

Review

The Learning Challenge of the Knowledge Economy

Title:	The Learning Challenge of the Knowledge Economy
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There have been books both erudite and popular on knowledge economy and learning challenges. About two decades ago, *The Fifth Discipline* by Peter Senge (1990, 1994) popularised the concept of learning organisations and brought his seeming idealisms into the realm of the practical. More recently, Philip Cooke (2002) has addressed the challenge of the knowledge economy through considerations of economic and social imbalance, collaborative economic action and capabilities based on consensus being more important than individual opportunism. Unlike these earlier efforts, this book, which is the third volume of a series provides a critical discussion on knowledge and learning in the modern world. It questions our very understanding of knowledge and learning. Proposing alternative ways of understanding knowledge and learning, the book presents a new perspective on the learning challenges that the knowledge economy poses for individuals, communities and societies. It argues for a reformulated plan for professional, vocational and workplace learning (PVWL) by questioning the assumptions about knowledge and learning made by earlier writers on the issue, especially the social and management theorists.

According to the author, the series is aimed at researchers, policy makers, practitioners and students who wish to question the current conventional wisdom about the knowledge economy and the role of learning. The book elaborates a critical analysis within a sound philosophical background. The arguments in the book centre around the relationship between theoretical and tacit forms of knowledge, the cultures and practices that support people and mediate these forms of knowledge, and the economic, social and political outcomes of mediation as manifested in working life.

The book has ten chapters. In the first one titled, "The Knowledge Economy and the Challenge for Education," the author contends that the familiar argument of a new challenge for education posed by the emergence of the knowledge economy is narrowly conceived. It assumes that people can be made more or less productive in the economy by changing the extent of their knowledge as represented by the level and domain of their qualification. The new role of knowledge in the economy has so far been framed in terms of "the two worlds view of knowledge," which refers to the objective knowledge of natural, physical and social structures or theoretical knowledge and the subjective knowledge of feelings, emotions and conditions or tacit knowledge. The chapter introduces three new challenges for educational institutions and workplaces in the knowledge economy: "...to support people to:

- consider and conceptualise the relation between different forms of knowledge;
- develop the cultures and practices and to use different forms of knowledge to create new forms of economic, political and social activity;
- identify the different outcomes associated with such economic, political and social activity."

These core concerns are addressed through the book in the context of professional, vocational and workplace learning (PVWL).

The arguments presented in Chapters 2 and 3 give the social and management theorists' views respectively about the new role of knowledge in the economies of advanced industrial societies. Chapter 2 titled, "Scientific Knowledge and the Economy" discusses how Daniel Bell's argument that theoretical knowledge constitutes the 'axial principle' of innovation and economic growth in post-industrial societies influences the social theorists' views. These arguments assume that knowledge is a cultural object that

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can be transferred without problem from one context to another to facilitate economic, political and social development. This leads to a push for exponential investment in and exploitation of science and a consensus about the importance of R&D in STEM to support the knowledge economy. The chapter also refers to Lash and Urry, who acknowledge that cultural knowledge, as from advertising, performing arts, film, television and the new media, is as important as science in the knowledge economy.

Another challenge to the primacy of theoretical knowledge is that the tacit knowledge held by workplace communities of practice is at least as important as science to economic development. This argument originating in the field of management studies, is discussed in Chapter 3 titled, "Tacit Knowledge and the Economy." The management theorists' position leads to the argument that the new role of knowledge in the economy is not restricted to industrial sectors that are concerned with applications of concepts and methods from STEM subjects. The chapter discusses Lundvall's differentiation between four kinds of knowledge: know-what, know-why, know-how and know-who, the last being about the social capability to establish relationships and involve people in networks and projects. The position discussed in the chapter is reflected in some recent work on the role of leaders in team learning within organisations (Edmondson, 2010).

Chapter 3 also refers to the emergence of a new mode of knowledge production and a changing relationship between science and society. While the traditional mode, Mode 1 is associated with discipline-based research in universities, Mode 2 is produced in the context of application, and research, often done in firms, is guided by principles of design originally developed in an industrial context rather than traditional scientific enquiry. Another idea discussed is Nonaka and Takeuchi's knowledge creation in firms as a dynamic spiralling of interactions between explicit and tacit knowledge, which allows creation of new knowledge in the form of entirely new product, service or a significant modification of existing ones. The chapter also defines and differentiates between codified and tacit knowledge.

The relation between theoretical and tacit knowledge is probed in Chapter 4 titled "Problems around the Role of Knowledge in the Economy." First, it discusses the philosophical origins of the split between theoretical and tacit knowledge. This is used to show why the social and management theorists offered different explanations of the new role of knowledge in the economy. Second, the section on "Knowledge, Culture and Economy," discusses

the enabling role of culture to economic activity on the basis of Knorr-Cetina's concept of an epistemic culture, which refers to "Those amalgams of arrangements and mechanism – bonded through affinity, necessity, and historical co-incidence – which, in a given field, make up how we know what we know." The chapter argues that to understand the new role of knowledge in the economy, it is important to understand the ways in which culture is constitutive of human development, including economic development. The third issue suggests that theoretical and tacit knowledge are interdependent dimensions of knowledge rather than separate types and have a mediated as opposed to a binary relation to each other.

As a foundation to later chapters, Chapter 5 titled "Higher Education and the Two Worlds of Knowledge," shows how the pressures to make higher education responsive to knowledge economy has led the UK government to repositioning the PVWL in terms of certain pedagogies. Discussing with reference to Schön's work on reflection, it argues that the new 'pedagogies of reflection' that are introduced do not help people bridge the two forms of knowledge and link them to experience.

The theoretical basis for repositioning the learning challenge in the following chapters is introduced in Chapter 6 on "Thinking Differently about the Two Worlds View of Knowledge." It is shown that John Dewey's conception of reflection, though more sophisticated than the one adopted in the pedagogies of reflection within the PVWL, is inadequate to explain the mediated relation between theoretical and tacit knowledge. The mainstay of the chapter is the discussion of the relevance of Lev Vygotsky's theory of cultural mediation, the mediation triangle and Cultural-Historical Activity Theory (CHAT). This theoretical tradition is based on the argument that we live in a world in which forms of experience are culturally and historically constituted, which provides a way to overcome the philosophical separation between mind and world and between theoretical and tacit knowledge. It also helps explain the cultural-historical genesis of mind and action and identify the pedagogic practices that facilitate the mediation of different forms of knowledge and action.

In Chapter 7 on "Developing the Mediated Basis of Learning," aspects of the mediated conceptions of learning are explored: mediation as dialogue, as activity, as situated participation and expansive learning. Several writers' contributions to these aspects are discussed, mainly, Aleksei Leont'ev, James Wertsch, Jean Lave and Etienne Wenger, and Yrjö Engeström. The chapter also shows that these post-Vygotskians' distinction between 'mediation by activity' and 'semiotic mediation' allows the explicit

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introduction of the role of objects, practices and discourses into the understanding of mediation. It allows identifying a number of ways in which practice can develop, thus making a connection between mediation and epistemic cultures. Vygotsky's mediation triangle is located by Engeström in relation to the components of collective activity – community, rules and division of labour. Besides Vygotsky's conceptual restructuring, three more key facets of mediation are identified as repositioning, recontextualisation and reconfiguration. Three expressions of the development of activity or practice are also identified: Lave and Wenger's evolutionary notion, Knorr-Cetina's notion of lateral branching and Engeström's transformatory notion (expansive learning). The chapter concludes that post-Vygotskians have not considered Vygotsky's concern for the central role of reason in cultural mediation.

Chapter 8 on "Thinking Differently about Mediation by Activity and Semiotic Mediation," discusses the epistemological and ontological issues addressed by three philosophers – Evald Ilyenkov, John McDowell and Robert Brandom. Using McDowell and Brandom's concept of the 'space of reasons', it argues for a unified view of mediation by activity and semiotic mediation. It also studies its implications for the four facets of mediation and the three ways that activity can develop.

Learning is conceived as a process of understanding our mediated relation to the world, and thinking and acting to remediate (re-mediate) that relation. This is elaborated in Chapter 9, titled "Learning as Remediation". This new conception of learning is based on understanding the iterative relation between concepts, reason and action and it is discussed in the chapter through exploration of relation between the expressions of mediated learning (four facets) and three modes of development of activity (evolve, laterally branch, transform). Importantly, it establishes the constant presence of the explicit and implicit dimensions of mediation – "that our embodied and articulated actions are both conceptually structured capabilities that are exercised in different ways from one another, rather than radically different kinds of capabilities born of different kinds of engagement with the world." Several examples of workplace practice used to illustrate the dimensions of mediation enrich the chapter.

In the last chapter titled "The New Learning Challenge of the Knowledge Economy", the author shows why the concepts of mediation, object, reason and action are central to reformulating PVWL to address the learning challenge of the knowledge economy, and how these are different from current practice based on ideas of

adaptation, reflection and qualification. The chapter also highlights the problems of making the shift from current practice to a reformulated one.

The author has used interpretations of Knorr-Cetina's ideas of epistemic cultures, elaboration and extension of Vygotsky's theory of cultural mediation, and McDowell and Brandom's ideas about reason and action to present a very different conception of the learning challenge of the knowledge economy. This new conception is based on (i) a philosophical position on the relation between different forms of knowledge and the criteria for mediating between them (knowledge embedded in practice); (ii) a sociological position that explains why epistemic cultures and practices are central to the understanding of knowledge and activity; and (iii) a pedagogic position that explains why learning can require one to engage with the three core concerns of the book.

In an interesting 'Afterword', the author responds to the breakthroughs made in neuroscience and clarifies why it is a mistake to define the learning challenge, as some writers do, merely as the education of the brain rather than of people. He argues that the insights from neuroscience are unlikely to help address the core concerns related to PVWL discussed through the book.

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