CURRICULUM DEVELOPMENT FOR E-LEARNING: A CONCEPTUAL FRAMEWORK

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Abstract

The aim of this paper is to develop a conceptual framework for curriculum for e-learning. The conducted research is based on two dialectically intertwined pillars. The theoretical pillar consists of the rich critical tradition of inquiry into the relationships between technologies and human beings in wide social contexts from Frankfurt School onwards. The practical pillar consists of Dahlberg's main strands of Internet research – Uses Determination, Technological Determination and Social Determination (2004). Blending the theoretical and the practical pillar, it is shown that the discipline of e-learning consists of Habermas's three main spheres of human interests, types of knowledge and research methods – the technical, the practical, and the emancipatory (Tinning, 1992). The conducted research does not include explorations of epistemological basis for combining various theoretical frameworks and research methodologies. For this reason, its results cannot be applied to scientific research without further elaboration. In order to expose students and practitioners to the true structure of the discipline of e-learning, however, results of this research can be confidently applied in practical fields from curriculum development to policy making.
Key words: *critical e-learning, e-learning curriculum development, spheres of human interest, e-learning research strands.*

Introduction

During the past few decades, education supported by computers and the Internet commonly known as e-learning has been rapidly growing in scope, size and complexity. This growth is dialectically intertwined with the increasing demand for specialised labour, which has been met by introducing appropriate modules and degrees in worldwide higher education institutions (Anderson & Elloumi, 2004; Jandric & Boras, 2012; Pal & Ganguly; 2010). However, e-learning is significantly different from traditional education (Anderson & Elloumi, 2004; Bates & Sangra, 2011). This leads to the obvious question: what should we teach future e-learning practitioners?

In order to answer this question, one should first examine what is being taught at the moment and analyse some of the consequences of the current approaches. Based on Foucauldian discourse analyses, Fejes and Nicoll assert that "discourses of e-learning have tended largely to construct the area of study as about the mechanics of its implementation (the appropriate use of technology in education, the effective delivery of educational messages, the efficient systems for materials production and so on)", and show that such approach leads to the wide spectrum of problems (2008: 174). Looking more closely at technology, Teo and Gay assert that e-learning resources predominantly consist of the advanced repositories of documents, and propose a knowledge-driven model to personalise e-learning (2006).

In their analysis of introduction of e-learning into educational institutions, Bates & Sangra show that "technology projects were not successful in bringing about sustainable e-

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learning", and propose approaches driven by pedagogy and management (2011). Looking from a pedagogical perspective, Laurillard shows that "despite their potential to contribute to a rethink, digital technologies have usually been used in a technology-driven way to upgrade our existing educational models". On such basis, she argues that the discrepancy between technological potentials and educational praxis does not only result in missing new opportunities, but more importantly in losing touch with the reality (2008: 521).

The strong focus of the dominating e-learning discourse to information and communication technologies is being criticised from a wide spectrum of perspectives. However, such focus has not emerged from thin air: on the contrary, it has a convincing historical explanation. At the dawn of e-learning it was essential to build adequate technological infrastructure: only a decade ago, the majority of e-learning development has happened in the field of information and communication technologies. However, the discipline of e-learning has developed very quickly. Consequently, the focus to information and communication technologies has been slowly but surely replaced by the focus to pedagogies, management and wide social consequences such as accessibility (Zemsky and Massy, 2004: 9-12, Jandric, 2012). On such basis it is safe to conclude that e-learning practitioners should be offered a curriculum which provides a more rounded, holistic view to the discipline of e-learning.

Education is dialectically intertwined with the society. Our current social reality inevitably evolves from massive society characterised by one-way media such as radio, television and press to the network society powered by the Internet. Furthermore, even the most common concepts based in the massive society are incommensurable with concepts based in the network society (van Dijk, 1999; Castells, 2001). For instance, traditional concepts of work and play significantly differ between digital natives and digital immigrants (Prensky, 2001).

Following the long tradition from Kuhn's paradigms (1970) to Foucaults's discourses (1972), therefore, it can confidently be concluded that the new curriculum based on the fresh view to the discipline of e-learning in the context of network society cannot be derived from the old concepts which belong to the massive society. Instead, as Baudrillard poetically asserts, using information and communication technologies in education represents "a passage through an indefinable space" and "a kind of radical uncertainty" (2006). In order to develop a contemporary curriculum, therefore, this research needs to explore the very basis of the emerging discipline of e-learning in the context of the contemporary network society.

The Question Concerning e-Learning

In *The Question Concerning Technology*, Heidegger starts his critique with ontological analysis. Based on Aristotle's ideas, he asserts that "that which pervades every tree, as tree, is not itself a tree that can be encountered among all the other trees. Likewise, the essence of technology is by no means anything technological"(1977: 4). Heidegger continues the quest towards the essence of technology using Aristotle's four types of causes: material cause, formal cause, efficient cause and final cause. Material cause is the material of which something consists; formal cause is its form or arrangement; efficient cause consists of work invested into production; and final cause is a things' aim or purpose (Cohen, 2012).

On such basis, Heidegger compares the contemporary idea of production as an activity based on the final cause with the wholesome approach of the craftsman who gathers all causes in his activity or his efficient cause. The final form of the product, therefore, does not depend only on craftsman but on the complete aim of its existence. "Technology is therefore no mere means. Technology is a way of revealing" (Heidegger, 1977: 12), or bringing-forth all causes of an artefact during its production. Instrumentality is an integral part of bringing-forth, but bringing-forth is much more complex than instrumentality.

Bringing-forth stands "not only for the activities and skills of the craftsman, but also for the arts of the mind and the fine arts. *Techne* belongs to bringing-forth, to *poiesis*; it is something poietic" (ibid: 13). Instrumental views to technologies, however, reduce human beings to passive producers and consumers unable to reach their ontological vocation of active creators of their environment. In order to avoid the technological dystopia, therefore, explorations of the curriculum for e-learning should reach beyond instrumentality and explore bringing-forth of all causes within the discipline of e-learning.

In order to explore this conclusion in the context of the contemporary network society, the following analysis examines Dahlberg's three main strands of Internet research "each focusing upon a different aspect of the 'circuit of technology': uses, artefacts, and social contexts", which can be roughly described as Uses Determination, Technological Determination and Social Determination (Dahlberg, 2004).

Uses Determination

Uses Determination describes technologies as neutral tools, and focuses on their usage in educational processes. In the context of Uses Determination

technology is merely a tool, open to both noble and nefarious purposes. Just as radio and TV could be vehicles of information pluralism and rational debate, so they could also be commandeered by totalitarian regimes for fanatical mobilization and total state control. Authoritarian states could commandeer digital ICT to a similar effect. Yet to the extent that innovative citizens can improve and better use these tools, they can bring authoritarianism down—as in several cases they have (Diamond, 2010, 71).

However, this approach is not completely accurate. Feenberg asserts that human control of technology is not fully instrumental, and illustrates his assertion using the heated debate between proponents and opponents of guns in the USA. From an instrumentalist perspective, *Guns don't kill people, people kill people*. However, the social world in which anyone can purchase a gun is radically different from the social world where guns are illegal. In the world where anyone can legally purchase a gun, the choice whether to shoot is left to each gun holder. At the other hand, the choice whether to make guns illegal belongs to every voting citizen. The first kind of choice is indeed instrumental, while the second kind of choice is a meta-choice, or "a choice at a higher level determining which values are to be embodied in the technical framework of our lives" (Feenberg, 2003).

Uses Determination focuses on the ways that information and communication technologies are used in e-learning. In the field of pedagogy, it is interested in issues such as efficient delivery of educational materials and neutral assessment. In the field of educational management, it is concerned with issues such as cost and feasibility. In the field of educational policy, it is interested in understanding issues such as the material causes for the digital divide. By and large, the main prerequisites for Uses Determination are data collection and statistical analyses: therefore, its main research method is positivism.

Scholars of e-learning should be aware of Uses Determination for at least two reasons. First, Uses Determination is instrumental in important fields such as educational management and instructional design. Second, e-learning possess both oppressive and progressive potentials, and it is essential to understand the ways those potentials can be appropriated for the benefit of the society.

Technological Determination

Technological Determination recognises that information and communication technologies bring significant cultural changes and produce powerful social, psychological and other impacts. However, Technological Determination sees technologies as the given, external reality that shapes human destiny: in order to survive, human beings should adapt to technological development (Dahlberg, 2004). Within the framework of this tradition, Drucker asserts that

> the new industries that emerged after the railroad owed little technologically to the steam engine or to the Industrial Revolution in general. They were not its "children after the flesh" - but they were its "children after the spirit." They were possible only because of the mind--set that the Industrial Revolution had created and the skills it had developed. This was a mind-set that accepted -- indeed, eagerly welcomed -- invention and innovation. It was a mind-set that accepted, and eagerly welcomed, new products and new services. It also created the social values that made possible the new industries. Above all, it created the "technologist" (Drucker, 1999).

In the context of e-learning Technological Determination focuses on social, cultural, psychological and other influences of information and communication technologies. This kind of understanding cannot be achieved by positivism. Instead, it looks beyond numbers in order to understand what people feel about using information and communication technologies in education. Locally, this kind of reasoning reaches much deeper than Uses Determination. For instance, Technological Determination is able to provide the exact explanation why a certain group of students or teachers enjoy using a certain technology. Unfortunately, however, Technological Determination is unable to provide sound generalisations. The relevant research methods include interviews, focus groups etc. In general terms, the main research method of Technological Determination is interpretivism.

Education primarily consists of more or less direct interaction between human beings. For now, automated educational systems simply cannot keep up with human contact (Anderson & Elloumi, 2004; Laurillard, 2008). For this reason, interpretivism has always been one of the main research methods in the science of education (Carr & Kemmis, 1986). In this respect, information and communication technologies do not introduce significant changes into the discipline of education. Therefore, scholars of e-learning should be well aware of Technological Determination.

Social Determination

Social Determination focuses on power relations, emancipation, criticism and liberation, i.e. issues such as ownership of educational institutions, price of education, access to technologies etc. Typical examples of Social Determination include studies of the division between digital haves and digital have-nots known as the digital divide and various technology-based adult education programmes. Social Determination is based on Freireian Promethean politics, which "sought to intervene on behalf of the poor, critically pose problems into the 'facticity' of their oppression, and divert technologies and other forms of cultural capital away from those in power towards those in need" (Kahn & Kellner, 2007: 437). This kind of understanding cannot be achieved by positivism and/or interpretivism (Carr & Kemmis, 1986). Instead, Social Determination should look at emancipatory knowledge using research methods that belong in the framework of critical theory.

The world where education is equally available to all social strata is significantly different from the world where only the rich can school their children. In the country where only the

richest ten or twenty per cent of people have the opportunity to access Internet, e-learning becomes a powerful tool for social reproduction. Based on the dialectical relationship between education and society, it is obvious that issues such as ownership and control over information and communication technologies and price of education play a crucial role in the praxis of e-learning. For this reason, scholars of e-learning should actively engage in issues associated with Social Determination.

A Conceptual Framework for Curriculum for e-Learning

Uses Determination, Technological Determination and Social Determination reach specific kinds of knowledge that cannot be understood within theoretical frameworks of other determinations. The discipline of e-learning contains all determinations: for this reason, the same structure should be reflected to curricula for e-learning.

According to Dahlberg, "over-emphasizing a particular determination can lead to narrow or distorted understandings"(2004). Depending on context, therefore, curricula for e-learning should be carefully developed in order to provide adequate balance between determinations. For instance, modules about e-learning taught at schools of education will probably be focused to technologies, while modules about e-learning taught at schools of informatics will probably be focused to pedagogical and social aspects. The extent of such adjustments should be tailored in order to fit the specific context of each educational situation. Therefore, it is impossible to provide a more precise general recommendation.

As can easily be seen from the discussion about the main elements of curricula for e-learning, Uses Determination, Technological Determination and Social Determination correspond to Habermas's three main spheres of human interests: the technical, the practical, and the emancipatory (Tinning, 1992, 5). In order to provide an overview of the complete curriculum for contemporary e-learning, Table 1 lists spheres of interests, types of knowledge and research methods available for each determination.

Table 1. Spheres of interests, types of knowledge and research methods available for each determination (adapted from Tinning, 1992, 5).

Determination	Interest	Knowledge	Research methods
Uses Determination	Technical (prediction)	Instrumental (causal explanation)	Positivistic sciences (empirical-analytic methods)
Technological Determination	Practical (interpretation and understanding)	Practical (understanding)	Interpretive research (hermeneutic methods)
Social Determination	Emancipatory (criticism and liberation)	Emancipation (reflection)	Critical social sciences (critical theory methods)

Human beings can simultaneously engage in various kinds of activities without any theoretical and practical obstacles except timing: the world is packed with computer scientists who play music, physicians with profound knowledge of fine arts etc. In this context, curriculum for e-learning which consists of Habermas's three main spheres of human interests, types of knowledge and research methods is fully feasible. In the field of epistemology, however, certain types of knowledge and the associated research methods are mutually incommensurable. For instance, understanding of the rainbow derived from positivistic science has very little in common with its counterpart in the field of poetry (Carr & Kemmis, 1986). For this reason, the assertion that the discipline of e-learning consists of Habermas's three main spheres of

human interests, types of knowledge and research methods has profound consequences for the discipline of e-learning.

Opportunities and Restrictions

In order to explore those consequences, one should investigate opportunities and restrictions arising from each combination of conceptual frameworks. Those combinations are:

1. Technical interest, instrumental knowledge and positivistic sciences with practical understanding, practical knowledge and interpretive research.

2. Technical interest, instrumental knowledge and positivistic sciences with emancipatory interest, emancipatory knowledge and critical social sciences.

3. Practical understanding, practical knowledge and interpretive research with emancipatory interest, emancipatory knowledge and critical social sciences.

During the past few decades, the combination of technical interest, instrumental knowledge and positivistic sciences and practical understanding, practical knowledge and interpretive research has been extensively debated under the name Quantitative-Qualitative Debate. A possible solution to the debate is mixed-methods research, which is advocated by a significant population of contemporary theorists of education because it provides a much broader insight into researched problems than any of the constituing methodologies. However, quantitative and qualitative methods are based on diametrically opposed theoretical frameworks. For this reason, mixed-methods research introduces various restrictions into validity of educational research (Howe, 1988 & 2001; Sale, Lohfeld & Brazil, 2002).

The combination of technical interest, instrumental knowledge and positivistic sciences and emancipatory interest, emancipatory knowledge and critical social sciences has also been extensively debated for years. In short, the underlying conceptual frameworks are incommensurable: instrumental knowledge and positivistic science are blind to issues associated with emancipation and vice versa. Up to an extent, however, positivistic and critical sciences can inform each other. This extent depends on the context of each research question and cannot be derived analytically **(Carr & Kemmis, 1986).**

Practical interest, practical knowledge and interpretive research are usually considered fairly close to emancipatory interest, emancipatory knowledge and critical social sciences. Interpretivism reaches deeper into the context of specific situations, while critical social sciences 'sacrifise' some of the individual focus in order to provide generalisations. However, there are several important differences between the two. For instance, interpretivist research implies that the position of the researcher is neutral, while critical theory recognises that the researcher is an inseparable part of the research (Mackay, Maples & Reynolds, 2001: 59). As opposed to critical research, "the interpretive approach encourages people to change the ways in which they *think* about what they are doing, rather than suggest ways in which they should change what they *are* doing" (Carr & Kemmis 1986: 98). Despite differences, interpretivism and critical social sciences can inform each other to an extent which depends on the context of each problem situation (ibid).

In recent years it has become fairly common to inform e-learning research with approaches and conclusions arriving from various spheres of interest, types of knowledge and research methods. Despite popularity of interdisciplinary research, however, the internal conflict between Habermas's three main spheres of human interests, types of knowledge and research methods has always remained (Howe, 2001; Sale, Lohfeld & Brazil, 2002). In order to resolve this conflict, some recent authors have made one step further into the vast yet mostly unexplored field of transdisciplinary research. As opposed to interdisciplinary research, transdisciplinary research methodology implies

that dialogue with other disciplines and theories is a source of theoretical and methodological development. This separates transdisciplinary research from some forms of interdisciplinary research which assemble different disciplines around particular themes and projects without any commitment to change the boundaries and relations between them. Transdisciplinary research is related to but distinguishable from 'post-disciplinary' approaches (Sum & Jessop 2001) which include a principled rejection of disciplines and a problem-oriented approach to research in which concepts, categories and methods are developed without regard for conventional disciplinary boundaries (Fairclough, 2007: 1).

Interdisciplinarity and transdisciplinarity offer a lot of potential for development of a unified e-learning research methodology. However, their complete elaboration reaches far beyond the scope of this paper. Fortunately, this research has a much humbler task: it only aims at informing curriculum development for e-learning. In this context, epistemological muddles are irrelevant and the research question can be answered clearly.

Conclusions

Based on Heideggers's ontological analysis of technologies, this study explores Dahlberg's three main strands of Internet research: Uses Determination, Technological Determination and Social Determination (Dahlberg, 2004). It shows that the discipline of e-learning is equally interested in Habermas's three main types of knowledge: technical, practical and emancipatory. In order to adequately reflect the nature of discipline, curriculum for e-learning should reflect all interests, introduce all types of knowledge, and equip learners with adequate tools for their exploration.

Curriculum for e-learning should equally introduce positivistic sciences and empirical-analytic methods, interpretive research and hermeneutic methods, critical social sciences and critical theory methods. However, simultaneous usage of different and often mutually incommensurable theoretical frameworks and research methods has profound consequences for the discipline of e-learning. For this reason, students of e-learning should also be introduced into various opportunities and restrictions arising from interdisciplinary and transdisciplinary research approaches.

At practical level, methodological issues are fairly irrelevant for curriculum development. However, successful curriculum should do more than just introduce students to the main theoretical and practical approaches. Instead, it should bring students to the very fringes of our current understanding of the discipline of e-learning such as methodological issues in e-learning research and expose them to the burning problems facing contemporary e-learning such as the discrepancy between technological potentials and educational praxis.

The proposed conceptual framework for curriculum development for e-learning aims at developing a balanced understanding of the dialectical relationships between technical, practical and emancipatory aspects of e-learning and the corresponding research methodologies. More importantly, it aims at developing genuine interest for pushing the current boundaries of the

discipline of e-learning into the unknown. In this way, it provides opportunities for whole-rounded development of e-learning experts and creates potentials for fresh developments in diverse fields from research methodologies and policy making to everyday educational praxis.

Conceptual frameworks can only provide general theoretical overviews and rough practical guidelines. For this reason, detailed curricula for e-learning should be tailored according to specific contexts of each educational situation. Based on two equally important pillars – Heidegger's ontological analysis of technologies and Dahlberg's empirical classification of Internet research strands – this study is a direct product of the dialectical relationship between educational theory and practice. Therefore, the proposed conceptual framework for curriculum development for e-learning should be constantly examined from theoretical and practical aspects in order to provide guidelines for current educational praxis.

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