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Qwerty 10th Anniversary

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Qwerty and the International Knowledge Building Design Community

Carl Bereiter, Marlene Scardamalia**

Virtual communities – that is, communities whose members do not interact face-to-face but by remote and usually asynchronous communication – are not new. From the seventeenth to twentieth century, scientists scattered across the world functioned as communities that shared ideas, findings, and technology, helped one another in their work, and collaborated in dealing with universally recognized scientific problems. One has only to look at the history leading up to Newton's theory of universal gravitation, at the many who earned credit or partial credit for the inverse-square law, to recognize that the theory, although properly credited to Newton as the ultimate synthesizer, was a collective achievement. Ordinary mail, slow and unreliable, was the principal conveyance for information internationally, with scientific societies and their meetings playing a necessarily more local role. Within this epistolary community lifelong friendships were formed among scientists who never met in person.

Scientific journals – also transmitted by ordinary mail until the very recent advent of web-based journals – came to play an increas-

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ingly significant role in research communities, but it was and still is a limited role. Journals are places where research results are presented within an argument framework, with data serving as evidence to justify the authors' claims. Arguments may then be subjected to counter-arguments, preferably based on further empirical evidence. The discourse surrounding a journal – the peer review, editors' activities, the back-and-forth of arguments presented – may be characterized as deliberative. By this we mean discourse whose purpose is to arrive at a choice among available alternatives. The alternatives may be to accept or reject a truth claim or proposed course of action or to select one among competing claims or proposals. Courts and legislatures are formally constituted deliberative bodies. Any informal grouping of people may also function as a deliberative community, provided their discourse is concerned with making a justified choice among available alternatives. A scholarly journal, conceived of as a nexus of social practice within a discipline, also constitutes a deliberative community of a particular sort – a community with a highly organized central core and then, spreading out from it, increasingly peripheral membership in the community, the core being primarily occupied with the journal itself.

As we use the term deliberation, however, deliberative processes do not create the alternatives brought forth for consideration. Deliberation does not produce the cases brought before a court, the bills brought before a legislature, the theories advanced in journal articles, or the inventions submitted to a patent office. The activity producing these objects of deliberation may be broadly characterized as design. Design takes place in research laboratories, design studios, planning groups, engineering laboratories and many kinds of creative working groups. Argumentation is not the framework for design-oriented discourse. Collaborative problem solving is the natural framework for design activities.

Traditionally, applied research in education has served deliberative purposes. Cronbach and Suppes (1969) called it “decision-oriented” research. With the advent of the learning sciences in the 1990s, however, research oriented toward the creation and improvement of designs for educational practice began to gather strength (Barab,

2004). Learning scientists, particularly those associated with Computer Supported Collaborative Learning (CSCL), have constituted a community different from the deliberative communities formed to investigate educational issues or to advance particular policies or points of view. Learning scientists aim to operate as a design community. Their success ultimately will be measured, not by the quality of their research or its ability to explain learning phenomena or to shed light on controversial issues. It will be measured by their success in solving problems and discovering ways to attain new or perennially challenging educational objectives. Another way of putting this is that the learning sciences will be judged by ability to innovate – as is also true of other design communities such as those found in various branches of engineering, architecture, and health sciences.

From Knowledge Building Special Interest Group to Design Community

The term “community” tends to be over-used these days, and our reference to learning scientists as a community may be overdrawn. Not all categories of researchers or inquirers are communities. Many are commonly and accurately termed “special interest groups”. They share interest in a topic or problem domain but do not act as a group to achieve goals within it. Their shared interest may be crystallized in a journal or in occasional meetings where papers are presented. Community implies a sense of solidarity expressed through more concentrated interaction to achieve goals: in the case of research communities, collaboration to achieve research goals. The University of Toronto’s Ontario Institute for Studies in Education houses approximately 20 “research centres”. IKIT, the Institute for Knowledge Innovation and Technology, operates as one of these centres. IKIT’s uniqueness as a mission-oriented center is reflected in its collaborative, targeted research program extending into an international collaborative network (the Knowledge Society Network: <http://ikit.org/ksn.html>) and a diverse membership organization (Knowledge Building International: <http://ikit.org/kbi/>) to advance Knowledge Building/knowledge

creation theory, pedagogy, and technology. Maintaining its research and development program has required that its structure reflect its growing national and international mission; coincidentally, it has required resisting pressure to serve as a local gathering spot for all kinds of educational technology activities.

People who regularly attend the Knowledge Building Summer Institutes constitute IKIT's local Toronto and international design community with recognizable group identity and sense of commitment to drive its research mission forward. A typical Summer Institute program is partly the program of a wide-ranging special interest group, consisting of reports of activities and research results of interest to attendees and others who may access an online repository of abstracts and slides. At the same time, however, close to half of the program is devoted to actual design meetings, at which collaborative work for the next year is planned and arranged. On this basis, we would say that a Knowledge Building design community exists. However, it at this time has little organization and limited capacity to undertake major design initiatives. In an effort to change that, IKIT is transforming itself into iKIT, the International Institute for Knowledge Innovation and Technology, an independent charitable organization in position to function as an international design laboratory coordinating worldwide efforts to advance Knowledge Building theory, pedagogy, and technology, with demonstration of models and effects of education operating as a knowledge creating enterprise. Its first major initiative is Building Cultural Capacity for Innovation (BCCI – <http://ikit.org/bcci/>), based on the premise that all nations will profit if all nations increase their capacity for innovation (see Homer-Dixon, 2000, 2006, for justification of this premise).

As indicated on its website and as documented in Beatrice Ligorio's editorial in this issue, *Qwerty* is an "open and interdisciplinary journal of technology, culture and education", with several areas of special focus, Knowledge Building being one of them. Should *Qwerty* take a role in iKIT and its international design laboratory? If so, what might that role be? Clearly topics related to technology, culture, and education would need to incorporate areas such as youth culture and identity and multi-level organizational frameworks (Laferrière, *et al.*,

2010) central to reframing education as a knowledge-creating enterprise. What additional role might *Qwerty* take in the creation and improvement of designs for educational practice within an international Knowledge Building design community? We do not wish to presume members of the Collaborative Knowledge Building Group should see themselves as a mission-oriented community rather than special interest group – but we believe it an important matter to discuss. In this case it is closely related to the role *Qwerty* is to play in the Knowledge Building educational design process itself.

The Role of Qwerty in Research-Based Design in Education

The basic question is one that may be asked of any journal that aims to advance research-based educational practice: What are the implications for journals of the shift in applied educational research from a decision-oriented to a design science? In earlier times, when decision-oriented research prevailed, education journals could do their job by presenting research findings that decision-makers could use in making educational decisions – along with more reflective or argumentative articles relevant to such decisions. That pretty much characterizes the education journals of today, with some putting more emphasis on research, others on reflection. In other words, the major shift in research paradigms has not been accompanied by any fundamental change in the journals. Even journals close to the core of the learning sciences, such as *Cognition and Instruction*, the *Journal of the Learning Sciences*, and the *International Journal of Computer Supported Collaborative Learning*, adhere to the traditional model of research reports plus reflection/argumentation.

A reasonable case can be made for *Qwerty*'s also remaining a reporting/discussing type of journal. It is an important role in education, and *Qwerty* performs it well. This means, however, that it mainly serves as a platform for deliberative discourse, leaving design discourse to be carried out in other venues, such as research groups and laboratories, technology companies, curriculum committees, and so forth. There are, however, some options, still within the reporting/

discussing framework but more directly supporting the progress of design work in education. We imagine journal editorial and review boards with expertise and mandate to foster a shift in applied educational research from a decision-oriented to a design science. What might that look like? What would editors ask for in submissions and revisions? Some possibilities:

1. Addressing design-relevant issues. Any serious and generalizable innovation in educational practice raises issues that may be recognized but are often not resolved or explored in any depth – such as the teacher’s role in modern classrooms. Pat phrases such as “guide on the side” do no more than point to the question, which still awaits an answer. The issue has obvious design implications that cannot be resolved by either evidence or philosophical reflection alone. It calls for a combination of the two – and creating a new norm whereby authors come to anticipate the need to extend their analysis beyond commonplace phrases. The design question: How does that work, really?
2. Identifying, criticizing, and also improving underlying assumptions. It is said that every educational approach has an underlying theory of learning (and also an underlying epistemology or theory of knowledge), whether stated or not. It would be more accurate to say every educational approach has underlying assumptions about these matters, although not necessarily in any form approximating a theory. Defining these is, however, a theoretical task and one that can be advanced through the journal review, publication, and interchange process. What are the assumptions underlying an educational report? What are the criticisms of those assumptions? What are the alternatives? Invited commentary from different epistemological perspective might clarify assumptions and design issues
3. Identifying, criticizing, and also improving design principles. As with underlying assumptions, these may or may not be explicit – and even if explicit they may not accurately reflect or even reveal much about the actual design process. In the literature of any well-developed educational approach one can find stated principles, but often these are not design principles so much as

position statements or expressed aspirations. In those cases, the challenge for scholarly inquiry is to identify the operative design principles before criticizing or suggesting improvements in them, along with identifying iterative designs aimed at advancing or improving those principles.

4. Literary criticism. Literary criticism, as carried out by the likes of T.S. Eliot, Benedetto Croce, and Northrop Frye, is distinct from such forms as book or article reviewing. It is primarily interpretive, not evaluative. Croce and others have recognized it as creative design work in its own right. Digitally recorded discourse has become a popular object of research, boosted by the development of sophisticated technology for combined social and linguistic analysis (Rosé *et al.*, 2008). However, to the extent that discourse on a topic is coherent, the discourse as a whole can be treated as a single text and made the subject of literary criticism. We have argued, along with E. D. Hirsch, Jr., that literary criticism is a form of evidence-based theorizing, with the evidence coming mainly from the text under consideration (Bereiter & Scardamalia, 2012; Hirsch, 1967). As applied to student, teacher, administrator, policy-maker texts, literary criticism could include forming a coherent and defensible interpretation of what the extended text means and reveals.
5. Promising ideas. In educational design, as in any kind of complex design, the path from initial idea to complete design is a complicated and usually nonlinear one, but the public only sees the finished product. The notebooks of scientists such as Darwin are valuable because they give us insight into the process and intermediate stages of research. An education journal could do a valuable service to the progress of education by making available educational innovations at an intermediate stage of development. In contrast to ideas that are already developed to the point where they can be put out for testing and adoption, these are ideas that already have some conceptual meat on their bones and that other people can contribute to and branch off from. The judgmental issue at this point is not judgment of effects but judgment of promisingness: Does this partially developed innovation have a future? Is it worth

investing resources in further development? How should further development proceed?

The above ideas probably do not even qualify as “partially formed”. We would be satisfied if they merely serve as starters for more seasoned journal minds to explore an expanded role for *Qwerty* in the new world of research-based design in education.

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