E-education: A possible route to establishing a graduate identity in an ODL environment?

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Abstract

The trend that technology affects most spheres of people's lives impacts on society's requirements for essential skills and knowledge. Effectively using technology in teaching and learning in an open distance learning environment can enhance the quality of education and prepare students for their role as knowledge workers. E-education (which acknowledges the role of ICT in both teaching and learning requirements) particularly may offer opportunities to enhance students' engagement and to contribute to the establishment of a graduate identity in an ODL environment. It may expand teaching-learning in an ODL environment by creating innovative spaces to do so. Introducing innovative teaching pedagogies to existing learning cultures may, however, require a change from instructivism to constructivism (and eventually connectivism). Misalignment may occur during this process because many people, institutions and established ideas are involved. The type of attitude change that the implementation of e-education may require from both academic staff and students could be described as a major cultural change.

Key terms: E-education, graduate identity, constructivism, instructivism, ODL, 21st century skills, information and communication technology (ICT)

Introduction

Higher education institutions are responsible for equipping their graduates with the requisite skills and competencies for employability in a global economy and knowledge society (Ghaith, 2010). The production, dissemination and critical use of knowledge are vital in various domains in a global economy and a knowledge society, and the opportunities which technologies offer play a vital role in this process. Human learning has always involved the invention of and interaction with technology, and higher education institutions should acknowledge this trend in their teaching and in preparing students for their role in the labour market.

Students from open universities compete in the same labour market as students from campus-based universities, and therefore need the same types of skills to function as knowledge workers. It is believed that e-education may offer opportunities for enhancing students' graduateness in an ODL environment that were not available in the past. Hinchliffe and Jolly (2011) propose the concept, graduate identity, to identify four kinds of graduate *experience* that employers value. Firstly, in light of employers' concern about diversity and personal ethics, the extent to which a graduate has engaged with values is a key component of graduate identity. Secondly, employers value the role of intellect, which normally is delivered through discipline-related study. Thirdly, employers are looking for performance, or the ability to deliver results. And finally, because of the importance of interpersonal skills, employers expect evidence of experience of engagement with others across a variety of contexts. It is believed that e-education can contribute to students' experiences in all four fields in an ODL environment.

To achieve the above, and to efficiently apply ICT in teaching and learning in an ODL environment, we need to regard teaching and learning environments as flexible, networked and extended virtual spaces (Jung & Latchem 2011). Instead of terms such as e-learning, m-learning, flexible learning, blended learning or virtual learning, Jung and Latchem (2011) propose the comprehensive term "e-education". This term reflects the fact that ICT can serve both teaching and learning requirements, and will thus be used in this paper.

This paper proposes that using technology effectively in an open and distance learning (ODL) environment is essential in providing high quality education and preparing students for the challenges of the twenty-first century (Thomas 2011). If properly managed, e-education can improve student throughput, particularly by increasing students' engagement in this type of environment, and provide experiences that contribute to the establishment of a graduate identity.

2. The impact of technological change on societal requirements for essential skills and knowledge

The question has been raised whether people still need to be able to learn and remember in light of the ubiquitous availability of technology. They indeed have to, but what they need to learn and remember, and how they do it, will be different because of the impact of digital technology on the accepted manner in which societies produce and reproduce knowledge and skills (Säljö 2010).

The nature of literacy skills has in fact changed during the digital era. Since people now have access to information from numerous sources, they have to be selective and learn to disregard much of what they hear and see – the ability to distinguish between important and unimportant information is vital (http://education-2020.wikispaces.com/Connectivism). Reading and interpretation therefore require more than merely giving back what is already available (Säljö 2010).

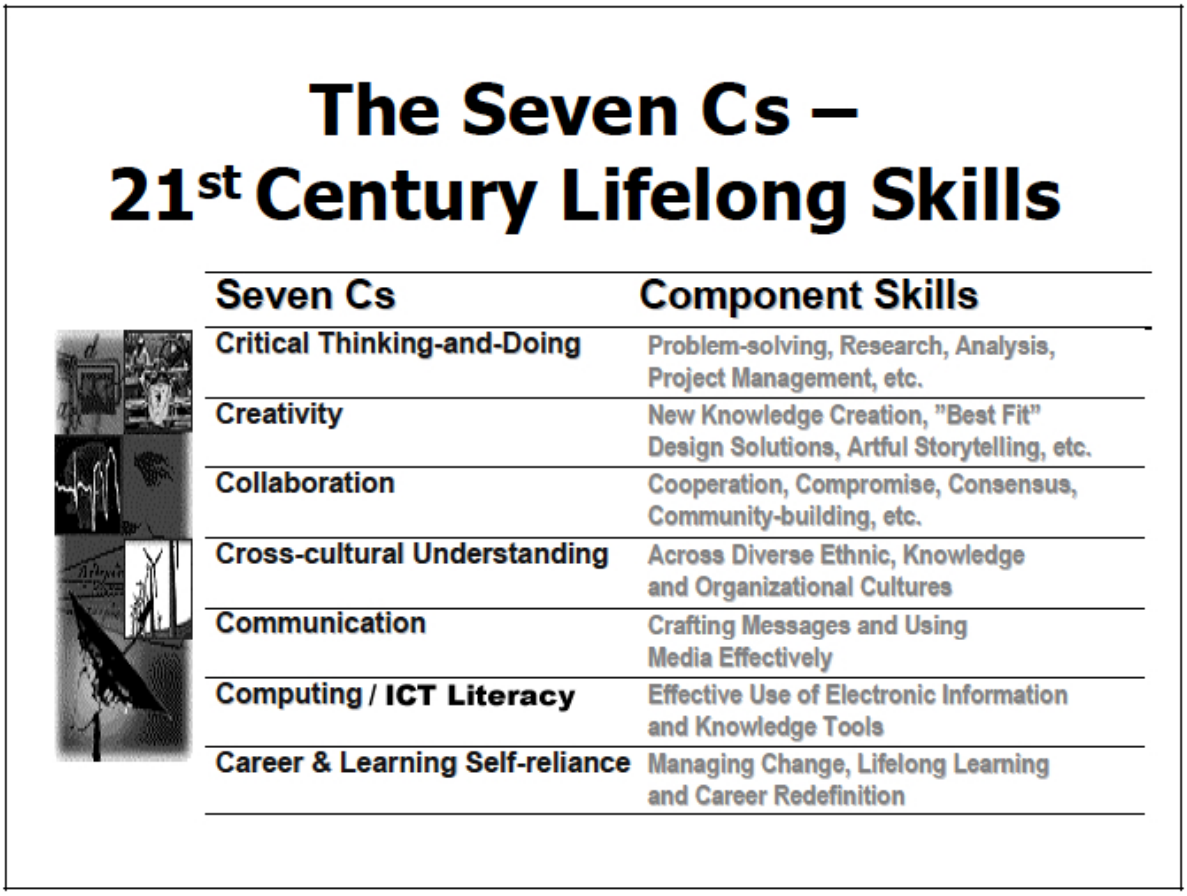
Digital technologies increase our capacity to externalise human cognitive functions by means of devices such as spell and grammar checks, search engines, Global Positioning System (GPS) navigators, and face recognition devices. This development impacts on societal requirements for learning, as well as institutional definitions of learning and people's knowledge is expressed in their ability to collaborate with external tools and to integrate them into their actions.

When resources that imitate the human mind (the coined phrase is mindwares) form part of most of people's daily activities, it impacts on society's expectations of what they should be able to do. This, in turn, impacts on the kinds of skills students need

to develop to be prepared for the jobs of the twenty-first century (Thomas 2011). Digital literacy plays an essential role in the twenty-first century skills that students need to acquire. Preparing students adequately for the challenges of a knowledge-driven society therefore also means equipping them with ICT knowledge and skills, and incorporating these in teaching.

2.1 Twenty-first Century skills

Trilling (2005) presents what he calls the new learning formula. According to him, the basic "3Rs" of reading, writing and arithmetic, multiplied by the lifelong skills most



needed currently, known as the "7Cs", becomes the new formula for success in the 21st Century:

3Rs X 7Cs = 21st Century Learning.

The seven Cs are shown in Figure 1.

Figure 1 Skills needed by 21st Century learners

Source: http://education-2020.wikispaces.com/21st+Century+Learning

Measuring and testing all the above skills becomes the new goal of educational accountability in learning societies (societies which are learning-centred) (Trilling 2005). An emphasis on the development of higher-order thinking skills will increase, because people are exposed to technology early in their lives and computer literacy skills are now a fundamental requirement. Globalisation, free trade and technology further lead to the establishment of various communities of interest, and twenty-first century learners need to develop global and digital citizenship skills to function in such communities. They should understand human, cultural and societal issues related to technology and practice legal and ethical behaviour – an experience that is necessary for the establishment of a graduate identity.

Most higher education institutions globally face a state of evolution in adopting emerging technologies and pedagogies in their teaching and learning environments. Some of the possible advantages that new technology offers to enhance student learning include promoting the development of new pedagogies (where control shifts from lecturers to more self-directed students) and making learning activities relevant and authentic by linking them to visual and real-world contexts. Despite advantages such as these, wide-scale implementation of ICT-enhanced teaching and learning has not yet occurred.

Conole (2010) points out that the reasons for the slow acceptance of technology in enhancing teaching and learning are multi-faceted, including pedagogical and organisational issues, and the technologies themselves. Digital technology, for instance, does not serve as an "independent variable" that can merely be introduced to boost learning and performance levels in an educational system (Säljö 2010). An understanding of how policy, resources, infrastructure and culture influence educational expectations is vital in this process.

Thomas (2011) believes that a paradigm shift from passive teacher-centred instructivist strategies to student-centred constructivist strategies is essential in implementing technology in educational systems. Knowledge societies further are

built on collaborative problem-solving and knowledge-creation skills that may best be cultivated in constructivist-based learning environments (Porcaro 2011).

3. A model for introducing constructivism to instructivist-oriented learning cultures

Porcaro's (2011) model illustrates the dynamics involved when innovative pedagogical practices are introduced into fundamentally different learning cultures. He proposes that the distinction between instructivism and constructivism should assist in understanding different levels of implementing innovative pedagogies in learning cultures.

3.1 Instructivism versus constructivism

Porcario (2011) presents instructivism and constructivism as two poles on the continuum of educational practice. Instructivism refers to well-formulated, teacher-directed, didactic learning, whereas constructivism refers to student-centred forms of instruction, including the social (Bandura, in Porcaro 2011), situated (Lave and Wenger, in Porcario 2011), knowledge creating (Bereiter, in Porcario 2011), and intersubjective (Suthers, in Porcario 2011) pedagogies.

3.2 Potential conflicts

Schools and universities operate on various points along the continuum between instructivism and constructivism, and teachers and students in these institutions also function on particular points of the continuum. Furthermore, schools and universities exist in national cultures that represent a larger culture of learning which may be situated somewhere on the continuum. Depending on the difference between their current practice and innovation, some cultures, systems and personalities may adapt more easily to constructivism, while others may experience conflict. Porcaro's (2011) framework for introducing innovative pedagogies into fundamentally different learning cultures (see Figure 2) offers some explanation why these conflicts occur.

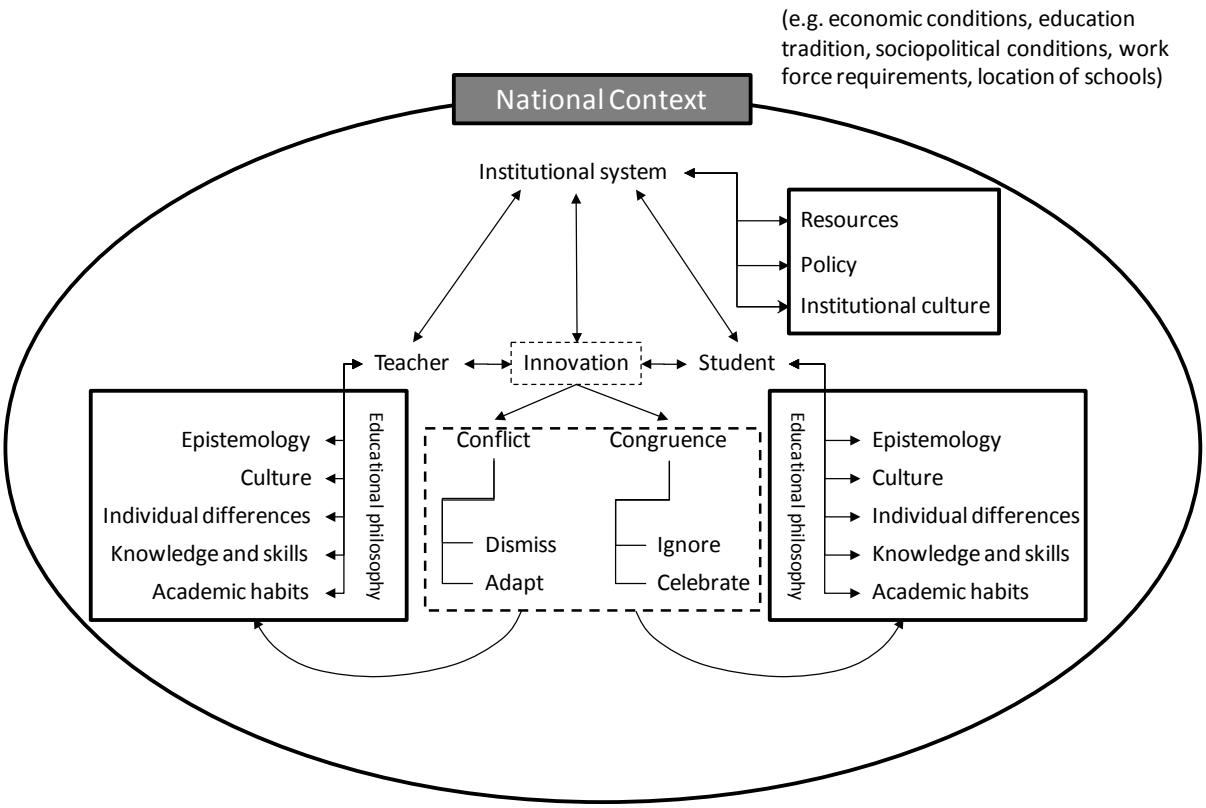


Figure 2 Framework for introducing innovative pedagogies

Source: Porcaro (2011, p. 45)

The framework presents the pedagogical methods and learning environments that are at the intersection of teachers' and students' educational philosophies, institutional systems and the national context. Educational philosophy refers to the epistemology, culture, individual differences, knowledge and skills, and academic habits and expectations of students or teachers.

In order to understand how this framework applies when introducing constructivism to instructivist learning cultures, it is necessary to diagnose the alignment (or misalignment) of students, teachers and institutional systems to pedagogical innovation. For an innovative pedagogy to be successfully introduced, its design should be aligned with psychological (epistemology, individual differences, knowledge and skills, and academic habits/expectations), pedagogical, pragmatic, technological (within the institutional system) and cultural constraints. Both students and teachers may have potentially conflicting educational philosophies, and may be functioning in potentially conflicting institutions.

Students, teachers and institutions may react in particular ways to the change in educational practice required in adapting to a constructivist approach. Many teachers resist losing control of their classrooms and feel uncomfortable in the facilitator role which is required by the constructivist approach. The possible loss of control in terms of content, instruction, and assessment may also be a concern at institutional and national levels, because teachers often have to cover standardised content to prepare for important assessments.

Many students who are familiar with more traditional methods of learning may find it difficult to adapt to the types of skills that constructivist learning requires. Students from instructivist traditions have been characterised as lacking self-directedness and working only towards “making the grade” rather than towards excellence, and they may find it difficult to work collaboratively.

Many of the abovementioned factors need to be aligned for the successful implementation of constructivist learning environments in instructivist learning cultures. It is, however, not possible to achieve perfect alignment because a large number of people are involved.

The teacher should actively guide students through constructivist learning environments, recognising misalignment and adapting to it. This may include mixing instructivist and constructivist methods, training students in strategies for successful collaboration and problem solving, and creating tools for scaffolding students’ abilities during task completion.

4. A model for e-education: Extended teaching and learning spaces

Jung and Latchem (2011) propose a model for e-education in instruction, training, initiation and induction, based upon the concepts of extended teaching spaces (involving execution, facilitation and liberation) and extended learning spaces (used for acquisition, application and construction) which are cemented by dialogue and reflection.

Considering extended teaching and learning spaces, as proposed in this model, may be particularly relevant in efficiently implementing ICT in teaching and learning in an ODL environment, especially to enhance students' graduateness. The model considers various functions of education that may be required and suggests how different processing and presentation capabilities can be incorporated into e-education. Incorporating some of the possibilities this model offers in and ODL environment should contribute to students experiencing the element of performance (the application of skills and intellect in the workplace), as identified by Hinchliffe and Jolly (2011). In terms of graduate identity, this equates to the ability to learn quickly and effectively and to develop skills appropriate for the work environment, such as presentation skills, information technology skills, and written communication skills.

Jung and Latchem (2011) believe that it is possible to combine various teaching and learning philosophies in Stenhouse's (1975) view that education necessarily comprises four interrelated functions: *training, instruction, initiation* and *induction*. *Training* deals with the acquisition of skills, whereas *instruction* focuses on the acquisition of specific information. In the case of both training and instruction, it is possible to formulate precise objectives to be achieved, which can involve overt behaviour such as recall and recognition.

In *initiation* learners are familiarised with social values and norms, and during *induction* they are introduced to thought systems and how to arrive at personal relationships and judgments. In the case of both initiation and induction, the behavioural outcomes are unpredictable and the type of learning tends to be open-ended.

Training and instruction require an *executive* approach from a lecturer because he or she acts as executor or course manager. The lecturer provides the core content (for instance, deciding about the course content and the most appropriate forms of teaching and learning, designing and developing course material) and students acquire the content.

During initiation, students become less dependent on their lecturers. The lecturer adopts a *facilitator* approach*,* encouraging and cultivating the personal growth of students and helping them to become familiar with social and academic values and norms. During induction, students become more independent and they figure out their own value systems and understandings of knowledge, society and the world. The lecturer adopts a *liberationist* approach, encouraging and enabling students to make their own connections between their current knowledge and experience and this new understanding through questioning, making critical and creative use of first-hand sources, discussion and reflection.

Jung and Latchem (2011) visualise e-education environments as spaces around or within which learners construct learning places. The two building blocks for their model (see Figure 4) are *extended teaching space,* which changes the way in which lecturers execute, facilitate and liberate learning and *extended learning space,* which changes the way in which students acquire, apply and construct knowledge. They propose that *reflection* and *dialogue* serve as two functional properties that link these teaching and learning spaces, as will become evident below.

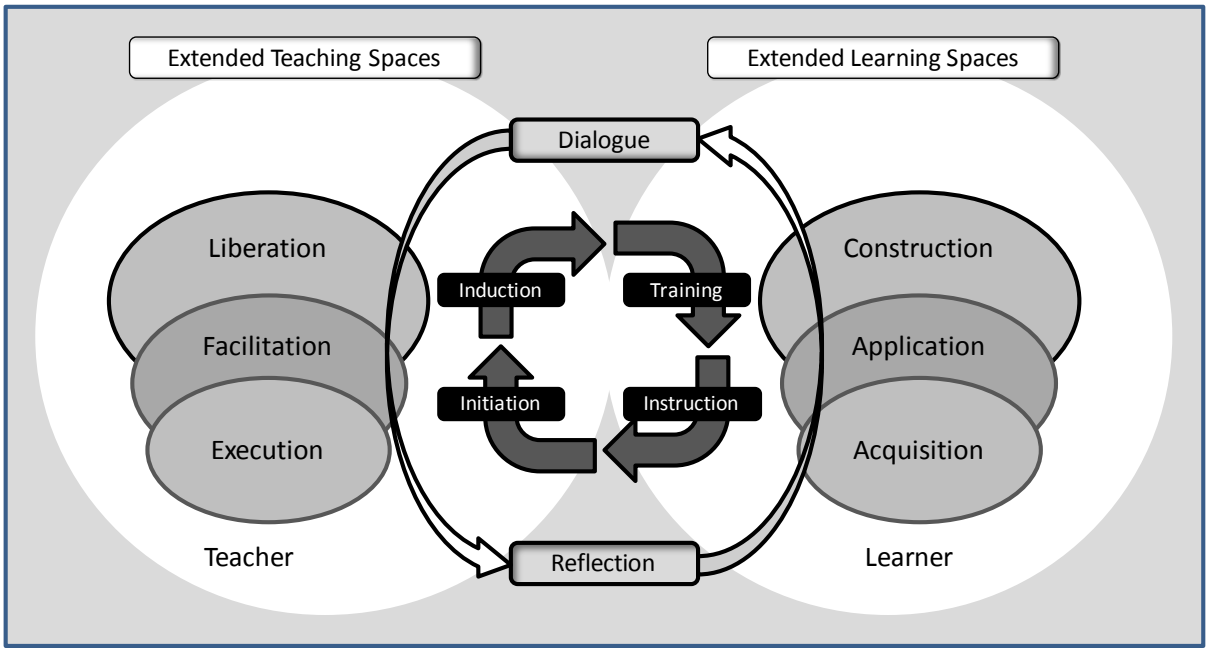


Figure 4 Technology and extended spaces for teaching and learning

Source: Jung and Latchem (2011, p.11)

4.1 Extended teaching space

All three approaches to teaching, these being execution, facilitation and liberation can be accommodated in an extended teaching space.

4.1.1 Execution

In an extended teaching space lecturers can still provide students with knowledge and skills, set learning tasks, and determine outcomes, but they are able to do so in a more diverse and individualised manner. Tools such as PowerPoint and other multimedia devices enable academic staff to present facts and demonstrate processes in engaging, motivating and interactive ways, particularly in an ODL environment. Offline or online multimedia, learning management systems, webquests and similar tools provide resources for both teaching and learning.

The teaching space is extended because the work is done online – students can work anywhere they want, and lecturers can assess, grade and give feedback on students' work asynchronously, anywhere and at any time.

4.1.2 Facilitation

Although most objectives tend to be clear during training and instruction, students often need assistance in interpreting needs/requirements, understanding instructions and criteria, and mastering new material and methods. During initiation and induction, facilitation may be needed even more because learning objectives tend not to be as specific. Self-paced computer-based tutorials can be used to prompt and support students, and their learning can be facilitated by interactive ICT tools, such as online help desks, as well as online tutoring.

Interactive ICT tools allow lecturers to assist students who require personal and affective support. Uncertain or isolated learners, for instance, can become more intellectually, socially and emotionally engaged in learning by using e-mail, conferencing, chat and discussion boards to provide a crucial sense of "teaching

presence", "cognitive presence" or "social presence". It is essential to facilitate, develop and sustain social presence in an ODL environment because it promotes and supports discourse-based learning (Kim et al. 2011). Social presence makes group interactions appealing and engaging, leading to an increase in academic, social, and institutional integration and resulting in increased persistence and course completion.

New technology therefore enables academic staff to provide flexible student support extending beyond conventional course boundaries, enables more flexible learning, improves communication and collaboration, and can build new communities (Hartley 2011).

4.1.3 Liberation

The availability of technology such as the internet and the web makes most places, people, knowledge, ideas and artefacts almost instantly accessible, and anyone anywhere in the world can learn from and contribute to online forums, blogs, wikis and other forms of exchange for learning.

Technology does not replace academic staff in the extended teaching space, because they need to plan, create and collect resources, and teach, facilitate and assess students' progress. Rather technology offers teachers considerable options, resources and forms of support in this extended space to liberate students' minds and stimulate knowledge construction.

4.2 Extended learning space

Extended learning space is needed for three essential learning activities: acquisition; application and construction.

4.2.1 Acquisition

In the extended learning space provided by ICT, students can acquire knowledge, information and skills through a growing repository of multimedia resources that are accessible on the web and through face-to-face or online interaction and collaboration with others. The lecturer structures the learning, but is not necessarily the sole source of everything that is learned. Students not only develop knowledge and understanding, they also experience discovery in this space.

4.2.2 Application

During application students plan and carry out research, manage projects and solve problems using digital tools and resources, by themselves or in groups. By being connected to their peers via the intranet or internet, they can share their ideas, knowledge and findings with other students for resolution, confirmation and application.

During this process, students apply previously learned ideas and methods to new areas, critically examine sources and evidence, develop hypotheses, form judgments and arrive at conclusions. They also learn to listen or watch and not simply to express their own views, and they learn how to handle disagreement and accept leadership by others, as well as exercise initiative. Through such experiences, they gain an understanding of social and academic values and norms.

Working online with students from different socioeconomic backgrounds, cultures and countries, students also acquire “digital citizenship” – understanding the human, cultural, and societal issues associated with technology and technology-based practice. Skills such as these should become more important in light of the growing use of group projects in higher education, pressures to develop “key skills”/”soft skills” and employability, and the requirement of reflecting in an academic environment (Hartley 2011).

4.2.3 Construction

An extended learning space enables students (with or without support from their lecturers) to work independently or in teams, create original ideas, products and processes, identify trends and predict possibilities. To create their own knowledge students need to participate in a personally reflective and collaborative process made possible by a community of learners (Garrison & Anderson, in Hutchinson 2007).

These learning communities in which students work collaboratively online serve to enhance their graduateness. Employers prefer graduates to have been engaged in communities of practices, whether work-based communities, virtual communities or social communities over a sustained period. By being part of such communities, a graduate has had to learn diverse kinds of discourses to participate in them (Hinchliffe & Jolly 2011). Employers expect at least some limited engagement with such communities to demonstrate that graduates are aware that learning does not only occur through traditional disciplinary involvement. By being involved in virtual communities, students in an ODL environment may acquire interpersonal skills that they may not have otherwise been able to.

4.2.4 Reflection and dialogue

The final components of Jung and Latchem's (2011) model are *reflection* and *dialogue*. Reflection – active, careful and persistent examination of beliefs or purported forms of knowledge and the grounds supporting these – is essential in learning, both by lecturers and students. By means of extended teaching and learning spaces a culture of question posing and reflection can be established because participants are exposed to a far wider range of facts, experiences, doubts and conflicting and competing ideas and opinions than they could ever experience in a traditional classroom.

The ability to broaden their thinking and reflect on learning and development is inherent in the central role that a university plays in developing students' intellect.

The capacity to reflect is one of the fundamental requirements of employers, because it influences a graduate's ability to make choices about and develop his/her own career, operate well in a team and with clients, identify development and training needs and assess the efficacy of his/her own work (Hinchliffe & Jolly 2011).

Extended teaching and learning spaces encourage various kinds of dialogues with a variety of counterparts, including teacher-student and student-student interaction. These dialogues assist in testing and negotiating ideas, verifying learning, provide feedback, and construct and expand knowledge and understanding.

Functioning effectively in extended teaching and learning spaces may further enhance students' cultural awareness. The awareness of different cultures, races and religions developed at university is important to employers, particularly because it may be beneficial for graduates' interaction with customers/clients, as well as in diverse teams.

All in all, it would be beneficial for academic staff in an ODL environment to investigate the possibilities offered by extended teaching and learning spaces. These spaces could help them facilitate learning, encourage dialogue and reflection, involve their students in real world learning and promote digital citizenship and responsibility. These spaces can particularly enhance intellectual curiosity and a creative approach to problem solving – elements of the graduate identity which are valued by most organisations.

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