

Reframing TVET colleges into 21st century Learning Organizations

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ABSTRACT: Technical and Vocational Education and Training institutions are a hub for most students who did not meet the University entry requirements nowadays. There is a need to remove the stereotype that they are for learners who do not cope with the formal education offered in institutions. It must be taken into account that TVET colleges offer full curriculum but their focus is on skills development. With the emergence of Artificial Intelligence, their formation needs a revamp so as to suit the new and changing system of Education. This can be done by changing the traditional methods of teaching by implementing blended learning and using flip classroom model. Blended learning is a term increasingly used to describe the way e-learning is being combined with traditional classroom methods and independent study to create a new, hybrid teaching methodology. It represents a much greater change in basic technique than simply adding computers to classrooms but it represents a fundamental change in the way teachers and students approach the learning strategies anywhere. It has already produced an offshoot called the flipped classroom – that has quickly become a distinct approach of its own. Flipped classroom model — in which students watch or listen to pre-recorded lectures over the Web, on their own time rather than during class — liberates instructors to finally make real connections with their students outside the school times. By focusing into traditional classroom settings like in the olden days, instructors are supporting the part of the learning process that students really need and are interested in. This paper intends to deal with the advantages of learning through MOOCs and MOODLE platforms where learners can learn, respond to questions and collaborate with each other and submit work through remote platforms. This is where students learn the most by implementing theories they've learned into real-life and to apply logic when responding to peers around the globe remotely and sharing best practices. This is in conformity with the types of students we deal with who have a very short listening span and with the fact that we are dealing with digital citizens.

KEYWORDS: *Blended learning, e-Learning, flipped classrooms, MOOCs, MOODLE.*

I. INTRODUCTION

Background

The recent publication of White Paper on Post-School Education (RSA, 2014) has highlighted the essential role of the South African technical and vocational education and training (TVET) colleges (formerly known as further education and training or FET colleges) (RSA, 2014) in post-school education and training in South Africa. According to the White Paper (RSA, 2014), TVET colleges are expected to address high unemployment rates in the country by providing relevant skills programmes. Such training is aimed at preparing students for the workplace and to upskill students in employment or those who are considering returning to the job market. The TVET colleges are also expected to change radically in order to meet with the social and economic needs of the country by playing a transformative role in education as required by legislation. In order for them to rise to this challenge, their leaders have to be equipped with leadership competencies, knowledge, skills, attributes and attitudes to lead these colleges into the future (RSA, 2014). Not only do these colleges and other educational institutions need to transform education and training nationally, but change and transformation have become universal themes.

The 21st century is a time of 'rapid and even instantaneous change', which poses formidable 'cognitive and experiential challenges' to learning institutions (Barnett & Coate, 2005:164). This view is shared by McWilliam (2008), who states that 'immense and accelerating change' is taking place. A knowledge and information revolution is occurring within society as a result of developments in computing and communications technology. In this digital age, it is imperative that the teaching strategies and physical structures should conform with the 21st learning organizations. This revolution is forcing organisations to change (Kiran, Agarwal & Verma, 2013). Various other influences on higher education in the 21st century have made change and

transformation in the public TVET college sector essential, especially in view of the fact that since 2012, TVET colleges have been located in the higher education system and are therefore by expectation should be designed as such. These influences include globalisation, massification and the development of technology. Teaching strategies and syllabus should be designed to adhere with the new learning style. This radical transformation will have an impact on the curriculum as well as teaching methods.

Trends in higher education that drive change

The three major trends that drive change in higher education are globalisation, internationalisation and massification. Even though the focus of TVET colleges is not on higher education in the same way as universities, all three trends have an effect on the context of these colleges since their transfer to the higher education system.

a) Change driven by globalisation

Globalisation refers to major changes in the manufacturing sectors of most economies in the world. The focus has shifted to the manufacture of high-quality exports aimed at specific niche consumer markets, which has made innovation and the ability to reinvent products continuously essential (Kraak & Hall, 1999). The growing number of internet users has had an effect on globalisation (Kiran et al., 2013) and its consequences are felt everywhere (Giddens, 2002). Pieterse (1994) believes that the world is becoming more uniform and standardised through a technological, commercial and cultural synchronisation. This has meant that South Africa has not only gained access to international expertise, but also to international social and cultural practices. This exposure is important to TVET college leaders if they wish to become global players since globalisation can broaden their terms of reference and influence their way of thinking and doing when benchmarked against international standard. Globalisation has moved skills development up the political agenda as it is seen as an important element of competitive advantage and a way of addressing inequality, while a lack of skills is seen as a major element of poverty (McGrath, 2005). Globalisation has thus put a great deal of pressure on the TVET college sector since training programmes must be responsive to the requirements of trade, technology and skill to satisfy a rapidly changing world economy. South Africa needs a highly skilled and innovative workforce and the TVET college is regarded as the 'key instrument available to the state to address these needs in terms of the programmes that they offer, the people they train and the community development initiatives that they facilitate' (Kraak & Hall, 1999:41).

b) Change driven by internationalisation

Internationalisation is a result of globalisation and refers to global access to global networks as sources of learning at home or abroad. International students who study at South African educational institutions, bring with them their own histories, cultures and perspectives. Internationalisation can take many forms such as co-taught courses, massive open online courses (MOOCs), international research projects or staff and learner exchanges. TVET colleges have recently been forming more and more international partnerships with international educational institutions with the purpose of learning from other practices (FET Times, 2012).

c) Change driven by Massification

Massification is one of the recent key changes in higher education. There is a move away from the idea of elitism, where only those who can afford to or who meet the necessary entrance requirements are able to enrol at a university, to an opening up of access to higher education to provide every member of a society with equal opportunity to education. Since the Second World War, there has been a growing demand to widen access to higher education (Guri-Rosenblit, Šebková & Teichler, 2007). The labour markets and social demands have necessitated teaching reforms and the relevance of curricula has also become a major challenge (Teichler, 1998). Higher education institutions need to become more heterogeneous because of diversity (Guri-Rosenblit et al., 2007). The way in which massification has an influence on TVET colleges is that since the profile of the learners has changed to a more non-traditional learner with different motivations, competencies and work prospects (Teichler, 1998), modes of delivery at learning institutions have had to adapt to the various needs of these different and diverse groups of learners. How best to expand and diversify higher education systems, which includes TVET colleges, has become a crucial issue for policy makers at these institutions (Guri-Rosenblit et al., 2007). Since enrolments are expected to grow substantially at TVET colleges by 2030, with increasing numbers of learners who do not all fit the traditional profile, TVET college leaders need to think and act differently to overcome potential resource challenges.

Higher education has already undergone rapid and far-reaching change which means that learning institutions must continually transform their access to knowledge and their curricula to reflect the new global realities. A knowledge-based society, rich in information, demands new technologies for access (Du Toit, 2011). Implicit in the contemporary Information Age is the routine access to knowledge as the first step in problem-solving (McWilliam, 2008). However, as the pace of change continues to accelerate, the Information Age is giving way to a successor, the Conceptual Age, which requires more sophisticated tools such as empathy, inventiveness and 'big-picture capabilities' (Pink, 2005:2).

These three related issues have major effects on higher education institutions, such as changed student profiles and changing approaches to programme development. Throughout the world, educational institutions are now re-examining their curriculum offerings in order to prepare diverse bodies of students adequately to cope with rapidly changing environments. It seems important that TVET colleges will have to reflect on these altered expectations, thus requiring TVET college leaders to recognise these and adapt accordingly.

II. COLLEGES IMPROVEMENT PROJECT PLAN

Soon after being established in 2009, the DHET began preparations for assuming full oversight and responsibility for the TVET colleges. It was apparent at the time that high levels of dysfunctionality characterised the operations of a number of colleges in which core operational systems were reportedly close to breakdown. The situation was severe enough for the DHET to mobilise urgent action, first to stabilise the situation and then to implement a 'turnaround strategy' aimed at improving functionality and building capacity in the targeted colleges. These conditions contributed to the DHET's decision to initiate the college improvement plan (CIP), aimed at improving the capacity, functionality, and performance of selected colleges in the Eastern Cape and Limpopo. The CIP in Limpopo started some months later than in the Eastern Cape, but interventions in the two provinces were kept in broad alignment. The CIP became a three-year project in operation between October 2011 and the end of 2014. The DHET appointed JET as the project manager funded through a National Skills Fund (NSF) grant. The ultimate aim of the CIP was to bring about a turnaround in the performance of fifteen participating colleges in the two provinces. Accordingly, it was important to ensure that the interventions would be institutionalised and could be sustained.

Issues in the management of TVET institutions

Westover (2010:45) articulates that in a stormy world, there is nothing more enduring than change. Organisations within a globalised and competitive economy face change prospects as they stride to compete and stay afloat. Abrhiem (2013:14) points out that the creation of a new system requires institutionalizing the new approaches as an important aspect of leadership in the change management process. Early change philosophers have emphasised the importance of the role leaders' play in the change management process (Almaraz 1994 & Kotter 1995) in spite of this the conclusive focus on the relationship between leadership and change research has not been concluded as argued by Abrhiem (2013:15). With regard to the concept of management, it is described in the World Book Dictionary (1985:1263) as 'a handling; control; direction, guidance or regulation' activity. Similarly, Akoojee and McGrath (2004:27) were quite clear on the matter that GEAR was 'designed to ensure South Africa's competitiveness and insertion into the global economy'. In this regard, a guidance or regulation or even control activity explains, according to Lynch's (2014) note why theorists of managerialism regard management as a political and not merely a technical activity. In fact, it is best understood as an ideological configuration of ideas and practices brought to bear on a public service organisation, such as education.

It is the management and delivery of education with a view of aligning education's organisational practices with those as practised in the market (private sector) system which raises an issue. This issue is a crucial consideration, especially in a rapidly changing socio-economic climate. Agabi's (2012:4) note that 'the application of prudential principles in resource utilisation in the practice of education ensures that investment in education produces a desired labour force that is relevant to the economy in terms of quality and quantity'. In this regard, Hattingh (2012) alludes that a great deal of effort and especially money was earmarked specifically for developing the skills base, in terms of the quality and quantity of workers in the post-apartheid skills development system.

Underpinning guidelines to developing a curriculum framework

A curriculum framework that will form the basis of a leadership development programme for TVET colleges at post-graduate level had to be reviewed. The framework had to also provide a sound basis for what should be included in the curriculum at the macro-level (Madiba, 2011), which Carl (2012) describes as occurring through educational legislation and falling within the boundaries of educational policy, and which will respond to the requirements of the White Paper (RSA, 2014).

Deciding what should be included in or excluded from the curriculum can be influenced by the type of philosophy prevailing at the time and which often reflects a particular paradigm or view of life. Since curriculum design is subject to historical, political, cultural and social pressures, the same applies to the design of a curriculum framework. Such pressures influence the prioritisation of what should be included or excluded from the curriculum. Scott (2008:3) contends that decisions about what should be included or excluded from a curriculum are 'embedded in socio-political processes'. He suggests that reasons should be given for the inclusion or exclusion of items, which would flag these choices for further examination.

TVET Colleges Post 2005

According to Department of Education, (2011:12), Public TVET colleges currently operate under the following legislative mandates:

- The Further Education and Training Colleges Act 16 of 2006
- South African Council for Educators Act 31 of 2000
- The South African Qualifications Authority Act 58 of 1995
- The General and Further Education and Training Quality Assurance Act 58 of 2001
- Education White Paper 6 on Inclusive Education (2001)
- Education White Paper 7 on e-learning
- Public Service Act 103 of 1994 (as amended)
- Labour Relations Act 56 of 1999 (as amended)
- Employment Equity Act 55 of 1998
- Public Finance Management Act 1 of 1999 (as amended)

The series of legislature governing TVET colleges mentioned in the preceding section has played a significant role in the shaping of the TVET sector.

III. STAFF DEVELOPMENT

Amongst all the changes mentioned in this paper staff development is very key. Most lecturers are still using the traditional ways of curriculum delivery and that needs to be addressed so as to conform with the 21st century learning organisations and digital citizenry that our students have become. Educational reform has entailed the imperativeness for high quality staff development and training (Bubb & Earley 2007:1). This transpires from the growth recognition of both management and staff development to become more effective in enhancing organisational performance in TVET colleges. Bubb and Earley (2007:6) have identified staff development as the education, training and supporting activities which create further emphasis on professional knowledge, skills and values which facilitates the effectiveness of student educational needs. Matzen and Edmunds (2007:417) reiterated that staff development is essential for enabling staff to increase the skills developed in traditional and distance education. Gewer (2010:61) highlights that the National Plan for TVET colleges acknowledges that there is little chance of improving the quality of educational provision unless the curriculum development process is linked to a national strategy of training college lecturers and ensuring that there is a coherent framework of lecturer development. In 2007 the NC (V) was introduced in the TVET colleges as a general vocational programme which included both academic and vocational subjects (DHET, 2013a).

The introduction of such a curriculum signalled the need to review the qualifications of TVET lecturers. Within the context of previous research, it has been ascertained that there are numerous other challenges which are required to be addressed within TVET college sectors (Kleinsorge 2004, Gultig 2000, Moodley 2006 & Booyens 2009). Some of those are the types of teaching strategies, physical infrastructure that are suitable to learn in the 21st century learning organizations.

The 21st century learning techniques

Blended learning

Blended learning is a term increasingly used to describe the way e-learning is being combined with traditional classroom methods and independent study to create a new, hybrid teaching methodology. E-learning is a common method since it is able to present the content of the course in a longer period of time compared to classroom environment and other methods; it allows education for seven days and twenty-four hours; it reaches more number of learners; and it ensures a learning environment which is independent of time and place (Dziuban, Hartman, & Moskal, 2004; Osguthorpe & Graham, 2003) particularly for adult learners. However, eLearning environments pose such disadvantages as hindrance of the socialization process of individuals, lack of sufficient recognition between the teacher and the learner and limitations concerning the communication among learners. These disadvantages have evoked a search for new environments which combine the advantages of e-learning and traditional learning environments. This new environment is known as “hybrid learning” or “blended learning”. Blended learning environment integrates the advantages of e-learning method with some advantageous aspects of traditional method, such as face-to-face interaction. Blended learning brings traditional physical classes with elements of virtual education together (Finn & Bucci, 2004). As Brown (2003) stated that blended learning supports all the benefits of e-learning including cost reductions, time efficiency and location convenience for the learner as well as the essential one-on-one personal understanding and motivation that face to face instructions presents.

There have been many other definitions of blended learning put forward in the literature. Simply put, Singh & Reed (2001) defined blended learning as a learning program where more than one delivery mode is being used with the objective of optimizing the learning outcome and cost of program delivery. Therefore, Singh (2003) proposed to refine this definition as “blended learning focuses on optimizing achievement of learning objectives by applying the “right” personal learning technologies to watch the “right” personal learning style to transfer the “right” skills to the “right” person at the “right” time. Blended learning is described by Thorne (2003) as “a way

of meeting the challenges of tailoring learning and development to the needs of individuals by integrating the innovative and technological advances offered by online learning with the interaction and participation offered in the best of traditional learning”.

The integration of e-learning environment and traditional learning environment may combine ideally the useful aspects of both methods. E-learning environments ensure the flexibility and efficacy which cannot be found in a classroom environment whereas face-to-face learning environment provides the social interaction which is required for learning. While definitions vary from one institution to another, blended learning is defined in this article essentially as a combination of face-to-face and web based environment.

Osguthorpe and Graham (2003) stated that instructional objectives, many different personal learning styles and learning experiences, the condition of online resources and the experience of trainers play an important role designing an effective blended learning environment and to establish the equilibrium between face to face and e – learning environment. With this in mind, researchers have adopted an approach that involves blending those components of the face to face and e – learning methods, that consider the learning outcomes for the course and students’ learning styles. Amongst those the use MOOCS and MOODLE are the new forms of teaching and learning techniques designed for the 21st century e-learning techniques. With the students we teach, who are digital citizens their use would do away with the traditional learning techniques most teachers still use. Learning would be much more interesting than when it is done using the traditional style of lesson delivery methodology.

Why blend?

There are many reasons why an instructor, trainer, or learner might pick blended learning over other learning options. Osguthorpe and Graham (2003) identified six reasons why one might choose to design or use a blended learning system: (1) pedagogical richness, (2) access to knowledge, (3) social interaction, (4) personal agency, (5) cost effectiveness, and (6) ease of revision. In the BL literature, the most common reason provided is that BL combines “the best of both worlds” (refs). While there is some truth to this, it is rarely acknowledged that a blended learning environment can also mix the least effective elements of both worlds if it is not designed well. Beyond this general statement, Graham et al. (Graham, Allen, & Ure, 2003, in press) found that overwhelmingly people chose BL for three reasons: (1) improved pedagogy, (2) increased access/flexibility, and (3) increased cost effectiveness.

Improved Pedagogy. As indicated above, one of the most commonly cited reasons for blending is more effective pedagogical practices. It is no secret that most current teaching and learning practice in both higher education and corporate training settings are still focused on transmissive rather than interactive strategies. In higher education, 83% of instructors use the lecture as the predominant teaching strategy (U.S. Department of Education, 2001). Similarly, distance education often suffers from making large amounts of information available for students to absorb independently (Waddoups & Howell, 2002).

Introduction to MOOCs: definition and characteristics

MOOCs, a recent development in distance education, were first introduced in 2008 and emerged as a popular mode of learning in 2012 (Kim, 2015). The development of MOOCs is rooted in the ideals of openness in education; that knowledge should be shared freely and the desire to learn should be met without demographic, economic, and geographical constraints. MOOCs’ potential of 24-hour access to information, self-paced learning, and cost effectiveness have attracted millions of learners across the world. MOOCs can reach out to a massive group of participants online and allow for interaction among diverse learners across ages, cultures, and nationalities. As a result, MOOCs have received much attention from the media and have gained significant interest from institutions of higher learning (IHLs). There are now more than 4200 MOOCs offered by more than 500 universities (Valenzuela, 2016). MOOCs are not only extensions of existing online learning approaches, they also offer an opportunity to think afresh about new business models that include elements of open education (Li & Powell, 2013). MOOCs can potentially drive down the cost of university-level education and radically disrupt existing models of higher education. As a result, there is a growing interest and significant enthusiasm of MOOCs from Governments, institutions and business associations. A growing number of institutions have been involved in engaging and experimenting with MOOCs with the end goal of expanding access with greater potential of showcasing and marketing MOOCs to grow new income streams. Many IHLs around the world have responded, in varying degrees, to MOOCs.

IV. MOODLE

Moodle is an acronym for "Modular Object-Oriented Dynamic Learning Environment." It is an online educational platform that provides custom learning environments for students. Educators can use Moodle to create lessons, manage courses, and interact with teachers and students. They represent a much greater change in basic technique than simply adding computers to classrooms in many cases, a fundamental change in the way teachers and students approach the learning experience. It has already produced an offshoot – the flipped classroom – that has quickly become a distinct approach of its own. According to Blinco, Mason, McLean and Wilson (2004), the choice of options that facilitate learning is increasing as a result of the availability of a wide range of information and communication technologies. E-learning currently encompasses an increasingly wide scope of applications and activity, including, portals, m-learning, activity-based learning applications, and e-portfolio software (Blinco et al., 2004). Virtual learning systems are a newer breed of educational technology comprising tools for teaching and learning designed to improve the students' learning experiences (Cavus & Momani, 2009). The influence of Web 2.0 on VLSs is supported by the development of wiki and blog plug-ins for Blackboard (2006) and Moodle (Cole & Foster, 2007). The connection between VLSs and Web 2.0 can also be seen with the advent of tools by which VLS users can publish micro content to the open web. An example of such services is "Blackboard Scholar.com" (Alexander, 2008). Current VLSs do not incorporate personalisation of learning which emphasises key aspects such as learning based on diverse learner needs, flexibility, a choice of learning options, lifelong learning, combining formal and informal learning, and allowing the learner to organise his/her own learning (Kompen, Edirisingha & Mobbs, 2010). Lang and Pirani (2014) predict four future trends for VLSs, namely system customisation/personalisation; data and analytics; and system integration and mobility

Flipped Classrooms

No single, reliable definition of blended learning exists, or even a universal agreement on the term itself. Many use terms like hybrid, mixed, or integrative to describe the same trend. But the trend is significant. In 2000 an estimated 45,000 students took an online course, but almost a decade later more than 3 million took courses that way, many of them using computers in the schools themselves. Salman Khan, of Khan Academy fame, has said that the "flipped classroom" model — in which students watch or listen to pre-recorded lectures over the Web, on their own time rather than during class — liberates instructors to finally make real connections with their students. Insufficient funding remains a constraint on the extent to which colleges are able to execute their strategic plans. For example, although work-integrated learning is promoted in policy, and is included in the colleges' strategic plans, it is often referred to as an 'unfunded mandate' (McGrath, 2015; Petersen, 2015). Ultimately, as McGrath (2015) points out, colleges will do what is incentivised and subsidized. The idea is that rather than taking up limited class time for an instructor to introduce a concept (often via lecture), the instructor can create a video lecture, screencast, or vodcast that teaches students the concept, freeing up valuable class time for more engaging (and often collaborative) activities typically facilitated by the instructor. It is important to note that the strategy should involve more than just the "take home" video lecture (or screencast or podcast). It should also incorporate formative and summative assessment, as well as meaningful face-to-face (F2F) learning activities. Although many instructors at all educational levels and from various settings have been incorporating this strategy for years, the term is most often attributed to two Colorado high school teachers, Jonathan Bergman and Aaron Sams, who began creating screencasts and podcasts for their students in 2006 (Makice, 2012). The flipped classroom strategy advocates tout numerous benefits. Most seem to be plausible advantages (e.g., increases time for more engaging instruction), especially for those teaching in hybrid or blended settings consisting of some combination of online instruction.

V. CONCLUSION

The DHET came into existence in May 2009 by proclamation and as part of the restructuring of Government in the domain of education. It became operational a year later in April 2010. Its establishment follows an ongoing debate about, inter alia, closer integration of education and training in the post schooling sector and the desire to steer and reconfigure this sector towards a new architecture which reorients existing complex organisational arrangements and already-existing practices. As a result, skills development and training became part of the mandate of the DHET – a function which was previously located within the Department of Labour. Skills development partnerships within the TVET sector have evolved along a number of mechanisms or strategies. Training provision has largely been situated within the public sector. However, with increasing recognition that the state cannot provide all skills needed, more private providers. The policy change and staff development should also be understood within the dominant global ideology of post school education which places emphasis on the "ceaseless work of training and retraining, skilling and reskilling, enhancement of credentials and preparation for a life of incessant job-seeking in which life is to become a continuous economic capitalization of the self" (Rose cited in Rizvi & Lingard 2010:184). Post school education policy, in particular, is increasingly negotiated in relation to market efficiency and 'individual liberty' which could ostensibly translate into the best economic outcomes for a nation entering the new arena. Two key issues are

pertinent in relation to Public-private partnerships for skills training: the relevance and quality of the education and training, and the need for standardized frameworks for assessment. With the emergence of artificial intelligence and adherence to the 4th industrial revolution; TVET colleges need to be very innovative and have to consider reframing their physical infrastructure into the 21st learning organisations and become the institutions of choice.

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