Educational paradigms

The following is taken from a paper written by Professor Tom **Reeves** (WWW: http://itech1.coe.uga.edu/**Reeves**.html) and posted to the IT-FORUM listserv (21 February, 1996). This listserv is administered at the University of Georgia, US, and moderated by Dr Lloyd Reiber. Professor **Reeves**' paper has been edited to improve its meaning outside of the original context in which it was posted.

Paradigm # 1

Analytic-Empirical-Positivist-Quantitative Paradigm

The 'Analytic-Empirical-Positivist-Quantitative Paradigm' represents the most established of the **paradigms** that guide research in education and the social sciences. The 'analytic ' aspect of this paradigm reflects a belief in a mechanistic, deterministic reality whereby parts can be separated from wholes and cause and effect relationships among parts can be revealed. The 'empirical' aspect refers to the goals of inquiry as being the definition, prediction, control, and explanation of physical phenomena as revealed through experience (induction) and experiments (deduction). The 'positivist' aspect represents a faith in scientific progress and the perfectibility of mankind. Finally, the 'quantitative ' aspect stems from a reliance on measuring variables and analysing the relationships among them with descriptive and inferential statistics.

Subscribers to the 'Analytic-Empirical-Positivist-Quantitative Paradigm' believe in a separate, material reality that exists apart from the beliefs of individuals, groups, or societies. Following E. L. Thorndike, they believe that if anything exists, it can be measured. They seek to explain changes in aspects of reality through controlled experimentation. Detachment from the phenomena under study is preferred to maintain objectivity. Mathematical analysis and statistical significance are held in the highest regard.

Paradigm # 2

Constructivist-Hermeneutic-Interpretivist-Qualitative Paradigm

The 'constructivist' aspect of the 'Constructivist-Hermeneutic-Interpretivist-Qualitative Paradigm ' reflects the belief that humans individually and collectively construct reality. The 'hermeneutic' aspect of this paradigm has its original meaning in the analysis of religious texts, especially in reference to different scholarly interpretations of the Bible. More recently, hermeneutics has come to mean the analysis of curriculum in the broadest sense and instructional programs and products in a more focused sense, including attempts to expose the values underlying these phenomena (Schubert & Schubert, 1990). The 'interpretivist ' aspect stresses the need to put analyses in context, presenting the interpretations of many, sometimes competing, groups interested in the outcomes of instruction. The 'qualitative ' aspect represents the emphasis on the human being as the primary research instrument,

rejecting the mathematical modelling of phenomena upon which the quantitative paradigm depends so heavily.

Proponents of the 'Constructivist-Hermeneutic-Interpretivist-Qualitative Paradigm' have sharply divergent views about the nature of reality from those of proponents of the quantitative paradigm. They believe that 'Truth is a matter of consensus among informed and sophisticated constructors, not correspondence with an objective reality ' (Guba & Lincoln, 1989, p. 44). Further, they are concerned with understanding the nature of this constructed reality from multiple perspectives, emphasising the roles of culture, sex, context, and other factors in the construction of 'reality'. With regard to research methodology, they have adopted many anthropological methods of inquiry, especially human observation. Not surprisingly, immersion in the context of a research study is highly preferred over the detachment of the classical laboratory scientist.

Paradigm # 3

Critical Theory-Neomarxist-Postmodern-Praxis Paradigm

Whereas proponents of the quantitative paradigm proclaim their objectivity and believers in the qualitative paradigm revel in their subjectivity, advocates of the 'Critical Theory-Neomarxist-Postmodern-Praxis Paradigm ' wear the label 'social activists' with pride. Critical theorists condemn the 'Analytic-Empirical-Positivist-Quantitative Paradigm' as reactionary and the 'Constructivist-Hermeneutic-Interpretivist-Qualitative Paradigm' as unengaged. In fact, members of the Neomarxist faction of this paradigm view themselves as the forces of liberation engaged in mortal conflict with the powers of oppression.

The 'Critical Theory ' aspect of the 'Critical'

`Theory-Neomarxist-Postmodern-Praxis Paradigm' relates to a concern 'with questions of power, control, and epistemology as social constructions with benefits to some and not to others (Muffoletto, 1993, p. 4). The 'neomarxist' aspect of this paradigm is derived from the liberation education movement led by Paulo Freire (1970) and Ivan Illich (1970). Neomarxist evaluators seek to expose the 'hidden curriculum' underlying instructional technology and other educational reforms. The 'Postmodern' perspective questions the conception of instructional technology 'as neutral or as leading inevitably to progress ' (Hlynka & Yeaman, 1992, p. 2). Postmodernists deconstruct the 'texts ' inherent in the products and programs developed by instructional designers, seeking to reveal contradictions and the exclusion of minority interests. Deconstruction which has its roots in literary analysis is a process of revealing the hidden meanings of texts. The 'praxis ' aspect represents a desire to abandon the search for truth as sought by empiricists or understanding as desired by interpretivists in favour of seeking 'little truths which are situationally appropriate ' (Anderson, 1993, p. 1).

I suspect that few advocates of the 'Critical Theory-Neomarxist-Postmodern-Praxis Paradigm ' label themselves as 'instructional designers. ' After all, why would proponents of this anti-authoritarian paradigm seek to serve a process that has its roots in systems models developed for large-scale weapons production by the military-

industrial complex? Nonetheless, I believe the 'critical theory ' perspective should be taken seriously because it encourages instructional designers to question again and again the cultural, political, and gender assumptions underlying an instructional product or program. Scepticism and questioning are the basic tenets of this paradigm. For example, Michel Foucault, a major figure in this movement, demands 'that we question everything, including law, science, religion, and Western philosophy ' (Anderson, 1993, p. 1).

Paradigm # 4

Eclectic-Mixed Methods-Pragmatic Paradigm

My last 'paradigm' within the context of instructional design is not found in any traditional analysis of paradigms for inquiry in education (cf., Schubert & Schubert, 1990; Soltis, 1992). Nonetheless, it is perhaps the most useful of the four paradigmatic orientations described in this message because it is the one approach most capable of handling the complexity that is the hallmark of contemporary society and technology (Casti, 1994; Sedgwick, 1993).

The concept of complexity is exceedingly relevant to the context of instructional design. Sedgwick (1993), in an article titled 'The Complexity Problem ' maintains that 'It is becoming increasing clear that the comfort of a good fit between man and machine is largely absent from the technology of the information age ' (p. 96). A similarly pessimistic observation can be made about the fit among teachers, learners, and the instructional programs and products resulting from systematic instructional design. According to Leshin, Pollock, and Reigeluth (1992), the major problem with existing ID models is that 'they have totally ignored guidance as to what makes good instruction' (p. 1). Leshin et al. (1992) also maintain that traditional ID models can be followed rigorously and still yield poor instruction.

The 'eclectic ' aspect of the 'Eclectic-Mixed Methods-Pragmatic Paradigm' refers to its openness to borrowing the methods of the other three paradigms to collect information and solve a problem. The 'mixed methods ' aspect relates to the recognition that multiple perspectives are necessary to 'triangulate ' or 'bracket ' information and conclusions regarding complex phenomena. The 'pragmatic ' aspect reflects the practical orientation that, although ultimate prediction and control may never be achieved in education and training through instructional design or any other approach, things can get better.

Adherents to the 'Eclectic-Mixed Methods-Pragmatic Paradigm' rarely concern themselves with ultimate conceptions of reality, preferring to deal with the practical problems that confront them as educators and trainers. They view modes of inquiry as tools to better understanding and more effective problem-solving, and they do not value one tool over another any more than a carpenter would value a hammer over a saw. They recognise that a tool is only meaningful within the context in which it is to be used. Pragmatists accept their interconnectivity with the phenomena they seek to understand and change (Bruce & Rubin, 1992). They also recognise the weaknesses of their tools, and struggle against the odds that either science or creativity will affect decision-making more than politics, ignorance, intuition, habit and prejudice. Finally,

they are honest with themselves and their audiences about the tentative and probabilistic nature of the recommendations they make.

So where does this brief review of alternatives educational paradigms leave us? I hope it provides us with a better basis for understanding that other ways of knowing (constructivist, critical, or pragmatic) are all valid in thinking about and implementing models of instructional design to maximise effective teaching and learning.

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