

Draft

Emerging Technology
Applications and the Educational Uses

Introductory Remarks

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INSTRUCTIONAL DELIVERY TECHNOLOGY

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What do we mean by "emerging technologies?" If we think of hardware, firmware, even software in the narrow sense, we will attend to the wrong thing. Technologies are more than artifacts; they are human uses, patterns of activity, ways of doing things. We presently have available at remarkably low costs remarkably powerful artifacts: what will be emerging are their human uses and effects.

These powerful artifacts consist of local area networks; massive information storage through optical disks, CD-ROM and the like; interactive videodisk; voice recognition capacities; all increasingly informed by artificial intelligence. For the human uses of these artifacts to emerge fully, a diverse implementation effort will have to go on over the coming decade or two.

Our basic theme for this panel might be put as follows: the period in implementation efforts of *applications* is drawing to a close and it is giving way to one in which those efforts will be ones of *emergence*. In the period of applications, information technologies have been applied to familiar problems -- in education, drill and practice, data processing, and office automation. In the period of emergence, novel uses and developments are emerging in settings where information technologies are available for creative use. These emerging uses, uses that are not merely extensions of what educators have long been doing, provide a marvelous occasion to rethink many of the givens, which have otherwise seemed impervious to question.

From applications to emergence: we seek to provoke reflection on the human, educational effects of this transition. The human uses of the emerging technologies permit us to move away from established practices: whether or not we should do so is a choice to be made. Our aim this morning is to make a start at think through these choices.

TEACHERS COLLEGE * COLUMBIA UNIVERSITY

Department of Communication, Computing, and Technology in Education

**Interpretation and Explanation:
Some Methodological Reflections on the Study of
Technology, Education, and Communication**

A Departmental Colloquium Presentation

by

Robbie McClintock

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The point to be got, or the moral of the tale to come.

I don't admire an over-flowing virtue such as bravery unless I see at the same time an overflow of the opposite virtue, as with Epaminondas, who was both extremely brave and extremely kind.... One does not ascend to greatness by being at but one or the other extreme, but by touching both at once and by filling what's between.

Blaise Pascal, Pensees, Paris: Editions Garnier Freres, 1958, #353, p. 162

Ah! It is clear! To propose that life is "principally" this or that is supremely dangerous, for in an instant it will be "exclusively" either this or that. Then terrible things happen.... It would be an easy job to exist if we could do things unilaterally. But — and here is the problem! — to live is to travel at one time in every direction of the horizon; to live is to have to do with both this and that.

Jose Ortega y Gasset, "Un rasgo de la vida alemana," 1935, Obras completas, Vol. 5, Madrid: Revista de Occidente, 1961, p. 191.

You would not find out the boundaries of soul [psyche], even by travelling along every path: so deep a measure [logos] does it have.

Heraclitus, Fragment 45 (Diels), as translated in G.S. Kirk and J.E. Raven, The Presocratic Philosophers: A Critical History with a Selection of Texts, Cambridge: Cambridge University Press, 1962, p. 205.

General Outline

- I) Neuhumanismus and the start of educational research
- a) The French Machtstaat versus the German Erziehungsstaat
 - b) The basic question: What educates? How? Why?
 - c) The methodological polarity: Schleiermacher and Herbart
- II) Johann Friedrich Herbart, 1776–1841: The study of education should utilize ethics to ensure that what is to be taught is not morally pernicious and then use scientific psychology to find the most effective way to ensure that the student will learn what is to be taught.
- a) A major paradigm of educational research
 - b) A paradigm about which educational researchers have become highly sophisticated.
- III) Friedrich E. D. Schleiermacher, 1768–1834: The study of education should use history and other cultural methods to interpret the place of the student in the social milieu and the place of the available cultural resources in the civilization to understand how the interaction of student and culture may limit or liberate his or her human potential.
- a) A major paradigm of educational research
 - b) A paradigm about which educational researchers have not become highly sophisticated.
- IV) Post-Schleiermachian methodological traditions
- a) The Kantian foreground: The Critique of Pure Reason and "The Analogies of Experience" — The Principle of Causality and the Principle of Reciprocity.
 - b) Wilhelm Dilthey, 1833–1911, Schleiermacher's biographer, theorist of the Geisteswissenschaften, methodologist of the hermeneutic circle.
 - c) Max Weber, 1864–1920, student of Dilthey, proponent of Begriffsbildung, methodologist of ideal-type construction.
- V) Exemplifications from last-week's presentation
- a) The need of interpretation: text–context and their interactions. To what degree do the tapes speak for themselves?
 - b) The role of ideal-type construction: reproduction, empowerment, and self-expression — three ideal-types of education applicable to the tapes.
 1. Reproduction: Pierre Bourdieu, Reproduction in Education, Society and Culture.
 2. Empowerment: Paolo Freire, Pedagogy of the Oppressed; Antonio Gramsci and the critique of cultural hegemony.
 3. Self-expression: Rousseau, Emile, and education in accord with nature.]
 - c) A parting question: Would examples of education through computing, analogous to these examples of education through video, so lend themselves to such interpretation?

Some Sources

Neuhumanismus:

Andreas Flitner, Die Politische Erziehung in Deutschland: Geschichte und Probleme, 1750–1880 (Tubingen: Max Niemeyer Verlag, 1957) is about a slightly broader topic, but it gives much insight into the movement.

W.H. Bruford, The German Tradition of Self-Cultivation: Bildung from Humboldt to Thomas Mann (Cambridge: Cambridge University Press, 1975) gives an excellent critique.

Herbart:

Harold B. Dunkel, Herbart and Herbartianism: An Educational Ghost Story (Chicago: The University of Chicago Press, 1970) attempts to help readers separate what Herbart really thought from what his self-proclaimed followers propounded in his name.

Harold B. Dunkel, Herbart and Education (New York: Random House, 1969) is a useful, brief survey.

Schleiermacher:

One awaits the translation of Dilthey's great biography of him: Wilhelm Dilthey, Leben Schleiermachers (2 vols., Martin Redeker, ed., Berlin: De Gruyter, 1966).

It is virtually impossible to study Schleiermacher as an educational thinker in English: despite his prominence in the history of educational theory as viewed by German's, nothing on his pedagogy has been written in English. For a good collection of texts, see Wilhelm Flitner, ed., Schleiermacher: Pädagogische Schriften (2 vols., Dusseldorf: Verlag Kupper, 1957).

Fortunately, the widespread interest in hermeneutic interpretation has prompted the translation of Schleiermacher's seminal work on the theme: F. D. E. Schleiermacher, Hermeneutics: The Handwritten Manuscripts (Heinz Kimmerle, ed., J. Duke and J. Forstman, trans., Missoula, MO: Scholars Press, 1977).

Kant and the analogies of experience:

See Immanuel Kant, Critique of Pure Reason (Norman Kemp Smith, trans., New York: St. Martin's Press, 1965), especially pp. 208–238.

Dilthey:

A good selection of texts for these themes is Wilhelm Dilthey, Selected Writings (H.P. Rickman, trans., Cambridge: Cambridge University Press, 1976).

Good interpretative works are Rudolf A. Makkreel, Dilthey: Philosopher of the Human Studies (Princeton: Princeton University Press, 1975) and Theodore Plantinga, Historical Understanding in the Thought of Wilhelm Dilthey (Toronto: University of Toronto Press, 1980).

Dilthey has a very high reputation as an educational theorist in Germany, an aspect of his work completely ignored in English. See Ulrich Herrmann, Die Pädagogik Wilhelm Diltheys: Ihr wissenschaftstheoretischer Ansatz in Diltheys Theorie der Geisteswissenschaften (Goettingen: Vandenhoeck & Ruprecht, 1971).

Weber:

With respect to the themes accentuated here, two anthologies of Weber's work bear mention: Max Weber, The Interpretation of Social Reality (J. E. T. Eldridge, ed., New York: Schocken Books, 1980) and W. G. Runciman, ed., Weber: Selections in Translation (Eric Matthews, trans., Cambridge: Cambridge University Press, 1978), a very excellent anthology.

Two good, specialized studies of Weber's methodological significance are H. H. Bruun, Science, Values and Politics in Max Weber's Methodology (Copenhagen: Munksgaard, 1972) and Thomas Burger, Max Weber's Theory of Concept Formation: History, Laws, and Ideal Types (Durham: Duke University Press, 1976).

Bourdieu:

See Pierre Bourdieu and Jean Claude Passeron, Reproduction in Education, Society and Culture (Sage, 1977) and Pierre Bourdieu, Distinction: A Social Critique of the Judgement of Taste (Richard Nice, trans., Cambridge: Harvard University Press, 1984).