Distance learning and LIS professional development

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Summary
The nature of distance learning in general, and for the specific case of LIS professional development, is reviewed, in the context of wider changes in the learning environment. This leads to an analysis of the kind of materials and activities which may be required to support this form of education, and to proposals for categories of activities, which are to tested in a part distance learning multinational LIS summer school.

Introduction

Distance learning is not a new concept. Paper-based 'correspondence courses' have a long history; the first references to courses of this type date from the 1720s, and the idea was well known by the 1830s (Holmberg 1995). Isaac Pitman started to teach short-hand by post in the 1840s, language teaching by correspondence began in Germany in 1856, and during the second half of the nineteenth century correspondence education became well-established throughout the USA and Europe (Rowntree 1992).

However, distance learning is now a prominent and 'cutting edge' topic in education and training, associated with the ideas of open learning and life-long learning, and including very varied form of course, from degree programs and accredited professional development, to shorter tutorials and work-based training; see, for example, Lockwood (1995), Rowntree (1992), Brown (1997), Schrum (2000).

This paper examines the nature of distance learning, specifically in the context of continuing professional development for library/information science. It examines some of the theoretical bases of the topic, and shows how they lead to practical consequences for the kind of material covered, and the ways in which it is best presented.

Changes in the learning environment

The increased importance of distance learning has not arisen in isolation, nor simply as a result of technical advances, but in the changing context of society, and of the place of learning within it.

Jarvis, Holford and Griffin (1998) identify thirteen major changes. Their analysis relates particularly to Western Europe and the USA, but most points are equally applicable in other settings. The most obviously relevant of these changes is:

- from face-to-face to distance learning

They see the modern distance learning phenomenon as having been initiated by the British Open University, founded in 1970, and much imitated world-wide.

Five of the changes which they identify are particularly relevant to continuing professional development:

- from childhood to adult to lifelong learning
- from the few learning to the many

- from liberal to vocational learning
- from theoretical to practical
- from welfare provision to market demand

Learning is no longer something which primarily happens to young people, following a programme of liberal studies, with limited vocational and practical content, dictated by a centralised view of what should be learnt. Instead, learning is for everyone at all stages of life, but increasingly influenced by practical and vocational needs, and provided in response to the immediate demands of learners - the 'market'. [One specific example, from the library/information context, is given by Roberts (1996) and by Broady-Preston and Bell (2001), who describe the specific motivation of one 'market segment'; library / information professionals pursuing continuing professional development by distance learning.]

They also identify changes in the way in which learning itself occurs:

- from education to learning
- from teacher-centred to student-centred learning
- from rote learning to reflective learning
- from learning as a process to learning as content

It is no longer the function of a 'teacher class' to be the sole providers of learning, and to dictate what is learnt and how. Instead, learners, particularly when they are adults, will dictate what they wish to learn, and how they wish to learn it; the important factor will be whether, and how well, learning takes place, and not the process or the provider.

The remaining changes relate to the content of what is learnt:

- from single-discipline knowledge to multi-disciplinary knowledge to integrated knowledge
- from knowledge as truth to knowledge as relative
- from a classical curriculum to a romantic curriculum to programme

The concept of 'truth as relative' implies that it is no longer possible to learn a body of professional knowledge one and for all. It must be continually updated, with changes in society, in technology, and in all other relevant factors. The change toward integrated knowledge implies that it will not be possible to define with precision a body of knowledge and skills to be learnt, and expect that this will remain stable over time; professional learning requirements will change constantly, and provision must change to keep pace.

These changes set the scene for a consideration of distance learning, and how it fits into the current world of learning.

Distance learning; definition

There is no accepted definition of distance learning which encompasses all its aspects, and distinguishes it clearly from similar concepts, such as open learning; see Amundsen (1993) for a detailed review of various ways of understanding the term, and Virkus (2001) for a more recent account of how the different understandings impact on provision of library services to learners.

Whilst it is tempting to see distance learning as simply the provision of teaching to students who are physically distant from the provider institution, this is too simplistic a viewpoint. Levy (2000), for example, shows how the boundaries between distance and campus-based learning are blurring. One intriguing example is that of Fairleigh-Dickinson University in the USA, where on-campus students are required to take one online course per year, in order to gain familiarity with the Internet as a learning environment as a part of their future skill set (Marcus 2000). It is also our experience in the Department of Information Science at City

University London that students following ‘face to face’ courses make extensive use of materials provided for students following equivalent courses by distance learning. Rather than persisting with a ‘geographic’ view, distance learning, as Moore (1993A) emphasises, must be understood in terms of varying teacher-learner relationships.

A helpful framework is given by Keegan (1990), who suggests that distance learning is delineated by five main points:

- the separation, for the most part of the teacher and the learner throughout the learning process [which distinguishes it from conventional face-to-face learning], though this does not preclude occasional meetings
- the separation, for the most part, of learners from eachother throughout the learning process, so they largely learn as individuals and not in groups, though this does not preclude occasional meetings, both educational and social
- the activity of an educational system or organisation in the planning of learning, the preparation of materials, and the support of learners [which distinguishes it from private study, and ‘teach yourself’ programmes]
- the use of appropriate technical media - print, audio, video or electronic - to carry the content of the course, and allow contact between teacher and learner
- the provision of two-way communication between teacher and learner [which distinguishes it from computer-based training, and other technology-based learning]

These criteria imply that the nature of learning in a distance environment must be very different from ‘traditional’ college-based education and training. Without the immediate support of a student group, and the face-to-face presence of a teacher, distance learners must take responsibility for setting their own goals, and using the learning resources available to them to attain them. Distance learning must, by its very nature, be self-directed, independent and autonomous (Moore 1980).

Distance learning; nature

Autonomous, self-directed learning by adults - which, as shown above, is the way in which distance learning must operate - has been given the specific name *androgogy* by Malcolm Knowles, an American educational researcher who pioneered the theory of this kind of education (Knowles 1980); see Jarvis (1993) for a more recent perspective. Knowles contrasted this with *pedagogy*, the traditional methods of teaching children. The central point of his argument, defining the basic nature of androgogy, is that learners are allowed the freedom to use their own experience, and learn by relating the learning materials with which they are provided to their own situation. This is contrasted with pedagogy, by which students simply learn whatever it is they are taught by their teachers.

Knowles was criticised by some educators for an over-simplistic distinction between the learning of adults and children. However, there is little doubt that adult learners have a very different profile from children and college students. Rowntree (2000) gives a typical list of characteristics of adult learners:

- rich in experience and attitudes relevant to the subject they are taking
- goal-oriented, with their own agendas
- self-aware; wanting their views to be taken into account
- haunted (benignly or otherwise) by memories of school
- diverse in beliefs about, and attitudes to, learning
- troubled by concerns about money, work, family and similar issues
- expecting to get value for their input of time and money

There seems little doubt that adults will require a different approach to younger students. One practical consequence of this is that attempts to provide continuing education by asking adults to follow unadapted college courses are rarely effective.

Apart from his belief in the greater efficiency and effectiveness of a self-directed form of learning, Knowles, in a remarkably forward-looking book written a quarter of a century ago, argued that it was an essential for survival - professional and even personal - in a world of rapid change (Knowles 1975):
The simple truth is that we are entering into a strange new world in which rapid change will be the only stable characteristic and this simple truth has several radical implications for education and learning ...
The 'why' of self-directed learning is survival - your own survival as an individual, and also the survival of the human race. Clearly, we are not talking here about something that would be nice or desirable; neither are we talking about some new educational fad. We are talking about a basic human competence - the ability to learn on one's own - that has suddenly become a prerequisite for living in this new world.

Knowles' ideas have been taken further by Stephen Brookfield, who sees them as closely related to, and requiring the application of, critical thinking. Brookfield (1987) regards critical thinking as having four main components:
- recognising and challenging assumptions
- recognising the importance of the context
- being willing to explore alternatives
- becoming reflectively sceptical

On this basis, he argues that self-directed learning much more than just choosing which learning resources to use, and which topics to study; it should be a process of critical reflection on the nature of society and the individual's place in it, leading to personal growth and social change (Brookfield 1985, 1986). He also argues that it is equally important that teachers critically reflect on their own experiences (Brookfield 1996).

The viewpoints of Knowles and Brookfield lead us to see that distance education provision should make it possible, in some way, for learners to reflect the material they are studying, and to relate it to their own situation and experiences. While it is clear how this is applicable to social, political and ethical issues of study, it is less obvious how this will help thinking about how distance learning can contribute to the development of technical knowledge and skills.

An answer is found in another aspect of Knowles' theory of androgogy (Knowles 1980). If learning is to be self-directed, then how can learners decide, at the outset, what they wish to learn, and how they will learn it ? Knowles' answer was based on the idea of 'competencies'. Though the learner cannot, by definition, know everything they will learn before they learn it, they can specify what competencies they wish to gain; what new things they will understand, or be able to do, after the learning. Competencies may be simple - plugging in and switching on a computer, for example, which is a competence specified in some computer literacy training - or may be complex and rapidly changing.

The ideas of competencies as a basis for learning is rooted in a behaviourist approach. This is currently a popular approach to education and training, forming the basis of most vocational training. It also provides the rationale for the specification of 'learning outcomes', widely

used in both commercial training provision and in full-time education, which take the form of statements such as:

at the end of the course, students will understand …
at the end of the course, students will be able to …

Nonetheless, it is an approach which is recognised to have many limitations (Jarvis, Holford and Griffin1998), particularly when competencies are defined as ways of doing things, defined in very specific terms by some authority. On the other hand, it seems a clear and helpful way of defining learning in the context of specific practical or technical skills.

Boud (1995) argues that the notion of competencies is ambiguous, in that it may cover different meanings. One is a task-based, behaviourist, notion, describing specific behaviour to achieve simple, isolated tasks in a particular context. Others are ideas of 'attributes of the practitioner', general abilities applicable to different contexts and activities, and of a relation between attributes which may be learned - knowledge, skills, values and attitudes - and the situations with which professionals have to deal. These latter ideas of competence are sufficiently broad as to avoid the criticisms of the more limited behaviourist concepts, but raise difficulties as to how it can be judged whether the desired competence has, in fact, been gained. Boud argues that this requires a process of critical reflection by learners, echoing strongly Brookfield's arguments for critical thinking.

Distance learning, as we have seen, implies self-directed learning. This, it seems clear, requires two forms of learning, apparently very different, but actually closely inter-related. A focus on competencies may be helpful in defining what is to be learnt, in terms of specific knowledge and skills. This, however, soon merges into the need for critical reflection and critical thinking, as a primary means of learning. Provision of distance learning implies a balance of these aspects.

Of course, we must be aware that learners may have very different expectations, and assumptions about what learning actually is. Rowntree (1988) suggests that there are four main conceptions of learning:

- learning as memorising
- learning as understanding
- learning for application
- learning for personal development

The first, memorising, should play only a minor part, if any, in adult education. 'Understanding' and 'application' equate roughly to competencies of knowledge and skills, but will almost always involve some element of critical reflection. This latter will be predominant in learning for personal development. An effective distance learning course will involve elements of all these, but it is important that the students' expectations match this. Students who come expecting mainly to memorise and perhaps to understand may be confused when invited to apply and develop themselves; those who come with application and personal development in mind will certainly be frustrated by a course operated only at the level of memorisation (Rowntree 2000). A part of distance learning may often be helping students to consider and revise their ideas of learning itself.

The role of the teacher can now be clarified. However, adult distance education must be self-directed, and all such learning is essentially individual, with learners planning and directing their own learning. Teachers cannot therefore take the traditional pedagogical role of directing what is to be learnt and how. Rather they must act as enablers and facilitators or

learning (Jarvis, Holford and Griffin1998). And, as noted above, they must themselves engage in critical reflection on their activities.

Distance learning materials and activities

We can now turn to consider what sort of materials, interactions activities should be provided for distance learning, within an overall framework of providing both for critical thinking/reflection and for specific competences of knowledge and skills.

They must also be set within an overall framework of communication and interactions. In the absence, for the most part, of face-to-face teaching, these must be given particular attention. Moore (1993B) distinguishes three kinds of interaction:

- *learner-content interaction*: the interaction between the learner and what they are learning, that is the nature and degree of understanding
- *learner-instructor interaction*: not just in terms of 'formal' teaching, but in regard to all the ways in which the teacher can help the learner to learn
- *learner-learner interaction*: relations between learners, whether or not the teacher is involved, which assist and promote learning

Moore argues that all distance learning programmes should try to maximise all three forms of interaction.

In part, this will involve an imaginative use of technology, ideally with a variety of media, for both presentation of learning materials and for communication. Cultural matters are also important, to encourage learners to interact with eachother and with teachers; some element of face-to-face interaction is highly desirable in any distance learning programme, for this reason.

Design of learning materials is also important. Considerable experience has been built up, to suggest the general attributes of successful distance learning materials. The list provided by Holmberg (1995) is typical:

- easily accessible presentation of study material: clear, perhaps colloquial language, in easily readable writing [we might add that, if the material is being presented in what is not the learners' first language, then careful attention should be paid to comprehensibility]
- a personal style of writing [compatible with the above], using I, you, me, your etc., rather than an entirely impersonal 'academic' style
- explicit advice and suggestions to the student as to what to do, to avoid, and to pay attention to; reasons should always be given to encourage the students' own critical thinking
- invitations to a free exchange of views, opinions, comments, and questions
- attempts to involve students to take a personal interest in the subject being studied
- careful structuring and demarcation of material, through typographical means in written materials, change of voice in spoken communications, etc. [colour can be a powerful aid in this respect]

Rowntree (2000) adds another useful general point:

- make materials relevant and accessible to learners by using examples taken directly from others in their situation

It is also worth remembering that people have different styles of learning. Some prefer to think carefully and logically about an issue, some to undertake practical activities, others debate and discussion. Similarly, some people can learn best by reading, others by watching a

demonstration, others by talking and listening, still others by doing. There are a number of different categorisations of learning style e.g:

- ‘convergers’, ‘divergers’, ‘assimilators’, ‘accomodators’ (Kolb 1984)
- ‘activists’, ‘theorists’, ‘pragamatists’, ‘reflectors’ (Honey and Mumford 1986)
- ‘serialists’, ‘holists’ (Pask 1976)
- ‘surface-level processors’, ‘deep-level processors’ (Marton and S‰ljˆ 1976)

Ideally, an instructor would be able to assess the preferred learning styles, and expectations, of each group of learners, and tailor materials accordingly; Rowntree(2000) gives an example of this, as do Powers and Guan (2000) for the specific context of web-based courses; see also Evans (1994). In many cases, this will not be feasible, and the best which can be done is to provide a variety of learning materials, to suit the needs of all learners.

The technologies being used to deliver the materials, and allow communication, will affect what learning strategies can be used, and how they can be implemented. Klobas and Renzi (2000) give examples of learning methods - lecture/presentation; workshop/laboratory; self-guided instruction; seminar/tutorial; consultation; collaborative learning - their characteristics, and how they may be adapted to the web environment. Levy (2000) gives examples of the varying forms of distance, or networked, learning materials, and how they may be incorporated into a coherent scheme. However, such considerations must be moderated by consideration of the practicalities of local situations, as Kirillova (2000) exemplifies for Kazakhstan and Central Asia.

Distance learning; types of learning activity

Based on the analysis above, a categorisation of materials for a distance learning course can be constructed. It ensures that both competences and critical reflection are included, and that the competence aspects allow for both understanding and skills to be developed. A variety of activities in each category allow for preferred learning styles among the learners.

Three general types of activity are distinguished. They are denoted by colours, so as to avoid the connotations of numbers, or terms such as 'basic'. Those denoted 'blue' and 'pink' emphasise competencies: blue on a competent understanding and knowledge of basic concepts and facts, and pink on a competent performance of skills. Activities denoted as 'green' emphasise critical reflection.

There is some similarity here with Bloom's classic six-level hierarchy of cognitive levels:
- acquisition of information
- comprehension
- application
- analysis
- synthesis
- evaluation

which are regarded as of immediate relevance to course development (Bloom 1956; see also Holmberg 1995).

In practical terms, we can understand the different types of activity as follows:

Blue
Focus on: competencies of understanding
Enables students to: read and discuss relevant material with understanding, e.g. usefulness of particular ICTs, approaches to finding information
Taught by: lectures, seminars / tutorials, course notes, reading lists, non-interactive online tutorials
Assessed by: multiple choice questions, essay assignments, presentations

Pink
Focus on: competencies of skills
Enables students to: carry out professionally relevant tasks, e.g. Internet searching, evaluation of information sources
Taught by: demonstrations, practical exercises, interactive online tutorials
Assessed by: practical tasks

Green
Focus on: critical reflection
Enables students to: integrate a variety of skills and knowledge, and apply it to their professional situation, e.g. design of a training course module, preparation of a requirements document for a library management system
Taught by: individual student work; seminars
Assessed by: written and/or oral presentation of student work

Usually, blue activities will precede pink, and pink will precede green. Practical skills cannot be learned effectively in the absence of an understanding of the underlying concepts, and a

holistic critical reflection relies on both an understanding of concepts and an appreciation of practicalities.

This implies that we are following a 'top down' approach to learning, beginning with general assumptions, and 'working down' to particularities, rather than a bottom-up approach, by which students begin by dealing with isolated 'atomistic' parts of the subject, and proceed to build up from these a more general, abstract understanding. The 'top down' approach, which is influenced by a Popperian deductive philosophy, rather than the inductive, behaviourist 'bottom up' approach, has been advocated by writers such as David Ausubel (1968), who urges the use of 'advance organisers' to act as an introduction to what is to be learnt, so as to give learners a framework, at a higher level of abstraction than a conventional 'overview' or 'summary', within which they may integrate the material which follows. Strike and Posner (1976) and Holmberg (1995) give comparisons of the inductive and deductive approaches.

However, this does not mean that a course must proceed by coverage of *all* blue activities, then all pink, then all green. It should be possible for some blue aspects to be covered, followed by related pink activities, then return to other blue activities, and so on. However, the integrative green activities cannot realistically be started until most, if not all, of the blue and pink levels have been completed.

Conclusions

The ideas suggested above are to be put into practice by the authors within a short course in library/information science for a multinational audience. A course in 'Digital Literacy for Open Societies', which has been given in face-to-face form at the Central European University, Budapest, for four years (Robinson, Kupryte, Burnett and Bawden 2000), will from 2001 be provided partly by distance learning, though still with a face-to-face component. Evaluation of the success of this approach will provide a test for the validity of these proposals.

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