From Instructional Design to Study Design
Toward a New Paradigm for Theory and Practice

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A Proposal for a Concurrent Session in the Division of Instructional Development

Study is a key idea in developing a new paradigm that will make design more fruitful in education. However well it has worked for industrial and military training, instructional design has had minimal effect in the everyday work of schools and colleges. This paper will report on alternative design principles developing in a focused, well-funded effort to use information technology as a change agent in an established, progressive school.

Theory

Traditional instructional design is a paradigm built on the teacher-learner construct.

> At the most general level, ISD is a process for determining *what* to teach and *how* to teach it. the assumption is made that there is a target population (somewhere) that should learn something. To determine what is to be learned, the designer analyzes a goal statement to identify subordinate skills, and formulates specific objectives and associated criterion-referenced assessments. How the information or skills will be taught is spelled out in an instructional strategy, which is the blueprint for the development of the instruction in a selected medium. The instruction is formatively evaluated with appropriate learners until the desired criterion level of performance is met. (Dick, 1993)

This paradigm works where "the learner" adequately characterizes the recipient of instruction.

Young people populating schools and colleges are called *students*, not *learners*, and their business is to *study*, deriving from the Latin *studeo* --to be eager, zealous, earnest; to take pains about something; to strive after; to be busy with; to seek after or aim at. Traditional instructional design postulates a direct causal connection from teacher to learner. Study is not a process causally controlled by the teacher, school, or curriculum. The teacher, the school, and the curriculum can invite and support study, they can command, cajole, and plead for it, but they cannot cause or control it. The student causes study, and the teacher-student construct is the crucial one for a new paradigm of design in education. (McClintock, 1971)

In the place of an Instructional System, designers should create a Study Support Environment (SSE). Study arises in the process of interpretation, when problematic particulars require the student to make sense of them by interpreting their origin and meaning. Educational relationships are not causally rigorous if-then arrangements. Schools are not sites where predictable production processes work. Educational relationships are reciprocal couplings that may conduce this way or that way. Hence the designer cannot directly cause students to study, but they can encourage them to do so and abet their efforts at

study once the process has begun.Such design principles are thoroughly constructivist in orientation. (Spiro, *et al.* 1991; Harel and Papert, 1991)

Practice

During the 1980s, the Institute for Learning Technologies at Teachers College, Columbia University, and the New Laboratory for Teaching and Learning at the Dalton School developed a collaborative effort to make schools a more effective place for study. In 1991, the Dalton School, an academically selective, private, K-12 day school in New York City, received a substantial gift to develop the first fruits of these efforts fully. The result is the Dalton Technology Plan. It aims to develop a *digital* knowledge-base and information infrastructure for all aspects of the educational experience, K-12, and to implement educational strategies designed to make use of this infrastructure, enhancing significantly an already excellent educational experience.

Essentially, we are designing a comprehensive project, on site, as we go along, following a fairly simple vision of how the technology and the educational program should interact. Networked multimedia will greatly enlarge the range, power, and quality of materials that participants in a school can access and use. The technological resources we are designing are a study support environment, one crafted to enhance the student's power to study productively, whatever the student's age and whatever the subject at hand. We are developing the Dalton Technology Plan, drawing on hermeneutic principles and advanced information technologies to conceptualize a theory of Study Design and to implement a school-wide SSE. We do not seek to cause study. We aim to increase the probability that students will engage in study and to provide them with resources by which they can sustain and make their study productive. (Moretti, McClintock, Chou, and deZengotita, 1992)

Seven Goals of Study Design

As an interim report on the conjunction of our theory and our practice, we think that well-designed study support environment will help students do seven things.

1) To Problematize: The system should present students with particular cultural objects (events, writings, images, artifacts, statistics, scores, observations, equations, experiments, rules, what-have-you), in such a way that they experience the objects as problematic, obscure, perplexing, a challenge to the understanding.

2) To Contextualize: The system should provide students with open-ended access to contextual materials that may help to clarify and interpret the cultural objects presented to them. Provide pathways, spiraling through both the digital and the human environments, traversing out from the problematized objects through a comprehensive assemblage of pertinent contextualizing materials. On the one hand, the context should be *immediate* to the problem, and on the other, it should be *inclusive*, with all that is possibly pertinent included within it.

3) To Engage: The system should situate the perplexing problem and its pertinent contexts emotionally in ways that will encourage students to feel personally involved, so that they will grasp strong ownership of their on-going effort to make interpretative sense of the problem and its contexts.

4) To Cooperate: The system should invite students to collaborate in their

quest for interpretative understanding, helping them learn to empathize with the interpretative actions of their peers.

5) To Expand: The system should use cognitive apprenticeship to show students how to amplify the scope and power of the contextual materials that they bring to bear on interpreting the text, assisting them to move the interpretation toward that ideal condition in which all significant contextualizing materials have been taken into account.

6) To Abstract: The system should draw students into identifying interpretatively powerful contexts that will be applicable to numerous, diverse particulars, and it should provoke them to apply these in interpreting multiple, different cultural objects, thus helping students develop the capacity to transfer their growing interpretative skills to making sense of novel problems.

7) To Diversify: The system should incite students to situate complex cultural objects in many different significant contexts, yielding an understanding, based on multiple perspectives, that has a comprehensive, aggregate value, through which students will develop the cognitive flexibility to understanding things from many points of view.

SSE's that seem most suitable for helping students to problematize, contextualize, engage, cooperate, expand, abstract, and diversify are sustained simulations that model significant domains of intellectual inquiry, professional service, or productive activity. It will take sustained efforts by diverse groups to build up an educational repertoire of such simulations adequate to sustain study by the young from early childhood through early adulthood. But once such a repertoire has been built up, our progeny will enjoy educational opportunities many times more influential than those now available to our young.

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