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E-LEARNING PARADIGMS AND THE DEVELOPMENT OF E-LEARNING STRATEGY

Abstract: The e-learning area is characterized by a magnitude of different products, systems and approaches. The variations can also be observed in differences in the views and notions of e-learning among business people, researchers and journalists. This article attempts to disentangle the area by using economic and sociological theories, the theories of marketing management and strategy as well as practical experience gained by the author while working with leading edge suppliers of e-learning. On this basis, a distinction between knowledge creation e-learning and knowledge transfer e-learning is outlined. In so doing, the existence of a huge gap between the practice and ideas of leading edge suppliers and several mainstream notions in business and academia is identified. The various views are divided into four different ideal-typical paradigms, each with its own characteristics and limitations. The selection of which paradigm to use in the development of an e-learning strategy may prove crucial for success. Implications for the development of an e-learning strategy in businesses and learning institutions are outlined.

INTRODUCTION

E-learning, which has become one of the buzzwords of the early 21st century, has usually been understood to mean learning by electronic means, but this definition is very broad and signifies different things for different firms and people. Thus the e-learning label has been pinned on everything from off-line learning software to advanced on-line learning in virtual learning spaces.

Correspondingly, all possible notions and ideas on e-learning have thrived among suppliers and buyers, of which the same can be said when looking at the press coverage and the academic treatment of e-learning. If the area appears multi-faceted to academics, it is fair to say that it must seem somewhat chaotic to decision-makers, who in the end, may have little to gain from consultants with a vested interest in selling their particular products.

This article maintains that while ideas, notions and products are subject to great variation, this variation still follows certain systematic and ordered patterns. The thus observed order can be used to disentangle the e-learning area and identify several possible avenues of development. By implication, the development of a successful e-learning strategy in schools of higher and lower learning as well as in corporations and society at large can be facilitated.

Much of the research on e-learning is predominantly inspired by theories of communication, organization, pedagogy and by developments in information technology. This article, in contrast, draws its inspiration from theories of economics and sociology, the theory of marketing management and strategy, and especially from this authors practical work with the development of e-learning systems and processes (for example, as described in Pettersson et al., 2002; Duus and Ehlers, 2004).

Following the introduction, this article proceeds with some conceptual and methodological considerations as to how e-learning should be researched, and how the area¹ can be subdivided and understood. Based on this, references to the area in corporate communication, in the press and in academia are evaluated. Subsequently, a sociological model is developed for the subdivision of the area into four different ideal-typical paradigms. The differences, similarities, possibilities and limitations of each paradigm are identified and used to evaluate the potential of each paradigm. To conclude, strategic implications for firms, learning institutions and society are developed and outlined.

METHODOLOGICAL CONSIDERATIONS AND CONCEPTUAL SUBDIVISIONS

What is meant by e-learning and how should the area be researched? Recent years have witnessed several attempts by scholars, analysts and journalists to describe and analyze the area of e-learning to create some order, structure or overview. In spite of having treated numerous cases and examples, most of these attempts have failed to meet their purpose. One reason is that most such attempts can be classified in one of the three following categories, each of which presents a rather limited view on e-learning:

- a) The technological category, which contains descriptive technology-based listings of various forms of e-learning hardware and software solutions.
- b) The business category, which contains generalized and somewhat superficial analyses of what is usually referred to as the e-learning industry or the e-learning market.
- c) The pedagogical category, which contains descriptions of learning styles and considerations on how to teach using e-learning.

¹ The term “area” is used deliberately since, as I will show, several different industries and markets exist within the e-learning area, and not simply one industry or one market, as is commonly believed.

Apart from taking a rather limited view on e-learning resulting from the specific angle associated with each category, most studies also suffer from a number of methodological problems. Among the most common are:

- a) *The fallacy of transferable competence*: A belief that traditional pedagogical/communicative knowledge and competence commonly used in non-virtual settings is immediately transferable to the more virtual settings of the e-learning area. Belief in this fallacy is not limited to practitioners favoring ex cathedra learning styles, but extends even to academics favoring advanced learning models of the constructivist problem-oriented sort. What is not realized by many researchers that favor a theoretical approach to e-learning is that even the nature of problem-oriented and/or project-oriented learning changes dramatically in virtual settings².
- b) *The fallacy of missing homogeneity*: The use of questionnaire surveys on a large sample of suppliers and customers. Here the problem arises because respondents do not have the homogeneity necessary to ensure that such surveys attain relevant practical or scientific value. For example, the results of a survey asking companies about their use of e-learning is worthless if strategic, tactical and operational purposes, hardware, software, target group and learning goals etc. vary from company to company³.
- c) *The fallacy of marketing myopia*: Quantitative studies of market size and growth using supply rather than demand considerations. Most analyses of the e-learning “market” suffer from classic marketing myopia mistakes, since the developments in supply are analyzed rather than the development in demand, needs and customer groups. The focus is on either aggregated sales development in e-learning firms or it is on the total realized ex post use of e-learning (Levitt, 1960; Abell, 1980, 1993; Duus, 2002). Both cases are examples of supply considerations. Consequentially, most analyses of the e-learning “market” are of limited value⁴.

² This fallacy is most often seen among proponents and suppliers following what later in this article will be called “the pedagogical paradigm”. Most e-learning projects that have failed to achieve the objectives of instituting a culture of learning rather than teaching can be cited as examples of this fallacy.

³ This fallacy is most often seen among proponents and suppliers following what later in this article will be called “the technological paradigm”. One example is an investigation by the consulting firm Forrester, who claimed that e-learning users had extreme dropout and failure rates (Ørskov, 2000). However, experience and data from users and suppliers of advanced e-learning solutions told a different story.

⁴ A much cited analysis that can serve as an example, is that of Urda & Weggen (2000).

- d) *The fallacy of the missing forefront*: No targeting of top-ranking suppliers in cross-case studies. While several cross-case studies of suppliers do exist, none of them seem to have targeted top-ranking suppliers. Consequently, no cross-case research into what actually constitutes best practice exists, and thus no reliable studies of the “in search of excellence” kind. For example, as elaborated later in this article, no cross-case studies describing suppliers using a “knowledge creation” approach rather than a simple “knowledge transfer” approach exist⁵.
- e) *The fallacy of pure theory*: Disregard of the fact that e-learning is a practice-oriented area of research and development comparable to areas such as surgery, anthropology and management. The reason is that a lot of tacit knowledge is necessary in developing e-learning systems and processes. Analogously, a surgeon must have years of practical experience to achieve true competence and knowledge within his field and areas like anthropology and management rest accordingly on a solid foundation of action research, real-world field studies and real-world case research (Spender, 1994; Gummesson, 2000). According to this authors practical experience with developing, executing and evaluating e-learning processes, the influence of consultants and academics lacking in practical experience with e-learning is the main reason why the development of e-learning is slowed considerably in many companies and learning institutions (Duus, 2002). It is probably not even possible to analyze the economics and the strategies of e-learning without hands-on experience.

For these reasons, a sensible research approach to the area of e-learning should include action research among forefront suppliers combined with an angle that rests neither exclusively on pedagogy, technology and communication studies nor on simple superficial market studies.

Since e-learning solutions are produced by someone (the suppliers) and are in demand by others (buyers or users), an economic point of view may prove useful, especially in regard to achieving a correct picture of the industries and markets within the area. Received economic theory states that two different (only partially complementary) ways of defining industries exist as well as two complementary ways of defining markets.

⁵ The otherwise splendid cross-case analysis by Hansen & Borup (2001), which can serve as an example, attempts to present top-ranking suppliers, but fails to identify the position of those in the forefront at that time.

The Porterian industry definition posits that an industry is a group of firms that produces products that are close substitutes (Porter, 1980), whereas the Abellian definition defines an industry as a group of firms that share identical supply characteristics (in the form of technology, knowledge and competence) that potentially may satisfy several distinct customer groups and their needs (Abell, 1980, 1993)⁶.

Correspondingly, the classic market definition states that a market consists of products that are close substitutes (Rasmussen, 1977). This is accordance with the more complex Abellian market definition, which defines the market by the distinct needs of a specific customer group. These needs may potentially be satisfied by different firm-specific bundles of knowledge, competencies and technology (Abell, 1980, 1993).

Briefly expressed, a market and an industry are two very different concepts that mirror one another. An industry, which is defined by its supply characteristics, is open-ended on the demand side. A market is defined, on the other hand, by its demand characteristics and is open-ended on the supply side.

If the tools of economic theory are applied to the area of e-learning, it becomes clear that it is meaningless to talk about one single e-learning market. Rather the area consists of literally thousands of smaller markets, depending on how many customer groups and adjacent needs can be defined.

Accordingly, more than one e-learning industry must be defined depending on the distribution of competencies and knowledge. Industry definitions may be conceived along the lines of a

⁶ The Abellian definition is superior to the Porterian for several reasons. The Porterian definition posits that the industry consists of those firms, which share the same market. This implies a close connection between the market and the industry, and by further implication quite a bit of closed-loop thinking. In contrast to the Abellian definition, the Porterian industry definition consequently does a poorer job handling differing needs, wants, customers, competencies, technologies and knowledge, all of which can inspire dynamic and entrepreneurial thinking to transcend the existing competitive situation. Thus, according to the Porterian definition, a firm, which is equipped with superior competencies, knowledge, and technology, faces the same competitive situation as less well-equipped firms. The Abellian definition, in contrast, recognizes that superior firms are in a class of their own (Pralahad & Hamel, 1990). Taken to the extreme, the Abellian position is open to the possibility that an industry may consist of only one unique firm possessing superior characteristics, as is found in the economic theories of Schumpeter, Penrose, Kirzner and their followers. In general, the Abellian view on competition is in better accordance with economic theories focusing on economic change, innovation, resources, knowledge and competencies (see, for example, Duus, 1997). Also, modern strategy theories such as Kim and Mauborgne's (2005) "blue ocean theory" are in complete accordance with the Abellian view. This critique of the Porterian view can be upheld despite the fact that the Porterian view has changed considerably over time (de Man, 1994).

functional subdivision depending on what the e-learning delivery systems “do” and are potentially capable of. The premise here is that such a functional subdivision reflects underlying differences in competence and knowledge.

Within the last decade, such a functional subdivision has emerged in the distinction between knowledge creation e-learning and knowledge transfer e-learning (Pettersson, 2002).

Knowledge creation e-learning is characterized by providing learners with the ability to learn by creating their own knowledge and by targeting selected target groups with high quality solutions and processes. In practice, this is achieved using online asynchronous problem-oriented learning through highly intense, multiple, person-to-person dialogs in closed virtual learning spaces. Knowledge creation e-learning is also characterized by being very capital-intensive and by suppliers following a differentiation strategy leading to high profit margins (Selling and Stickney, 1989).

Since 1997, the approach has disproved several common e-learning myths on what can be achieved by e-learning. For example, participant evaluations have shown that even purely virtual knowledge creation e-learning is rated better on all accounts, not just when compared to traditional chalk-and-talk teaching, but also when compared to blended knowledge creation e-learning. The academic level is higher, allowing participants to reach higher levels on the Bloom (1956) scale. Because of the intense dialog, participants even state that they do not miss the social interaction found in physical settings (Duus, 2000a, 2000b, 2001, 2002; Smith and Duus, 2001; Duus and Ehlers, 2002; Duus, 2003; Duus and Ehlers, 2004).

By contrast, knowledge transfer e-learning is more in line with mainstream notions of how e-learning should be practiced. Knowledge transfer e-learning, which is what more than 95% of all suppliers do, accordingly gets the majority of attention from the press and in academic research. Knowledge transfer e-learning is comprised of all the e-learning products, solutions and processes that focus on the simple transfer of given knowledge to learners. Suppliers typically follow a cost minimization strategy with a low profit margin on products and solutions (Selling and Stickney, 1989). The marketing of knowledge transfer e-learning suppliers tends to stress the savings in cost and time incurred by companies, learning institutions and persons that buy and use this form of e-learning (Duus, 2002).

Following the Abellian approach to the definition of industry, two distinct e-learning industries may be said to exist: the knowledge creation e-learning industry and the knowledge transfer e-learning industry. This distinction, which reflects underlying differences in knowledge and competence, is readily visible based on a number of characteristics depicted in Figure 1⁷.

⁷ The term “knowledge creation e-learning”, first proposed by Michael Petterson (personal communication) in the year 2000, has gained the status of a standard term. However, it reflects development work carried out by various researchers throughout the nineties. The terms “knowledge creation e-learning” and “knowledge transfer e-learning” are in full accordance respectively with earlier uses of the terms “high-end e-learning” and “low-end e-learning” by Duus (2000a, 2000b, 2001, 2002). Knowledge creation in this sense differs from the use of the term in the research literature on knowledge creation (see, for example, Nonaka & Takeuchi (1995)) in that it focuses on knowledge creation in virtual networks, has a practical slant due to being developed under mode 2 conditions (Gibbons et al, 1994) and its use of action research as proposed by Baskerville & Wood-Harper (1996a, 1996b), Itoh (1996) and Gummesson (2000). The distinction between knowledge creation e-learning and knowledge transfer e-learning can be criticised for not being rock solid in a rare number of instances where knowledge transfer e-learning can lead to knowledge creation e-learning, and where knowledge creation e-learning delivery systems make use of knowledge transfer e-learning systems. However, in the first instance, knowledge creation does not happen during the actual use of knowledge transfer systems, but much later. In the latter instance, knowledge creation e-learning can be seen as an extension of knowledge transfer e-learning, i.e. as the next (r) evolutionary leap forward. Thus, the relevance of this distinction remains valid.

FIGURE 1: THE DIFFERENCE BETWEEN KNOWLEDGE CREATION E-LEARNING AND KNOWLEDGE TRANSFER E-LEARNING (FOLLOWING DUUS (2002)).

Characteristics	Knowledge transfer e-learning	Knowledge creation e-learning
Pedagogical objective	Transfer of knowledge and information via ICT as a simple means of delivery	Creation of new knowledge via creative use of ICT
Competitive strategy	Volume-based, low-capital intensive production of e-learning with low profit margins.	Capital intensive, highly profitable production of e-learning for a selected target group.
Competitive edge.	Cost reductions as compared to traditional education and instruction.	Differentiation from other e-learning products. Virtual value network development.
Marketing	Aggressive mass marketing. "Inexpensiveness" argument.	Relationship marketing. "Quality" argument.
Practical characteristics	Off-line/on-line, synchronous/asynchronous, non-problem-oriented, low interactive learning.	On-line, global 1-to-1 omnipresence, asynchronous, problem-oriented, dialogue-oriented, time/place/pace-principle.
External appearance	Uploading of documents on the net, off-line learning technology, chat, simple dialog strings in networks.	Closed hyper flexible intra- and extranets, supporting all types of communication – typically asynchronous forms, though.
Innovation areas	Primarily technological innovation, only marginally in non-technological areas.	Significant innovation in content, technology, administration, organizational culture, pedagogy, finance, and all other imaginable areas.
Coverage	Very popular. Mainstream approach.	Not known by many.
Application areas	Education and training exclusively.	All types of learning – such as research, development, education, training, consulting and project work.
Pure examples	Widely spread among learning technology companies and numerous suppliers of e-education. Often erroneously made synonymous with e-learning. More than 95% of all press coverage and academic research on e-learning has so far dealt with knowledge transfer e-learning.	Center of Market Economics CME-model as practiced in the HD (A/U) and HD (FR) programs. The E-MISE education of the A.P. Møller-Maersk Group that have been developed along the lines of the CME-model. Center for Innovation and Entrepreneurship (the Kubusnet system). The Danish Insurance Academy (the Team Program) Closed electronic networks for R & D and management communication in major companies (for example, the Siemens ShareNet system or Shell's SIEP).

Three further aspects of knowledge creation e-learning deserve specific mention. While most examples of knowledge transfer e-learning are found in either learning institutions such as universities or in companies buying or selling learning technology, it is peculiar that knowledge creation e-learning in most cases seems to involve a trans-disciplinary cooperation between learning institutions and business firms similar to that found in mode 2 research settings as described by Gibbons, et al. (1994).

Another characteristic is the practice-based development associated with knowledge creation e-learning. While many academic suppliers of knowledge transfer e-learning pride themselves on solutions based on the latest theoretical advances in pedagogical research, knowledge creation e-learning suppliers instead pursue development using experimental and experiential means. The latter “action research” approach is completely logical given that e-learning development involves the development of methodologies and systems dealing with the actions and reactions of human beings (Baskerville & Wood-Harper, 1996a, 1996b; Itoh, 1996; Gummesson, 2000). Thus, it cannot be pursued without the development and utilization of tacit knowledge (Polanyi, 1966; Nonaka & Takeuchi, 1995)⁸.

The third aspect is perhaps the most staggering. Knowledge transfer e-learning clearly embodies what may readily be labeled the mainstream approach, whereas knowledge creation e-learning is superior and more advanced on a wide number of accounts. The observed differences thus imply *that the most advanced forms of e-learning are non-existent and are not even associated with what can be labeled as the mainstream approach to e-learning and that leading edge suppliers do not follow the mainstream.*

THE APPEAREANCE OF THE AREA OF E-LEARNING IN THE PRESS AND IN ACADEMIC CIRCLES

The observed differences between knowledge transfer e-learning and knowledge creation e-learning allow us to underline a problematic characteristic of the treatment of the e-learning area in the press and in academic publications. The problem is that knowledge transfer e-learning has been given very extensive coverage at the expense of knowledge creation e-learning. As evident

⁸ “We suggest that action research, as a research method in the study of human methods, is the most scientifically legitimate approach available. Indeed, where a specific new methodology or an improvement to methodologies is being studied, the action research method may be the only relevant research method presently available.” (Baskerville & Wood-Harper, 1996a p. 240).

from the above discussion, this coverage has extended even to the point where the knowledge transfer approach has been identified as the mainstream or even the only possible form of e-learning.

Most examples of knowledge creation e-learning can be found in Denmark. This may be due to the unique tradition for Grundtvigian pedagogy and communication and the high level of the use of information and communication technology (ICT) that exist there. Thus, the discussion in academic circles and in the press in Denmark can be taken as an indication of how knowledge creation e-learning has been treated in a wider context.

An example in point, Kinch & Leinenbach (2003) did a study for the EU commission charting the development of the e-learning area in Denmark. The study revealed that due to its unique pedagogical tradition and its high level of ICT use, Denmark was on the way to becoming the world's leading e-learning nation. Knowledge creation e-learning would fit well into this tradition and its further development. However, Kinch & Leinenbach (2003) failed to identify the approach and its suppliers. Their identification and description of key players numbering in the hundreds contained not one supplier of knowledge creation e-learning. This is even more staggering considering the fact that some of the largest suppliers of e-learning in Denmark (counted by the number of students enrolled) use this approach.

Similarly, key studies like Johansen & Terkelsen's (2001) on corporate e-learning strategy development and Elkjær & Olsen's (2001) comparative studies on the use of e-learning, ignore knowledge creation e-learning and are limited to knowledge transfer e-learning. The cross-case study of advanced e-learning solutions by Hansen & Borup (2001) has but one example of knowledge creation e-learning out of a larger sample and it is not identified as a distinct approach. The advanced and theoretically ambitious treatment by Dirckinck-Holmfeld & Fibiger (2002) makes a case for their concept of Computer Supported Collaborative Learning, which resembles knowledge creation e-learning on some accounts. However, the general approach and their conclusions are limited to being within the knowledge transfer e-learning approach.

The above examples are by no means extreme, but rather representative of the treatment of e-learning in academia. A general characteristic of e-learning research and the debate on e-learning seems to be that investigations, descriptions and research have most often been broad and

comprehensive, rather than extensive in-depth studies of leading edge suppliers. The main impression is that the previously mentioned three categorical biases and the five methodological fallacies abound.

Marketing efforts by e-learning companies and treatment of the area in the press have mainly reflected this. In the last part of the nineties and the first few years of the new millennium, companies producing and selling learning technology kept referring to themselves in highfalutin terms that were far from reality and several supposed e-learning experts “lectured” in the media with little or no real knowledge of the topic⁹.

IDEAL TYPES AND THE CONSTRUCTION OF MEANING

Why have the bulk of companies and supposed e-learning experts produced such exaggerated or one-sided statements? Several explanations exist. One possible explanation is the hype which seems to be an integral part of most growth phenomena in economics and which certainly played a part in the dot.com boom of the late nineties. The downturn in the first few years of this millennium has, however, only reduced the frequency of such fallacious statements.

Economic distress can be a more valid explanation for at least some of the one-sidedness and the exaggerations produced. Most knowledge-transfer e-learning companies have faced a situation where a low profit margin has provoked a volume-based strategy accommodated by very aggressive and opportunistic marketing efforts (Selling & Stickney, 1989; Duus, 2002). It is quite understandable that most e-learning firms has fared badly when one considers the pressure created by a low profit margin in combination with a faulty understanding of market conditions.¹⁰

⁹ Jacobsen (2002) gives an exact and precise description of the situation experienced by many: *“During this period the medias frequently printed articles, interviews and opinion pieces on e-learning and virtual teaching. Being in the midst of a practical application of the aforementioned, this was a curious experience. Few if any of the people, sounding off on the subject, had ever spent an hour teaching virtually. It is a demanding craft, requiring a hefty investment in hours devoted as well as money spent”* (Jacobsen, 2002 p. 183).

¹⁰ According to the Abellian analytical framework, most so-called “e-learning firms” are just producers of learning technology. They are in fact nothing more than suppliers of ICT to buyers and users of e-learning, implying that they have been unable to appropriate the huge profits expected from e-learning. In spite of numerous projections of excessive market growth, the dot.com crises has hit the so-called “e-learning firms” just as hard as most other ICT-firms. Real e-learning firms can be identified as larger companies and academic centers with their own educational programs. The profits expected from e-learning have by and large been realized as gains in innovation and efficiency in these entities.

Presenting the last part of the puzzle, another explanation may be simple ignorance combined with an opportunistic search for academic merit. Many experts with knowledge and competence in traditional pedagogy, learning and communication have been able to secure a lot of attention and recognition without having much concrete practical experience with e-learning. This tendency seems to have been reinforced by an insufficient recognition of the fact that e-learning is a new kind of learning where traditional pedagogical competence and knowledge is of limited use only (Duus, 2002; Duus & Ehlers, 2002; Jacobsen, 2002; Duus & Ehlers, 2004). This was earlier referred to as the fallacy of transferable competence.

In general, it seems that ignorance created by the joint effect of investigative bias, methodological fallacies, academic and/or economic opportunism and lack of practical experience with the subject is a highly probable reason for the observed slow implementation of e-learning in many companies and learning institutions¹¹. However, a more detailed explanation can probably be created by an attempt to understand the motives of various e-learning actors (i.e. suppliers and researchers) through the use of ideal-type methodology. This implies that the subjectively held ideas, attitudes, opinions and notions of the various actors are seen as mirroring observed actions in the area.

This points to the method of “understanding”, the objective being to analyze subjective motives for action by letting researchers put themselves in the position of the acting individual (Weber, 1949)¹². The premise is that acting individuals (as human beings) ascribe a subjective meaning to their actions by an implicit or explicit reasoning regarding the cause of their actions. According to this view, human beings are seen as genuinely creative individuals interpreting their social reality and acting creatively within it. Empirical observations of human action can thus be systematized along ideas, notions and attitudes. Differently expressed, human action is evaluated in the light of the goal-orientation of the individual (Kalberg, 1994).

¹¹ The conditions within the e-learning area are probably not worse than those within other areas. Hogan (2005) presents the argument, that scientific rigor and objectivity is the rule in day-to-day data collection and analysis, but that simple politics, opportunism and the conscious ignoring of facts play the lead role in the choice of theory and paradigms. These problems extend even to the domains of the natural sciences.

¹² This research method is thus derived from Weberian sociology. It could not be any different, since the goal of this article is to identify a systematic pattern in subjective choices and resulting empirical forms of expression. It could follow other traditions within sociology, but in order to be consistent with the chosen problem, it serves no purpose to see e-learning development as being rational-contractual (Tönnierism), evolutionary (Spencerism), governed by coincidence, specialization or differentiation (Dürkheimism) or governed by materialist-historical forces (Marxism).

This research method, which is different from most other approaches, follows neither the purely materialist/positivist position of quantification and representative populations, nor the subjectivist position of focusing on individuals and single cases. Briefly expressed, it is based on neither statistics nor cases. It is, in contrast to the above positions, a method focusing on (the) typical instance(s) or representation(s) based on subjectively meaningful ideas, which can be ascribed to them within a frame of methodological individualism (Kalberg, 1994; Rangstrup, 2000).

Larger sets of subjective meanings will, of course, exist and can accordingly be ordered in what Weber (1949) calls ideal-types. Ideal-types are pure types of the subjective motives of human beings and rationalizations of actions, which may or may not correspond to single empirical cases. Ideal-types are neither attempts to construct an extensive description of reality nor attempts to introduce theories or law-like generalizations. Ideal-types are solely attempts to create yardsticks by which to assess reality (Kalberg, 1994).

Use of the ideal-typical method must thus proceed with some qualifications. While the idea is to create a general classification on the basis of observations of factual empirical conditions, it is not implied that it is possible to reverse the analysis, claiming that some specific firms and individuals possess these characteristics in full. Ideal-types is a way to structure reality in its total complexity by accentuating certain typical aspects in their pure form, but ideal-types cannot be found in their pure form in reality. While they are not thought of as real firms, individuals or instances, an approximation to real forms nevertheless can be found by combining features from the ideal-types or by pointing nearly perfect matches.

Ideal-types are often used in strategic and economic literature. Their use is, however, so frequent that they are often not referred to as ideal-types. Some examples are, Porter's (1980) generic strategies, Galtung's (1981) classification of researchers and their methodological dependence on culture, Mintzberg's (1983) classification of organizational forms, Mintzberg, Ahlstrand & Lampel's (1998) classification of strategy theories, Sundbo's (2001) classification of innovation theories and Hougaard & Bjerre's (2002) classification of relational strategies.

FOUR E-LEARNING PARADIGMS

A bird's eye view of the e-learning area enables us to represent an ideal-type classification with two dimensions: the degree of business orientation and the degree of learning orientation.

Business orientation is to be seen here as the opposite of a traditional academic orientation. The traditional academic system (i.e. research and teaching in schools of higher learning) has its mirror opponent in the still faster development of recent years that takes part in the business sector, where the advent of e-learning, global competition, mass individualization, mass customization and the new status of private firms as mode 2 knowledge producers are exerting pressure on the existing system (Cova & Haliburton, 1993; Gibbons et al., 1994; Angell, 2000). By this, it is implied that a substantial part of all knowledge production today takes part in trans-disciplinary ventures outside of the traditional academic system, and that many knowledge producers in the academic sector face the demand for action and adaptation, making it reasonable to ascertain that a process of “creative destruction” is going on (Schumpeter, 1983).

Business orientation should, however, not be interpreted as a quality possessed only by actors outside of the traditional academic system. Rather, it should be interpreted as a counterpart to the traditional academic system, where mono-disciplinary mode 1 knowledge exclusively in the form of publications is produced (Duus & Jørgensen, 2004). Thus, business orientation reflects merely the degree to which knowledge is produced according to the needs and wants of business.

Learning orientation is accordingly the natural counterpart to what can be called teaching orientation. It is thus possible to create a spectrum of pedagogical objectives ranging from teaching to learning by following the taxonomy of levels of understanding created by Bloom (1956) or by seeing learning as the counterpart of teaching (Illeris, 2002)¹³.

¹³ Many suppliers focusing on learning rather than teaching seem to follow several varieties of constructivism (for example, the programs and models developed by Piaget or Vygotsky). It may thus be possible to see the degree of learning orientation as expressive of an implicit constructivist mental framework. This connection is far from unambiguous since knowledge creation suppliers tend to use a mix of constructivism and realism, where the existence of an “out there reality” is maintained, while at the same time participants are encouraged to do a creative search for problems and solutions.

If paradigm is defined in a wider sense than the somewhat constrained use by Kuhn (1962), and is instead used in the more commonplace sense of a worldview, then the following model (see Figure 2) applies:

FIGURE 2: THE FOUR E-LEARNING PARADIGMS.

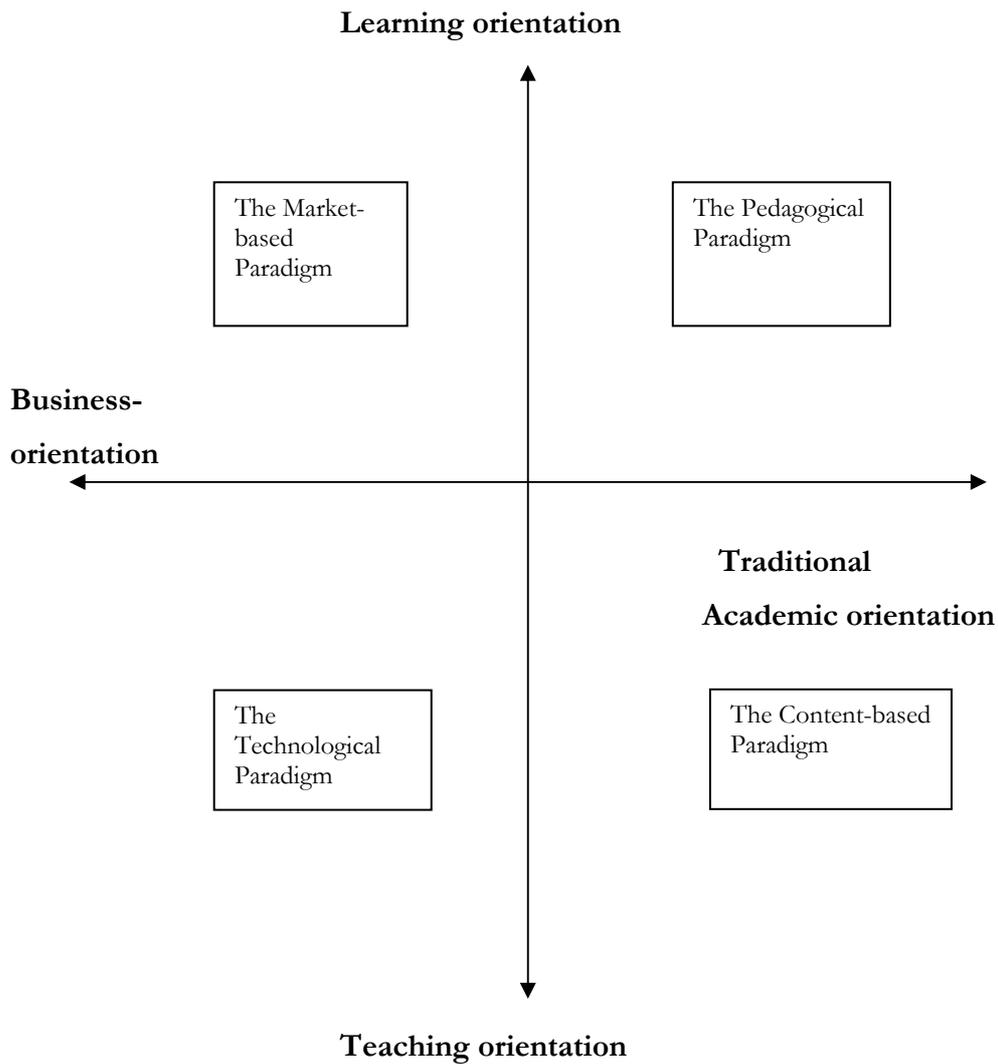


Figure 2 depicts four basic ideal-typical paradigms that find empirical expression in four different interest groups and four corresponding worldviews from which four different strategies for the development of e-learning can be derived.

THE TECHNOLOGICAL PARADIGM

The technological paradigm views first and foremost e-learning as a technological challenge and e-learning development is mainly seen as driven by technology. Typical representatives of this paradigm are to be found in the many so-called e-learning firms. Most examples exist in the business sector, but a few are to be found in the academic sector.

These firms are in general a product of the traditional ICT sector, which grew to fame in the last decade of the previous millennium. The typical background of their employees, managers and investors are derived from the ICT-sector. Products often include software programs, networks, multimedia and portals for e-learning. Some suppliers have specialized in off-line products exclusively. Basically, producers are doing their business immersed in technology, the typical unique selling proposition being educational cost savings.

Individuals and firms following this technological paradigm will likely ascribe themselves qualities like market orientation and pedagogical orientation. This may be true in a select few cases; however, the probability of occurrence of the said qualities diminishes rapidly, the more of the following characteristics are found to be true.

1. **Business cycle sensitivity:** Most firms follow the up and down turns of the ICT-sector.
2. **ICT-background:** The cultural heritage of these firms is derived from the ICT-sector.
3. **Cost savings as a competitive unique selling proposition:** Products are marketed on the explicit premise that they enable cost savings on the educational budget while upholding learning quality, indicating that such firms are not market oriented, but instead follow what is commonly understood as product or production orientation¹⁴.
4. **Low complexity products:** Products are of low complexity, like e-courses in personal computing and the like. Focus is first and foremost on training and teaching and not on learning and creative problem solving.
5. **Technology is used for transmission:** Products are characterized by the attempt to transfer traditional pedagogy and academic/professional content by electronic means.

¹⁴ Production orientation implies the use of an inexpensiveness argument. Product orientation implies the use of a quality argument. Market orientation (not to be confused with marketing orientation or the marketing concept) is a varying characteristic of all firms. Even quite product or production oriented firms are market oriented – albeit not to a high degree. See Duus (1997) for an overview of the various company orientations toward the market place.

Examples are to be found in the many products that use some form of screen-based transfer. Synchronous communication may be preferred to asynchronous. A classical example is the video transmission of lectures directly to the personal computer of the recipient¹⁵.

If just one of the above five characteristics holds true for a supplier, it is highly improbable that we are dealing with a high degree of market orientation. However, it should be underlined that no claims are made as to whether representatives of the technological paradigm are unable to make money from their activities. In fact, some proponents of the technological paradigm have been known to make a profit. But, as mentioned earlier, since most of the firms claiming to be in the e-learning business are nothing but producers of learning technology, they have mostly faced the same difficulties as ordinary ICT-firms. By and large, the market has been a buyer's market, with profits being realized as gains in efficiency and innovation in larger firms with their own educational programs¹⁶.

THE CONTENT-BASED PARADIGM

The content-based paradigm views e-learning as a kind of electronic correspondence college or as an opportunity to “electrify” or “e-ase” traditional chalk-and-talk teaching. Traditional thinking in content and pedagogy is not abandoned and no educational re-design on the basis of pedagogical innovation and adaptation to the demands of markets and business are attempted. E-learning is seen exclusively as applicable to education and not as an opportunity for innovation in other forms of learning¹⁷.

Representatives and proponents of the content-based paradigm can be found in the many educational institutions, which implemented e-learning without taking advantage of the inter-

¹⁵ The University of Aalborg is an example of an academic supplier that has chosen this solution (Carstensen, 2000). It is astounding that many companies and trend researchers have opined that such a primitive approach is the road ahead for e-learning. An example is found in Aldrich's (2000) highly acclaimed paper, which pleads for the development of improved technology-based *transfer of existing* content and pedagogy.

¹⁶ An observation that should come as no surprise is that in-house development in larger firms and university institutions are often considerably more inexpensive and better tuned to users needs than solutions and programs developed on the outside. Examples exist of “e-learning firms” (i.e. learning technology firms) charging more than 80,000 Euros for products and services whose equivalents could have easily been developed in-house with a few days work performed by existing personnel. Generally speaking, the competence of e-learning firms is highly overrated.

¹⁷ As previously mentioned (see Figure 1), a knowledge creation e-learning solution implies more areas of application than education alone.

activity made possible by modern technology. Competition is based on price and cost savings, which are easily achieved once inter-activity is sacrificed¹⁸.

The practical implementation is characterized by the uploading of documents, movies and exams to intranets and by enabling a limited amount of inter-activity in the form of chat-rooms and other virtual Q & A features that are nothing but an intranet variety of emails.

At the time of writing, it remains unclear how representatives of the content-based paradigm will do in future competition, but there is no doubt that they have a certain strong appeal to individuals looking for inexpensive education. A pertinent question is whether political decision-makers in the long run will accept solutions of low quality provided by institutions following the content-based paradigm. It is, though, probable that society in the future will see a highly diverse educational supply, some of which will be e-education with the characteristics of a diploma mill.

A critical question is also whether larger academic institutions will accept several highly diverse delivery systems within their organization. It is not an optimal intra-organizational situation to have delivery systems that span the full spectrum from the best to the worst. However, variations in personal and intra-institutional competencies may necessitate a certain tolerance that is untenable in the long run.

THE PEDAGOGICAL PARADIGM

The pedagogical paradigm is based on the premises that it is to some extent possible to transfer existing pedagogical knowledge and competence to the new e-learning reality and that pedagogy must be the directive and guiding factor in the development of e-learning, notwithstanding that this could imply ignoring demands and constraints imposed by content, technology and/or markets/businesses.

The typical representatives of this paradigm are found among academic researchers and teachers within pedagogy, communication, organization and management theory. The paradigm's core beliefs are to a major extent equivalent to the dominant research streams within e-learning.

¹⁸ Several institutions working within this paradigm have even used the lack of inter-activity in their advertising. A testimonial on the homepage of one of the largest institutions had a student claiming that the program could be recommended because students were not distracted and burdened by dialog.

An important characteristic that is shared between the pedagogical paradigm and the content-based paradigm is the point of departure of the traditional educational system. However, where the content-based paradigm tries to utilize new technology to create an electronic correspondence school, the pedagogical paradigm takes a distinct reformist stance in trying to implement new ideas on pedagogy.

Because of this, proponents of the pedagogical paradigm tend to view their ideas and actions as progressive and themselves as a kind of avant-garde. This stance is, however, far from validated when business demands, political reform pressure, the general development of e-learning and the possibilities for using e-learning for means other than teaching, are taken into account. The “optics” of the pedagogical paradigm is comprised of four lenses, including the public sector, university institutions, the existing educational system and pedagogy.

These distinct lenses define massive limitations on the possible practical use of the paradigm. An immediate look at the paradigm would tend to show it as progressive characteristic that it attempts to implement a learning pedagogy as distinct from a teaching pedagogy. However, the “optics” implies a number of problems by their implicit and sometimes explicit non-consideration of a possible gap between business and market demands on the one hand and the existing academic/professional content on the other.

The need is hereby ignored for having a basis in real-world business problems in order to attempt a radical redesign of academic/professional content, pedagogy and the administrative/economic conditions integral in the delivery system¹⁹. This ignorance implies that the pedagogical paradigm, similar to the content-based paradigm, views e-learning as an educational challenge only, thereby ignoring the considerable potential in using e-learning in other areas of learning, as for example, in research, development, consulting, and project management.

Of all the e-learning paradigms, the pedagogical paradigm is the most distant from practical application. Contrasted with the other paradigms, it has not developed via practical experience-

¹⁹ A curious paradox is that several typical representatives of the pedagogical paradigm tend to use words like “mode 2” and “triple helix”, signalling the intention to cooperate with business. However, a distinction between words and deeds is in order, just as is in the cases where learning technology firms (which represent the technological paradigm) use words like “market orientation” and “pedagogy”.

based knowledge building, but instead mostly via theoretical studies and empirical investigations on how various suppliers have worked with e-learning. This is, of course, in complete accordance with existing academic practice, but implies unfortunately, that most of the methodological fallacies mentioned in the beginning of this article abound within the pedagogical paradigm.

In paradoxical contrast to the self-conceptions existing within it, the pedagogical paradigm is very conservative and politically correct. This has promoted its present day position as the most popular paradigm amongst politicians and public officials²⁰.

THE MARKET-BASED PARADIGM

The market-based paradigm takes its point of departure in pure market-orientation, implying that business firms are seen as buyers and that the needs and wants of business firms should be the primary guiding design principle in the development of e-learning systems and processes²¹. Further, that the development of e-learning, if necessary, must imply a total revolutionary change in academic/professional content, scientific methodology, pedagogy, personal competencies, intra and extra organizational relations, technological delivery systems and administrative/organizational systems.

This concept of pure market orientation is parallel to or derived from the idea of market orientation within business economics and strategic market management. According to this view, organizations must adapt their products, activities, culture and organization to the demands of the market in order to thrive and survive (Tellefsen, 1995; Duus, 1997; Jaworski & Kohli, 1997). In the case of e-learning development, it is thus the demands (or problems) of external stakeholders in the form of business firms, which are supposed to govern a radical redesign of the total learning delivery system.

Problem orientation enters on two levels, first by providing a strategic direction to the system design process, and second by guiding the virtual pedagogy in itself. The strategic problem management in connection with the design of e-learning systems can be described as a process of

²⁰ The general critique of pork barrel and public project entrepreneurs formulated by Larsen & Aagaard (2003) may easily be applied here in this special case.

²¹ An academic supplier using e-learning in its educational programs may thus see students as part of the product and business firms as end-users hiring students after completion of their education. This does not hinder seeing students as users and giving equal attention to their needs.

four steps. First, real-world problems in business firms are analyzed and identified. Second, the academic/professional content is redesigned on the basis of the identified problems. Third, this redesign is the basis for an adaptation of the pedagogy. Fourth, the technological delivery system is chosen on basis of the demands posited by the chosen pedagogy (Pettersson & Heede, 2000; Duus, 2001, 2002; Duus & Ehlers, 2002, 2004).

The market-based paradigm does not reject that academic/professional content, pedagogy and technology are important factors to consider in the design of e-learning systems and processes; however, these factors are subjugated to the factors which must be taken into account in the adaptation to market and business demands.

Consequently, the market-based paradigm is characterized by an orientation to demands external to the organization and by the conscious change based on those demands. When it comes to its application in university institutions, the market-based paradigm advocates nothing less than a radical restructuring of the total research and educational system. When it comes to application in business firms, it calls for nothing less than an environmentally dependent restructuring that is just as radical.

Differently expressed, where the pedagogical paradigm takes a reformist stance, the market-based paradigm takes a revolutionary stance.

According, to this paradigm, e-learning is no longer just another way of delivering education, but is instead the road to a totally different perception of learning, where e-learning influences more than just education. Rather, a radical restructuring of all educational institutions and firms is called for. Those organizations that miss the opportunity to adapt are supposedly not perceived as fit to survive globalized competition, which will influence educational institutions and firms alike.

The market-based paradigm, which has several weak spots, is first of all distinctly radical, thus causing proponents to experience difficulties in winning acceptance and approval. This weak spot impedes implementation and also implies that work inside the paradigm is perceived as having less merit, and in some cases, as being unethical. A comparison can be made with the more or

less known problems experienced in business when attempts are made to transform organizations in the direction of more market orientation.

Another weak spot is that work inside this paradigm is complex, ridden with tacit knowledge, and that the knowledge attained is difficult to spread. A third weak spot is that the costs of development and transformation can be sizable. In this regard, the paradigm clearly distinguishes itself from the technological paradigm, which uses cost minimizations as a unique selling proposition. There is, however, nothing that indicates that the market-based paradigm should be more expensive in the long run (Duus, 2002).

A fourth weak spot is whether political support can be achieved for a paradigm which, in its essence, promotes the conscious adaptation to demands posited by markets and business firms. While some politicians and trade unionists may see this paradigm as bowing to libertarian values, globalized market-based competition nevertheless remains a reality that is hard to escape (Angell, 2000).

The typical proponents and representatives of this paradigm are to be found in a few select public centers of research and education, and in a few larger corporations with their own educational programs.

A COMPARISON OF DIFFERENCES BETWEEN THE VARIOUS PARADIGMS

The above paradigm descriptions do not follow the same overall pattern. An explicit comparison is shown in Figure 3.

FIGURE 3: A COMPARISON BETWEEN THE FOUR E-LEARNING PARADIGMS.

Paradigm Characteristics	The Technological Paradigm	The Content-based Paradigm	The Pedagogical Paradigm	The Market-based Paradigm
Central focal point in the design process	Technology	Content	Pedagogy	Markets/business/customers
Empirical form of appearance	Technology-based knowledge transfer e-learning	Content-based knowledge transfer e-learning	Pedagogy-based knowledge transfer e-learning	Market-based knowledge creation e-learning
Development model	Primarily based on practical experience	Based on practical experience	Primarily theory-based	Primarily based on practical experience and experiments
Organizational form of appearance.	Evolutionary perspective with emotional focus on technology	Traditionalist focus on existing professional and academic content	Reformist perspective with focus on pedagogy as having a specific intrinsic value	Revolutionary with focus on massive changes in the existing way of doing things and with needs and wants in markets and business as the guiding principle
Main suppliers and proponents are found in the following places	Firms producing learning technology	The majority of universities, other learning institutions and course providers	Among academic specialists and researchers within pedagogy, communication and organization	A select few companies and research and educational centers (see pure examples of knowledge creation e-learning in Figure 1)

An important key to understanding the differences between the four paradigms is of course their point of departure, or the central focal point in the design process, as it is called in Figure 3²². Each paradigm is based either on technology, content, pedagogy or market/business as governing the e-learning design process. At the same time, the central focal point is of immense importance for the choice of development model and for the understanding of individual choice in the development process. This is shown in Figure 4, which depicts the design practice of each paradigm.

²² Note that the four paradigms loosely resemble Weber's (1949) four "rationalities". The market-based paradigm is thus expressive of "goal" rationality, the pedagogical paradigm is expressive of "value" rationality, the technological paradigm is expressive of an "emotional" rationality and the content-based paradigm is expressive of a "traditional" rationality. (See Rangstrup (2000), who succeeded in building a corresponding Weberian model of competitive strategy). The four rationalities can also be depicted using the paradigms "organizational form of appearance" in Figure 3. As displayed in Figure 2, this paradigm model resembles the RISC model known from market analysis. However, it is only a resemblance. The theoretical basis is entirely different and the complex measurement problems that characterize the RISC model do not exist here. It is, for example, in most cases, not a problem to evaluate and conclude on the paradigmatic relationship of individuals, real-world interest groups and organizations.

FIGURE 4: THE DESIGN PRACTICE OF THE FOUR E-LEARNING PARADIGMS.

The Technological Paradigm	The Content-based Paradigm	The Pedagogical Paradigm	The Market-based Paradigm
<p><u>Phase 1 Design of delivery system:</u> The delivery system (primarily the technology) is designed</p> <p><u>Phase 2 Content adaptation:</u> The content (i.e. what needs to be learned) is adapted to the capacity of the delivery system to transfer knowledge</p> <p><u>Phase 3: Pedagogy construction:</u> The pedagogy is constructed from the demands posited by content and the delivery system</p>	<p><u>Phase 1 Determination of content:</u> Content is determined on the basis of established and traditional academic/professional norms</p> <p><u>Phase 2 Choice of delivery system:</u> The technological delivery system is chosen on the basis of what is to be learned (according to academic/professional norms)</p> <p><u>Phase 3: Pedagogy construction:</u> The pedagogy is constructed from the demands posited by content and the delivery system</p>	<p><u>Phase 1 Determination of pedagogy:</u> The pedagogy is determined on the basis of ideas from pedagogy research</p> <p><u>Phase 2 Content adaptation:</u> The content (i.e. what needs to be learned) is adapted to the chosen pedagogy</p> <p><u>Phase 3: Design of delivery system:</u> The delivery system (including technology) is designed/chosen on the basis of the chosen pedagogy and content</p>	<p><u>Phase 1: Problem identification:</u> Real-world problems in business firms are identified</p> <p><u>Phase 2 : Content redesign:</u> The content (i.e. what needs to be learned) is redesigned in light of the identified business problems</p> <p><u>Phase 3: Pedagogy modification:</u> The pedagogy is modified in light of what needs to be learned (i.e. the content)</p> <p><u>Phase 4: Design of delivery system:</u> The delivery system (including technology) is designed/chosen on the basis of the chosen pedagogy and content</p>

As shown in Figure 4, the choice of central focal point is important in the design process. It is not impossible that the success of each paradigm in creating and managing e-learning development is attributable to this choice. An example is found in the market-based paradigm, which to a large degree distinguishes itself from other paradigms by being the only paradigm that separates content and the needs and wants of users/buyers.

Herein lays a possibility for explaining the close connection between knowledge creation e-learning and the market-based paradigm. As pointed out in Pettersson (2002), efficient knowledge creation e-learning depends especially on user perception of the empirical and/or practical relevance of e-learning processes, which is enabled by a sharp focus on realism in problem-governed learning processes. This focus on realism is not just a focus on the empirical and practical reality of the academic/professional content, but even extends, by the creation of a common participant culture, into the “life-world” of each participant (Schütz, 1991)²³.

STRATEGIC IMPLICATIONS OF THE VARIOUS PARADIGMS

An important fact concerning the above depiction of the four paradigms is that no objective e-learning expertise or knowledge exists. Each of the four paradigms expresses a distinct political reality, implying that it is misleading when certain supposed e-learning experts pretend to pursue “objective research”.

However, the Randian view may be advanced that the market process constitutes an objective reality to which all individuals and organizations sooner or later may need to adapt (Angell, 2000). For this reason, a purpose may be served by evaluating e-learning research and development activities on the resultant practical effects in connection with the development and management of e-learning processes. A natural implication is that e-learning development will become closely associated with the mode 2 idea of knowledge production (Gibbons et al., 1994).

Further, it must be stressed that since the four paradigms are easily associated with plainly recognizable interest groups, the empirical correspondence of the above four paradigm models can be estimated to be rather high (again, see Figures 1 and 3).

The immediate usefulness of this model lies in its ability to give users, buyers, (university) managers, public servants, politicians and investors a map charting the political landscape within e-learning, thus enabling knowledge about interest groups and design models.

²³ Virtual dialogs in knowledge creation e-learning processes have been known to create a sense of “shared culture” between participants, to increase the knowledge and understanding of other participants, to break down barriers of rank and hierarchy as well as barriers between scientific and technical/administrative personnel and barriers between academic and professional learning (Smith & Duus, 2001; Duus & Ehlers, 2002; Duus & Ehlers, 2004).

An important feature of the four paradigms model is that it has a recursive organizational logic. The model does not just identify interest groups that are institutionally and commercially distinct. Observations suggest that the same organization can encompass several attitudes, notions and groups belonging to each its paradigm²⁴.

Apart from the descriptive possibilities in distinguishing between the four paradigms, the following four different normative areas of application can be said to exist:

- 1. The opportunity to create a focused e-learning strategy for each organization.** Distinguishing between four paradigms can enable a harmonization of vision, mission, goals, notions, strategy and the strategic allocation of resources within each organization (which of course includes firms and learning institutions alike). An organization can thus choose among an *agoristic*, a *pedagogistic*, a *technologistic* and a *scientistic* development strategy by harmonizing responsibility, personnel, departments, goals, resources, etc. respectively along the market-based, the pedagogical, the technology-based and the content-based paradigm.
- 2. The opportunity to enter strategic alliances within the e-learning area.** It is striking that to this day, no examples exist of long lasting cross-paradigmatic forms of cooperation²⁵. A strategy of building intra-paradigmatic alliances seems to be preferable.
- 3. The opportunity to create a harmonized national e-learning policy.** While politics have been said to be the “art of the possible”, the implicit and explicit opportunities connected with a harmonization of goals, notions, national strategy and national allocation of resources should not be overlooked²⁶.

²⁴ Copenhagen Business School and the A. P. Møller-Maersk Group are examples respectively of a university institution and a large corporation that house different notions and interest groups. How to increase the innovation rate in both organizations is left as an exercise for the reader.

²⁵ However, examples exist of suppliers working within the technological paradigm having sold equipment to representatives of other paradigms. This is, of course, not to be counted as examples of a deeper strategic cooperation.

²⁶ Denmark, which may serve as an example, follows a national e-learning policy, which is essentially inspired by a mix of the technology-based and the pedagogical paradigms. The adoption of a national policy based entirely on the market-based paradigm could provide a significant boost to innovation in that country.

4. The opportunity to create a common language concerning e-learning so that the ongoing confusion of widely different ideas of how e-learning should be researched and practiced are removed from the debate.

An important element connected to the strategic and political choice of paradigm is how well each paradigm pushes the frontier of development, i.e. which paradigm works best in developing the area of e-learning. This vital question can be answered in two ways, first, by looking at how each paradigm may follow as a natural choice from given stated objectives, and second, by considering the performance of each paradigm in an absolute sense, i.e. what has been known to work best so far.

If, for example, the level of aspiration and ambitions are low and decision makers just intend to “electrify” existing education, i.e. if an electronic correspondence school is the only ambition, then the content-based paradigm and a *scientistic* strategy will be the obvious choice. If, on the other hand, high-level pedagogy-based e-learning within the existing academic system is the objective, then the pedagogical paradigm and a *pedagogistic* strategy seem preferable. However, it should be taken into consideration that the practical results from an implementation of the latter approach have been sparse.

If the level of ambition is to support business learning processes through the provision of inexpensive and efficient teaching, then the technological paradigm and a *technologicalistic* strategy is the relevant choice. However, if what is called for is a thorough change in the total system of knowledge production according to the needs and wants of business, then the market-based paradigm, and consequently, an *agoristic* strategy is the relevant choice.

It is remarkable that results by and large have followed the levels of ambition, since the cutting edge within e-learning is pushed along by the best suppliers within the technological and the market-based paradigm. Note especially that it is only within the market-based paradigm that suppliers of knowledge creation e-learning exist.

The million dollar question appears to be what an *agoristic* strategy should look like. There are several aspects too detailed to outline in a comparatively short article like this one (Pettersson, 2002). However, empirical observations from the frontline suggest that the following seven

tenets in Figure 5 may constitute the foundation of a general *agoristic* strategy that may lead to knowledge creation e-learning (Duus, 2002; Duus & Ehlers, 2002, 2004).

FIGURE 5: THE SEVEN TENETS OF AN AGORISTIC E-LEARNING STRATEGY.

Tenet	<p style="text-align: center;">THE AGORISTIC STRATEGY TO E-LEARNING DEVELOPMENT IN UNIVERSITY INSTITUTIONS AND LARGER FIRMS</p>
1	<p>Use the skunk-works principle. Establish separate autonomous units in the organization and give them the task of developing e-learning processes, courses and programs. Do not attempt to integrate e-learning into existing educational programs unless they are managed and developed by such units. Do not use “experts” that do not take part in the day-to-day development and management of e-learning processes. Do not separate development from the practical day-to-day business of running processes, programs and courses.</p>
2	<p>Take market-orientation to the extreme. Any development should be based on a consistent buyer or user orientation. Preference should be given to the needs of buyers. The boundaries and barriers between buyers, users and suppliers, between faculty and students and between academic and professional learning, must be eliminated. “Experts” with a vested interest in demanding special attention to technology, pedagogy and/or content over the needs of buyers and users should be ignored.</p>
3	<p>Take in-sourcing to the extreme. The thought of dividing organizational functions into smaller slices that can be hired from outside the skunk-works unit must be disregarded. Most development must take part inside the unit to take full advantage of possibilities arising from the building of a common culture based on tacit knowledge and distinctive competencies. ICT-support, administration, pedagogy and professional/academic development must work together as a whole under the same management.</p>
4	<p>Innovate inside-out. Focus on resources and the gradual building of distinctive competencies. Spread knowledge creation e-learning to other units inside or outside of the larger organization by relationship building and relationship marketing. Teach e-learning as a practical thing by e-doing and advising. Lecturing on how-to-do activities (like e-learning) that involve tacit knowledge is a futile exercise. View the skunk-works unit as a growing competence cluster inside and outside of the larger organization.</p>
5	<p>Innovate through experimentation and experience-building. Use action research, action development, experimentation and experience-building to build inter-personal and individual tacit knowledge and competencies. Do not waste too much time on attending conferences and lectures on e-learning or on reading books and articles on the subject. Remove boundaries between work functions. Breakdown the barriers between academic and professional learning.</p>
6	<p>Use virtual problem-orientation. A problem-oriented methodology should be used to facilitate virtual learning processes. It is impossible to facilitate efficient learning without an effective interpersonal dialog. However, this necessitates an orientation towards relevant business problems, which in turn necessitate a data orientation and a meta-methodological orientation. Important personal competencies are not the traditional competencies held by personnel with a background in pedagogy and communication, but rather competencies held by people with a background in analyzing and handling data, information and knowledge within the areas of content production, ICT and administration.</p>
7	<p>Combine innovation with tight administrative and management control. An innovative culture must be developed in the skunk-works unit, but such a culture must thrive inside the constraints imposed by a tight administrative and financial controlling of activities. Attention to even the smallest details and performance management must exceed that which is considered normal by common standards. A paradox is obvious since popular knowledge on organizations claims that innovative organizations must be structured as “flat”, “organic” and/or “soft”. However, empirical observations of innovative companies reveal that this combination of opposites is both possible and beneficial.</p>

CONCLUSION

The above has presented a mapping of the e-learning area, which may be open to accusations of polarizing the area into different camps of suppliers and for giving a much too one-eyed perspective on the various interest groups within the area. However, it is necessary to note that such a polarization is already in existence as illustrated by the heterogeneity of the area. As a result, this article is nothing more than an attempt to map the area without resorting to the usual technological, pedagogical or superficial market analytic bias.

Mapping the area will result in ideal types, which to a larger or lesser degree will resemble the real world. If the real-world correspondence is found to be small, the Weberian proviso exists that ideal types are only a way to structure reality by emphasizing certain central aspects in a pure form, thus creating yardsticks against which to measure reality. If, on the other hand, real-world correspondence is high, hence resulting in paradigmatic distinctions that easily find their correspondence in existing interest groups (as in this case), then a high probability exists that this model is correct.

Interestingly, the normative implications exist independently of whether the model is fully correct. The point here is that the four strategic implications on harmonization of the organizational and national e-learning strategies, the creation of strategic alliances and the creation of a common language are independent of the correspondence of the ideal types to real-world interest groups.

Further research in this direction is advisable. For one thing, this article has shown that the e-learning area can be systematically mapped by using insights from economics and sociology. In this way, this article distances itself from most other literature on e-learning due to its angle of attack as well as in its conclusions. While most mainstream research within the e-learning area has been founded on insights from pedagogy, communication, organization and an incorrect application of market analysis, this article has, in contrast, hereto shown what a different approach could look like.

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