

# *CJEC: THE YEARS 1986 TO 1989*

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In 1986 CJEC went through some fundamental changes, in terms of editorial policy, format and production process. In that year a working editorial board was established and each manuscript was reviewed by at least two and most commonly three peer reviewers using a double blind system (i.e., neither reviewer nor author knew the name of the other). This process increases the chances of fair treatment for both author and reviewers.

In this issue the format of CJEC was changed from that of a magazine to a format more in keeping with that of other academic journals. This format has been retained to the present, although more recent editors have had the good sense to remove the stylized CJEC logo from the front cover.

The production process for the journal also changed radically. For the first time Desktop Publishing software running on a Macintosh microcomputer was used to create on-line pages which were output, initially, to McGill University's newly installed Linotronic 300 typesetter. We were McGill's first Macintosh customer. Later the cost of this output process (\$4.00 per page) became prohibitive and the camera-ready pages were output on the Department of Education's newly acquired 300 dpi laser printer.

The contents of CJEC during the following three years varied widely from profiles of development projects to experimental studies, but three areas can be identified as significant departures from the usual unsolicited content. These areas are: formative evaluation, computer mediated communication and the series of articles addressing the future of educational technology. These three areas will be discussed in turn.

## **Formative Evaluation**

The first issue of 1986 (Vol 15, No. 1) was devoted to an examination of issues and techniques associated with the process of conducting formative evaluation. Formative evaluation as we have all come to know is "evaluation of educational programs during their development phase; an evaluation for the purpose of improvement" (Weston, p. 5). She goes on to list four variants of formative evaluation that are suggested in the literature: expert review, developmental testing, the three-stage model and learner verification and revision. She describes differences among the variants, procedures for obtaining feedback from students, considerations for selecting an approach to formative evaluation, the process of revision once formative data has been collected and analysed and the application

of formative evaluation to any medium. After all of this, she concludes by saying “The evidence is consistent; any kind of formative evaluation, any kind of review, improves instructional materials and improves student learning.” (p. 16).

In the same issue Baggaley focused on the formative evaluation of educational television using the then novel Program Evaluation Analysis computer (PEAC). This device “employs a set of push-button hand-units to record the responses of individual audience members on measures such as interest value and credibility” (p. 32). He goes on to describe the development of the PEAC system and its educational application at Concordia University. Three case studies are presented as examples of how the system works and how data resulting from testing are analysed and used to make educational decisions: the U.S. presidential debates; the impact of smoking prevention films and formative evaluation of a skin cancer film. He ends with the warning that this technology will undoubtedly be used in the political and commercial arenas to fine-tune persuasion techniques, but hopes that it will also emerge as a powerful tool “leading to an increased awareness of the public’s needs and to an understanding of the differences and similarities between cultural groups:” (p. 42).

In the final article focusing on formative evaluation, Parsons and Lemire present an overview of the formative evaluation process at TVOntario. They focus on ways of interacting with audiences and the different stages of production when formative evaluation can occur. While they point out what formative evaluation cannot guarantee the improvement of educational media products, given the constraints of producers, evaluators, the budget and time available, they conclude that it is a valuable tool to make a product that more precisely responds to the needs of the audience.

### **Computer Mediated Communication**

In the spring of 1987 (Vol. 16, No. 2) we put out an issue on computer mediated communication (CMC) and its educational applications that, from the point of view of dissemination, was the most successful issue of the four year editorship. In all, more than 1100 copies of the journal were sent to members and subscribers, through mail purchases and through sales at a CMC conference at Guelph University.

The first article of this special issue was by Don Beckwith who describes the potential of CMC for group problem-solving. He states that “Computer conferencing has the capability of bringing like-minded and not so like-minded individuals together for a variety of social interactions which can range from information exchange, through social interaction, to purposeful change through group problem-solving” (p. 90). He goes on to describe what problem solving is and concludes that group problem solving is the “mutual creation of an original, synnecitic process – using relevant media and human and non-human resources – that will yield an original systemic product specifically designed to satisfy a substantial and verified social trend that has not been sufficiently satisfied through traditional means” (p. 92). He then compares what he sees as the ideal situation for group problem solving via CMC with the status quo. He concludes these sections

by saying that “While successful group problem-solving is a rare commodity at a best, it would seem that it could be achieved via computer conferencing. What is needed is a) an operational definition of successful problem-solving; a set of principles and heuristics to be followed in the application of computer conferencing to group problem-solving; and c) suggested ways of researching the effectiveness and efficiency of computer conferencing-based group problem solving” (p. 99). He lists the principles of dynamism, anonymity, accessibility, control, catalysis (i.e., from catalyst) and the system as necessary ingredients for the fulfilment of the ideal. He concludes by saying that the ideal is achievable, but only through the application of “a) the operational definition of group problem-solving; b) the group problem-solving models; c) the principles to effect group problem-solving; d) the essential capabilities of the system; e) the interaction analysis instrument; and f) the suggested research approaches” (p. 104).

The next paper in this issue (McCreary & Van Duren) focused on the application of the CoSy conferencing system at the University of Guelph. First, ten educational functions of computer conferencing were identified and explained. These functions ranged from “the notice board” to “inter-community networking”. They then identified the factors that influence student conferencing behaviour, namely accessibility and perceived benefits. They conclude by providing recommendations for successful academic conferencing. These are described as: a) preparation for the student participant; b) on-going advice and assistance; c) recognizing the problems of working at a distance; d) preparation for the instructor-moderator; and e) the actual moderation process.

Tony Kaye reports on the application of CMC for distance education at the UK Open University. In the last section of the paper, entitled *Looking Ahead*, he makes three points that are to him important for the successful adaptation of CMC to distanced learning contexts. The first is the need for easily available equipment and software in students’ and tutors’ homes. The second as he says requires the “active, cooperative and group involvement of learners, otherwise the technology will merely be used as a substitute for noticeboards, written mail or one-to-one telephone contact; but it is not evident that distance learners, used to study at home will want to adopt a conferencing medium which involves group involvement” (p. 164). His third point is an important one. He says that it is the motivation and skill of tutors that will determine the success or failure of CMC in distance learning environments. “Tutors are only liable to accept and use the technology if they find that it helps them organize their time more efficiently, and/or if they find it more effective and stimulating than their traditional modes of interaction with students” (p. 165).

The final section of the issue is the reporting, in three ways, of the results of a computer conference that was held among the invited participants from Roger Hart in British Columbia to Tony Kaye at the Open University in England. The first segment demonstrates what CMC on CoSy actually looks like to a participant on the system. The messages have to be strung together by the user in order for threads of meaning to be found. The second segment demonstrates how a future generation of computer conferencing system (now already upon us) could thread messages

together for the user so that the meaning can be more easily grasped. The third section, entitled *Collective Intelligence*, is a reconstruction of various parts of the computer conference into a message that is entirely different from the intended meaning and explores a possible attribute of CMC editing in systems of the distant future.

### **The Future of Educational Technology**

The third and final special issue (Vol. 18, No. 2), published in the summer of 1989, was a forum offering reflections from seven commentators concerning the prospects for the field of educational technology. The idea for the forum was inspired by an article written by David Mitchell, published in the previous issue, entitled *The Future of Educational Technology is Past*. This was one of a series of perspective articles which we solicited, addressing the broader issues in the professions of educational technology and communications, which were published in the first issue of each new volume.

Mitchell's article was certainly provocative. His thesis was that educational technology has been derailed. In his view the original intention of professionals in the field, viz, to develop educational technology as "the central human discipline of the future", had been forgotten, subjugated to the imperatives of short-term survival and credibility. In the process, the true purpose of educational technology, which he identified as nothing less than a radical transformation of learners and learning processes which could contribute to the solution of global social and economic problems, was "lost within the mists of routine applications of standard (though not necessarily valuable) procedures" (p. 5).

Mitchell argued the need for more sophisticated representations of the phenomena addressed by the field. In particular, "each person and educational technologist must learn how to express models of their own activities that have sufficient alternative courses of action from which to choose" (p. 20). It was his thesis that the field could only be salvaged by abandoning the traditional approach to research and theorizing, which focuses on isolating and manipulating variables to infer casual relations. In its place, he maintained, we should adopt a systemic approach, more specifically a hybrid of cybernetics and control theory that might afford us the powerful unifying theory he maintained was lacking and needed, and thereby the models to which he referred.

The reactions to Mitchell's polemics were varied. Beckwith replied that educational technology already has a unifying theory. However, the theory he sketched in his response really amounted to a visionary statement comprising a set of beliefs and values concerning how the field should be oriented. At the core of Beckwith's vision was the concept of empowerment: the development of the capability within learners to structure their own environments for meaningful learning.

Several commentators took issue with Mitchell's claim that educational technology had failed. Hannafin pointed out that there are many fields within the profession of educational technology. Some at least, such as flight training or medical training, have enjoyed considerable success. Likewise, Duchastel and Winn

both pointed out that even routine, systematic methods have proved valuable within the narrower contexts of training. Hannafin also noted that, in any event, the failure of educational technology to make a truly significant contribution to the solution of global societal ills was not unexpected and should not impugn the field. As he expressed it, “we cannot reasonably assess the potential or performance of educational technology by its lack of impact on problems for which it was neither intended nor implemented” (p. 140). Duchastel seemed to echo this view when he rejected what he described as Mitchell’s radical, change agency conception of educational technology, a view which he implied could only perpetuate unproductive attempts to foist solutions on an unreceptive system.

The commentators were divided, also, on the matter of a unifying paradigm for educational technology. Torkelson agreed largely with Mitchell’s analyses, but he warned that the task of creating an appropriate control system would be enormous. He cautioned that in the short term we may only be capable of effecting “a kind of triage, treating only those learners most seriously ill educationally” (p. 147). Hannafin, on the other hand, rejected the call for a consolidation of the field, arguing that there is tremendous strength and vitality in the existing diversity of subfields and methodologies.

Other commentators rejected Mitchell’s arguments in favour of control theory, while still acknowledging the need for some sort of paradigm shift. Winn and Duchastel both argued for psychology as a basis for the field, rather than control theory. Winn also argued that we ought to focus more on factors relating to cognition that are predictable, such as preattentive perception. Duchastel, for his part, called for a change in orientation away from instruction to the design of learning environments and made the point that Mitchell’s proposal still posited “a refinement of control through instruction, even if that control is meant to be more responsive to student needs” (p. 138).

Kerr went further, pointing out that systems theory has been tried in many other complex fields, without any conspicuous success. He hinted that, given the need to come to terms with the social and political contexts of educational systems and their diversity, it might be more helpful to employ qualitative, ethnographic approaches.

Finally, some of the commentators picked up on another distinction, one perhaps closely allied with the distinction between radical and routine embodiments of the field: the distinction between practitioners and scholars of educational technology. Winn concluded that Mitchell’s view of the moral and intellectual bankruptcy of the field applies more to scholars than practitioners. In a similar vein Kerr exhorted educational technologist to work within the educational system: to become practitioners and activists versed in the social and political dimensions of the educational sphere.

## **Wrap-up**

Aside from improving the quality of CJEC over the four year period of our editorship, three other goals were set. One was to increase Canadian subscriptions. The second was to increase the international awareness of the journal. The third was

to introduce French content into the journal. The first goal was largely achieved. There was a threefold increase in subscriptions and AMTEC memberships during this four year period. The second goal was not achieved to any significant extent, even though we advertised abroad and put flyers in one issue of the *British Journal of Educational Technology*. We were moderately successful with respect to the third goal. Two French papers were published in Volume 17 and since that time French articles have appeared sporadically and French-language abstracts appear for every paper. All in all, we feel that we passed on a journal of superior quality to the next editor, Richard Schwier.

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