

THE BACKGROUND OF DISTANCE EDUCATION

Distance education is neither an isolated concept, nor in its practice an isolated creation. It is education of a special type, like all types of education dependent on and influenced by values, opinions, experience and external conditions. While it is different from conventional schooling and has so many characteristics of its own that as an academic area of study it may be regarded as a discipline in its own right (see Chapter 11), its basis is general educational thinking and experience.

BASIC QUESTIONS CONCERNING EDUCATION, TEACHING AND LEARNING

Every educational endeavour has a purpose. Distance teaching and learning, like any kind of teaching and learning, can serve different ends. It makes little sense on the basis of purposes to distinguish between education proper and training of certain skills (Wedemeyer 1981). Any learning can be an educational experience. Distance learning primarily serves those who cannot or do not want to make use of classroom teaching, i.e. above all, adults with social, professional and family commitments.

Learning implies more than acquisition of knowledge, for example, abstracting meaning from complicated presentations and interpreting phenomena and contexts; '[it] is the process of transforming experience into knowledge, skills, attitudes, values, senses and emotions' (Jarvis 1993: 180).

Regarding learning as acquiring the capacity to provide a number of replies that are correct (stage 1) is a primitive view that, at least according to William Perry (1970), ordinary university students give up fairly early. The reason why they do so is

that they realize, through varied reading, that in many cases there is no such thing as an answer or solution that is absolutely right. This relativism (stage 2) represents an important experience, on the basis of which students may reach conclusions and positions of their own (stage 3). Perry's study of the three stages of the understanding and application of learning should be an eye-opener to distance educators. There is definitely a risk that distance-study courses may degenerate into spoon-feeding or presentation of given truths in larger doses. Developing awareness of problems and of the plausibility of different approaches and solutions, as well as inspiring (or provoking) students to take up positions of their own, is an important educational task for academic distance education.

Teaching is frequently regarded as knowledge transfer 'from one vessel to another' (Fox 1983: 151), a view which must be rejected as too narrow from the points of view mentioned. The author last quoted, Dennis Fox, identifies three further views of teaching:

There is the shaping theory which treats teaching as a process of shaping or moulding students to a pre-determined pattern... There is the travelling theory which treats a subject as a terrain to be explored with hills to be climbed for better viewpoints with the teacher as the travelling companion or expert guide.

Finally, there is the growing theory which focuses more attention on the intellectual and emotional development of the learner.

Only the last view meets the demands of complete education. However, there can be no doubt that the shaping and travelling theories to which Fox refers represent not only widespread but also, in many contexts, well-founded views of teaching, for example in occupational training.

The aims of education, including distance education, cover a wide spectrum: from the development of personality and cognitive structure, via guided learning and problem-solving, to the training of knowledgeable and well-adapted professionals or examinees. Each of these aims means more than merely conveying information or imparting knowledge.

To the present author, teaching means facilitation of learning (see Rogers 1969), which is seen as a basically individual activity

intended to lead to a goal of some kind (self-realization, an examination, professional competence, or some other goal). This definition is important for ridding us of an otherwise well-grounded objection to treating teaching and learning as one package. The objection would be that teaching and learning are sometimes little related to each other. It has rightly been said that, when something has been learned in a teaching-learning situation, learning may have been caused by influences other than those of the teaching. When something has been taught, we do not know whether something has been learned; and if something has been learned, we do not automatically know what it is - it is possibly something different from what was intended by the teaching (Loser and Terhart 1977: 29). Teaching is an attempt, sometimes successful, to facilitate learning towards some goal. It is in this light that distance education should be viewed. Like other educational activities, it encompasses learning and teaching in the senses indicated.

The purpose of distance education is thus to offer teaching and learning facilities, with a view to promoting the aims of education as referred to above. They concern the promotion of productive and critical thinking. Distance education must promote these goals by means that are useful and acceptable to students, usually adults, who either cannot or do not want to benefit from face-to-face teaching.

What makes this complicated is that many distance-education courses are characterized by a high level of structuring and by the fact that the knowledge to be learned is presented as a ready-made system; for such a teaching method Weingartz (1981) coined the term 'system-oriented' teaching method, which she contrasted with the term 'problem-oriented' teaching method.

(Schuemer 1993: 3-4)

Schuemer warns of the danger that highly structured learning packages may lead to dependence on the teaching system rather than promote independence. This is a concern that engages quite a few social scientists wary of the possible alienation effects of the individual approaches that are typical of much distance education.

PAVING THE WAY FOR TEACHING AND LEARNING

Anyone concerned with teaching and learning methodology has unavoidably to face the question whether there can be a useful general structure, or methodology, or if each subject has characteristics so special that the principles applying to, say, language courses can have little or nothing to do with those for courses in, say, mathematics, chemistry, or social science. It is evident that this question is acutely relevant to any attempts to discuss specific approaches, such as distance education, to teaching and learning.

This is a classical issue to which Amos Comenius, the great seventeenth-century educationist, gave much thought. He based his recommendations on his view of nature and in his *Didactica magna* included a number of observations that are relevant in this context. They imply that there are structures inherent in certain learning matter, generated from the characteristic and unchangeable nature of reality. Compare the following quotations from Comenius 1657 cols. 72 and 78: *Natura sibi parat Materiam, antequam introducere incipiat Formam* (Nature prepares matter before it begins to introduce form) and *Natura Materiam praedisponit, ut Formae fiat appetens* (Nature predisposes matter so that it may find its proper form). This kind of thinking has greatly influenced the educational debate, not least in Germany, where the word didactics (*Didaktik*) is often used to refer to teaching principles specially related to content as opposed to methodology. In the German debate there has been much insistence on the 'Primat der Didaktik' (Klaßf 1970: 70), i.e. the leading role of content-related principles in teaching. It is doubtful, however, whether Comenius' nature equals subject content or the way humans grasp matter to be learnt, which would include learning conditions and allow subject-bridging principles for teaching and learning.

At least one attempt has been made in the distance-education debate to demarcate the areas of general teaching theory and discipline-based teaching theory in relation to each other. Müller, Schneider and Schulz argue that 'general teaching theory is not directly interested in the orientation of pedagogic activity in formal teaching-learning situations but confines itself to analyses of pedagogic processes from which generalizations can be made', whereas the objective of discipline-based teaching theory is 'to give the particular discipline a concrete teaching format' and

'to judge the practical value of the theoretically determined teaching concepts in concrete teaching situations. So it attempts to define practical forms of pedagogic behaviour' (Müller, Schneider and Schulz 1985: 95).

No doubt the content of many learning areas or subjects has its intrinsic logic causing an order of presentation to be followed. The question is whether this required order represents the disciplinary order of the subject concerned. It can well be argued that a subject area to be taught and learned acquires its logical order from the requirements of teaching and learning. Look at the following example of hierarchical presentations concerned with the teaching and learning of mathematics:

At the bottom of the diagram are basic aptitudes which students bring to the learning task, such as symbol recognition. Next to these are the simple, general components of knowledge or competency, such as recognizing that $1x = x$. Higher up in the pyramid are skills like performing multiplication of numbers in sequence. Continuing progressively upward in the hierarchy are combining fractions with the denominators simplifying an equation by adding and subtracting numbers to both sides, etc.

(Briggs 1968: 6)

We may ask ourselves if this hierarchical approach primarily depends on the discipline of mathematics or on what is called for from the points of view of teaching and learning methodology.

This is not to deny that there are cases of subject logic that are decisive for the structure of teaching and learning. It must, on the other hand, be recognized that attempts to teach a subject can impose a teaching-learning logic on the subject. This problem was dealt with by Dewey as early as 1916 and has later been analysed by Hirst. The latter distinguishes between what he calls the logical grammar, i.e. 'the rules for the meaningful use of the terms' that a domain of knowledge employs, and the logical sequence of a subject. Whereas the logical grammar is something that is given and cannot be dispensed with, there can never, in Hirst's view, be only one logical sequence in any domain of knowledge:

In so far as the logical grammar reveals elements of logical order, then the teaching must equally respect these too.

What they are in any given subject is a matter for the detailed analysis of that subject.

There is . . . no one logical sequence in which the truths of a subject must be communicated, even in those subjects which seem most strictly sequential.

(Hirst, in Hirst and Peters 1970: 53, 54)

The relative characters of subject logic and teaching-learning logic are apparently inevitable facts. Everyone realizes today that science and scholarship are not ontological in character, i.e. generated from nature, but represent results or findings based on research methods. See Loser and Terhart, who stress that subject content does not become teaching content until it has been subjected to special processing ('Aubereitung') (Loser and Terhart 1977: 14).

There is a case for discussing forms and methods of education across disciplinary boundaries. This applies to distance education and the structuring of courses on the basis of subject logic and psychological considerations. Among the approaches relevant in this context are those concerned with learning starting out from attempts to solve specific problems rather than from the systems of knowledge available, which has been called genetic learning (Wagenschein 1975), for instance, when studying gravitation, asking the questions of Aristotle and Galileo in the way that Einstein and Infeld do instead of starting by learning the solutions found (Lehner 1978: 76-7). Attempts to apply this kind of problem learning as well as various structuring principles to distance education will be looked into on pp. 35 and 64f.

THE IMPACT OF THEORY ON PRACTICE

In the above discussion of teaching and learning as elements of (distance) education, the relation of these two elements to each other was briefly described as of a not necessarily causal nature. Learning can occur without teaching, and teaching can occur without learning. As the purpose of teaching is learning, and the basic assumption (theory) behind teaching is that it causes or facilitates learning, what has been said is tantamount to querying the impact of theory, or at least its dominating influence, on practice in this context.

As a rule, teaching intent is not regarded as theory, however.

On the contrary, there are theories prescribing what teaching should be like, under what circumstance and how it should be provided. The question is to what extent logico-deductive theories are immediately applicable to teaching practice. In the spirit of Popper, it would seem to be possible to draw practical conclusions from theoretical considerations, although these are primarily concerned with true statements and explanations and only secondarily with practice. This applies if we accept Popper's statement that the task of scholarship is on the one hand theoretical, to bring about understanding and explanation, and on the other hand practical, to provide for application or technology (Popper 1972: 49). Popper makes it clear that he is mainly concerned with the explanatory power of theories and that he rejects a merely instrumental view, although their predictive power is recognized and seen as a control instrument (Popper 1980: 61). See also the section Epistemological Concerns below.

An example of a theory in our field that has had immediate and direct consequences for practice is behaviourism, in the form of Skinner's operant conditioning applied in programmed learning (Skinner 1968; Mager and Beach 1967). Both the theory and its applications have been widely rejected, however, largely with reference to the facts that humans and human learning are complicated and that learning is influenced by the individual personality and will of the learner. From the points of view of education (teaching and learning) developed above, consistent behaviourism must be rejected as irrelevant, as it is concerned with conditioning rather than with education.

If a free will is postulated, there are nevertheless possibilities to base practice closely on theory. Following and simplifying Herrmann (who has chosen another example than the one used below), we seem to be entitled to relate theory and practice in the following way. If we believe in and find logical and empirical support for a hypothesis of the type 'If A, then B', this can guide practice. Let us suppose that we operationalize the concept of readability, so that it is quite clear what is meant, and then hypothesize: 'If the style of a distance-teaching course is characterized by a high degree of readability, then students will learn easily.' This will evidently lead to a practical rule to be followed: 'Develop courses in such a way that they are highly readable if you want students to learn easily' (see Herrmann 1979: 141f). A number of hypotheses or theories, i.e. logically connected series

of hypotheses of this kind, have been developed, also for distance education. See Chapter 9.

However, there is little hope (or fear) that any scholarly theory or agglomeration of theories would ever be able to give enough and sufficiently detailed prescriptions to allow us to state, as a reasonably acceptable rule, that all practice in education (distance education) can be consistently guided by theories of the kind described. One reason for this is the impossible expectation of an unfailing cause-effect relationship in human behaviour (pp. 180-1).

As will be shown in the following chapters, this view of theory as only to a limited extent guiding practice will not mean neglect of theoretical considerations. On the contrary, they will be given much attention as indicators of possible solutions. While the testing of theories is a purely rational procedure, their emergence is almost always due to personal observations, intuition and creative thinking.

This influences our view of instructional design. It has been claimed to be a science and 'a discipline separate unto itself' (Richey 1986: 8). This claim has been rejected and even ridiculed. Barrow argues that the claim is that 'one may learn how to design curricula as one may learn how to skate, how to weld or how to fill in tax returns' (Brown 1986: 73), but that instructional (curriculum) design

is more like some branch of the arts, landscaping or interior decorating than it is like engineering or cake-making; inasmuch as it is an open flexible domain due to uncertainty and disagreement over ends, crucial concepts being contested or unclear, our relative ignorance about cause and effect, and the likelihood that in this case there are many good ways to kill a fox.

(Barrow 1986: 75)

However, instructional design is undoubtedly, and often successfully, concerned with scholarly inquiry, the verification of observations and the practical application to teaching of findings made. For further viewpoints, see Snellbacker (1983); on its potentials in distance education see Benkoe de Rotzache (1987).

In the development of course materials for distance education, instructional design is inevitably an important concern, whether it is interpreted as a 'science' based on scholarly analysis of

empirical findings or simply as a system for bringing reasonable expectations, experiences and insights into useful order. Its purpose is to develop validated recommendations for the structuring of effective teaching. It is often combined with the so-called systems approach which here implies considering teaching as a system with interrelating sub-systems (Andrews and Goodson 1980; Hannum and Briggs 1982; Romiszowski 1981a).

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PLANNING DISTANCE EDUCATION

The introductory comments made so far make it clear that distance education in theory and practice encompasses a number of diverse considerations and actions. The interaction between these, their relations to and influence on one another are important to our picture of distance education as a manageable whole.

What this means to distance-teaching organizations and their overall planning is far from universally clear. Needs and conditions in the societies concerned are decisive, but real knowledge about relevant circumstances is seldom easily available. What can be called market research and a kind of corporate planning are required. In the early 1970s the present writer made what proved to be an abortive attempt to develop a generalizable approach to such planning and published a booklet in Swedish about this (Holmberg 1972). A more fecund approach of immediate relevance in the 1990s has been introduced by the Canadian Open Learning Agency in a 'scan of the British Columbian Environment' (Bates 1990b and 1993; Segal 1990).

While strategic planning must remain a concern of each national, regional and local organizing body there are more easily generalizable principles that apply to the planning of the processes of distance education. Here we have to consider the system itself, its students and their learning, course planning based on the needs of the target groups concerned, the goals and objectives of the teaching and learning. This type of planning concentrates on what has been called the endogenous concerns of distance education, i.e. what it is like and how it can be optimized. There is, however, particularly among social scientists, a strong consciousness that exogenous factors such as the reciprocal influences of society and distance education are of considerable