

INTEGRATING PEDAGOGY, COGNITION AND TECHNOLOGY IN HIGHER/DISTANCE EDUCATION

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1. INTRODUCTION

This paper aims to address the issue of e-learning in the main, as it impacts the tripartite relationship of pedagogy, cognition and technology. The paper argues that e-learning must be firmly rooted in epistemological frameworks to be effective in the learning experience and that it is imperative that the pedagogy continue to transform and evolve as technologies change. In order to realise the objectives of this paper, a theoretical examination of cognition, pedagogy and technology was carried out in the form of a review of the literature, in order to motivate for the development of a new grounded pedagogical model for higher/distance education. An investigation of higher/distance education conceptual models was incorporated in the review of the literature. Additionally, a qualitative empirical study was conducted which involved in-depth interviews with Open and Distance Learning (ODL) experts at the University of South Africa (Unisa) in order to supplement the information that was gathered from the literature.

The term distance learning refers to learning that is conducted by someone removed in time and space from the students, referred to as 'transactional distance' (UNESCO, 2002: 8) and the concept of pedagogy refers to the art of teaching (Whitehead, 2005). Pedagogy further describes the collected practices, processes, strategies, procedures and methods of teaching and learning. Whitehead (2005) states that the pedagogical methods introduced in a distance learning environment can contribute to the educational value in the learning process. This paper is based on the assumption that e-learning is a process facilitates and opens avenues for effective teaching as a result of its potential to bridge the transactional distance among all stakeholders at the institution.

The significance of this paper is the contribution that it will make towards developing an integrated pedagogical model for higher/distance education. The research conducted used Unisa, a higher/distance education institution in South Africa which uses ODL as its mode of teaching and learning, as context for this study. Unisa was founded in 1873

and services approximately 300 000 students. It is the fifth largest mega ODL education institution in the world and uses the *myUnisa* platform as its Learning Management System for academic collaboration and study-related interaction. *myUnisa* is an online platform for learning, which is used in conjunction with various other forms of learning at Unisa.

The problem that was investigated relates to the low throughput rate at higher/distance education institutions. Consequently, there is a need for interventions and pedagogies to be developed that are unique to the higher/distance education system to enhance the learning process.

2. TOWARDS AN INTEGRATIVE PEDAGOGICAL FRAMEWORK

2.1 DIALOGUE

This study applies the theory of dialogue as its guiding principle and therefore uses Freirean dialogue as the theoretical framework. Freire (1970: 53) argues that the truly revolutionary project, which is enabled by the process of dialogue and mediated by the outcomes of conscientisation, creates a process during which the people assume the role of subjects, which Freire (1985: 53) argues is synonymous with independence and integrity. The aforementioned concepts are relevant in this study, as higher/distance education students should be viewed as subjects of education who are active participants and not mere objects who receive information through the set curriculum.

Freire also refers to active reflection and reflective action, referred to as praxis which implies that dialogue cannot exist unless it involves critical thinking, that is, thinking which perceives reality as a process and a transformation, rather than as a static entity (Taylor, 1993: 56–57). Rather than a "banking" model in terms of which the teacher makes deposits which the students patiently receive, memorise and reproduce and which serves only to increase the recipi-

ents' dependence upon the teacher and to perpetuate their oppressed conditions, Freire suggested a model in terms of which education becomes a dialogue during which both the teacher and student learn from each other (Freire, 1970: 53).

Freire emphasised that the mere transfer of knowledge by an authority source to a passive receiver did nothing to help promote growth in the latter as a human being with an independent and critical conscience, capable of influencing and changing society. Freirean dialogue is relevant in this paper because of its reference to the concepts of dialogue, reciprocity and participation in the learning process, elements that are necessary in higher/distance education's context in order to effect a deep and meaningful learning experience. The paper provides a discussion towards an all encompassing pedagogical framework in higher/distance education.

2.2 CRITICAL PEDAGOGY

Critical pedagogy, a term coined by Paulo Freire, views education as a broad form of knowledge (Freire, 1970: 74) which demands critical educators and not just subject experts in the learning process. Dheram (2007) asserts that critical educators realise the ever changing nature of the components of the educational context and it is the critical pedagogue who realises that the change is a result of the constant interaction between every component of the context, whereby engagement and action are as important to critical pedagogy as knowledge. Critical pedagogy challenges conventional views of the relationship between student and teacher, and argues that academics are transformative intellectuals (McArthur, 2010). Whereas traditional pedagogical approaches emphasise the teacher as knowledge broker and the student as receiver of knowledge, critical pedagogy places emphasis on the student as student in a social context and knowledge as produced within a social context (Travers, 1999).

An evaluation of Freire's theory reveals an emphasis on the educator as the initiator of the conscientisation and dialogue process and in this study, the initiator of the learning process is the lecturer, who Freire (1985: 54-55) identifies as the person responsible for proposing problems about the codified existential situations in order to help students arrive at a more critical view of their reality. Freire argues that the educator whose approach is mere memorisation is anti-dialogical; his/her act of transmitting knowledge is inalterable, yet for the educator who experiences the act of knowing together with his/her students, demonstrates dialogue and this is a sign of the act of knowing. According to Kling (1996: 17)

critical thinking is a disposition, a way of approaching issues and materials. It is a readiness to consider alternative explanations, not taking key ideas for granted when it might be reasonable to doubt them. It is frequently a challenge to conventional ways of thinking and to passively accepting every text you read as comparably authoritative. Various teaching strategies should be explored that go beyond simply providing students with a body of diverse books or articles to read and analyse.

This leads the discussion to Bloom's taxonomy, a classification of learning objectives within education which refers to a classification of the objectives that educators set for students. The relevance of this taxonomy in this paper relates to skills in the cognitive domain which revolve around knowledge, comprehension and critical thinking. As educators, it is essential to develop the curriculum with certain outcomes at the fore, by encompassing the six levels in the taxonomy, with knowledge, comprehension and application being lower order skills and analysis, synthesis and evaluation at the higher level (SAQA, 2008). The paper argues that these cognitive skills may be developed by encompassing the relevant distance education pedagogy which relates to Lawless' (1979: 337) assertion that it is important to enable the student to develop learning ability which focuses attention on cognitive strategy. It is therefore important for the lecturer to adopt appropriate pedagogical frameworks to develop relevant cognitive skills in the higher/distance education student and this paper refers to e-learning as the catalyst in accomplishing such development.

2.3 RE-FASHIONING HIGHER/DISTANCE EDUCATION

Stahl (2000: 111) states that most educators agree that students place more belief in knowledge they have discovered on their own than in knowledge presented by others; yet these teachers fail to trust students to learn anything that is not explicitly stated by the teacher. Stahl (2000: 112) further asserts that educators often adopt a behaviourist rather than a constructivist approach in their instructional design because the educator often becomes so focused on the desired outcome that the process by which the outcome can best be attained is forgotten or ignored. If this is the case in distance education, whereby the information diffusion model (Rogers, c1983:125) is used, then the educator is failing to support the very learning that leads to the development of higher level cognitive skills and long-term change. In 21st century education, focus should be on managing knowledge, and not

on information diffusion, because adding and preserving knowledge is a key component in education and e-learning can assist in distance education.

Stahl (2000: 112) argues that instruction should be planned with a clear vision of what students will do with the content presented. It is critical that students interact with the instructional content and that activities be developed to promote and support open-ended, self-directed learning. Content should not be delivered for memorisation, but instead for use as a tool in planned and sequenced activities which requires carefully planned design, feedback and dialogue, and faith in students' capabilities when given adequate guidance. Technology is a tool; by itself it cannot teach anything, hence the human element is viewed as a critical component of the educational process. The key is to create a set of tools that can be used most effectively to leverage the lecturer's time and energy to aid the learning process.

Stahl (2000: 113) proposes that a cohesive approach to education be utilised to support changes in cognition, affect and behaviour, which relates to Bloom's taxonomy (SAQA, 2008). In a distance education mode, this cohesion requires instructional designers to plan cognitively challenging tasks, address the affective issues that stimulate student recognition of the need for change, and provide opportunities for action. Moreover, motivational aspects should also be included in instruction. However, in order to achieve the aforementioned cognitive abilities in students, it is essential to create a conducive learning environment in the distance mode – a community of students. This dialogical relationship is a sign of the cognitive act in which the knowing object, mediating the knowable subjects, gives itself over to a critical revelation. The significance of seeing this dialogical relationship becomes clear whenever we take an epistemological cycle as a totality, rather than splitting it into one stage for acquiring existing knowledge and another stage for discovery or the creation of new knowledge, which echoes Freire's (1985: 167) concept of conscientisation.

A preliminary step in achieving this is establishing a social environment though synchronous and/or asynchronous means through video conferencing, satellite broadcasting and discussion forums. Students' questioning of viewpoints and theories and critical analysis and debate can support rich learning experiences and group sharing that supports individual responsibility and distributed learning, and this should be encouraged by the lecturer. If active learning is seen as the primary mode of instruction and not as a supplement to the lecture, such learning will lead to permanent high level cog-

nitive development. This relates to Kearsley's and Shneiderman's (1999) engagement theory which emphasises engaged learning that involves active cognitive processes such as creating, problem-solving, reasoning, decision-making and evaluation. In addition, students are intrinsically motivated to learn due to the meaningful nature of the learning environment and activities that such engagement induces in a distance education mode of learning.

A review of the literature shows that e-learning is positively impacting higher/distance education. However, the opportunities and limitations of each technology-supported delivery should be critically analysed so that higher/distance educators may teach using appropriate pedagogical techniques in order for students to gain through innovative solutions to the myriad delivery issues that educators are faced with.

According to Maor (2006), if the use and understanding of technology in teaching is seen as a separate issue to that of teaching in itself, the gap between pedagogy and technology will increase. In other words, if the primary focus of the lecturer is on pedagogy, and technology is just seen as another mode of delivery designed to enhance the teaching and learning experience, then technology and pedagogy will be seen as existing separately, with one having minimal impact on the other. However, if elements of technology and pedagogy are considered as mutually supportive and interdependent, then it would be possible to construct new meaning about teaching in higher/distance education which will result in a bridging of the gap between pedagogy, technology and eventually cognition.

3. CONCLUSIONS

This paper based its argument on the assumption that the value of e-learning is not in its faster access to information, but in its capacity to facilitate communication, thinking, and to construct meaning and build knowledge, a process that will be mutually beneficial to both the educator and the student.

A review of the literature on higher/distance education and pedagogical frameworks as well as the in-depth interviews shows that learning should be integrated with technology in higher/distance education in order to accelerate student performance; learning should be linked with knowledge management to optimise performance and finally, learning strategy should be appropriate to the university's local needs and resources.

It is difficult for educators to develop a cohesive, long-term learning strategy if one begins with the technology,

because technology changes rapidly. It is recommended that a learning strategy be built into the outcomes to incorporate student-centredness and engaged learning which relates to the underpinning theory of this paper, namely Freirean dialogue. Freire (1970: 73) argues that for communication to be effective, it has to be participatory, dialogic and reciprocal, and this will only be possible once the issue of meaningful dialogue is initiated through relevant and appropriate pedagogies in higher/distance education. The paper proposes the development of an epistemological framework which is integrative, rather than delimiting in orientation; incorporating current as well as future trends and realities, rather than merely the present; process driven; and consistent with the current and future state of society and education with a strong theoretical underpinning.

The paper found that good teaching is not simply introducing and adding technology to the existing teaching and content domain. Rather, the introduction of technology into a curriculum requires the representation of new concepts and the development of sensitivity to the dynamic, transactional relationship between pedagogy, technology and cognition. Beldarrain (2006) argues that the lecturer's role should be that of partner in learning, one that probes and challenges students to become reflective, critical thinkers. The framework that this study proposes is considered to enable the promotion of

new ways of learning that are reciprocal between students and peers, and students and the lecturer. Depending on the nature of content, scope of content and level of students, appropriate technology integration must be sought. This paper concludes on the premise that e-learning enhances the process of learning and helps in achieving higher level cognitive objectives.

It is recommended that further empirical research studies be conducted by distance education universities to determine the barriers that impede meaningful engagement and further research to determine the extent of knowledge-building components that are built into existing curricula. Finally, the paper concludes that the learning process is a form of re-inventing, re-creating and re-writing and as educators in the higher/distance education process, we should immerse ourselves in the learning process with our students, which reverberates Freirean dialogue (Freire: 1970: 53). Technology should not be viewed as the transforming agent, but rather it is the lecturer who will transform the learning environment in a pedagogically responsible and appropriate manner with the assistance of e-learning.

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References:

1. BELDARRAIN, Yoany. *Distance education trends: integrating new technologies to foster student interaction and collaboration* [online] 2006. [10 March 2010]. Available: http://pdfserve.informaworld.com/446370_731328375_749174134.pdf.
2. DHERAM, Premakumari. *Empowerment through critical pedagogy* [online] 2007. [01 April 2010]. Available: http://www.academicleadership.or/empirical_research/Empowerment_through_Critical_Pedagogy.shtml.
3. FREIRE, Paulo. *Pedagogy of the oppressed*. Harmondsworth: Penguin, 1970.
4. FREIRE, Paulo. *The Politics of Education*. London: MacMillan, 1985.
5. KEARSLEY, Greg. SHNEIDERMAN, Ben. *Engagement theory: a framework for technology-based teaching and learning* [online] 1999. [01 April 2010]. Available: <http://home.sprynet.com/~gkearsley/engage.htm>.
6. KLING, R. Content and pedagogy in teaching about the social aspects of computerisation. In KATZ, Y.J., MILLIN, D., OFFIR, B. (ed.) *The impact of information technology: from practice to curriculum*, London: Chapman and Hall, 1996.
7. LAWLESS, C.J. Information processing: a model for educational technology. In PAGE, G.T., WHITLOCK, Q.A. (ed.) *Educational technology twenty years on*. New York: Nichols Publishing Company, 1979.
8. MAOR, Dorit. *Pushing beyond the comfort zone: bridging the gap between technology and Pedagogy* [online] 2006. [01 April 2010]. Available: <http://www.ascilite.org.au/conferences/perth04/procs/pdf/maor.pdf>.
9. McARTHUR, Jan. *Time to look anew: critical pedagogy and disciplines within higher education* [online] 2010. [01 April 2010]. Available: http://pdfserve.informaworld.com/24377_751308860_918636287.pdf.

10. SAQA (South African Qualifications Authority). *Bloom's taxonomy* [online] 2008. [01 March 2010]. Available: http://www.nqf.org.za/download_files/nqf-support/13%20Bloom's%20Taxonomy.pdf.
11. STAHL, S. Brining old ideas to new times: learning principles of Kurt Lewin applied to distance education. In MEALY, L., LOLLER, B. (ed.) *E-learning: expanding the training classroom through technology*, Chicago: Rec-tor Duncan & Associates, 2000.
12. ROGERS, Everett. M. *Diffusion of innovations*, 3rd edi-tion. New York: Free Press, 1983.
13. TAYLOR, Paul. *The texts of Paulo Freire*. London: Open University Press, 1993.
14. TRAVERS, Ann. *New technology and critical pedagogy* [online] 1999. [01 April 2010]. Available: http://radical-pedagogy.icaap.org/content/issue1_2/01travers1_2.html.
15. UNESCO. *Open and distance learning: trends, pol-icy and strategy considerations* [online] 2002. [12 March 2010]. Available: <http://unesdoc.unesco.org/images/0012/0012/001284/128463e.pdf>.
16. WHITHEAD, Bob. *The pedagogy behind distance educa-tion and making it a rewarding experience* [online] 2005. [10 March 2010]. Available: <http://www.web-confer-encing-zone.com/4086-pedagogy.htm>.

Abstract:

Distance education, incorporating evolutionary methods of maximum inclusion, has changed the face of pedagogy in the 21st century digital age. The underpinning objective of distance education is to ensure that the student has a meaningful learning experience having accomplished definitive outcomes. While many distance education institutions are rapidly embracing multimodal ways to reach its students, many issues remain unresolved. One major issue is how to maintain the discipline's conceptual integrity while accom-modating new developments in technology, including find-ing creative, yet appropriate solutions in different contexts. This paper seeks to identify and address the issue of e-learn-ing in the main, as it impacts the tripartite relationship of pedagogy, cognition and technology. In order to realise the objectives of this paper, a theoretical examination of cogni-tion, pedagogy and technology was carried out in the form of a review of the literature, in order to motivate for the devel-

opment of a new grounded pedagogical model for higher/distance education. An investigation of higher/distance edu-cation conceptual models was incorporated in the review of the literature. Additionally, a qualitative empirical study was conducted which involved in-depth interviews with Open and Distance Learning (ODL) experts at the University of South Africa (Unisa) in order to supplement the information that was gathered from the literature. The study applies the theory of dialogue as its guiding principle and therefore uses Freirean dialogue as the theoretical framework. The paper argues that e-learning must be firmly rooted in epistemo-logical frameworks to be effective in the learning experience and that it is imperative that the pedagogy continue to trans-form and evolve as technologies change. This paper suggests that a new grounded pedagogical model be developed, incor-porating the cognitive and technological aspects of distance education in pursuit of dialogical learning excellence.