Preface

Most of us are very much aware that the coming of information technology has created major change in higher education. New and underserved populations now have access to a dazzling array of educational opportunities, available almost anywhere and at any time, and catering to every conceivable interest and need. But is this change profound or superficial? Have learning outcomes improved or become more significant to the learner? Or is this merely a new packaging and delivery of old ways of thinking about how we should teach and how we can learn?

This book examines the prospects for progressive higher education in the age of information technology. The topic is especially relevant to the nature of teaching and learning in higher education just because so little of it has actually changed until very recently.

At the beginning of the 20th century, John Dewey and others recognized that industrialization and immigration made a revolution necessary in curriculum and in the education of children. Progressive thinkers believed that education was an essential aspect of the growth and preservation of democracy, and that authoritarian practices in the schools were not appropriate to the formation of a citizenry which must look to the future as well as back to a received cultural heritage. Dewey insisted that education must view teaching and learning as “a continuous process of reconstruction of experience.” (1938, p. 87)

As Lawrence Cremin has pointed out, the desire to realize Dewey’s vision in higher education, by emphasizing the interest and activity of the learner rather than the mere transmission of information, was reflected in the founding of experimenting colleges such as Goddard, Bennington and Black Mountain during the 1920s and 1930s. They worked at reforming the undergraduate curriculum “to take account of changing student needs; . . . to individualize instruction; and . . . to involve students in the making of educational policy” (1964, pp. 308-309). The founding president of Bennington College, Robert D. Leigh, described it as an institution which would “emphasize individuality, direct experience, serious interest, initiative creative and independent work, and self-dependence as educational aims.” (Cremin, 1964, p. 310). Some of these progressive colleges, like Antioch and Goddard, persisted to be reinvigorated in the 1960’s, and to join in the Union for Experimenting School and Colleges, which in turn gave birth to the Union Institute (now Union Institute & University) in 1964 and the University without Walls (UWW) programs, all eschewing traditional didactic pedagogy and replacing it with learner centered graduate and undergraduate program models. These programs were committed to cultivating active learning, contextual learning, immediate and continual feedback, to the concept of knowledge as adaptability (Spira, 1998), and to individualized study design. Their interpretation of Dewey’s educational thinking owed much to William Heard Kilpatrick (1871–1965), a Romantic progressive who believed that teachers should “not suggest any end or plan to the students” for fear of impinging upon their individuality and freedom, and who rejected coercion or prescription of any kind. (Westbrook, p. 503). This point of view had a profound effect on the approach to academic learning taken at institutions such as Goddard College, whose curriculum was to “reflect the world as experienced by student and teachers more than
it would reflect academic subject matters.” (The Goddard Bulletin, 1969, pp. 74-75) Progressivism was implemented in various ways, but common features among the experimenting colleges were the enabling of student control over curriculum, both individual and institutional, and the testing of learning in real-world situations.

Many of the original institutions which rejected conventional educational concepts, organizations and practices, have now disappeared or they have become more educationally traditional. The same is true of programs for adult learners developed in progressivism’s second wave in the 1960’s and 1970s. And for the most part they have not been at the forefront of the recent changes in higher education. It is outside the scope of this volume to examine the reasons for the failure of progressivism to thrive or to have a significant impact on mainstream institutions, but there are other developments which hold promise for the application and implementation of some of its most essential insights.

The educational research of Piaget (1896-1980), Vygotsky (1896-1934) and Bruner (1915- ) gave rise to constructivism as a theory of teaching and learning, first applied in the primary schools, and later to the needs of a growing number of adult learners at the post-secondary level. In defining effective learning and teaching in terms of process, context and the activity of the individual learner, constructivism may be regarded as the descendent of educational progressivism, which also viewed learning as a natural activity that could best be fostered in a rich environment. But even though Ernst von Glasersfeld (1989, p. 3) a principal theorist, calls constructivism “a form of pragmatism” constructivism is not another name for Deweyean or progressive education. Both philosophies reject objectivism, the assumption that there is a reality separate from and “independent of human mental activity” (Jonassen, Mayes, & McAleese, 1993), and share a view of learning as an active process, rather than the passive reception of information, and of knowing as an adaptive function. The underlying subjectivism of cognitive constructivism, however, is not really consistent with the explicitly social program of progressivism, which treated education as preparation for democracy, or with Dewey’s explicit view of “all human experiences (as) ultimately social.” (1938, p. 38)

The subjectivism and even solipsism of the radical constructivists is not often discussed by educational constructivists, although its implications are at war with their emphasis on the “social negotiation of meaning which is supported by collaborative construction of knowledge” and require the startling postulation of parallel construction by individuals of the “same understanding for any object or event in the external world” (Jonassen, Mayes, & McAleese, 1993). Since his theory also makes social interaction significant for the viability or coping efficacy of the cognizing organism, von Glasersfeld (1989, p. 4 ) bridges the gap between the “epistemic” or knowing self and those “others” which constitute a social environment by stipulating that the construction of such others takes place as a developmental task.; they are complex “schemes” arrived at by imputing capabilities, perceptual, cognitive, volitional and so on, to “the objects of interaction.” (1989, p. 7) The implications of such a model are profound for distributed learning environments where the participants have limited access to each other, and suggest that substantial research is still needed to validate the foundations of constructivist theory.

Social constructivism, which follows Lev Vygotsky in making learning a function of social interaction, is the theory informing much of online education and the design of technologically mediated learning environments. However, in also assuming the ontological and epistemological dualism of “the human mind and the external world” (Liu & Matthews, 2005, p. 386) it favors the implicitly subjectivist orientation in the architecture and use of educational technologies marketed to higher education for their efficiency and cost benefits. There is a primary emphasis on individualized delivery, rather than on inquiry, which undercuts efforts to create collaborative learning situations. A further consequence of the emphasis on reducing costs and reaching wider markets is that Jonassen’s vision (1994) of the constructivist use of information technology to empower the learner has not yet been fully realized:
Rather than using technologies by educational communications specialists to constrain the learners’ learning processes through prescribed communications and interactions, the technologies are taken away from the specialists and given to the learner to use as media for representing and expressing what they know. Learners function as designers using the technology as tools for analyzing the world, accessing information, interpreting and organizing their personal knowledge, and representing what they know to others.

The coming of information technology has certainly created opportunities and challenges for all education. The fact that its introduction coincided with the popularization of constructivism has opened new possibilities for change. This volume is grounded in the thesis that information technology may offer the only viable avenue to the implementation of constructivist and progressive educational principles in higher education, and that the numerous efforts now under way to realize these principles deserve examination and evaluation. In this connection there are key issues which demand our attention. How widely is constructivist thinking accepted and utilized in today’s college classroom? To what extent are IT applications viewed as capable of implementing constructivist education? How successfully do they function when used for these purposes? What are the obstacles to the realization of constructivism at the college and university level?

Perhaps the most exciting impact of information technology on higher education is the attention now being given to teaching itself. What was taught (content) and who was allowed to teach were the traditional preoccupations in academic institutions, and the student was typically not thought of as a learner in the active sense, but as the recipient of information, knowledge and occasionally even wisdom. The outcomes of instruction were measured, but not related to teaching methods, which were generally limited to the didactic. Dewey and the educational progressivists made the poverty of such an approach clear, but this view was not taken very seriously in the academy until the coming of information technology. The richness of possibilities it affords for teaching and learning has highlighted the change in what it means to be a teacher, because we now have a far more complex and nuanced understanding of learning. Of course some of what is now offered in the educational marketplace is merely the translation of conventional classroom and teacher-student relationships into electronic form, but the new sophistication of the learner will make it impossible to maintain the instructor as the sole locus of control and authority. And this is recognized globally; innovation in higher education is happening everywhere in the world, and the scholarship of teaching and learning is taking its place as an important and legitimate aspect of postsecondary concern.

What are the prospects that progressive and constructivist philosophies of education will prevail in transforming higher education by using information technologies as tools? The contributors to this volume offer some answers in their analyses and in the cases they describe of constructivist teaching and learning in the new technological environment. Their experiences and their willingness to innovate for the sake of better learning and more effective teaching should be of interest to educators, administrators, instructional designers and all of those who are committed to furthering progressive thinking.

In Section I, “Constructivism and Progressive Higher Education in the Technological World,” a set of chapters focuses on conceptual frameworks. Beginning with the relationship of John Dewey’s thinking to the development of constructivism, the authors frame their discussions of constructivist theory in terms of the ways in which information technology can be deployed to support active and collaborative learning. There is also a critical analysis of whether progressive approaches to education are in fact being promoted by IT in educational institutions serving adults, or whether globalization and market forces emphasize efficiency rather than open inquiry.
Perez Cavana, in Chapter I, “Closing the Circle: From Dewey to Web 2.0,” considers the ideas of John Dewey as they inspired the development of constructivist and constructionist theory. Practical obstacles of the implementation of constructivism in educational settings are analyzed and weighed against potential benefits.

O’Rourke, Fitzpatrick and Hayes in Chapter II, “Beyond Constriction and Control: Constructivism in Online Theory and Practice,” examine assumptions about those benefits resulting from the emphasis on practice, rather than theory, in the teaching profession. In making the creation of knowledge by the active learner its central element, constructivism departs from traditional hierarchical educational and authority structures.

de la Harpe and Peterson in Chapter III, “The Theory and Practice of Teaching with Technology in Today’s Colleges and Universities,” explore “Mainstream University Teachers’ Practice, and Their Use of Educational Technology” to see whether and how they are influenced by constructivist learning theory.

Garrison, Richardson, and Swan in Chapter IV, “A Constructivist Approach to Online Learning: The Community of Inquiry Framework,” present their Community of Inquiry model for understanding the online educational experience. The interaction of social presence, cognitive presence, and teaching presence is viewed from a Deweyan perspective as giving rise to online learning.

Lee and Lin, Chapter V, “Applying Constructivism to Online Learning– A New Instructional Design Map,” base a new constructivist design map for online learning on five elements: learner, knowledge, learning environment, assessment, and technology, while also discussing its applications in practice.

Rubin in Chapter VI, “Enhancing Authentic Assessment Through Information Technology,” points out that authentic assessment is a key aspect of constructivist education, and that its mediation by information technology presents both opportunities for development and limitations. Chronicity and durability are two of the key dimensions which determine the degree of authenticity possible in assessment.

Coulter and Mandell, Chapter VII, “Nontraditional Students and Information Technology: The Siren Call of the Virtual Classroom and its Impact on Progressive Educational Ideals,” argue that the use of information technologies has not necessarily promoted progressive educational practices for adult learners. They suggest that progressive and constructivist approaches to learning may be more likely to be found outside formal higher education.

Section II, “Teaching and Learning with Information Technology: Constructivist Approaches,” includes analyses of a variety of information technologies as they are being used within constructivist frameworks in higher education. The facilitation of active learning in immersive environments and collaborative settings and the creation of mental models as supported by digital media are described in detail.

Van der Pol in Chapter VIII, “Online Learning Conversations: Potential, Challenges and Facilitation,” takes a close look at online conversations as tools for learning. The challenges to their effective use are detailed, and it is demonstrated that anchored discussion can address them by turning opinion-oriented exchanges into meaning-oriented processing of conceptual material.

Nicosia, Chapter IX, “Virtual Constructivism: Avatars in Action,” looks at Second Life as providing opportunities for constructivist educational experiences within user-constructed environments and activities. Immersion in SL can facilitate deep learning prompted by desire and curiosity.

Page and Ali in Chapter X, “The Power And Promise Of Web 2.0 Tools,” present an overview of Web 2.0 applications as they can be used to create interactive and engaging learning environments.

Shalin in Chapter XI, “Information Technology and Mental Modeling,” examines ways in which information technologies are deployed in higher education courses to help learners create mental models.
E-Learning can facilitate this important constructivist process through visualization work, virtual immersion and enhancing interactivity by the use of collaborative pedagogical strategies.

Section III, “International Approaches to Constructivism: Case Studies,” details how higher education institutions around the world are experimenting with the constructivist use of information technology. The case studies in this section illustrate a number of applications used with a variety of academic subject matters, in blended classrooms and in online delivery, as well as the response of an historically progressive college to technology’s challenges.

Donnelly in Chapter XII, “Transformative Potential of Constructivist Blended Problem-based Learning in Higher Education,” considers a blended approach to problem-based learning, using interactional analysis of the work of academic staff who are engaged in professional development in higher education in Ireland to identify design implications for further development.

Cronin in Chapter XIII, “Critical Survey of Information Technology Use in Higher Education – Blended Classrooms,” looks at the blended classroom from the standpoint of lifelong learners in a diploma course in Dublin, Ireland, in European art history, and finds that the constructivist paradigm is a necessary framework for the effective use of information technology in this setting.

Ligorio and Sansone in Chapter XIV, “Structure of a Blended University Course: Applying Constructivist Principles to Blended Teaching,” implement constructivist principles in the architecture of a blended university course at an Italian university. They have designed individual, small-group and collective activities to explore and utilize digital identities, E-Tutoring, online role-play, and E-Portfolios.

Lim and Sudweeks in Chapter XV, “Constructivism and Online Collaborative Group Learning in Higher Education: A Case Study,” present a hybrid undergraduate course at a university in Australia, which is shaped by sociocultural constructivist principles, providing interactional opportunities and scaffolding for joint construction and appropriation of new knowledge. An exploration of the theoretical roots of constructivism is followed by a course description and the results of a concluding survey on student learning experiences.

Lohr, Eastham, and Kendrick in Chapter XVI, “Constructivist Strategies to Optimize Four Levels of Interaction in a Distributive Learning Environment: A Case Study,” describehow a constructivist theory of learning guided the structuring of a graduate level course on instructional design at the University of Northern Colorado. Results were derived from participant surveys, designer observations, and academic performance, and were generally positive with respect to student perceptions of the benefits of the course. Some constructivist strategies appeared to detract from the learning experience, and suggested the need for clarification of expectations and redesign of certain course components.

Gaspar, Langevin, and Boyer in Chapter XVII, “Facilitating Students-Driven Learning of Computer Programming with Technology,” discuss the transition from instructivist to constructivist strategies as facilitated by information technology. Their illustrations are drawn from computer programming courses at the University of South Florida Polytechnic, and touch on learning barriers traditionally encountered by novice programmers. They conclude by describing how the integration of technology, and the switch to online environments, has the potential to enable authentic student-driven programming pedagogies as well as facilitate formal computing education research or action research in this field.

Miller in Chapter XVIII, “Designing Asynchronous Discussions to Teach Critical Thinking,” finds that the modeling and practicing of critical thinking is a central component of constructivist pedagogy at the college level. The written and asynchronous nature of online discussions enhances its ability to teach critical thinking, but unless they are properly designed they may have the opposite effect. Six basic principles for effective online discussions are set forth, and their implementation is illustrated by examples from two online literature courses at National University in California.
Schulman in Chapter XIX, “‘To Be in Occasional Touch’: Goddard College’s Progressive Principles and Distributed Learning,” offers a case study of Goddard College’s response to new modes of educational delivery and emerging information technologies. As one of the pioneering experimenting colleges, Goddard, in rural Vermont, continues to espouse the progressive principles which informed its establishment in 1938. How its innovative low residence model for adult college students can make use of IT without compromising its values is the major challenge seen by the author.

Stebick and Rinke in Chapter XX, “Using Blogs to Foster Inquiry, Collaboration, and Feedback in Pre-Service Teacher Education,” present a critical case study of the integration of blogs into two constructivist-oriented teacher preparation courses at Gettysburg College in Pennsylvania, with the goal of helping students learn to think like a teacher through enhanced inquiry, collaboration, and feedback. They discuss design principles for combining online and face-to-face environments and offer possibilities for the expanded use of blogs in pre-service teacher education.

Zellermayer, Mor and Heilweil in Chapter XXI, “The Intersection of Theory, Tools and Tasks in a Postgraduate Learning Environment,” have created a learning environment for veteran teachers, graduate students at an Israeli institution who are interested in developing professionally as designers and moderators of Information Communication Technology learning environments. The chapter describes the activities and tasks in each of three concentric circles of ICT use, which are based on the assumption that learners construct knowledge and understanding when they are an integral part of the learning environment, and when they are members of local and global communities where learning is conceived as acquiring the necessary skills for participation through their own participation.

REFERENCES


