

The Evolution of E-Learning Management Systems: An Ethical Approach

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ABSTRACT

The development of educational technologies is enhancing a distinctive feature of learning environments: the learner's personalized environment. However, the current literature in e-learning seems to neglect an important discussion: will individuals (learners and lecturers) and organizations face an enhancement concerning ethical dilemmas due to this evolution? To promote this discussion, this paper builds on a consideration of e-learning definition and its ethical dilemmas, and human-centred learning concept and its dimensions, to examine the implications of integrating social and cultural contexts. By examining the evolution of e-learning management systems the argument progresses to a discussion of the relationships between pedagogy and ethics. By framing evidence at different scales, the authors critically reflect on the ethical dilemmas embedded in e-learning systems. The discussion concludes with advocating the adoption of an extension of "three P" mode of pedagogy to become the "P3E" model: personalization, participation, productivity, lecturer's ethics, learner's ethics, and organizational ethics.

Keywords: E-Learning Management Systems, Empirical Evidences, Ethical Dilemmas, Human-Centred Learning, Pedagogy

INTRODUCTION

Nash, Dutton, & Peltu (2004) suggest that network collaboration unlocks new opportunities for rethinking educational stakeholders' relationships, because it provides them further choices about how to engage in education and learning activities. However, it simultaneously

represents a dilemma for educational institutions regarding the challenge to transform novel rhetorical ideas and models into actual practice and an appropriate organizational context (Hannan, 2005). This scenario resumes a certain intellectual affiliation between learners' and technologies, as well as a more personalized "education architecture". Therefore, instead of using technologies to lead learners through prearrange interactions; learners may use technologies that function as "the mindful engage-

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ment of learners". In this way, when students learn with computer technologies, instead of being restricted by them, they increase their thinking (Small & Vorgan, 2008).

Crump & Costea (2003) suggest that these different types of technology-related learning exist on a dynamic continuum. Despite these arguments, it is remarkable that the e-learning literature seems to pay little regard to the possibilities of the need for moral behaviours concerning e-learning agents (individuals and organizations), or that dynamic process enhances ethical dilemmas. The relationship of ethics and learning using technologies is complex (Jefferies & Stahl, 2005). To achieve responsible use of technology for learning, participants need a considerable degree of education concerning social and ethical norms (Stahl, 2002a). This is considered to be fundamental to e-learning becoming globally accepted as a prerequisite for future social and economic development (Richards, 2004). Against this backdrop, the paper considers that the evolution of e-learning management systems significantly enhances the ethical dilemmas. The paper discusses the implications of the concept of e-learning - and its ethical dilemma - human-centred learning and its dimensions, and evolution of e-learning management systems, to provide an evidence base for an argument for an expanded e-learning pedagogical model.

E-LEARNING

Definition

The literature on e-learning is immense and rich. From it, the authors' emphasize the following definitions: "e-learning will here be defined as the use of ICT in higher education, which aims mainly the independent use of technology by students" (Stahl, 2005, p. 21); and, e-learning is defined as the online delivery of information for purposes of education, training, or knowledge management, and is different from formal education, which occurs off campus, and usually, but not always, through online resources (distance learning) (Turban *et al.*, 2006). These defini-

tions entail a formal scope of educational design that the new learning environments challenge in a continuum of thought, from "established" at one end to "emergent" at the other. Barnes & Tynan (2007) criticize the attempt to compel formal education in developing student-centred learning environments 2.0, such as: networks, skype, msn, and blogs. Furthermore e-learning 3.0 (web semantics) enhances this critique, because it transgresses the boundaries of traditional institutions, increasing self-organised learning.

The authors, therefore, claim that e-learning is evolving from a collective ("e-learning 1.0"), to a person-centred learning ("e-learning 3.0"). In spite of this e-learning evolution, the literature broadly describes four general categories of technological systems: Learning Management Systems (support administrative tasks); Managed Learning Environment (including the whole range of information systems and processes, which contribute directly or indirectly to learning and learning management); Learning Content Management Systems (allowing developers to store, manage and provide access to pieces of content used in e-learning); and Virtual Learning Environments (the components in which learners and tutors participate in several on-line interactions, including on-line learning).

However, the key elements in an e-learning project are: lecturer, content, student, place, time and interactivity (Amaral & Leal, 2004). An e-learning process therefore comprises conceptual and physical components, and procedures that ought to be the standards with reference to procedures and technologies. So, an e-learning application must engage: e-learning process design; learners' competencies definition; and, a framework for co-operation amongst teachers and students.

Ethical Dimensions

Stahl's (2002a) conceptual matrix engages three analytical dimensions for e-learning ethical dilemmas: the perceptions of the ethical impact; the subject involved; and whether it is a theoretical or practical problem. These can be examined at three scales. Following Stahl

(2002a), ethical theories over time denote to be a characteristic associated to the micro-level (individuals). The meso-level (organizations) will entail the e-learning project itself, and the third component arising as a moral subject is the educational institution (macro-level).

Regarding the macro-level, it is important to consider the strategic decisions of educational institutions. Corporate social responsibility leads to an important question: it is possible to achieve social responsibility in e-learning? Solomon (1992) refers, for example, to the existence of a false antagonism between profits and social responsibility, based on the Aristotelian approach to business ethics. In spite of this debate, the discussion concerning social justice clearly engages the need for a democratic and universal participation in higher education. According to Brey (2004), virtual universities may impact on cherished values, such as liberty, justice, privacy, and sociality. This technological enforcement is remarkable important for developing countries, where there exists a lack of expertise concerning human resources and content, a lack even greater than that of infrastructure. Furthermore, social development is largely determined by Government regulations, policies and funding. Organizations must, however, seriously debate the values of e-learning (Brey, 2004), in order to answer to following question: how can universities build competitive e-learning advantage worldwide, while embracing social development?

Within the meso-level, the following issues arise concerning systems usability, power and rights, and learning practices. In successful software development, it is fundamental to realise that “ethical considerations are far from being peripheral to requirements determination” (Rogerson, 2004, p. 121), and that ethical case analysis is required as a heuristic method (Bynum, 2004). Following Laudon & Laudon (2004), it is possible to acknowledge both information and property rights and obligations as major moral problems. Moreover, Silva (2007) claims that the lecturer’s pedagogical strategies must be a priority, in order to ensure that learner’s will be able to make the right ethical decisions.

Finally, into the micro-level it is fundamental to minimize the learner’s unethical practices (Nagi, 2006). This addresses issues such as: cheating, intellectual property, plagiarism and copyright violations (Williams, 2002), and privacy versus surveillance, personal data versus identity, integrity and honesty (Stahl, 2002a).

THE HUMAN-CENTRED LEARNING

Definition

The authors employ the term “human-centred learning” to acknowledge the educational environments that enables learners’ knowledge, skills, attitudes, and beliefs within an educational setting. This concept includes teaching practices that have been labelled “culturally responsive” or “culturally appropriate” (Anderson, 2004) or “culturally sensitive” (Sandon, 2003). A learner-centred context, therefore, embraces the whims and peculiarities of each individual learner, lecturer’s ethical choice concerning pedagogical strategy, as well as the recognition how culture influences both processes. Human-centred learning can thus be easily bound to personalized learning environments, which are electronic learning environments that combine a learner and an instructional system (Alsubaie, 2006). Alsubaie points out, however, that most of the available platforms are still limited, and do not totally attain the learner’s potential to create effective and efficient personalized learning.

It is important to characterize the technological quandaries of personalized learning environments: (i) information rather than instruction must be delivered; (ii) the absence of exchangeability and reusability among learning materials; (iii) unsuccessful implementation strategies; and, (iv) the mechanistic exploitation of technology, instead of mindful learning (Khuzzan, Goulding, & Underwood, 2008). Besides, this technological learning environment must address learner’s motivational and transformational factors (Alshawi, Goulding, & Faraj, 2006).

Learning Theories

Learning is a vigorous procedure that aims to connect a learner's new and old knowledge, creating an indulgent feedback procedure. Today's educational fashion is to deliver learners an independent and lifelong learning, which implies that learning acquires numerous shapes: pedagogy, andragogy and heutagogy. In spite of this claim, Mayes and de Freitas (2004) acknowledge some generic learning perspectives: associationist/empiricist perspective (learning as activity); cognitive perspective (learning as achieving understanding); situative perspective (learning as social practice).

Pedagogy presumes teacher-focus learning and encompasses the teacher taking responsibility for learning content, time and place of that learning. The spotlight refers to lecturer's outlook and experiences rather than those of the learner (Conner, 2004). Thus, in order to get educational practices for effective learner engagement, the learning atmosphere must comprise access and motivation, online socialization, information exchange, knowledge construction, and, development. Brennan (2003) illustrates three axes for effective pedagogy: axis 1 (levels of assistance and describing how learners' requests influence content and delivery); axis 2 (experience of learning and level of self-management, as well as guidance that students need); axis 3 (supervision of online learning as a continuum process).

Secondly, *andragogy* refers to learning processes for all ages (Conner, 2004), and includes five elements: enlightening learners about the significance of learning; tutorial procedures; relationship of the topic to learners' experiences; assisting learners to overcome their personal barriers. Thirdly, *heutagogy* embraces self-determined learning as a process. It is seen to provide a dual opportunity to learners, which means they can simultaneously focus on their learning, their experiences and the process itself.

Heutagogy is seen to go beyond the levels of problem-solving, extending the learning proactively and towards action learning, due to learner's chance to extend self-efficacy and

capability. The learner adopts skills such as reflection, environmental scanning, value experience, and interaction with others (Hase & Keynon, 2000). At this point, it is worth drawing attention to the phenomenon of capability, which, according to Hase and Keynon (2000), is a holistic feature that focuses the ability that people have to learn, to be creative, to have a high degree of self-efficacy, and to be able to apply competencies in a range of environments, as well as to be a team player.

ICT and Pedagogical Theories

Behaviourism involves a learner's framework as a solitary driver for understanding (Jones & Mercer, 2003), and knowledge is accomplished as an intangible platonic shape. Behaviourism requires topic matter to be analysed as specific associations, expressed as behavioural objectives. Thus, Instructional Systems Design can be categorized as a pedagogical theory derived from behaviourism. As a reaction to behaviourism, the concept of cognitivism emerged: cognitivism argues that learning employs the acquisition or restructuring of cognitive configurations (Ravenscroft, 2001). This assumption allows for conceptual principles and actions concerning informational structure of curriculum. Cognitive science input for Instructional Systems Design is demonstrated through computer tutors.

Furthermore, constructivism presumes that individual knowledge is an adaptive and dynamic process. This reality is persistently open to change, because current structure and connections are the foundation to which other knowledge structures are attached (Bednar *et al.*, 2002). The increasing significance of this approach is recognized throughout ICT learning practices (McRobb, Jefferies, & Stahl, 2007). Nevertheless, rising knowledge complexity, as well as the growth of educational networks, gives rise to social theory/social cultural (social and cultural dynamics are core issues in learning). This approach would argue that students join a knowledge-generating community in order to solve real problems as a component of

their study. In a social constructivist environment, the lecturer will himself or herself be a learner together with his students, as the generic skills of collaboration, problem solving and creating new knowledge are important goals.

Finally, Siemens (2004) suggests connectivism as a novel learning theory. Connectivism is characterized by the “amplification of learning, knowledge and understanding through the extension of a personal network” (Siemens, 2004). This theory embraces self-efficacy concerning personal knowledge management within educational environment.

DISCUSSION- ACT 1

Behaviourists are mainly concerned with the result, or recognize the elements of learning, as well as focusing on observable behaviour concerning the learning process (Driscoll, 2000). Nonetheless, virtual learning environments do not allow a systematic behavioural analysis of the agents involved (learners and lecturers). Cognitivists perceive learning as information processing, particularly through the use of cognitive skills (Driscoll, 2000), so to some extent can explain the level of personalization. However, the tools that enable learning personalization may affect the order concerning the hierarchic conceptualizations intended by the lecturer pedagogical choice.

Constructivists assume learning as a dynamic construction process by the learner, thus learning is gained throughout the learner’s own personal experiences (Driscoll, 2000). Therefore, the major pedagogical dilemma of learner-centred environments revolves around the changing role of the lecturer; the defining characteristics of the lecturer in this pedagogical theory are the lecturer as authoritative teacher, and the lecturer as transmitter of information.

Finally, Kerr (2006) considers connectivism as an erroneous learning theory that fails to properly consider and interpret existing learning theories. Verhagen (2006) alternatively believes that connectivism is a pedagogical view rather than a learning theory. Thus Kop & Hill

(2008) claim that connectivism will continue to play an important role in the development and emergence of new pedagogies. ICT integration, therefore, is not about old versus new learning, but about a possibility to integrate social and cultural contexts; such potential integration lead to conflicting imperatives between formal institutional and informal contexts.

THE EVOLUTION OF E-LEARNING MANAGEMENT SYSTEMS

Content Management Systems

The conception of a Content Management System within the literature is blurry or incomplete (Svarre, 2006). The authors here therefore provide their own vision (Costa, Silva, & Rogerson, 2008): a Content Management System is a tool that facilitates a diversity of centralized technical and de-centralized operations to non-technical staff, to create, edit, manage and finally publish a variety of contents, a tool which exhibits an array of rules, processes and workflows that ensures a coherent and validated appearance. Moreover, it must allow users to collaborate and interact on the creation and management of trusted content through the portal, as well as to import and edit it. Nevertheless, the social process of acquiring knowledge is rarely taken into consideration, and that is the main reason to move towards Learning Content Management Systems.

This concept is commonly used in the online publishing industry, whose objective is to simplify the creation and administration of online contents used in publications. This system evolution will enable the following characteristics (Shaw, 2007). First, content is kept separate from presentation, so that creators can decide how to deliver their content, and not worry about layout considerations, except if it is pertinent to the article comprehension. Secondly, enforce workflow processes required to be enforced: e.g. articles sent in by the authors’ are first accepted by editors prior to publication.

After publication, the articles are kept “live” for a particular period of time, after which they are backed up and archived.

Knowledge Management Systems

All attempts to implement e-learning will ultimately move towards entire automation of teaching, learning and managing processes. For Mihalca *et al.* (2008), Learning Management Systems are frequently perceived as a starting point (or critical component) of any e-learning or blended learning program. This perception is legitimate from a management and control standpoint, but antithetical to the human-centred learning. As a result, the development of this technology engages three diverse conceptions: (1) Learning Knowledge Management Systems, evolution due to social interaction, which breaks down into Personal Learning Environments and Social Software; (2) Learning Oriented Knowledge Management Systems, evolution at an instructional level; and Learner Relationship Management, comprehensive evolution concerning the learner’s profile.

Personal Learning Environments comprise a recently emerged characteristic of Learning Knowledge Management Systems, offered as an alternative to the structured model of Learning Management Systems. They can be described as systems that help students to take control and manage their own learning (Hall, Paradise, & Courtney, 2003). Social Software is “a conceptual shift that acknowledges the reality of distributed learning practices and the range of learner preferences” (van Harmelen, 2006, p. 1), which allows students to engage the web as a resource for their self-governed problem-based, and collaborative activities (Dalsgaard, 2006).

Learning Oriented Knowledge Management Systems represent a development regarding instructional design, with feedback loops concerning traditional Knowledge Management Systems (Hall & Paradise, 2005). The outcome combines the flexibility of inquiring

systems with an enhanced version of Simon’s Intelligence-Design-Choice model.

Finally, Learner Relationship Management is a model based on commercially available Customer Relationship Management but applied to e-learning. The key feature of this technology is to detail all the information concerning a customer (profiling) which, in this context, is the learner (Townsend, 2001).

DISCUSSION: ACT 2

If the reader draws attention to Act 1 of the Discussion, it is possible to acknowledge that pedagogical theories do not address learner’s moral behaviour. In fact, current pedagogies only approach ethical issues in an instructional sense (Huff & Frey, 2005), or by reference to lecturer ethical behaviour (Huff, Barnard, & Frey, 2008). Furthermore, the evolution of learning environments draws increasing attention to the ethical dilemmas concerning power issues, and learner ethical behaviour (Johnson, 2008). Power issues are a consequence of the changing role of the lecturer, arising from a feeling of losing control (Nussbaum-Beach, 2009), namely a “psychological feeling” derived from the perception that children are far more comfortable with ICT than adults. Secondly, learner ethical behaviour is related to an individual moral development, development that had been highly influenced by the work of cognitive development of Piaget (1965) which Kohlberg & Kramer (1969) applied to moral psychology. This is consistent with several studies regarding learners’ moral development in computer ethics (Jagger, 2010). Despite these contributions arrays of potential critique arise, moral psychology is claimed to represent a new paradigm, because it focuses all individual processes (causes and conditions) for moral behaviour (Reynolds & Ceranic, 2009). In addition, moral psychology debates not only moral development, but also the moral intensity of decision within several constraints (including organizational) (Cardy & Sevarajan, 2004).

Table 1. Empirical evidences

Levels	Actors	Examples	Reflection
Micro	Lecturers	Produce and introduce content simultaneously for Portuguese and Angolan learners	Is this content in accordance to both learners' characteristics? It is required ethicultural sensitivity? (Silva <i>et al.</i> , 2010)
	Learners	Academic integrity, namely regarding plagiarism, is more intense in Portuguese than in Angola learners	In Angola technological infrastructure is not totally available, contrarily to what happens in Portugal. As a consequence, Angolan learners have less means to access to "controlled documents" (thus respecting plagiarism, copyright and intellectual property rights?). Does this fact justify a distinct moral intensity about academic integrity? (Silva, Rogerson, & Stahl, 2008)
Macro	Educational institution	Institutional accreditation (Bologna Process) concerning delivered content. This content should be shared by Portugal and Angola campuses (e-learning)	In Portugal, e-learning technologies have been supported by European Union financial programs ((E-Learning Action Plan)). However, in Angola it resumes a continuous internal investment by the University. Additionally, Lusíada University (shared name) resumes a Janus assumption: in Portugal it is a foundation; and in Angola it is a profitable organization. Does this organizational antagonism imply unlike social responsibility? (Solomon, 1992)

DISCUSSION: ACT 3

Empirical Evidence

It is possible to frame the overall discussion of these issues by reference to the three scales described above: micro-level (individuals); meso-level (e-learning project); macro-level (educational institutions). Here the authors will extend Stahl's (2002a) refreshing contribution, by shedding some additional light on two key matters, and focusing on micro and macro-level issues: (i) that individuals comprise both lecturers and learners, since learning technologies enhance bidirectional communication; (ii) that e-learning technologies shape micro and macro-levels. Likewise, Stahl (2002b, p. 56) argues that "the individual on the micro level is also part of meso level organizations, in this case of a university, and belongs to a macro level society or state". Therefore, in Lusíada University, the e-learning project fit within also the micro and macro levels.

As practical example, the authors describe and reflect upon some empirical evidence regarding micro and macro levels of e-learning

implementation in Lusíada University (a private university with campuses in Portugal and Angola) (Table 1) (Silva, Rogerson, & Stahl, 2010). This critical reflection gives rise to key discussion points with regards to the implementation of e-Learning Management Systems and related ethical dilemmas (Table 2).

Outlook

The e-learning industry has been recognizing that is crucial to integrate all synchronous and interactive technologies in order to support "human-centred learning" (Oblinger, 2006). Nonetheless, from the critical reflection and recognition of dilemmas emerging from the empirical evidence, an idiosyncratic characteristic emerges: this is "uncharted territory"! This claim is consistent with personalized learning environments that Web 2.0 and 3.0 permit constantly demanding a collective contribution. Nevertheless, despite these considerations, is feasible to make some key remarks concerning the research hypothesis of this paper: will personalized learning environments enhance ethical dilemmas?

Table 2. E-learning issues: Discussion and dilemmas

Levels	Actors	Discussion	Dilemmas
Micro	Lecturers	Will the evolution of e-Learning Management Systems facilitate lecturers' analysis about "controlled content", despite size or formats? (Röbling <i>et al.</i> , 2008)	It will be feasible to produce common contents that simultaneously ensure ethicultural sensitivity? Will e-Learning Management Systems flatten moral intensity?
	Learners	Will the evolution of e-Learning Management Systems enhance the rank of control concerning "controlled documents", despite size or formats? Does infrastructure liability affect this relationship (Stahl, 2002b)? Does culture affect authorial autonomy (Howard, 2007)?	Will e-Learning Management Systems enhance moral intensity about reducing plagiarism, copyright and intellectual property violations?
Macro	Educational institution	Will the evolution of e-Learning Environments shape the educational institution's social responsibility, despite different organizational configurations (Johnson, 2000)?	Will e-Learning Management Systems profile educational institutions as globally certified?

Bélisle (2007) claims that lecturers ought to identify intercultural dimensions of learning theories and teaching models, as well as the legal issues that produce guidance for the educational community. These requirements reflect the view that content be tied to culture and language, not only technological features. Important questions arise from this perspective. If, for example, these personalized learning environments' dramatically reduce lecturers involvement, who will become responsible for learners autonomy? If lecturers' decide to maximize the learning platform potential to "control content", will not learners' autonomy be diminished (Hall, 2008)?

With reference to learners', personalized learning environments, there are also serious dilemmas: are learners prepared to become completely autonomous regarding learning (Boulton, 2006)? Despite promoting individuals social power, ICT engages a tragedy of the Good Will (Floridi, 2006), which in this particular case acknowledges two issues: will learners possess sufficient moral intensity to understand the constraints of self-autonomy? Will learners possess the moral intensity to comprehend the ethicultural constraints of producing content? This last feature is clearly a novel dilemma posed by personalized learning environments, because previous to Web 2.0 and 3.0, learners'

capability to express their knowledge to others was dramatically reduced.

Finally, institutions need to focus their attention not on policies and models for managing learners' diversity at a physical stage (Davis, 2009), but on "distributed diversity", that is learners' diversity in personalized learning environments. Furthermore, institutions need to ask how to achieve international accreditation in learning environments that may promote total autonomy, as well as utilize informal and unstructured content? Several proposals have been discussed (Dondi, 2009), although equity issues remain unsolved (Moussa & Moussa, 2009).

Even so, it is the authors' belief that further critical queries exist:

1. Web 2.0 and 3.0 tools enable content creation, so which component of the learning system will manage this massive creation?
2. Who will be responsible to control its quality or relevance?
3. Which criteria will be selected to justify its quality or relevance?
4. And, who authorises these criteria?
5. Will it be possible to claim the authoring of such content?
6. If the answer to previous question is negative, intellectual property rights guardians will face a true challenge!

Likewise, the dialogue between local and global ethical systems (“glocal ethics”) suggests a mutual and equal respect, which stresses regulatory values of self-respect and justice (Zirfas, 1999). Thus, higher education institutions have a social responsibility to promote “glocal knowledge”, and so, a concomitant recognition of “glocal morality”, the blend of skills that consent ethical decisions within diverse cultural diasporas (Roudometof, 2005).

CONCLUSION

Given the nature of the research problem, as well as, the ideas introduced throughout this paper, it is imperative to recognize some significant claims: (i) that e-learning mainstream literature ignores this debate; and, (ii) the evolution of E-Learning Management Systems will definitely enhance ethical dilemmas concerning individuals and organizations. In fact, human-centred learning environments will enhance the pressure for individual and organizational ethical behaviour, as well as decision making.

The authors’ agree with the claim that e-learning will become globally accepted as a prerequisite for future social and economical development (Richards, 2004). However, to be achievable this requires, as a key for future success, moving from technological and methodological to ethical requirements. In fact this thread has been characterizing education throughout history. Hence, despite the contemporary technological novelty, the truth is that learning symbolizes people (Toulmin, 2001), which again reinforces the authors’ belief about the importance of ethical behaviour and decision making.

In summing up, the authors’ critique the work of McLoughlin and Lee (2008), who acknowledge the three Ps of pedagogy for the network society as being personalization, participation, and productivity (technological and methodological requirements). Instead, we suggest a revised model of the P3Es: person-

alization, participation, productivity, lecturer’s ethics, learner’s ethics, and organizational ethics.

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