumstances." [32]

Those familiar with online education, particularly with its use of asynchronous discussions, will recognise many of the things they seek to achieve. The key is that employers increasingly need people with such skills. The ever changing nature of business markets means that critical thinkers and problem solvers are in ever greater demand. The barriers between a liberal and a vocationally relevant education have been broken down to a great extent in higher education by the fact that many of the qualities valued by the supporters of liberal education have become vocationally valuable.

It was unfortunate that many of the entrenched attitudes towards vocationally relevant education were forged in the first half of the 20th century when Frederick Taylor's concept of scientific management was most influential [33]. Vocational training may have come to be seen as involving teaching workers the most efficient sequence of physical movements to achieve some manual task. Other vocational

models, such as those suggested by the training of doctors or lawyers, seem to have been neglected.

Now that we are in an information age, and much repetitive manual work has been automated, the vocational and the liberal approaches are coming less and less into conflict, particularly in higher education, except in so far as academics oppose in principle the idea of universities trying to meet the needs of industry.

11.0 Conclusion

A number of themes emerge from our brief review of the theories which do, should, and occasionally should not, influence the practice of online education: reflection, learning from other students, and the use of behavioural objectives. These themes often crop up in more than one body of theory.

There are still areas of contention such as those involving constructivism, the nature of liberal education, and the idea of social presence. It is in further exploring, clarifying, and resolving such issues that we can enrich online practice and avoid empty slogans which lead not to clarity, but confusion.

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