E-culture as a Panacea for Successful Implementation of Blended Pedagogies in South Africa

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Abstract: Lately, the interest using digital technologies and social media for teaching and learning has precipitated the notion of the implementation of e-learning in schools across various countries. However, there is a strong correlation between the successful implementation of blended pedagogies and teachers' and learners' as well as institutional culture. Apparently, e-culture of educational ICT users is influenced by a number of factors inclusive of socio-economic characteristics, ICT oriented home situations, general educational, classroom and school level factors. Therefore, the purpose of this paper is to evaluate both teachers' and learners' as well as institutional e-culture for the implementation of blended pedagogies. Theoretically, e-culture should be considered as one of the most critical preconditions necessary for implementation of blended pedagogies rather than the prioritization of infrastructure in practice. The paper concludes that for a country such as South Africa to succeed in the implantation of blended pedagogies, individual (among teachers and learners) and institutional e-culture should be prioritized.

Key Words: E-culture, Blended Pedagogies, South Africa

Introduction

In recent decades digital technologies and social media have captivated societal imagination across the world, becoming "prevalent in the day-to-day life" of learners characterized as "Net Generation", "Y-generation" or "the digital natives" (Abe & Jordan, 2013; Domingo &Garganté, 2016; Salminen, Gustafsson, Vilen, Fuster, Istomina & Papastavrou, 2016). Simultaneously, interest in the potential for using digital technologies and social media in education precipitated the notion of e-learning (Tower, Latimer & Hewitt, 2014; Domingo & Garganté, 2016; Salminen et al., 2016). However, the e-learning environment is facilitated by teachers who, unlike the "Net Generation", were not born to be socialized into the digital technologies, social media, computers and Internet (Domingo & Garganté, 2016; Salminen et al., 2016). Teachers are however under tremendous pressure to integrate digital technologies and social media in their instructional designs because the learners have positive perceptions of their impacts, usefulness, enjoyment and excitement of these tools, to which they are

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socialized as part of normal life (Abe & Jordan, 2013; Green, Wyllie & Jackson, 2014; Peck, 2014; Salminen et al., 2016). Learners already spend amount of time and energy in the digital technologies, Internet and social media spaces (Domingo & Garganté, 2016; Salminen et al., 2016). Oz, Demirezen &Pourfeiz (2015) show statistically that there are positive correlations between computer and ICT literacy and attitudes towards adoption and use of digital technology and Internet in the learning environment. Also, computer and ICT literacy is a significant determinant of attitudes towards technology-based and computer-assisted learning (Oz et al., 2015; Domingo &Garganté, 2016; Salminen et al., 2016). 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 implementation of ICT in education (Warschauer& Ames, 2010;Viriyapong & Hartfield, 2013; Aesaert & Van Braak, 2014; Aesaert,Van Nijlen, Vanderlinde, Tondeur, Devlieger & van Braak, 2015; Erdogdu & Erdogdu, 2015; Glušac,Makitan, Karuović, Radosav, &Milanov, 2015;Hung, 2016;Pruet, Ang, & Farzin., 2016; Siddiq,Scherer &Tondeur, 2016). It is in this context that the paper evaluates both teachers' and learners' as well as institutional e-culture for the implementation of blended pedagogies in South Africa. The paper consists of five sections inclusive of this introduction and the conclusion. The dimensions of and factors that contribute to e-culture are discussed in sections two and three, respectively. The fourth section evaluates the effects of e-culture on the implantation of blended pedagogies. The paper then concludes that for South Africa to succeed in the implantation of blended pedagogies, individual (among teachers and learners) and institutional e-culture should be prioritized.

Dimensions of E-culture Necessary for Adoption of Blended Pedagogies

The implementation of blended learning requires an understanding of different contexts of both teachers and learners related to values, knowledge, experience, language and symbols, attitudes and notion of time (Warschauer & Ames, 2010; Mdlongwa, 2012; Viriyapong & Hartfield, 2013; Aesaert & VanBraak, 2014; Aesaertet al., 2015; Hung, 2016; Pruet et al., 2016; Siddiq et al., 2016) as measures for the level of e-culture that is important in e-pedagogies. 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 & Ames, 2010; Viriyapong & Hartfield, 2013; Aesaert & Van Braak, 2014; Aesaert et al., 2015; Pruet et al., 2016; Siddiq et al., 2016). 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 & Ames, 2010; Aesaert & Van Braak, 2014). In education, it may be that teachers and learners in developed countries or urban areas use digital technology differently from the ones in developing countries or rural areas in (Aesaert & Van Braak, 2014; Aesaert et al., 2015; Pruet et al., 2016).

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 (Vanderlinde& van Braak, 2010; Aesaert & VanBraak, 2014; Glušac et al., 2015;Pruet et al., 2016; Siddiq et al., 2016). Access to and the use of ICT determines the level of knowledge and experience that the teachers and learners hold for the success application e-learning. Accordingly, teachers and learners who had the privilege to access and use ICT before are more likely to succeed in the implementation of educational digital technology due to the knowledge and experience they possess (Vanderlinde & van Braak, 2010; Warschauer & Ames, 2010; Viriyapong & Hartfield, 2013; Aesaert & Van Braak, 2014; Erdogdu & Erdogdu, 2015; Glušac et al., 2015;Hung, 2016; Pruet et al., 2016;Siddiq et al., 2016). Language and symbols used in the digital world are also of importance to the success of educational ICT. Even though the e-language and e-symbols compromises learners' ability to correctly spell words, it makes learning easy as they are more familiar with the codes used (Erdogdu & Erdogdu, 2015; Glušac et al., 2015). Teachers' and learners' attitudes towards ICT is another important factor to predict the successful implementation of digital technology in education (Erdogdu & Erdogdu, 2015;Hung, 2016;Pruet et al., 2016; Siddiq et al., 2016). 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 & Van Braak, 2014, p. 329). With regard to the notion of time towards the use of digital technology, seemingly, most teachers and learners dedicate the majority of their time on personal communication to establish and maintain relationships, find information on various issues mostly for entertainment and recreational purposes rather than on teaching and learning (Glušac et al., 2015; Erdogdu & Erdogdu, 2015; Hung, 2016;Siddiq et al., 2016). 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 establish and improve teachers' and learners' levels of e-values, e-knowledge, e-experiences, e-language and e-symbols, e-attitudes and e-notion of time before the implementation of digital technologies to reveal significant potential for educational purposes. The next section discusses factors that contribute to appropriate e-culture in pedagogy.

Factors Contributing to E-culture in Pedagogy

Notwithstanding teachers' and learners' values, knowledge, experience, language and symbols, attitudes necessary for transformational pedagogy, "behaviour" also plays a crucial role. Davies' Theory of Planned Behaviour (TPB) states that teachers' and learners' actions with regard to the adoption and use of ICT for knowledge transfer and acquisition are determined by their behavioural intentions (Teo, 2011; Aesaert et al., 2015; Valtonen, Kukkonen, Kontkanen, Sormunen, Dillon &Sointu, 2015; Wilson, Scalise & Gochyyev, 2015; Domingo & Garganté, 2016; Hung, 2016; Siddiq et al., 2016). These behavioural intentions are determined by three elements, namely: attitudes, subjective norms and perceived behavioural control (Teo, 2011; Valtonen et al., 2015). Teachers and learners' evaluation of certain behaviours either positively or negatively valued, is referred to as attitudes (Teo, 2011; Aesaert et al., 2015; Valtonen et al., 2015; Wilson et al., 2015; Domingo &Garganté, 2016; Hung, 2016; Siddiq et al., 2016). On one hand, subjective norms refer to the social aspect that relates to the behaviour and also focuses on how it is viewed by significant people, such

as teachers and learners (Teo, 2011; Wilson et al., 2015; Domingo &Garganté, 2016; Hung, 2016; Siddiq et al., 2016). While on the other hand, perceived behavioural control has to do with the resources and possibilities to support the behaviour and self-efficacy which is more on teachers' and learners' evaluation of their abilities and skills necessary to conduct the behaviour (Teo, 2011; Valtonen et al., 2015). According to Teo (2011), TPB is a valid model for explaining the behavioural intentions of teachers and learners towards the blending of e-learning with conventional didactics. Regardless of teachers' and learners' values, knowledge, experience, language and symbols, attitudes as well as behaviour there are five external factors that have effects on their e-culture necessary for blended pedagogies. The factors include socio-economic characteristics, ICT oriented home situations, general educational, classroom and school level factors (Durndell & Haag, 2002; Meelissen, 2008;Strudler & Hearrington, 2008; Vansteenkiste, Sierens, Soenens, Tsai & Tsai, 2010; Vanderlinde & van Braak, 2010; Zhong, 2011; Verhoeven, Heerwegh & De Wit, 2012; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015;Hung, 2016) which are discussed as follows:

Socio-economic Factors

The socio-economic characteristics that have the ability to influence the e-culture of both teachers and learners are sex, age and economic status (Durndell & Haag, 2002; Meelissen, 2008; Tsai & Tsai, 2010; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015; Hung, 2016). Although there is no conclusive evidence about the relationship between sex and e-culture, it is perceived thatfemales have relationship and communication focused ICT abilities as compared to males who possess more technical skills (Durndell & Haag, 2002; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015). With regard to age, the older teachers and learners get, the more they tend to have less interest in technology (Tsai & Tsai, 2010; Meelissen, 2008; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014;Hung, 2016). Apparently, teachers and learners with high economic status seem to hold strong e-culture compared to those who come from poor backgrounds (Durndell & Haag, 2002; Meelissen, 2008; Tsai & Tsai, 2010; Aesaert & van Braak, 2014; Peeraer& Van Petegem, 2014; Aesaert et al., 2015). This evidence suggests that accessibility to technological gadgets and the Internet as a result of affordability has effects on people's e-culture. Thus, the socio-economic characteristics of teachers and learners can either support or hinder the adoption of educational ICT.

Family ICT Support

Another factor is the ICT oriented home situation with measures such as family ICT support, attitudes and availability of computer and the Internet (Tsai & Tsai, 2010; Zhong, 2011; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015). Firstly, family ICT support entails the degree at which family members control and guide each other in the use of ICT by imposing rules, having talks about computer and Internet usage and doing some activities together (Tsai & Tsai, 2010; Zhong, 2011; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015;Hung, 2016). Secondly, family ICT attitudes relates to the degree in which family members

believe that their ICT usage will economically, socially and educationally benefit them by developing their skills and competencies (Tsai & Tsai, 2010; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014;Hung, 2016). In this case, teachers and learners who perceive their family members as supportive and encouraging with regard to ICT usage and related skills development, consider themselves to be better at adopting computers and Internet in pedagogy. Lastly, availability of computers and Internet at home refers to opportunities that family members have to develop their ICT skills and competencies by having access to necessary infrastructure in the comfort of their homes (Tsai & Tsai, 2010; Zhong, 2011; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015). Thus, family computer ownership influences teachers' and learners' e-culture as it gives them an opportunity to relate to and be confident to use certain applications and programs.

General educational factors

In addition to the discussed characteristics of e-culture, there are general educational, classroom and school level factors which also have an influence on teachers' and learners' e-culture (Vansteenkiste et al., 2009; Verhoeven et al., 2012; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015). The general education factors focus on teaching and learning motivation, style and analytical intelligence (Vansteenkiste et al., 2009; Verhoeven et al., 2012; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015). Teaching and learning motivation encourages autonomous rather than controlled knowledge transfer and acquisition. In this case, teaching and learning that is motivated by pressure and related factors in transformation of pedagogy explain the lack of e-culture amongst participants (Vansteenkiste et al., 2009; Verhoeven et al., 2012; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014;Hung, 2016). The teaching and learning style is also of importance in building a strong and stable e-culture. A more meaning-directed teaching and learning style encourages an effective e-culture towards achieving the desired transformation in pedagogy (Vansteenkiste et al., 2009; Verhoeven et al., 2012;Aesaert et al., 2015). Another education general factor is the analytical intelligence which is a measure of aptitude believed to have effects on both teachers' and learners' e-culture (Vansteenkiste et al., 2009; Verhoeven et al., 2012;Hung, 2016). Seemingly, teachers and learners who are able to apply their analytical intelligence in blended pedagogies have demonstrated a positive e-culture.

Classroom factors

Classroom factors which have a number of characteristics also affect e-culture of teachers and learners which include ICT experiences, logistic appropriateness, competencies and professional development (Vanderlinde& van Braak, 2010; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014;Aesaert et al., 2015;Hung, 2016). Generally, the characteristics refer to teachers' and learners' personal ICT profiles and classroom conditions created to encourage the use of educational technology (Vanderlinde & van Braak, 2010; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015).In order to develop the level of e-culture required for success of the blended pedagogies, the frequency of using ICT for teaching and learning in the classrooms must be improved (Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014). Appropriate logistics with

regard to the educational ICT are important in ensuring that both teachers and learners feel satisfied with the technological resources (Vanderlinde & van Braak, 2010; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015).

The logistics revolves around ICT accessibility and availability of required software and hardware necessary for blended pedagogies. ICT competencies are limited to self-perceived technical, organizational and pedagogical-didactical ability to use technology in the classrooms (Vanderlinde& van Braak, 2010; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015;Hung, 2016). Seemingly, high teachers' e-culture is positively related to learners' cognitive and emotional achievements as well as the development of values towards educational ICT. Additionally, teachers' confidence in delivering lessons using technology and assisting learners to achieve their educational goals is positively linked to the development of learners' e-culture (Vanderlinde& van Braak, 2010; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015). That is, teachers who perceive ICT as useful and important in education encourages the learners' e-culture to be able to excel in using the technology for knowledge acquisition. ICT professional development refers to the degree at which teachers and learners make efforts to keep informed about technology advancements and simultaneously engage in ICT-related professional development (Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014;Hung, 2016). Apparently, dearth of professional development especially among teachers is one of the challenges that negatively influence the e-culture in education.

School level factors

School level factors involve organizational factors that are related to teaching and learning such as the ICT support, coordination and vision and policy (Strudler & Hearrington, 2008; Zhong, 2011; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014;Aesaert et al., 2015). ICT support focuses on quality technical and educational support that teachers and learners must receive in the implementation of blended pedagogies which can lead to strengthened e-culture (Strudler & Hearrington, 2008; Zhong, 2011; Aesaert & van Braak, 2014; Peeraer& Van Petegem, 2014; Aesaert et al., 2015). ICT coordination plays four supportive roles as a planner, technician, budgeter and educationalist in ensuring that the processes of the implementation of the blended pedagogies in schools unfold accordingly (Zhong, 2011; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Hung, 2016). Apparently, the support from the ICT coordinator add value to the successful blending of pedagogies as challenges on the ground are realized and resolved as they emerge. School's vision and ICT policy should consider prioritizing of the educational ICT goals as an essential component of blended pedagogies (Strudler & Hearrington, 2008; Zhong, 2011; Aesaert & van Braak, 2014; Peeraer & Van Petegem, 2014; Aesaert et al., 2015;Hung, 2016). Notwithstanding the school's vision and ICT policy, teachers' and learners' e-culture to a large extent still determines the appropriate application of the blended pedagogies. Teachers and learners who hold positive e-culture have better chances of successfully integrating e-learning with conventional didactics.

However, institutional dynamics also affect the total level of e-culture in schools, something which cannot be addressed at individual level. The international application of the McNay's Taxonomy in studies concerned with organizational culture provide examples of institutional types judged on their culture towards the core business of their institutions (McNay, 1995; McNaught & Vogel, 2006; Czerniewicz & Brown, 2009). McNay's Taxonomy provides four organisational cultural types namely: collegium, bureaucracy, corporation and enterprise (McNay, 1995; McNaught & Vogel, 2006; Czerniewicz & Brown, 2009). This taxonomy has subsequently been extended and modified by McNaught & Vogel (2006) in order to categorise the culture towards the implementation of e-learning within educational institutions. McNay (1995) and McNaught & Vogel (2006) state that the collegium organizational culture is characterised by "loose institutional policy definition", informal networks and decision arenas, and innovation at the level of the individual or department in the implementation of e-learning and/or blended learning. That is, this type of culture within an institution allows for lack of tight policies that clearly guide, control and manage e-learning activities however, willing individuals and/or departments randomly make decisions to adopt technology in their teaching and learning. The bureaucratic organizational cultural type is also characterised by "loose policy but strong regulation" and it is dominated by committees or administrative consultations with regard to the implementation of e-learning (McNay, 1995; McNaught & Vogel, 2006; Czerniewicz & Brown, 2009). In most cases, the decisions made during these "high regulatory" committees or administrative consultations around e-learning are not conducive to the required changes as they are determined by the "political authority" at that moment (McNay, 1995; Czerniewicz & Brown, 2009). The corporate organizational cultural type is defined by "tight policy definition, tight implementation and a culture of strong top down directives, implemented by institutional senior management" (McNay, 1995, p. 108). The corporate culture suggests that the implementation of e-learning is governed by strict policy and implementation processes which are managed specifically by senior management of the institution in question. Therefore, appropriate implementation of e-learning and the development of an effective culture lie with the senior management of the institution. The enterprise type has a "well-defined policy framework" which is informed by "learners as clients" who are considered as the dominant criteria for decision making (McNay, 1995; McNaught & Vogel, 2006; Czerniewicz & Brown, 2009). For this type of organizational culture, leadership in e-learning is decentralised to learners in order to ensure that the institution meet their needs and therefore, considering the market as a strong focus. AsMcNay (1995) and McNaught & Vogel (2006) emphasized, no institution can precisely be grouped under one type and as a result of continuous developments, institutions have the flexibility to change classification over time. Generally, appropriate e-culture should be well developed at the school level through appropriate policies and involvement of relevant stakeholders inclusive of teachers and learners for planning and governance of e-learning. The inclusion of teachers and learners will ensure that e-learning is not considered as one of the initiatives that are just imposed on them especially during the implementation phase. In the next section, the contribution of e-culture towards blended learning is discussed.

E-culture and Blending of Pedagogies

Seemingly, factors which include socio-economic characteristics, ICT oriented home situations, general educational, classroom and school level factors affect the level of e-culture among both teachers and learners.These findings reveals that during times in which educational policies are focusing on ICT integration and developing ICT frameworks and curricula, teachers and learners perceptions and judgment of their computer and Internet competences are still developing outside of the school setting, rather than inside the classroom. According to Zhong (2011), the home which is an out of school setting in which some teachers and learners use ICT, works as a more powerful predictor of e-culture than the classroom itself. In order to deal with the absence of e-culture in the formal education, learners should be taught to reflect on their own ICT attitudes and teachers be assisted to choose and develop ICT activities that are appropriate in terms of difficulty and ease as part of pedagogical aspects that ICT professional development should focus on. However, using self-efficacy as a measure for the level of e-culture, can results in validity problems as the results are based on teachers' and learners' own judgment, experience and expectations of their successful performance of computer and Internet related tasks. Perhaps the expectation that appropriate e-culture should be pinned down to teachers and learners only is misleading as well. The educational institutions should also ensure that their level of e-culture strongly supports and motivates both teachers and learners during the adoption and implementation of e-learning and/or blended learning.

The implementation of blended pedagogies requires an understanding of different contexts of both teachers and learners related to their values, knowledge, experience, language and symbols, attitudes and notion of time (Warschauer & Ames, 2010; Mdlongwa, 2012; Viriyapong & Hartfield, 2013; Aesaert & Van Braak, 2014; Aesaert, et a., 2015; Pruet et al., 2016) necessary to determine the appropriate culture for educational ICT. Therefore, blended pedagogies requires teachers and learners who value and appreciate, possess appropriate knowledge, have experience and are familiar with technological language and symbols, and their attitudes and use of time are all in support of educational ICT (Warschauer & Ames, 2010; Mdlongwa, 2012; Viriyapong & Hartfield, 2013; Aesaert & Van Braak, 2014; Aesaert et al., 2015; Pruet et al., 2016).ICT culture, is considered as one of the major preconditions of the successful implementation of e-learning and/or blended learning especially at institutional level which have the ability to influence individual cultures. Czerniewicz & Brown (2009) in their study established the importance of institutional culture in the implementation of e-learning and/or blended learning. The study drew data from a 2007 Statistics South Africa survey of ICT access and use conducted in six diverse South African universities which are located in five provinces (Czerniewicz & Brown, 2009). The data collected was used to demonstrate and argue the use of ICT in support of academic activities in South African higher education and thus determining the level of institutional culture in this universities (Czerniewicz & Brown, 2009).

The findings of the study revealed that the majority of the selected universities have adopted the corporate organizational culture which is associated with top down change management systems and processes for integration of e-learning into the existing curriculum (Czerniewicz & Brown, 2009). The major challenges this type of culture towards the planning and governance of e-learning are that they

are mostly not consultative and inclusive enough and as such have the possibility of being resented or resisted. In those universities, some academic staff members claim that they were forced to integrate ICT in their teaching (Czerniewicz & Brown, 2009). This finding suggest that teachers' and learners' level of e-culture does not support the implementation of e-learning because of their dissatisfaction with the institutional culture. Therefore, for a developing country such as South Africa which is so ambitious about educational ICT, institutional culture is critical to encourage and influence teachers' and learners' e-culture in order to ensure that they effectively implement e-learning in their institutions.

Conclusion

This paper identified and discussed the different dimension of e-culture which include values, knowledge, experience, language and symbols, attitudes and notion of time. Moreover, various factors which have effects on e-culture were also identified and discusses. The factors includesocio-economic characteristics, ICT oriented home situations, general educational, classroom and school level factors. Generally, these factors have the ability to influence teachers' and learners' ICT e-culture either negatively or positively. Therefore, for South Africa the individual (among teachers and learners) and institutional e-culture is crucial for the successful implementation of blended pedagogies and thus, should be prioritized.

References

Abe, P. & Jordan, N.A. 2013. Integrating social media into the classroom curriculum. *About Campus*, 18: 16-20.

Aesaert, K. & van Braak, J. 2014. Exploring factors related to primary school pupils' ICT self-efficacy: A multilevel approach. *Computers in Human Behavior*, 41: 327-341.

Aesaert, K.; Van Nijlen, D., Vanderlinde, R., Tondeur, J., Devlieger, I. & van Braak, J. 2015. The contribution of pupil, classroom and school level characteristics to primary school pupils' ICT competences: A performance-based approach. *Computers & Education*, 87: 55-69.

Czerniewicz, L. & Brown, C. 2009. A study of the relationship between institutional policy, organisational culture and e-learning use in four South African universities. *Computers & Education*, 53: 121-131.

Domingo, M.G. &Garganté, A.B. 2016. Exploring the use of educational technology in primary education: Teachers' perception of mobile technology learning impacts and applications' use in the classroom. *Computers in Human Behavior*, 56: 21-28.

Durndell, A., & Haag, Z. 2002. Computer self-efficacy, computer anxiety, attitudes towards the Internet, by gender, in an East European sample. *Computers inHuman Behavior*, 18(5): 521–535.

Erdogdu, F. &Erdogdu, E. 2015. The Impact of Access to ICT, Student Background and School/Home Environment on Academic Success of Students in Turkey: An International Comparative Analysis. *Computers and Education*, 82: 26-49.

Glušac, D., Makitan, V., Karuović, D., Radosav, D. &Milanov, D. 2015. Adolescents' informal computer usage and their expectations of ICT in teaching – case study: Serbia. *Computers and Education*, 81: 133-142.

Green, J., Wyllie, A. & Jackson, D. 2014. Social networking for nurse education: Possibilities, perils and pitfalls. Contemporary Nurse: *A Journal for the Australian Nursing Profession*, 47: 180-189.

Hung, M-L. 2016. Teacher readiness for online learning: Scale development and teacher perceptions. *Computers & Education*, 94: 120-133.

McNaught, C., & Vogel, D. 2006. The fit between e-learning policy and institutional culture. *International Journal of Learning Technology*, 2(4), 370-387.

McNay, I. 1995. From collegial academy to corporate enterprise: The changing cultures of universities. In T. Schuller (Ed.), *The Changing University.* Buckingham: Society for Research into Higher Education and Open University Press.

Mdlongwa, T. 2013. Information and communication technology as means of enhancing education in schools in South Africa: challenges, benefits and recommendations. *Africa Institute of South AfricaPolicy Brief*, 80: 1-7.

Meelissen, M. 2008. Computer attitudes and competencies among primary and secondary school students. In J. Voogt, & G. Knezek (eds.) *International Handbook of Information Technology in Primary and Secondary Education.* New York: Springer.

Oz, H., Demirezen, M. &Pourfeiz, J. 2015. Digital device ownership, computer literacy, and attitudes towards foreign and computer-assisted language learning. *Procedia: Social and Behavioural Sciences,* 186: 359-366.

Peck, J.L. 2014. Social media in nursing education: Responsible integration for meaningful use. *Journal of Nursing Education,* 53: 164-169.

Pruet, P., Ang, C.S. &Farzin, D. 2016. Understanding tablet computer usage among primary school students in underdeveloped areas: Students' technology experience, learning styles and attitudes. *Computers in Human Behavior*, 55: 1131-1144.

Salminen, L., Gustafsson, M., Vilén, L., Fuster, P., Istomina, N. & Papastavrou, E. 2016. Nurse teacher candidates learned to use social media during the international teacher training course. *Nurse Education Today,* 36: 354-359.

Siddiq, F., Scherer, R. &Tondeur, J. 2016. Teachers' emphasis on developing students' digital information and communication skills (TEDDICS): a new construct in 21st century education. *Computers & Education*, 92-93: 1-14.

Strudler, N., &Hearrington, D. 2008.Quality support for ICT in schools. In J. Voogt & G. Knezek (Eds.), *International Handbook of Information Technology in Primary and Secondary Education.* New York: Springer.

Teo, T. 2011. Factors influencing teachers' intention to use technology: Model development and test. *Computers and Education*, 57: 2432-2440.

Tower, M., Latimer, S. & Hewitt, J. 2014. Social networking as a learning tool: Nursing students' perception of efficacy. *Nursing Education Today,* 34: 1012-1017.

Tsai, M.J. & Tsai, C.C. 2010. Junior high school students' internet usage and self-efficacy: A re-examination of the gender gap. *Computers and Education*, 54: 1182-1192.

Valtonen, T.,Kukkonen, J., Kontkanen, S., Sormunen, K., Dillon, P. &Sointu, E. 2015. The impact of authentic learning experiences with ICT on pre-service teachers' intentions to use ICT for teaching and learning. *Computers and Education*, 81: 49-58.

Vanderlinde, R., & van Braak, J. 2010. The e-capacity of primary schools: Development of a conceptual model and scale construction from a school improvement perspective. *Computers & Education*, 55: 541–553.

Vansteenkiste, M., Sierens, E., Soenens, B., Luyckx, K., & Lens, W. 2009. Motivational profiles from a self-determination perspective: The quality of motivation matters. *Journal of Educational Psychology*, 101(3): 671–688.

Verhoeven, J. C., Heerwegh, D., & De Wit, K. 2012. First year university students' self-perception of ICT skills: Do learning styles matter? *Education and Information Technologies*, 17(1): 109–133.

Viriyapong, R. & Hartfield, A. 2013. Facing the Challenges of the One-Tablet-Per-Child Policy in Thai Primary School Education. *International Journal of Advanced Computer Science and Applications*, 4 (9): 176-184.

Warschauer, M. and Ames, M. (2010). Can One Laptop per Child Save the World's Poor? *Journal of International Affairs*, 64 (1): 33-51.

Wilson, M., Scalise, K &Gochyyev, P. 2015. Rethinking ICT literacy: From computer skills to social network settings. *Thinking Skills and Creativity*, 18: 65-80.

Zhong, Z. J. 2011. From access to usage: The divide of self-reported digital skills among adolescents. *Computers & Education*, 56: 736-746.