

Human Development in the Learning Society

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New models of learning are radically changing our conception of education. Education for human development in the learning society requires collaborative learning and involves focusing on knowledge-building. These changes arise from shifts in educational goals, from increasing diversity of populations, and from new conceptions in learning and knowledge. Life long learning, schools as learning organizations, and the integration of schools into a broader community that promotes learning will be required for human development in the information age.

The core question of this *Handbook* is how best to achieve desirable educational change. As soon as we ask that question, a host of prerequisite questions assert themselves. What is the goal of the educational change, or, more bluntly, what educational change is desired? What is our understanding of the fundamental processes of change, which might enable valued educational change to occur? What is the broader context of societal change within which the educational change will take place? Vast complexity is introduced when we admit these and other similar foundational questions into the discussion, yet, if we do not take them on, we are forced to operate in a piecemeal fashion.

A coherent conceptual framework with a sufficiently broad perspective may enable us to make sense of the complexity and to address these questions in an integrated fashion. In the Human Development Program of the Canadian Institute for Advanced Research, my colleagues and I have sought to explore and articulate such a conceptual framework (Keating, 1995b, 1996b; Keating & Mustard, 1993; Task Force on Human Development, 1992). The first goal of this framework is to understand human development in its broadest sense, linking together perspectives on individual development across the lifespan; on the health, competence, and coping capacity of human populations; and on the social organization of human activity. The second goal is to explore the possible future directions for human development in the contemporary era, and to identify key elements that may contribute to more desirable directions.

We have used the term a “learning society” to capture this idea. Although this term is fraught with the potential for misinterpretation, it does connect a number of key themes essential for constructive change. Among these are that change is a continuous process, that it can be brought to conscious awareness in which goals are made explicit, that it involves the broader society and not just communities of experts, and that collaborative learning is crucial to effective societal adaptation.

It is important to clarify potentially major misconceptions which may arise from the use of each of the constituent terms. Learning is not to be restricted to the individual acquisition of knowledge or skill already attained by others (as in, say, “learning to read”), but also to include activities better described as collaborative knowledge building and innovation (Bereiter & Scardamalia, 1996). Traditional psychological notions which viewed learning as a purely internal set of processes describing the adaptation of the individual to a relatively fixed external environment (the “to be learned” material) represent one type of obstacle to this broader understanding.

Society is to be seen as not only a collection of institutions and practices, but also as a culturally integrated organization of institutions and practices, whose organization is in itself capable of adapting and learning from experience. It has become commonplace to speak of learning organizations capable of effective institutional memory, collaborative goal seeking, and continuous improvement, all of which occur in a real sense at the group rather than the individual level. A learning society can be usefully regarded as a generalization of the learning organization (Keating, 1995a).

This introduces one further potential misconception which is that collaborative efforts depend on uniformity of goals among the individual members of a group. From this misconception it is easy to dismiss the notion of an effective learning organization (or learning society) merely by taking note of the ubiquity of conflict and competition in human activity. The heart of this misconception is the view that competition and cooperation are exclusive states. It can be observed in many well functioning complex systems that cooperation and competition are linked in a dynamic tension which is essential to the system’s functioning. Neural competition at the level of cells and cooperation at the level of systems is but one well documented example.

The goal of this chapter is to outline the conceptual framework on human development and the learning society which we have been constructing, with a particular focus on the critically important issue of educational change. It is perhaps obvious, but should be made explicit, that the success of a learning society is crucially dependent upon the available human resources (or human capital, to use the economists’ term), as well as upon the patterns of social organization to employ those resources. Notions of “social capital” (e.g., Putnam, 1992) capture some important elements of this perspective. The important point here is that education is central to the formation of both human capital and social capital. To create a learning society, we must address the central role of education.

CONTEMPORARY SOCIAL CHANGE IN HISTORICAL CONTEXT

We are experiencing rapid social and economic change as we approach the 21st century. The perceived rapidity of these changes not only generates a sense of

disorientation among many individuals, but also presents major challenges to societal adaptability. Societies must cope simultaneously with global economic competition, the demand for new competencies in the population, the provision of opportunities for health and well-being throughout the population, and the maintenance of the social fabric for nurturing, socializing, and educating the next generation. Successfully meeting these challenges sets the foundations for future population health and competence, economic prosperity, and social cohesion. But many of the traditional societal forms and practices may experience difficulty in adapting to change, and new forms which may be able to meet these challenges have yet to emerge clearly.

The pace, magnitude, and complexity of social change are often perceived as overwhelming and uncontrollable. This perceived lack of control can then distort our perceptions of the challenges and opportunities, further diminishing our ability to respond and adapt to change. This core dynamic – accelerating change and decreasing sense of control – makes thoughtful planning and reform difficult to achieve, whether in education or other social institutions.

We may start to break this cycle by appealing to a combined evolutionary and historical perspective that takes note of the fundamentally social nature of humans, and of the many different patterns of organizing social life with which we have experimented. I have previously summarized some key elements of this perspective (Keating, 1996b).

Like almost all of our close relatives – non-human primates – *Homo sapiens* is a social species. We play, work, interact, learn, and reproduce in social groups throughout our lives. We develop in social relationships from the earliest period of life, as do most other primates, but we remain dependent on the caretaking of others for a longer time than any other primate. At the core, then, we need social groups to survive.

Moreover, our early experiences – most of which occur through social interactions – play a critical role throughout life in how we cope, how we learn, and how competent we become. The nature of the social environment in which we develop is thus a key determinant of our quality of life. Diverse life outcomes – positive and negative – are closely associated with identifiable differences in early social experiences. In turn, the quality of the human social environment is partly a function of the competence that is available within the society. The nurture, education, and socialization of new members of the group depend on the skills and commitment of more mature members, and on social arrangements that facilitate high quality interactions among generations.

Many of these demands are neither historically new nor species specific. But we face additional challenges unknown to our human and pre-hominid ancestors. Although we share much in common with our primate cousins, humans appear to be unique in having developed the capabilities of conscious self-reflection, cultural transmission of skills and knowledge through language and other symbolic means, cumulative technological development, and civilization. In evolutionary terms, these are quite recent changes in our lives (Keating, 1995a; Keating & Mustard, 1993).

We can get a better sense of how recent they are by using a calendar year analogy. Take 100,000 years as an estimate of the time elapsed since the emergence of fully modern humans, and place it on the scale of a single year. Using this baseline, we can note that our species first moved into small urban centres, supported by agriculture, about the end of November, and started an industrial revolution on the afternoon of New Year's Eve. Only a few minutes ago, we launched experiments in instantaneous global communication, information technology, and multicultural metropolism. This recency is further exaggerated if we use the earlier starting point of the emergence of consistent tool-making and tool-use by hominids, which may go back as much as 2.5 million years.

The origins and mechanisms of this evolutionary process remain controversial (Dennett, 1995), but several important features have gained fairly broad consensus. Consider first the social sophistication of non-human primates. From this perspective, we can see that complex social arrangements and behaviours among humans are not merely a function of cultural experiences; other primates are also skilled social strategists (Tomasello, Kruger, & Ratner, 1993). Much of our "intuitive" understanding of how to function in groups thus has a lengthy evolutionary history, which has embedded in us many elegant "designs" for social interaction, although some of them may present obstacles to further adaptation – wariness of "others" may be one such design feature.

At some critical juncture, we added language capabilities to this already rich social mix, yielding apparently infinite potential for complex communication. Language enables much more complex social communication, and may even have arisen initially out of a need to maintain cohesion in larger groups (Donald, 1991; Dunbar, 1992), although there is much controversy at the moment regarding the evolutionary history of human language (Dennett, 1995). The larger group size may have contributed economic benefits of organization and specialization of work, permitting more effective exploitation of harsh habitats as well as a primitive form of shared risk.

The teaching and learning of special skills were also enhanced by language, and an accelerating cycle of technological innovation and development ensued. Apparently unique to *Homo sapiens*, this unification of language and tool use was put forward by Vygotsky (1978) as the starting point of fully human intelligence, both phylogenetically and ontogenetically.

At a later critical juncture, the evidence suggests that we drew on our increasing symbolic and instrumental sophistication (that is, better language and tool use) to establish connections *between* troops and tribes. This is a signal accomplishment, which we might justifiably designate as the initiation of human "experiments with civilization" (Keating & Mustard, 1993). We can date the origins of this new design pattern in human activity to about 40,000 – 50,000 years ago (Stringer & Gamble, 1993), when the remarkable onset and spread both of symbolic forms (particularly cave painting and sculpture) and of more complex stone technologies, which had been previously unchanged for perhaps two million years, coincided. The rapidity

and coincidence of these emerging forms suggests the innovation of language-based cultural diffusion, which implies in turn the capacity to work with others outside one's own group and to innovate on a collaborative basis.

It is important, however, not to romanticize this prehistoric past. Ample evidence supports the pervasive nature of human conflict, among individuals and between groups, then and now. Cooperation did not displace conflict (recall the earlier discussion about misconceptions of their relationship), but new designs for inter-group collaboration and diffusion are likely to have afforded substantial material advantages to groups who took it up, even against the backdrop of persistent inter-group conflict. A contemporary manifestation of the misconception is the belief that cooperation is a natural and desirable state of humanity, for which only the educational opportunities to exercise it are needed in order to induce it. The evidence suggests rather the contrary. Both competition and cooperation represent potential human activities, but persistent and effective cooperation has to be highly supported by well-designed educational structures and practices which acknowledge and account for the equally human propensities toward competition and conflict.

Although formal education as an innovative human design was still millennia away, we can confidently speculate that the onset of "experiments in civilization" occurred together with – and was crucially and mutually dependent upon – the onset of what we can reasonably describe as "education" in the broad sense.

The accelerating pace of technological and social change appears to be based, then, on our species-specific penchant for collaborative learning across (formerly rigid) group boundaries. Enhancing this new design for learning through progressively more efficient cultural means – oral histories, formal instruction, writing, and now information technologies – contributes directly to this acceleration.

Changes in the means of communication also have non-trivial consequences for cognitive activity – how we think, what we know, and how we learn. A well understood example is the connection between the practice of literacy and the development of logic, argument, reflection, and metacognitive understanding (Cole & Scribner, 1974; Olson, 1994). As literacy spreads, so do literate habits of the mind.

This analysis suggests that the combination of a new technology for communication with new capabilities in the population creates a potent new medium for discourse among previously isolated groups and individuals – and thus new opportunities for innovation. In concert with changes in social communication (such as language, literacy, and now information technology and knowledge media), we have continued to discover new means for extracting material subsistence from the earth.

The agricultural revolution first enabled the congregation and settlement of large groups of humans in specific places over a durable period of time – in other words, cities. The organization of production in agricultural societies demanded that a relatively large proportion of the population was needed to provide direct physical energy – plowing, sowing, reaping, and so on. Thus, only a small portion of the population was directly involved in the acquisition and expansion of knowledge

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