"Is There a Class With This Content?" WebCT and the Limits of Individualization

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ABSTRACT: This essay traces the provenance of Internet-based course delivery and management systems such as WebCT and Blackboard, and thereby seeks insight into the ideologies and assumptions underlying the current diffusion of such systems into institutions of higher education. A historical perspective reveals that these purportedly revolutionary pedagogical tools originated with the low-tech teaching machines with which behaviourists of the 1950s and 1960s sought to individualize instruction. Although widely touted as an educational panacea and source of learner empowerment, individualization emerged from a drive to make instruction more efficient by replacing the human teacher with a machine that delivered standardized content to a large number of students. This goal underlay further developments in computer-assisted instruction, computer-managed instruction, and integrated learning systems. The potential of contemporary Web-based systems to enhance classroom dynamics in higher education is therefore severely constrained by the legacy of individualization and the long-standing premise, embedded within the design of such systems, that the goal of technology-based instruction is to achieve efficiencies by replacing human interaction in the classroom with access to mediated, individualized content.

RÉSUMÉ: Cet essai retrace l'origine des cours proposés sur Internet et les réseaux de gestion tels que WebCT et Tableau noir. De là, il donne un aperçu des idéologies et des hypothèses qui ont déclanché l'actuelle propagation de tels réseaux dans les établissements d'enseignement supérieur. Un tour d'horizon historique révèle que ces outils pédagogiques, prétendument révolutionnaires, ont été fabriqués par des machines de très modeste technologie avec lesquelles les spécialistes du comportement humain des années 50 et 60 ont cherché à faire de l'instruction, une affaire individuelle. Bien que largement accueillie comme une panacée pour l'éducation et comme une source de grandissement pour l'élève, l'individualisation est née d'une impulsion pour mettre l'enseignement à la portée de tous,

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> remplaçant ainsi le professeur en chair et en os par une machine qui offre des contenus préfabriqués à un grand nombre d'étudiants. Cela sous-entend aussi toute une kyrielle d'enseignements variés tels que l'enseignement auto assisté, l'enseignement auto dirigé et les réseaux intégrés d'enseignement. De ce fait, l'héritage de l'individualisation et sa promesse de longue date ancrée dans de tels systèmes, empêche sévèrement les réseaux actuels du site, de pouvoir augmenter la dynamique d'une classe dans l'enseignement supérieur. Ainsi, l'enseignement basé sur la technologie a pour but de remplir ses objectifs en remplaçant l'humain interactif dans une classe, par des programmes intermédiaires et individualisés.

Some readers may notice, in my title, an oblique reference to the title of another essay – Fish's "Is There a Text in This Class?" (1980).[1] The reference is deliberate but largely whimsical; for while it could be argued that Fish and I share a concern with meaning, text, knowledge, and pedagogy, there the similarity between our essays ends. Fish's purpose in "Is There a Text in This Class?" is to defend reception theory, the notion that a text's meaning is produced by the reader, whereas my objective is to explore the historical and ideological provenance of the Internet-based course delivery and management systems that, according to their promotional materials as well as to more objective sources such as college surveys (Young, 2002, p. A35), have been adopted by thousands of institutions of higher learning in hundreds of countries around the world. Moreover, the question "Is there a text in this class?" is of interest to Fish because it is entirely comprehensible, particularly when addressed by a student to a professor. My title question, on the other hand, is of interest to me as a starting point for a discussion of what it means to adopt Internet-based platforms such as WebCT and Blackboard because, as I write, the state of higher education is still such that most college and university teachers would, I suspect, be quite baffled and at a loss as to how to respond if a student were to ask, "Is there a class with this content?" This may not long be the case, however, given the numerous forces that now impinge upon university teaching and learning to become more cost-efficient, relevant, and amenable to the use of high-tech solutions. Therefore, unlike Fish, who is concerned to show that the ways in which his title question can be understood are contextually limited, I am interested in exploring, from a historical perspective, the impetus which is imparting new meaning to a hitherto

absurd query, such that it may soon become as common and as generally comprehensible as Fish's.[2]

What is the value of a historical perspective on the new Internet-based tools for course delivery and management? Once, perhaps, the answer to such a question might have seemed self-evident, but that is no longer the case in an age that, as Giroux puts it, "borders on a crisis of forgetting" (1999, p. 146). After several centuries of rampant technological innovation, the Western world tends to ascribe far less importance to understanding where we have come from than to knowing, or at least purporting to know, where we are headed. Hence, our society's celebration of progress, manifested in the techno-prophet's resolutely forward gaze, goes hand-in-hand with what Mumford calls "an unconcealed hostility to the past" (1964, p. 21), a tendency to dismiss as irrelevant (or, in the oft-quoted terms of industrialist Henry Ford, as "bunk") the values, attitudes, and negotiations from which modern scientific and technological innovations emerge. This is nowhere more true than in the discourses about the role of information technology in education, which are "mostly celebratory of the new approach and strategies rather than historically and institutionally reflective" (Popkewitz & Shutkin, 1993, p. 24). Mumford further asserts that "this failure to recognize the importance of cosmic and organic history largely accounts for the imperious demands of our age, with its promise of instant solutions and instant transformations" (p. 91). In other words, the sophisticated technologies that we regard as the height of human intellectual achievement bear no relationship to wisdom, which requires historical context and understanding. Wise use of today's purportedly revolutionary course delivery and management systems begins with an understanding that these systems are not revolutionary at all, but are in fact part of an existing trajectory that can best be understood through a historical perspective.

History, of course, is relative. In *Technics and Civilization* (1934/1963) and other books, Mumford traces the development of the technological worldview from prehistoric times. I will begin with the 1950s, and specifically with Innis' lament, in *The Bias of Communication*, that the university education of the time was becoming increasingly reduced to the mere transmission of mechanized content. According to Innis, with the support of textbook suppliers and other information industries:

> Information ... is disseminated in universities by the new media of communication, including moving pictures, loud speakers, with

> radio and television in the offing. Staff and students are tested in their ability to disseminate and receive information. Ingenious devices, questionnaires, intelligence tests are used to tell the student where he belongs. (1951, pp. 83-84)

More than half a century later, Innis' catalogue of new media may seem antiquated, but his reflections upon the state of higher education remain enormously prescient, and provide an apt starting point for an investigation of the provenance of purportedly revolutionary Internet-based systems such as WebCT.

The situation lamented by Innis in the early 1950s arose in large part from the confluence, in educational thinking of the time, of three powerful and related forces: behavioural psychology, programmed instruction, and individualization. Originating with the turn-of-the-century research of animal psychologists such as Ivan Pavlov and Edward Thorndike, behavioural psychology had, by the 1950s, become an accepted basis for conceptualizing human intelligence and learning. Its leading proponent, Burrhus Frederic Skinner, espoused a radical behaviourism which dismissed as irrelevant the psychological processes taking place within the individual learner's mind. Rather, Skinner suggested that the learner should be regarded as a black box to which one applied stimuli with the expectation that certain predictable and observable responses would be forthcoming. If closely followed by appropriate reinforcement, the desired response would eventually become entrained: learning, in other words, would have occurred.

In order to achieve the desired behavioural modifications which constituted learning, it was first necessary to break the instructional content into small, carefully ordered pieces which could gradually be imparted to the student through repeated stimulus-response reinforcement sequences. Given this requirement for highly structured content and rigorously controlled delivery, behaviourists believed that their technology of instruction could be best provided not by human teachers but by devices, such as those itemized by Innis. They advocated a heavy reliance upon media, used in conjunction with specially designed instructional materials which would provide the relevant stimuli and associate those stimuli with appropriate responses (Silverman, 1974, p. 79). The specially designed materials became known as programmed instruction – *programmed*, in this context, referring to "the process of constructing sequences of instructional material in a way that maximizes the rate of acquisition and retention and enhances the motivation of the student" (Glaser, 1964, p. 87).

The carefully arranged material, with accompanying questions and reinforcement, could be presented in books ("If you answered 'true,' turn to page 14"); however, given the behaviourists' penchant for mediated instruction, programmed instruction tended increasingly to go hand-in-hand with the use of teaching machines, low-tech devices into which one loaded programs printed on rolls of paper. The instruction would begin by presenting a frame of content through a translucent window of the teaching machine. After writing a response to a question about the content on a designated area of the paper strip, the learner would turn a crank to advance the program to the next frame, which would typically inform the learner of the correctness of his or her response. Another turn of the crank would advance the program to a new frame of content and a related question. As the very name implies, teaching machines were from the outset intended to function as teacher substitutes. The design of deliberately teacher-proof instructional machines and materials clearly reflected this conception: "No attempt was made to build flexibility into the devices, since they were never conceived as teaching supplements, but as replacements for human teachers" (Maddux & Willis, 1992, p. 53).

Skinner made no secret of his tendency to privilege mechanical devices over human instructors, nor of the fact that his preference was based largely upon the criterion of *efficiency* as a legitimate, and indeed a primary, goal of education. Implicit in his call for an "instrumental attack on the *status quo*" (Skinner, 1964, p. 66) were the assumptions, first, that the education system was in need of reform because instructional decision-making had been left to educators who did not understand the mechanisms of human learning, and, second, that devices – developed by psychologists who *did* understand human learning – could deliver instruction that would surpass, in efficiency and effectiveness, that which was provided by human teachers. As Skinner explained in an article entitled "Why We Need Teaching Machines," originally published in 1959, it "is far beyond the capacity of teachers" to provide the necessary stimuli and reinforcements for every student with the frequency and subtlety required, but "*relatively simple machines will suffice*" (1964, p. 47). Research conducted by Skinner and other behaviourists was bound to lend credence to his basic assumptions, since the myriad of studies of programmed instruction conducted during the 1960s sought to compare "the teacher in the program" with "the teacher in the classroom" (Gotkin, 1964, p. 161) largely on the basis of instructional efficiencies:

> The strategy of these studies has been to pit the classroom teacher against the teacher in the machine. Using the standard of the job being done in the schools, these studies by and large show the teacher in the programed [*sic*] textbook to be *as effective as and more efficient* than the classroom teacher: students learn as much in less time from programed instruction. (Gotkin, 1964, p. 160)

Skinner's implicit condemnation of ad hoc, heuristic-based classroom methods, and his suggestion that education could be improved (i.e., made more efficient) through the use of a precise technology of instruction was received as nothing less than common sense by a North American society which, since the advent of Frederick Taylor's principles of scientific management in the early 20th century, had become increasingly prone to regard science, and the efficiencies it brought to all areas of human affairs, as its sole hope for social progress. In this intellectual environment, it seemed natural that responsibility for the development of learning materials, and indeed decisions about the nature of education as a whole, should increasingly devolve from teachers to the psychologists who strove to create an exact science of human intelligence and learning (Popkewitz & Shutkin, 1993, p. 20), and, by extension, to the machines that the psychologists developed to achieve this end.

According to Skinner, teaching machines reduced instructional time to half that required to learn the same material in teacher-led classrooms because the devices allowed each student to proceed through the instructional material at his or her own rate: "Holding students together for instructional purposes in a class is probably the greatest source of inefficiency in education" (Skinner, 1964, pp. 52-53). The alternative to holding students together in a class was the third element of the educational triad: individualization. In simple terms, individualized instruction was defined as "adapting instructional practices to individual requirements" (Cooley & Glaser, 1969, p. 95). Technically, this implied allowing each learner to interact with instructional content on his or her own terms, controlling and selecting a variety of variables, including pace of study, learning objectives, scope, media, and instructional strategies (Romiszowski, 1986, p. 21). However, given its close association with programmed learning, which prescribed all elements of instruction with the exception of pacing, individualization was most commonly understood, during the 1960s and 1970s, as "self-paced individual study of prescribed material (usually common to all the students in a group)" (Romiszowski, 1986, p. 20). In other words, objectives, scope, and strategies were all highly standardized; only the

pace of instruction could be adapted to the capabilities and needs of the individual learner, usually through the use of a teaching machine.

Self-pacing, however, seemed to be more than enough for the advocates of programmed instruction and individualization, who touted the enormous benefits to be gleaned from a mode of instruction in which "the student is at the throttle" (Schramm, 1964, p. 7). These benefits went well beyond the instructional efficiencies celebrated by Skinner. Indeed, by the early 1970s, the heritage of efficiency seemed to have been largely forgotten amidst a heady new discourse which ironically represented individualization as the antithesis of industrial era approaches to teaching and learning. The argument was that existing teacher-led modes of education had arisen from the need to deliver instruction efficiently to a mass of learners. As a result, "teaching [was] pitched to the average" (Fritz & Levy, 1972, p. 1) and students of differing abilities were compelled to move through the curriculum in lock-step, like widgets on an assembly line, completing the same instructional activities in the same amount of time. Individualization became widely regarded and promoted as the complete opposite of this factory approach, an economically feasible means of replicating the personalized instruction that a good tutor would provide (Romiszowski, 1986, p. 19):

> The fast student need not waste time and the slowest student need not get lost in the shuffle. Like the private tutor, the program presents the next step when the individual student is ready for it, not when the average student is ready. (Markle, 1964, p. 147)

Increasingly, the rhetoric surrounding this new educational "panacea" (Oettinger, 1969, p. 117) suggested that it had less to do with efficiency than with responding to individual needs, helping individuals fulfill their potential, and serving to "dealienate and rehumanize" education (Fritz & Levy, 1972, p. 2). Through the miracles of hyperbole, individualization became transmuted, in the minds of many educators and educational reformers, to an instructional end in itself, with acquired associations to self-development, personal autonomy, and accommodation for individual differences which bore little apparent connection to its origins as a means of increasing instructional efficiency and control. As I have observed elsewhere:

> Somewhere along the line, a word that referred to the use of behavioural modification strategies to enhance the learner's acquisition of pre-packaged knowledge came to connote opportunities for a self-motivated learner to engage in independent

> discovery. In short, *individualization* became equated with *individualism*, the humanist view that the rational individual's consciousness is the source of all meaning and truth. (Rose, 2000, p. 72)

One adherent went so far as to describe individualization as "a philosophical and professional commitment to the concept of permitting students to have a voice in the learning program in which they participate" (Denton, 1974, p. 55). The assumption seemed to be that the decision-making powers that individualization took from the teacher were conferred upon the student, but the reality was that individualized instruction was neither teacher-centred nor learner-centred but, given its links to behaviourism and programmed instruction, almost entirely *technology*-centred.

Although individualization became, for a time, "high fashion" (Oettinger, 1969, p. 118), it had, from the beginning, its detractors, individuals who saw beyond the hype and offered cogent, if generally overlooked, objections to a view of education as the solitary interface between a "black box" and a mechanical tutor. Thus, writing in 1970, Muller commented that the "so-called 'technological revolution in education'" which was being led by the behaviourists involved such dubious practices as replacing live instructors with packaged, mediated content: "Professors are being put into cans of videotaped lectures, carefully tested by educational psychologists, who refer to them as cans of 'teaching behavior'" (p. 215). Others objected to the rhetoric which suggested that individualization was the opposite of the factory approach to schooling. They argued that individualized instruction was by definition *mass* instruction, its whole point being to replicate the dynamics of one-on-one instruction for a large number of students, with the ultimate goal of ensuring that all students ended up in the same place, having mastered the same content:

> Although it is argued that teaching machines provide for individualized instruction by permitting each student to progress at his own rate of speed, programed [*sic*] learning actually represents a mass standardization of content and process in education. The teaching machine requires absolute uniformity of interpretation and response on the part of the learner. (Tanner, 1964, p. 303)

Individualization was, in short, mass production made to *look* like customization – "a fad without deeper significance than Detroit's customizing, namely taking a mass-produced object and stamping it with gold initials or heaping chrome to give the illusion of individual

tailoring" (Oettinger, 1969, p. 121). Thus, the rhetoric of responsiveness and humanization merely "mask[ed] business as usual: regimentation and the primacy of discipline over intellect or action still prevail" (Oettinger, 1969, p. 44).

Observations of this kind signaled a disillusionment with individualization which triggered its eventual decline. In their history of individualized instruction in American pedagogy, Grinder and Nelson claim that, despite the initial hyperbole about the potential of individualization to revolutionize education, the project soon waned, counting, in the long run, "for little more than a few yahoos in the wilderness" (1985, p. 26). However, despite individualization's decline from favor within the educational establishment as a whole, extravagant claims about the transformational potential of individualization persisted in the new and fertile discourse of computer-based instruction. After all, in the absence of compelling evidence regarding the instructional efficacy of computers, school boards and post-secondary institutions needed something to justify their massive investments in hardware and software. Thus, during the 1970s and 1980s, as teaching machines gave way to more sophisticated digital devices, the primary rationale for the use of computers in the classroom remained their "rich and intriguing potential ... for answering today's most pressing need in education – the individualization of instruction" (Atkinson & Wilson 1969, p. 3). As late as 1995, University of Toronto professor Robert Logan was still offering the computer as "an ideal medium for delivering and promoting individualized learning" (1995, p. 187), while, a few years later, communications specialist Tapscott concurred that digital media allow schools to make the transformation from mass education to the "individualized approach" (1998, p. 146).

As computers made their way into classrooms, largely on the strength of such hyperbole, it became clear that they served two distinct roles with respect to individualized instruction. First, and most conspicuously, they functioned as sophisticated teaching machines, capable of providing self-paced instructional materials which functioned smoothly and automatically: now there was no need to turn a crank to advance from frame to frame. This use of the computer to present instructional content directly to the learner was referred to as computer-assisted instruction (CAI). However, the computer also had the potential to serve a separate data processing role, purportedly vital when each student proceeded through the material at his or her own pace. The use of the computer to "cope with the mass of detailed information generated

by programs of individualized education" (Baker, 1978, p. 15) was referred to as computer-managed instruction (CMI). Whereas the student interacted directly with CAI programs, CMI churned out data intended largely for the teacher's eyes: records of student progress, prescriptions as to which instructional activities the student should undertake next, pre- and post-test scores, and the like.

During the 1970s, CAI and CMI developed more or less independently and according to markedly different visions of the role of computers in education. CAI researchers tended to perpetuate Skinner's claims, premising their work upon the assumption that instruction could be more effective and efficient if it were provided by machines rather than by human teachers. Like the behavioural psychologists before them, CAI innovators were largely indifferent to the plight of teachers and concerned less with involving teachers in school improvements than with making their software "as 'teacher-proof' as possible" (Oettinger, 1969, p. 115). Thus, "a CAI math program, for example, bears its own evaluation, independent of what the teacher thinks of the child" (Olson, 1987, p. 200), and there was rarely any provision for the teacher to have input into either the means of evaluation or the instructional content itself. CMI researchers, on the other hand, seemed at pains to emphasize that, unlike CAI systems which reduced the teacher's role to "either an interested bystander or a resource person to call upon when the CAI system can't get a person to learn" (Baker, 1978, p. 13), computer-based instructional management systems were "designed to fit into existing schools" (Kooi & Geddes, 1970, p. 45), where they would merely assist with the teacher's management functions in a "non-threatening" (Fritz & Levy, 1972, p. 14) way. In short, while the CAI program was represented as a sophisticated "teaching machine," the CMI system was offered as the teacher's humble and tireless "machine servant" (Steffenson & Read, 1970, p. 58).

Underlying this laudable concern with supporting teachers' management efforts was an undeniable self-interest on the part of CMI researchers. By the early 1970s, CAI developers had already discovered, to their dismay, that the teachers whom they sought to replace were also the final gatekeepers, capable of "blocking classroom doors" and "preventing the entry of this magical innovation, this panacea for the school's problems" (Cuban, 1986, p, 80). CMI researchers sought to "[alleviate] teacher anxiety" (Kooi & Geddes, 1970, p. 45) because CAI's cool reception had taught them that the "biggest factor in the success of CMI will be the cooperation of the teacher" (Finch, 1972, p. 47). Hence,

the tendency of researchers and promoters to describe CMI systems not as intelligent programs capable of making effective decisions autonomously but as tools which supported teachers' instructional decision-making. The cultivated aura of non-threatening assistance was supported by the fact that many of the early CMI systems were developed to meet the unique needs of specific school districts, schools, or even of a specific instructor and group of students (Baker, 1978, p. 52; Scanlon, 1974, p. 7). CMI was thus represented not as something imposed from above (as CAI often was), but as a customized solution to the problems of a specific instructional community.

However, despite the rhetoric of personalized accommodation and support, CMI no less than CAI was based upon and carried into the classroom an unequivocal belief that individualized instruction was something that "could be monitored and steered best by a computer" (Gibbons, Fairweather, & O'Neal, 1993, p. 7). Developments in both CAI and CMI emerged from and perpetuated a tendency to privilege instructional efficiency and precision and, by extension, the technological means by which these rather diminished educational ends could best be achieved. Moreover, if CMI research was not, like much CAI research, premised upon an impulse to replace the teacher, it certainly involved a radical revisioning of both the instructional process and the teacher's role, with the latter regarded as something akin to production line work, primarily involving provision of the materials necessary to support both the student's individualized interaction with prescribed instructional content and the computer's processing demands:

> Once assigned a unit of work, the student proceeds through the unit-of-instruction cycle until the standard product is produced, i.e., he or she achieves mastery on the post-test .... This basic unit-of-instruction cycle is repeated until all units have been produced at the set standards, or until the school year ends. Within this unit-of-instruction cycle the student is essentially the machine producing a standard product, and the teacher is the machine operator. At the instructional level of management, the teacher fulfills a role similar to the production line worker. The teacher provides the student with the raw materials, work sheets, books, etc., monitors the student via tests, and evaluates whether the standard product has been produced. (Baker, 1978, pp. 271-272)

Although CAI and CMI originated and developed separately, there were, from the beginning, efforts to unite these parallel innovations into integrated systems capable of both delivering and managing instruction. The union made perfect sense: the CAI instructional programs could

directly provide the CMI module with achievement data which it could use to prescribe another CAI lesson, and so forth. Working together, feeding into each other and enabling the capture and analysis of every student input, CAI and CMI formed a perfect loop, a bulwark against the follies and inefficiencies of human decision-making.

During the 1980s and 1990s, CAI/CMI amalgams, known as *integrated learning systems*, proliferated at all levels of education. Integrated learning systems such as Wicat, Plato, and CCC were defined as:

> 'Individualized' computer software supplied by a single vendor and containing instruction and practice problems covering a multiple-year curriculum sequence .... Specific lessons are automatically loaded onto each student's computer when that student 'logs in' based on a continuous assessment of that student's previous accomplishments and current learning needs. (Becker, 1990, p. 1)

These "complete teaching/learning package[s]" (Bluhm, 1987, p. 8) were invariably top-down initiatives, introduced into classrooms by school boards and administrators who were pressured by unfavourable media reports and increasingly reform-minded bureaucrats and parents to implement technological solutions to the inefficiencies of teacher-led instruction. Like teaching machines and CAI, integrated learning systems were intended to function not as teacher tools and resources but as teacher replacements. Indeed, the prepackaged instruction such systems offered was so closely integrated and tied to the CMI module that it was virtually impossible for the teacher to choose alternative modes of instruction for specific lessons. In effect, choosing to use an ILS entailed handing over "the student's overall learning experience ... to ILS companies who produce the instructional systems and instructional materials" (Bailey, 1992, p. 3).

Critics of integrated learning systems objected to this loss of teacher control, as well as to the repetitive, "drill-and-kill" instruction (Bailey, 1992, p. 3; White, 1992, p. 49), based largely upon behavioural principles, which these systems tended to offer. There was also an increasing realization that the solitary learning promoted by these systems was inconsistent with emerging research which suggested that learning was primarily a social activity (Becker, 1992, p. 7).

Appearing at this point in the history of individualized, technology-based instruction, the Internet was quickly hailed, like other technologies before it, as the new panacea at all levels of education – a source of endless information as well as a means of restoring the social

dimension to mediated instruction. The Internet was touted as revolutionary, an information highway with no speed limits; and, given the language of acceleration and urgency surrounding it, there certainly seemed to be little time to reflect on the educational implications of this new, cutting edge technology. K-12 educators and administrators were quick to jump upon the careening bandwagon, but post-secondary institutions were even quicker to appreciate the benefits – less, perhaps, to adult learners than to the institutions themselves – of anytime, anywhere on-line delivery of university courses. From this spirit of haste and rampant opportunity emerged Internet-based platforms such as WebCT and Blackboard, designed to enable colleges and universities to take their place in the new global order. Like the earlier CAI/CMI amalgams such as Wicat and Plato, the new Internet-based platforms were premised upon the importance of combining, within one system, the ability to both deliver comprehensive course content and manage (that is, track and report upon) students' progress through it. Unlike those integrated learning systems, however, WebCT and other similar platforms were empty shells into which only the instructor, the erstwhile keeper of the content, could breathe life.

Emerging from a new paradigm based not upon broadcast (or one-way) technologies but upon media which enable two-way synchronous and asynchronous dialogues, Internet-based systems would seem, at first glance, to represent the death-knell of individualization and all its ramifications: the emphasis upon instructional efficiency, the privileging of technological means, the standardization of content, the separation of learning from its social contexts, the reduction of the learner to a "black box," and the marginalization of the inefficient human teacher. Certainly, Web-based course delivery and management systems are promoted as revolutionary tools; the WebCT website, for example, offers claims that this "innovative solution" to the "new demands on higher education" will "transform the educational experience." However, while a superficial examination of these advanced pedagogical tools may suggest no kinship to programmed learning and individualization, there is in fact a clear line of descent from early attempts to individualize instruction with low-tech teaching machines to the newer, more sophisticated Internet-enabled systems. Consider the following description of the functionality of a "typical learning management system":

> To illustrate how a typical learning management system operates, imagine Alex, a university student, learning from an e-learning

> course. Alex first logs on to the system and is greeted by a list of courses for which he has signed up. Upon selection of a course from the list, he is brought to a page with an arrangement of icons or buttons, and probably some announcement. He can now access various course materials by clicking on these icons or buttons. Some common materials include course schedule, course information, course materials and documents, a discussion forum, assignments, on-line assessment, on-line chat, and reference links. The course materials can range from text documents to interactive tutorials. Upon completing the course content, Alex can choose to do the on-line assessment and obtain immediate results of his performance. (Tan & Hung, 2002, p. 49)

As this description makes very clear, the interactive components, such as the links to on-line resources and communications tools, are frills, non-essential functions of a system that is primarily designed to fill the same "information pumping" (Tan & Hung, 2002) role evoked many years ago both by Innis (1951) and by Muller's (1970) nightmare vision of the "professor in a can."

Many researchers, including the authors of the above passage, are currently striving to discover uses of the Web which transcend the well-established paradigm of technology-mediated content delivery to individual learners. However, just as the potential of the Web in general has been co-opted by commercial interests which regard it as a vast conduit for product and consumer information,[3] so the potential of Web-based systems to enhance classroom dynamics has been severely constrained by the legacy of individualization and the long-standing premise, embedded within the design of such systems, that the goal of technology-based instruction is to achieve efficiencies by replacing teacher-student and student-student interactions in the classroom with access to mediated, individualized (i.e., self-paced) content. Today, talk continues to be "all about efficiency and, ultimately, money" (Feenberg, 1999, n.p.); and, as in the days of the teaching machine, such discourse continues to thinly mask a disenchantment with the educational status quo and the limited capabilities of educators to individualize instruction for a mass audience. Hence, rather than serving teachers and learners by pinpointing where instructor interventions are needed, Web-based systems perpetuate the efficient factory model of education, the "Taylorization of instructional labor" (Noble, 2001, p. 88), which gave rise to the teaching machine and which is the essence, and end, of individualization.

Of course, much of the discourse surrounding the use of web-based course delivery and management systems – like the hype that once surrounded the use of teaching machines – would have us believe that such systems represent an unavoidable and, in any case, highly desirable evolutionary development toward more personalized, meaningful, empowering, and ultimately learner-centred educational environments. However, while it is true that the new platforms function, like the teaching machines of old, to remove teachers from the centre of the educational enterprise, we should not assume that this means that the resulting instruction is necessarily learner-centred. Rather, like previous modes of individualized instruction, the Web-based systems are organized around technology and content. This was made overwhelmingly clear to me during a recent conference on Web-based learning (NAWeb, 2002), in which, though the term learner-centered cropped up repeatedly, the presentations I attended focused, without exception, on high-tech tools that facilitated content manipulation and delivery (for example, a software protocol that enabled computer agents to execute autonomous searches for appropriate content; on-line video editing tools that could be used to combine various clips, or video objects, into a new video; and software that allowed for synchronous voice and slide presentation over the Internet). The same message was driven home during a faculty workshop on WebCT that I attended last year. The emphasis of the two-day workshop was not upon what the system would enable me to do for my students but upon what it would enable me to do with my course content. The clear expectation of the workshop providers, and indeed of the designers of WebCT, is that I will migrate all of my content – including syllabi, lecture notes, assignments, readings, and assessments – into the WebCT structure, and that, having done so, I will regard this imported content as a *course* (rather than, say, a course resource or supplement).[4] Books and articles on the use of the Internet in higher education perpetuate both the emphasis upon content – institutions of higher education are described, with increasing frequency, as "content providers" or "content producers" (e.g., Duderstadt, 1999, p. 13; Katz, 1999, p. 36), while students become "network-based consumer[s] of higher education intellectual content" (Katz, p. 39) – and the assumption that content and course are synonymous.

Underlying this vision of a world of on-line content accessed at the convenience of individual students are at least three problematic assumptions. The first, which I have implicitly challenged throughout

this essay, is that what we now call individualization – that is, the use of technological means to enable the mass delivery of self-paced, standardized content – is a viable model of instruction, worth perpetuating with emergent technologies. The corollary assumption, equally dubious, is that classroom instruction is always lock-step, and in the university generally takes the form of a professor reading from yellowed notes in a lecture hall packed with hundreds of students. It is true that, as institutions of higher learning devolve into profit-seeking enterprises, the teacher-student ratio is decreasing; however, as this brief historical survey has suggested, individualized instruction emerged not in opposition to that trend but as part of it, and as such cannot be assumed to be inherently more personalized and learner-centered than mass-delivered lectures. It is, however, more *efficient* because it is self-paced. Given that the true end of individualization is neither enhanced learning nor the creation of responsible citizens, but increased efficiency, the question becomes: Is efficiency an appropriate and meaningful end of education? Stein has cautioned that when efficiency "is used as an end in itself, as a value in its own right, and as the overriding goal of public life, it becomes a cult" (2001, p. 6). In education, the cult of efficiency, couched within the terms of a purportedly empowering individualization of instruction, is leading us inexorably to a time when, according to some forecasters, not only the class, but the campus as a whole, will be obsolete: "Students will pick out courses at an educational equivalent of Blockbuster and 'do' college at home without ever meeting a faculty member or fellow student" (Feenberg, 1999, n.p.).

The second problematic assumption, which also warrants challenge, is that the structure into which teachers are encouraged to import their content is absolutely neutral – just as the teaching machine was assumed to be a value-free product of objective science. In other words, there is no acknowledgment of the fundamental transformations that must be wreaked upon content imported into platforms such as WebCT and Blackboard, nor of the fact that the very structure of these systems constrains instructional possibilities and decision-making. Looking back at the teaching machines of the 1960s and 1970s, it is now apparent that they transformed content by requiring that it be atomized, standardized, and in many cases, trivialized because the structures the teaching machines enforced meant that content which could not be reduced to small, measurable behaviours simply fell out of the viewfinder. Since factual material has always been more amenable to mechanized delivery – and still is, despite the grandiose claims of the promoters of on-line

systems – it is important to ask if less attention is being given to theory and the realm of abstract ideas as more and more faculty members succumb to the pressures to fit their courses (in other words, their course content) into the "predetermined navigation models and course formats" (Storey, Phillips, Maczewski, & Wang, 2002, n.p.) of the new Web-based systems. Moreover, given that what is tested tends to drive what is taught, it is also worth inquiring into whether the efficient multiple choice tests administered by WebCT and its ilk have the effect of "reduc[ing] the higher learning to the kind of proficiency that can be tested or graded by machines" (Muller, 1970, p. 216). Granted, WebCT also allows for short answer and other test formats that must be marked by human teachers; but given the unchallenged mandate of efficiency which underlies the design and use of these systems, it is likely that multiple choice tests will "tend to drive out less efficient tests, leaving many important abilities untested – and untaught" (Stein, 2001, p. 157).

The final troubling assumption is that teachers in institutions of higher learning will gladly import their content into the Web-based systems. This assumption has been far more widely problematized and discussed than the previous two, since it gives rise to the thorny issue of intellectual property. Rather than delving into the many dimensions and implications of this topic, which others (e.g., Bates, 2000; Noble, 2001) have treated in detail, I will only point out that the issue of intellectual property arises because – unlike teaching machines, CAI, and integrated learning systems, which were designed to present learners with predefined instructional content which the teacher usually could not alter – the new Web-based systems are, at least for the time being, empty frameworks.[5] WebCT, for example, contains content pages, but no content; a syllabus template, but no course information; multiple choice tests, but no questions; a database capable of generating student reports, but no student information. Right now, only professors have the wherewithal to feed these content hogs, a situation which would seem to restore power, after 50 years of teacher proof programs, to the instructor. However, power is a function of choice, and the decision as to whether or not to place course content on-line, and as to whether or not it is possible to do so without relinquishing ownership and control of that content, is increasingly being withdrawn by campus administrators who buy into, and must subsequently justify the expense of, ever-more exorbitantly priced[6] Web-based course delivery and management systems. The result, as Noble observes, is that the dynamics and intellectual activity of the classroom are increasingly being translated into a static package of

individualized content – known as courseware – which can be marketed to a widely dispersed audience (2001, pp. 26-27). And the question of whether or not particular content will be accompanied by a class – that is, by a group of people who come together to make meaning of that content – is beginning to seem less and less absurd. Indeed, the increasingly accepted view is that, in a world of ATMs, on-line libraries, and Internet-based commerce, the class itself is an absurd and outmoded social construct, persisting not because of educational necessity but only because of "educational inertia" (Blustain, Goldstein, & Lozier, 1999, p. 54).

Noble (1995) has pointed out elsewhere that, when it comes to technology, history is far from inevitable. The ultimate meaning of a technology and the uses to which it is put will have something to do with its inherent affordances, but a great deal more to do with human interests, values, and decisions over the years. During the past half century or so, our decisions as a society have tended to privilege technology-mediated instruction, and the efficient, individualized content delivery it enables, while pushing away from the center both the classroom practitioner and the forum for communicating meanings in a human context over which the teacher presides. Today, with the advent of Web-based systems, the euphemisms may have changed – we now talk, for instance, about instructional relevance and the radical retooling of higher education – but embedded within such language are the same premises that gave rise to teaching machines and individualization: the belief that education must be made more efficient; and the belief that it is imperative, in the interests of enhanced (i.e., more efficient) learning, that more and more instructional decision-making power be transferred from educators to devices and those who make them. In the days of teaching machines, CAI, CMI, and integrated learning systems, hyperbole served as an effective means of overcoming teacher resistance to such premises; today, again thanks to the proliferation of a hyped rhetoric which tends to shut down critical response, many university instructors are willingly, even enthusiastically, participating in their own displacement by the machine. Does this mean that, in years to come, the question "Is there a class with this content?" will be as legitimate and comprehensible, when addressed by a student to a professor, as the question "Is there a text in this class?" is today? The answer, of course, depends upon how those of us teaching in institutions of higher learning now choose to confront the increasing presence of, and pressure to use, Web-based systems; it depends, in particular, upon how

much decision-making power we are willing to relinquish to technological devices and to those who design, program, and implement them within the university.

NOTES

1. My title question also owes something to Brown and Duguid (2000), who observe that, as more and more individuals pursue distance education, "it becomes increasingly important to ask, 'Is there a class (or community) with this text?" (p. 223).
2. The questions that we can ask are intimately connected to social (and technological) realities. Fish's title question would certainly have given pause to a university lecturer before the invention of the printing press, when texts were what students, taking assiduous notes, produced *during* a course.
3. Many readers may be surprised to discover that there is another little-known Web paradigm which has been around for as many years as the Internet and which resembles, far more than the on-line shopping mall we now have, the vision held by the Web's early architects. I refer to Wiki, an engine which allows for the creation of web pages which any user can enter and modify, at will. Each page thus functions not as a static piece of information but as the focal point of an ongoing dialogue. For more information on Wiki, see http://www.openwiki.com and http://c2.com/cgi/wiki.
4. MIT's announcement, in April 2001, that it was placing all of its undergraduate and graduate teaching materials on-line, shocked the e-learning community. While this OpenCourseWare initiative has elicited numerous comments about its market implications, it has not provoked reflections upon the deeper significance of the move as a statement about the fundamental difference between *content* and *course*, although the difference was clearly pointed out in a largely overlooked passage in the April 4 press release: "MIT OpenCourseWare will provide the content of, but is not a substitute for, an MIT education. The most fundamental cornerstone of the learning process at MIT is the interaction between faculty and students in the classroom, and amongst students themselves on campus" (Newton, 2001, n.p.).
5. This may not long be the case. In its 2002 "Technology Solutions" catalogue, Pearson Education Canada offers "e-packs" for WebCT and Blackboard. E-packs provide "on-line course content written by academics from reputable higher education institutions .... The e-packs offer a wealth of pre-loaded content."
6. It comes as no surprise that, having become established in many institutions, WebCT and Blackboard both recently announced new versions of their software which are going at premium prices: "Colleges that until

recently paid a few thousand dollars a year for the companies' products ... are now being asked to pay tens or even hundreds of thousands for the latest systems" (Young, 2002, p. A35).

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