

Blended Pedagogies for Modern Development in South Africa: Challenges and Prospects for Success

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Abstract: Educational transformation through the adoption of blended pedagogies has taken international centre stage with the hope of encouraging adoption of e-pedagogies. Arguably, blended pedagogies can be used effectively to acquire knowledge necessary for modern development and participation in the knowledge economy. In South Africa, the Western Cape Province invested in e-pedagogies rather than blending as part of its pursuit of modern development. However, evidence suggest that this educational transformation comes with challenges mostly associated with the inability of teachers and learners to use the e-infrastructure effectively due to absence of e-culture and e-skills. Often, the majority of teachers and learners lack the minimum levels of e-culture and computer and information literacy which are necessary requirements for successful adoption of blended pedagogies. This paper argues that the limited use or lack of e-infrastructure in teaching and learning is to a large extent blamed on absence of e-culture and e-skills necessary for blended pedagogies; and, that the Western Cape Province is not an exception. Theoretically, e-culture and e-skills, among others, are the necessary preconditions that determine the readiness of teachers and learners to adopt blended pedagogies. The paper concludes that e-infrastructure which is assumed to provide sufficient and necessary conditions for educational transformation through e-learning for modern development, is seldom used for the intended purpose due to challenges related to the absence of e-culture and e-skills among teachers and learners.

Keywords: Blended pedagogies; Modern development; Conventional didactics; Western Cape Province; South Africa

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Introduction

Overwhelmingly, literature attest to the notion that the production of services based on intellectual capacities has thrust knowledge economy at the centre of modern development (Powell and Snellman, 2004; Garrison and Vaughan, 2008; Youtie and Shapira, 2008; Deltsidou, Voltyraki, Mastrogiannis and Noula, 2010; Marginson, 2010; Ecampus, 2011; Farkas and Török, 2011; Garrison, 2011; Button, Harrington and Belan 2014; Gu, Shao, Guo and Lim, 2015; Ramoroka and Tsheola, 2015; Valtonen, Kukkonen, Kontkanen, Sormunen, Dillon and Sointu, 2015). Indeed, knowledge economy relies heavily on intellectual capabilities, rather than on physical inputs, that are predicated upon human capital and natural resources in order to shape industrial mass production necessary for the modern global development process (Powell and Snellman, 2004; Marginson, 2010; Farkas and Török, 2011; Pruet, Ang and Farzin, 2014). The intellectual capabilities needed for the knowledge economy include analytical, interactive and computing skills, among others, which take effect through the use of Information and Communication Technology (ICT). Therefore, flexible and multi-skilled human resources with high level digital skills and expertise, acquired through formal education, are necessary for the achievement of the goals associated with modern development. To this extent, global knowledge economy as well as advancements in educational ICT bear crucial implications for teaching and learning informatics (Garrison and Vaughan, 2008; Youtie and Shapira, 2008; Deltsidou, Voltyraki, Mastrogiannis and Noula, 2010; Marginson, 2010; Ecampus, 2011; Garrison, 2011; Mdlongwa, 2012; Button, Harrington and Belan, 2014; Gu, Shao, Guo, and Lim, 2015; Valtonen, Kukkonen, Kontkanen, Sormunen, Dillon and Sointu, 2015; Ramoroka and Tsheola, 2015). For all intents and purposes, ICT epitomizes educational innovation, globalisation, connectivity, global integratedness and national development (Peeraer and Van Petegem, 2015). But this strategic linkage is not automatic, it requires dedicated interventions for inculcation specific e-culture and e-skills among both teachers and learners.

Understandably, governments across the world, in both developing and developed countries, have made significant resources and effort investments in education technology (Teo, 2011; Al-Mansour and Al-Shorman, 2012; Ertmer, Ottenbreit-Leftwich, Sadik, Senddurur, and Senddurur, 2012; Kirkwood and Price, 2013; Peeraer and Van Petegem, 2015; Ramoroka and Tsheola, 2015; Webster and Son 2015). In South Korea, there has been substantial investments in ICT for teaching and learning especially between 1978 and 2001 as an attempt to “modernise and globalise the education system” (Webster and Son, 2015: 84). Investments were channelled towards ICT infrastructure, teacher training and research promotion in schools which enforcing change in the name of the Ministry of Education and Human Resources Development to the Ministry of Education, Science and Technology (Webster and Son, 2015). Notwithstanding the efforts and investments by the Korean government and universities, which are a reflection of the increasing interests in the improvement of pedagogy, the majority of trained teachers still did not use technology in their didactic methods (Webster and Son, 2015). The limited use of ICT in teaching and learning is to a large extent blamed on lack of support to teachers during the implementation phase as well as unavailability of time required for blended didactic methods preparation and application. Thus, one of the major challenges has been the

integration of ICT into the existing curriculum. Additionally, some challenges were associated with societal perceptions about the adverse effects of technology on learners' psychological well-being and degrading of social and cultural morals (Webster and Son, 2015). Similarly, Vietnam aimed to go beyond ICT access and skills development in order to integrate digital technology in education as a tool to encourage creative learning (Peeraer and Van Petegem, 2015). However, the country faced challenges associated with the integration of digital technology in education despite efforts and guidelines invested for the same reasons for over a decade (Peeraer and Van Petegem, 2015). The ICT-related infrastructure and resources, which are assumed to provide sufficient and necessary conditions for educational transformation in most of the schools in Vietnam, are seldom used for the intended purpose. Instead of using ICT to promote blended didactic methods, the majority of teachers who are comfortable with the use of technology replace the traditional methods with the modern ones (Peeraer and Van Petegem, 2015). Thus, the adoption of digital technology in education for national development in South Korea and Vietnam has faltered regardless of investments in improving access to technologies and teachers' and students' informatics skills. With this experience in mind, questions should be asked of challenges and prospects of success in a democratic South Africa.

South Africa has jumped onto the bandwagon of blending e-learning pedagogies with conventional didactics (Bialobrzaska and Cohen, 2005; Jacobs, 2013) in the hope of engendering a knowledge economy-driven modern national development. As early as 2004, the South African government set ambitious targets that should be achieved by 2013 as a response to the need for integration of digital technology in education (Department of Education, 2004; National Planning Commission, 2012). The targets include, among others, that by 2013 "all schools will have access to a networked computer facility for teaching and learning, and to high quality educational resources"; and, that "all schools, teachers and learners will be confident and competent users of ICT, and ICTs will be integrated into teaching and learning at all schools" (Bialobrzaska and Cohen, 2005: 14). However, reality has not matched policy intentions, especially as some provinces embarked on substitution rather than blending. South Africa has not as yet met its "ambitious" national development targets and the majority of schools are still without educational ICT such as networked computer facilities, quality educational resources or confident and competent users (NPC, 2012). Following the adoption of the National Development Plan 2030 in 2012, some of South Africa's provinces fervently pursued implementation of digital technologies in education in the hope of preparing society for participation in the knowledge economy and modern process of development. For instance, Gauteng Province took a lead on January 14, 2015 in the so-called the *Big Switch-On Pilot Project*, officially launched with the distribution of 88 000 tablets to seven schools (South Africa.Info, 2015a). This move appears to have agitated for provincial competition for championing South Africa's integration of digital technology in education, as attested to by the recent pronouncement from the Western Cape. This paper seeks, therefore, to interrogate the challenges and prospects of South Africa's establishing the necessary and sufficient e-skills and e-culture for engagement of the global knowledge economy for national development, amidst the evident rush towards substitution rather than blending of pedagogies. It is in this context that this paper consists of five sections inclusive of the introduction and

the conclusion. The next section discusses the discrepancies of e-learning and conventional didactics that impact on blending pedagogies.

E- Learning versus Conventional Didactics

E-learning pedagogies are guided by a number of principles to ensure their success and appropriate contribution to national development and participation in knowledge economy. The principles include: matching and integrating of digital technologies with the existing curriculum, facilitating learners' engagement and participation, encouraging collaborative learning and providing innovative approaches, coherence, consistency and transparency as well as practical application (Teo, 2011; Al-Mansour and Al-Shorman, 2012; Ertmer et al., 2012; Kirkwood and Price, 2013; Pegrum et al., 2013; Button et al., 2014; Peeraer and Van Petegem, 2015; Wolff et al., 2014; Glušac et al., 2015; Gu et al., 2015; Kearney et al., 2015; Valtonen et al., 2015; Webster and Son 2015). Whereas not a panacea to all knowledge acquisition, there is value in establishing e-learning pedagogies for participation in the knowledge economy and promotion of national development. However, e-learning pedagogies must have clear objectives aligned to subject content, in order to be appropriate to both teachers' and learners' didactic and knowledge acquisition activities as well as to complement assessments (Button et al., 2014; Peeraer and Van Petegem, 2015; Webster and Son 2015). Eventually, e-pedagogies are thought to encourage learners' engagement and participation in ways that enhance personal control of knowledge acquisition (Gu et al., 2015; Kearney et al., 2015; Valtonen et al., 2015). They are assumed to be innovative and fit for purpose, giving both teachers and learners the opportunity to improve their creativeness, imaginativeness and analytical skills (Al-Mansour and Al-Shorman, 2012; Glušac et al., 2015; Gu et al., 2015). Further, e-learning pedagogies' design, openness and accountability are presented as internally coherent and consistent in terms of the objectives, content, learner activity and assessment (Glušac et al., 2015; Gu et al., 2015). Whereas e-learning approaches and methods should be easy and fun to use for both teachers and learners, their practical application to knowledge acquisition cannot be left to chance; instead, it requires specific planning, governance, infrastructure and at most culture and skills.

Conversely, conventional didactics involve traditional routes of learning wherein learners are, generally, rendered passive whilst teachers possessed all knowledge (Gu et al., 2015; Kearney et al., 2015; Ramoroka and Tsheola, 2015; Valtonen et al., 2015). Arguably, conventional didactics offer the level and standard of education that largely deny learners the opportunity to compete in the knowledge economy arena (Pruet et al., 2014). The intellectual capabilities needed for knowledge economy, inclusive of analytical, interactive and computing skills, among others, cannot be acquired through conventional didactics alone (Pegrum et al., 2013; Button et al., 2014; Peeraer and Van Petegem, 2015; Wolff et al., 2014; Glušac et al., 2015; Gu et al., 2015; Kearney et al., 2015; Valtonen et al., 2015). Apparently, conventional didactics engenders learners boredom and inattentiveness in class, poor performance in assessments, and even dropping out of school (Subramanian et al., 2012; Littlewood et al., 2013; Wolff et al., 2014; Gu et al., 2015). However, this claim should not suggest a complete replacement of conventional didactics and a remiss drift to the envisioned pureness of

digital pedagogies because the face-to-face model remains necessary for personal development. The subsequent section provides a brief background of the Western Cape's Smart Classrooms Project. The reality though is that learners acquire knowledge in different ways which include seeing and hearing, reflecting and acting, reasoning logically and intuitively, as well as drawing (Pegrum et al., 2013; Button et al., 2014; Button et al., 2014; Peeraer and Van Petegem, 2015; Wolff et al., 2014; Glušac et al., 2015; Gu et al., 2015; Kearney et al., 2015; Valtonen et al., 2015).

The extent to which learners learn is largely influenced by compatibility of their learning styles and teachers' didactic methods (Pegrum et al., 2013; Button et al., 2014; Button et al., 2014; Peeraer and Van Petegem, 2015; Wolff et al., 2014; Glušac et al., 2015; Gu et al., 2015; Kearney et al., 2015; Ramoroka and Tsheola, 2015; Valtonen et al., 2015). Additionally, lack of integration of digital technology in teaching and learning compromises ICT skills development of both teachers and learners which are now paramount in global capitalist development (Pegrum et al., 2013; Peeraer and Van Petegem, 2015; Wolff et al., 2014; Glušac et al., 2015; Gu et al., 2015). The bases for e-learning and conventional didactics are starkly divergent; and, it is more convenient to replace rather than blend in reality. The infrastructure, culture and skills necessary for the application of each of these pedagogies are in some cases contradictory. For this reason, blended pedagogies invoke deliberate governance that seeks to bridge the apparent and deep discrepancies, beyond mere provision of the e-infrastructure, in order to create appropriate culture and skills. What are the prospects of a democratic South Africa's attaining such as a culture and skills for blended pedagogies?

Blending E-Learning with Conventional Didactics

There is cognitive convergence on the idea that e-learning should not necessarily replace the conventional didactics (Button et al., 2014; Wolff et al., 2014), even among those digital technology fanatics. As a result, there has been a shift towards blended learning, which integrates conventional didactics with the online teaching and e-learning model (Garrison and Vaughan, 2008; Button et al., 2014; Wolff et al., 2014). But blending e-learning pedagogies with conventional didactics comes with challenges (Valtonen, Dillon, Hacklin and Väisänen, 2010; Valtonen, Pöntinen, Kukkonen, Dillon, Väisänen and Hacklin, 2011; Valtonen, Hacklin, Kontkanen, Hartikainen-Ahia, Kärkkäinen and Kukkonen, 2013; Noh et al., 2014; Glušac et al., 2015; Valtonen et al., 2015) because the preconditions impose rigid determinant for successful transformation. In the present world, the majority of educational systems are characterised by rigidities of adherence to conventional didactics (Peeraer and Van Petegem, 2015; Valtonen et al., 2015; Webster and Son, 2015). Hence, even developed countries that are endowed with state-of-the-art ICT infrastructure have equally continued to struggle to blend e-learning pedagogies with conventional didactics (Peeraer and Van Petegem, 2015; Valtonen et al., 2015; Webster and Son, 2015). That is, infrastructure is not necessarily a sufficient condition for precipitating successful blending of e-learning pedagogies with conventional didactics. Instead, the collective of preconditions, inclusive of planning, governance, infrastructure, culture and skills, is critical for successful blending of e-learning pedagogies with conventional didactics (Noh et al., 2014; Pruet et al., 2014; Gu et al., 2015; Mohammadi, 2015) as well as

productive engagement of the knowledge economy and global capitalism for national development. However, this paper focuses only one-culture and e-skills as preconditions for successful blending. These preconditions are discussed in the two subsequent subsections.

E-culture for Blended Pedagogies

The implementation of e-learning requires understanding of different contexts of both teachers and learners related to values, knowledge, experience, language and symbols, attitudes and notion of time collectively denoted culture (Warschauer and Ames, 2010; Mdlongwa, 2012; Viriyapong and Hartfield, 2013; Aesaert and Van Braak, 2014; Pruet et al., 2014). Evidence reveals that the main failure of the usage of digital technologies in education is mostly related to the ignorance of e-culture of both teachers and learners (Warschauer and Ames, 2010; Viriyapong and Hartfield, 2013; Pruet et al., 2014). Apparently, the focus is on delivery of the new technology without considering people's needs, e-culture and how they will use the technology (Warschauer and Ames, 2010). In education, it may be that teachers and learners in developed countries or urban areas use digital technology differently from those in developing countries or rural areas (Pruet et al., 2014). Thus, values, knowledge, experience, language and symbols, attitudes and notion of time towards the use of digital technology are important factors that can be used to determine the level of e-culture necessary for the implementation and success of the adoption of ICT in education (Warschauer and Ames, 2010; Viriyapong and Hartfield, 2013; Pruet et al., 2014; Aesaert and Van Braak, 2014; Erdogdu and Erdogdu, 2015; Glušac et al., 2015). To this extent, a specific degree of societal e-culture is necessary for successful blending of pedagogies because schools cannot transform in isolation from society itself. Such a broad societal culture instils specific values that are crucial to the prospects of blended pedagogies.

Values in terms of teaching and learning styles are crucial to the success of educational ICT for national development. Seemingly, teachers and learners who are in favour of auditory, visual and high competitive teaching and learning styles are more likely to use digital technologies in pedagogy than those who are not (Aesaert and Van Braak, 2014; Pruet et al., 2014; Glušac et al., 2015). Instead, access to and the use of ICT determines the level of knowledge and experience that the teachers and learners hold for the successful application of e-learning environment. Accordingly, teachers and learners who had the privilege to access and use ICT before are more likely to succeed in the adoption of educational digital technology due to the knowledge and experience they possess (Warschauer and Ames, 2010; Viriyapong and Hartfield, 2013; Pruet et al., 2014; Aesaert and Van Braak, 2014; Erdogdu and Erdogdu, 2015; Glušac et al., 2015). But these prospects are intricately dependant on the household culture as the values would be unsustainable if applied in isolation of the overall social milieu. Thus, language and symbols, which are reproduced through societal interactions and used in the digital world, are significant to the success integration of the educational ICT. Even though the e-language and e-symbols could potentially compromise learners' ability to correctly spell words, it makes learning easy as they are more familiar with the codes used for communication (Erdogdu and Erdogdu, 2015; Glušac et al., 2015).

Teachers' and learners' attitudes towards ICT is another important factor to predict the successful adoption of digital technology in education (Pruet et al., 2014; Erdogdu and Erdogdu, 2015). Apparently, teachers and learners who "perceive computers and the internet as useful; who are less anxious to use computers and the internet; and who have more confidence about independent control with internet use" demonstrates high levels of acceptance of e-learning (Aesaert and Van Braak, 2014: 329). With regard to the notion of time towards the use of digital technology, most teachers and learners seemingly dedicate the majority of their time on personal communication to establish and maintain relationships, find information on various issues for entertainment and recreational purposes rather than formal education (Glušac et al., 2015; Erdogdu and Erdogdu, 2015). The time allocated for lessons and their preparations is then misused as a result of both teachers and learners' cyberloafing. For these reasons, there is a need to question South Africa's e-learning drive relating to the establishment of teachers' and learners' required levels of e-values, e-knowledge, e-experiences, e-language and e-symbols, e-attitudes and e-notion of time for blending pedagogies rather than replacement.

E-skills for Blended Pedagogies

E-learning requires, at the minimum, specific levels of computer and information literacy as well as pedagogic technological informatics. Computer literacy refers to "an understanding of the concepts, terminology and operations that relate to general computer use" (Computer Literacy USA, 2012 cited in Button et al., 2014: 1311). According to Bundy (2005 cited in Button et al., 2014: 1311), information literacy means the ability to recognize the need for information, to determine the extent of the need, to access it efficiently, to critically evaluate it and its sources, and to collect or generate, classify, store, manipulate, redraft and incorporate it into existing knowledge systems or base. Pedagogic technological informatics involve e-skills necessary for teachers to integrate teaching, computer and information sciences in their management and communication of data, information and knowledge in facilitation of learning (authors' own formulation drawn from Button et al., 2014). Successful adoption of e-learning is, therefore, dependent upon the levels of computer and information literacy among teachers and learners (Button et al., 2014; Noh et al., 2014; Webster and Son, 2015). To be equipped with lifelong learning skills, teachers and learners need to be supported with ongoing education and informatics as current education methodologies and teaching strategies increasingly incorporate e-learning (Button et al., 2014; Gu et al., 2015). That is, the misplaced use of the ICT is a function of the degree to which society has developed the culture of lifelong learning. The latter will justify the costly investment in ICT.

The establishment of the e-learning environment requires among other things computer and information literacy related to internet skills and their use to retrieve information, which are largely conditional upon acquisition of costly personal computers and training (Elder and Koehn, 2009; Bond, 2010; Deltisidou et al., 2010; Button et al., 2014; Gu et al., 2015). Information literacy relating to skills of managing large volumes of data when conducting internet database searches are as important as

those for basic use of computer for information retrieval from the internet (Elder and Koehn, 2009; Bond, 2010; Deltsidou et al., 2010; Button et al., 2014; Gu et al., 2015). Thus, computer and information technology competences among teachers and learners are critical for the establishment of the e-learning environment (Button et al., 2014; Noh et al., 2014; Peeraer and Van Petegem, 2015; Gu et al., 2015; Valtonen et al., 2015). For these reasons, e-learning entails costly interventions relating to financial, training and technical support for both teachers and learners (Moule, Ward and Lockyer, 2010; Nguyen, Zierler and Nguyen, 2011; Gu et al., 2015). Both computer and information literacy, which cannot be acquired by osmosis, are fundamental to technology informatics in teaching and learning (Bond, 2010; Button et al., 2014; Noh et al., 2014; Webster and Son, 2015). That is, teachers and learners alike require financial, technical and training support in order to acquire and improve their technology informatics, necessary for successful implementation of e-learning. Teachers and learners should be able to manage digital technology and information as well as being provided with the “opportunities for progressive development of ICT competence” (Button et al., 2014: 1320). More often than not, institutions prioritize acquisition and installation of computer hardware and software above teachers’ and learners’ technological training and incorporation in teaching and learning (Valtonen et al., 2010; Valtonen et al., 2011; Valtonen et al., 2013; Oyedemi, 2015; Valtonen et al., 2015; Webster and Son, 2015). Besides, e-learning informatics are in a continuous state of flux, implying that teachers and learners are challenged to keep up with the developments for the success of Smart Classrooms and Big Switch On Projects as driven by the Western Cape and Gauteng Province, respectively.

Smart Classrooms: Replacement of Conventional Didactics Rather than Blended Pedagogies

The recent e-learning hyperbole in a democratic South Africa and the apparent rush for substitution of conventional didactics with e-pedagogies, rather than blending, has to be rigorously examined for the readiness and appropriateness of the prevalent planning approach, governance model, infrastructure as well as culture and skills among teachers and learners. The adoption and implementation of e-learning pedagogies in South Africa cannot be tenably expected to be unproblematic. E-learning investments are driven through the National Development Plan 2030, which states that “by 2030 South Africans should have access to education and training of the highest quality, leading to significantly improved learning outcomes” (NPC, 2012: 296). Some of the requirements of this vision are that all schools must have well-functioning libraries, computer and media centres and high speed broadband which is readily available and incorporated into the design of educational systems (NPC, 2012). As a response to the aspirations of the NDP 2030, Minister of Finance, Nhlanhla Nene, proclaimed in his 2015 National Budget Speech that R29.6 billion and R1.1 billion is allocated for educational infrastructure grant and broadband connectivity, respectively (Nene, 2015). The allocated funds are meant to build and improve digital technology infrastructure and produce a future labour force that meets the requirements of the knowledge economy (Nene, 2015).

On its part, the Western Cape Province has invested in and planned to launch the so-called *Smart Schools Project* in July 2015 to improve the quality of teaching and learning through digital

technologies (Ramoroka and Tsheola, 2015; South Africa.Info, 2015). There is evidence that the provincial contestations for digital technology-champion in South Africa's educational system is founded on replacement of conventional didactics with e-learning pedagogies, rather than blending (du Toit, 2015; Ramoroka and Tsheola, 2015; *Rand Daily Mail*, 2015; South Africa.Info, 2015). The dearth of conclusive affirmation of the success of blended pedagogies for participation in global knowledge economy and national development in other countries should be of concern to South Africa, especially given that the leading provinces have hoped for substitution rather than integration as provided for by the NDP 2030. Furthermore, effective adoption and usage of digital technologies for modern teaching and learning relies on several determinants that require adoption of specific planning approaches, governance models, infrastructure, and pedagogic technological informatics for both teachers and learners, especially transformation in societal culture and skills. These conditions are absent in a Democratic South Africa, implying that the challenges for implementation are greater than the prospects for success.

Conclusion

This paper demonstrated the linkages of blended pedagogies with modern national development through participation in knowledge economy. Internationally, evidence confirms that the use of digital technology for teaching and learning is not as unproblematic as South Africa appears to have assumed. The main concern remains the overdrive towards replacement of traditional didactics with modern technological ones instead of adoption of blended pedagogies. Seemingly, the replacement is due to lack of time allocated for lessons and their preparations as well as teachers' and learners' limited experience in the use of technology which leads to cyberloafing, among other challenges. Moreover, the absence of conclusive affirmation of the success of the adoption of digital technology in teaching and learning should also be of concern to South Africa. Theoretically, the adoption of digital technologies for modern teaching and learning is hindered by the absence of preconditions related to e-culture and e-skills. This paper concludes that the installation of e-infrastructure by itself does not serve the intended purposes when teachers and learners have e-culture and e-skills limitations. Installation of e-infrastructure by itself turns to encourage cyberloafing as teachers and learners use it for personal communication and search of private information rather than for the intended purposes in the absence of relevant societal values. To resolve these challenges, the paper suggests changes in the current e-culture and e-skills isolationism for teachers and learners, in order to embrace a broader supportive societal culture through language and symbols that are necessary and sufficient for the adoption of blended pedagogies, participation in global knowledge economy and the pursuit of modern development.

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