



## 8th International DEFSA Conference 2019

Hosted by Cape Peninsula University of Technology and IIE Vega School.

### DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

#### Curriculum Development for Fashion Product Development in an ODeL Context

Lorna Christie: UNISA  
Mariette Strydom: UNISA

#### Abstract

*Appropriate pedagogies for the development of an online (distance education) clothing and textile product development module presented at NQF level 8 is paramount. The curriculum and the pedagogical perspective of students enrolled at Unisa are affected by student diversity; locality of students; separation from the institution, lecturing staff and fellow students. Cognisance should be taken regarding the proliferation of the internet, changing student profile and adoption of various teaching methods, which all have an impact on the learning process and should form the theoretical underpinning of a design of a course/module (Ertmer & Newby 2013).*

*Online communication allows for the acknowledgment of separation of space and time but creates an ongoing dialogue between the educator and the student. This approach to teaching encompasses both the traditional face-to-face and distance education mode of teaching, which manifests in a fully online module. The current role of the educator and student has changed into a shared responsibility of the generation and acquisition of knowledge (Palaiologos 2011). Some of the resulting learning methodologies that came to the fore are connectivism, paralogy and rhizomatic learning. Pedagogies that ensure students are active participants in the learning process are imperative, and thus the current module has been developed from a heutagogical perspective, fostering co-creation of knowledge (Chetty 2013).*

*The economic and social climate demands that students have the ability to adapt to changes in the real-world context. Self-directed learning is, therefore, crucial in forming a holistic approach to life-long learning, reiterating the importance of heutagogy. The module, Clothing and Textiles Product Development, is aimed at addressing important concepts including writing a business plan for a product line in Africa; developing and complete specifications for the product line in terms of product design; costing, quality specifications; production planning; distribution; critically evaluating a business plan in terms of relevance, feasibility and innovativeness from self-evaluations and peer evaluations. The contributions to the field of Consumer Sciences are therefore theoretical in terms of learning methodologies, but also practical in terms of student (self) employability.*

**Keywords:** Heutagogy, open distance learning, consumer science, fashion product development, fashion design curriculum

## Introduction

Online course development and delivery are becoming more commonplace in the tertiary education landscape (Chao, Saj & Hamilton 2010). To develop an online course or module, several aspects need to be taken into consideration to ensure that the quality of the online course is of good standard. This paper proposes the development of a new module, namely Clothing and Textile Product Development (CTP4801), as part of the Bachelor of Consumer Science Honours Degree at the University of South Africa (UNISA). The honours qualification offers Consumer Science students the possibility to specialise in a specific field of interest, among others Clothing and Textiles. The need for the honours program to cater to various fields of interest together with industry requirements as stipulated by the changing social, political and economic environments led to the development of an additional elective module, namely Clothing and Textile Product Development.

The purpose of this paper is to consider the appropriate design for a postgraduate module as part of a qualification for a Distance Education (DE) environment. This will allow the students to acquire the relevant skills set and thereby preparing them for the working environment. The aim of the project is to achieve this via the development of Clothing and Textile Product Development, presented through a distance education approach. The following objectives were, therefore formulated:

- To investigate appropriate pedagogies for the development of an online module at NQF level 8; and
- To investigate appropriate technologies that will facilitate the delivery of the Clothing and Textile Product Development course content.

## Literature review

### ***The University of South Africa as a distance education institution***

Unisa was founded in 1873, as the University of the Cape of Good Hope (Boucher, cited in Holmberg 2005, p. 30; Unisa 2016a). The vision of the university as 'The African University shaping futures in the service of humanity' (Unisa 2016a) reiterates the institution's aims to serve the African continent and thereby including their commitment to the communities and the individuals that they serve.

The university as an Open Distance Learning (ODL) institution is determined to provide admission to traditionally disadvantaged students (Unisa 2016b). The student population was initially the landless farmers from British India, the rapidly expanding mining community, the British and Boer soldiers that were involved in the Anglo Boer War, and prisoners (famously including Nelson Mandela), indicating that the institution aimed to provide opportunities to students who may not have attended a conventional tertiary institution. Currently, the university still provides access to previously disadvantaged communities within the historical context of South Africa, women and working individuals. However, a large portion of the university's current student population is first-time university entrants where Unisa is their first choice of study (Unisa 2016a). Consideration must be given to the diversity of the student population and the various levels of competencies of such students and provide support accordingly. Furthermore, these aspects should be considered along with Unisa as an institution of distance education and that the student and lecturer are separated from one another in time and space.

The model of teaching and learning has largely remained unchanged at Unisa as the university still focuses on independent correspondence study. However, recently, a 'blended mode of teaching' is being promoted. This means the use of mixed media as teaching methods, focusing on various modes of learning development, facilitation, as well as support through print and electronic media and additional face-to-face support opportunities. Unisa traditionally provided students with a study guide for a qualification, along with formal and informal printed materials in the study packages along with several brochures. This was supported by answering questions in an online manner, via e-mail and face-to-face advice in regional centres (Daniel, cited in Peters 2010, p. 57). However, the recent change to a 'blended' mode of teaching incorporates online learning in a more prominent manner. Some courses, including all postgraduate courses, are now offered in a fully online manner (Unisa 2016a).

Unisa now positions itself as an Open Distance e-Learning institute (ODEL) institute. As such, technology is seen as an essential part of supporting teaching, learning and assessment at a distance. Using technology, Unisa aims to add to the skills base of students who need to compete in a knowledge-driven global society. Furthermore, technological advancements allow for online communications that acknowledge the separation of space and time, while allowing for an ongoing dialogue between the educator and the student. This is a very important concept because it does not follow the traditional face-to-face mode of teaching, neither the traditional distance education mode of teaching, but rather fosters a new approach to teaching encompassing both dimensions (DHET 2012).

The Unisa 2030 mission statement prioritises technological infrastructure in the university's service offering, by aiming to be a leading student-centred ODeL institution through providing cutting-edge IT applications and platforms. The incorporation of technology should promote a service offering to the students that will allow for optimal learning experiences. Furthermore, by including such services, students are exposed to the workplace environment and the 'real world context' that may serve to enhance their employability. Thus, the ODeL approach reflects fundamental care for the student's experience during and after they have graduated.

### ***Generations of technology***

According to Heydenrych and Prinsloo (2010), there are various classifications of the number of generations associated with distance education. However, these models are all based in correspondence education in the early 1900s with the advent of the printing press. Subsequently, the different technological advancements relate to the various generations, along with the developments in pedagogy and the broader educational context.

Heydenrych and Prinsloo (2010) state that focusing exclusively on technology in the delivery of study material in the distance education context is severely limiting. The authors mention that while technology and the delivery mode of study material are important aspects, the role of pedagogies with the associated learning theories, the ownership of content, the type of interaction, the mediums available for institutions and students alike, how learning experiences are developed and produced, as well as how interactions take place is of paramount consideration. This then calls for a multidimensional perspective of the generations of distance education.

Unisa finds itself as an institution where the technology implemented for teaching and learning is that of Web 2.0 technologies. Educational technology is moving towards more personalised educational experiences built on the seamless integration of technology into the core curriculum. Furthermore, the digital products are becoming low cost and therefore, more attractive as options for inclusion, and lastly, higher education institutions should develop key digital learning strategies that prioritise the future (Abel 2017). Kirby (2016) states that the core principles of basic education have remained unchanged, but the delivery mode changes

to accommodate the needs and employability of the student. Pedagogies that ensure that students are active participants in the learning process are imperative for this to occur. The course design, the social context and the verification of technologies used for educational purposes illustrate a social constructivist perspective. This also reiterates that technology should be developed through design teams and in collaboration with an entire classroom environment to promote lifelong learning (Williams 2016). The next generation of digital learning environments must be a dynamic, interconnected environment that is ever-evolving within the community of learners, instructors, tools and content (Feldstein 2017). Unisa's students have various backgrounds in terms of access to and use of such technologies. The university should take cognisance of students' technologies while simultaneously implementing these practices when designing and developing course content because facilitation of the use of these technologies is paramount in the curriculum.

### ***Defining the curriculum in an ODeL context***

At the most fundamental level, the curriculum can be defined as a plan for learning (Van den Akker 2004) and constitutes prescriptive and descriptive curricula. According to Glatthorn et al. (2009), the prescriptive curriculum is the actual content planned for an intended program, whereas the descriptive curriculum is the actual experience encountered in the classroom. The authors conclude that curriculum is the plans made to guide learning, as well as the actualisation of the plans as experienced by learners as recorded by an observer. The components that constitute the curriculum consist of a set of planning documents to guide instruction which includes aims, objectives and content for achieving the objectives, instructional methods, learning materials, resources, and assessment methods. Mischke (2010) states that while academics enjoyed anonymity in terms of the curriculums they offered in the past, regulatory bodies such as the South African Qualifications' Authority (SAQA, n.d.), the National Qualifications' Framework (NQF levels), market demands, internationalisation of tertiary education and the changing student profile should all be considered when developing curriculum and that the process now requires accountability. Yang and Tian (2017) state that for distance education the teaching quality has become higher and therefore, the development of appropriate curriculum is crucial. The course construction should focus on the student as the centre of the activity, and the function of mobile learning should be maximised.

The Council on Higher Education highlights the following principles that must be met in terms of curriculum design, applicable to both contact, as well as distance education institutions, namely,

- that the curriculum must be fit for purpose in terms of mastery of curriculum and learning experience;
- that it must be flexible, i.e. the curriculum must be able to accommodate the diversity of educational context;
- there must be a diversity of pathways and duration which will be specific to undergraduate and postgraduate qualifications in terms of the duration of academic years;
- that the design of the curriculum must be based on the needs of the majority of the students;
- that the curriculum must accommodate the students' different level of preparedness;
- there needs to be flexibility in institutional implementation within the common adoption of the proposal;
- the curriculum needs to offer additional space which must be used for augmentation and not increasing the volume of the content;
- that provision should be made for curriculum enhancement; and
- that the curriculum must put student learning first (Ramdass 2016).

The process of curriculum development can, therefore, technically, only be cyclical in nature and can either focus on a very narrow scope or a broader level and encompass various stakeholders (Van den Akker 2004).

Unisa has a fundamental focus on the use of technology in their daily operations (Unisa 2015). As such, technology is seen as an essential part of the institution that is used in delivering and supporting teaching, learning and assessment at a distance (DHET 2012). This implies that curriculum in an ODeL context is the planned and experienced learning outcomes designed (intentionally and unintentionally). This should facilitate teaching and learn via electronic means at relevant taxonomy levels where the student and the lecturer are separated from one another, but this does not apply in the traditional sense of space and or time, rather in a new online ODeL experience.

### ***A theoretical approach to curriculum development***

The recent and ongoing technological advancements in the information and communication technology sectors specifically resulted in a change in the education sphere (Chetty 2013). The traditional structures of top-down pedagogies in distance education, especially, where students are expected to learn independently, can no longer be seen exclusively as the way in which learning occurs (Ashton & Elliot 2007). The initial approach to learning was that of pedagogy, i.e. the instruction of children where learning was standardised and arranged by an educator, the instructor also developed the curriculum on behalf of the learner where discipline and literacy were seen as preceding knowledge acquisition. A key concern regarding this approach for tertiary education is that it was developed from child education and the successful application thereof to adult learners is doubtful (Palaiologos 2011). Thus, andragogy developed from this criticism to focus specifically on adult education, characterised by learner control and a students' self-responsibility. The role of the educator is seen as a facilitator of learning by supporting the learner in the development of capacity building that is then related to self-directed learning (Palaiologos 2011; Hase & Kenyon 2000). However, this approach, as well as behaviourism, cognitivism and constructivism have also been extensively criticised in the design and implementation of the twenty-first-century student (Chetty 2013).

Educators need to (re)evaluate their traditional mode of delivery and consider how students think, gauge and solve problems, as well as how they communicate and manage their time (Ashton & Elliot 2007). Educators also need to be aware that within a global world, access to information depends upon transferable general skills as opposed to subject-related specific knowledge (Bright et al., cited in Ashton & Elliot 2007). Accompanying this concern is also the consideration of the changing global economic climate. Universities must re-think how quality tuition is provided in a manner that is affordable to students, yet remain profitable institutions (Ashton & Elliot 2007).

The roles of the educator and the student are now termed as 'double loop communication' with shared responsibilities of knowledge generation and acquisition between the educator and the student (Palaiologos 2011). Resulting learning methodologies that emerge are, firstly, that of connectivism, suggesting that knowledge is distributed across networks; and, secondly, paralogy, illustrating peer-to-peer collaborative learning; and, lastly, rhizomatic learning, describing multiple paths of learning and varying context of learning (Chetty 2013). While community-based learning involves a significant socially negotiated and integrated form of learning that promotes learner autonomy and self-directed participation where connections are built and grown between participants and relevant resources (Anders 2015). As an emerging approach to learning, heutagogy will be discussed as the basis for curriculum design, as it is deemed acceptable for the NQF-level outcomes associated with an honours level qualification.

## **Heutagogy**

Hase and Kenyon (2000) define heutagogy as the study of self-determined learning, where the responsibility of the learning itself, rests on the learner. The learner is the person who determines what will be learned and how to learn. In other words, heutagogy is a process of self-directed learning that places emphasis on self-efficacy in a collaborative context, promoting problem solving (Anders 2015; Blaschke 2012). Heutagogy, therefore, developed from the initial pedagogy of instructor mediated learning to andragogy where the instructor takes the role as mediator of ultimately self-directed and self-determined learning (Blaschke 2012; Beacen et al. 2014, cited in Anders 2015). Hase and Kenyon (2000) state that it is important not to view heutagogy as a departure of andragogy, but rather an extension thereof, incorporating self-directed learning. Ashton and Elliott (2007) state that when students take responsibility for their own learning, it is more closely associated with how knowledge is adopted in a 'real-world' context and is therefore crucial for modern students. This may even be more so for students studying an applied science like Consumer Science, specialising in clothing and textiles.

According to Palaiologos (2011), with the change in roles of knowledge generation and acquisition, distance education is closer to achieving such a shift in learning than a traditional contact university. The proximity is due to emphasis on existing individual student participation and 'flexible learning', the main advantage of distance education. Rogers (cited in Hase & Kenyon 2000) states that there is a relationship that emanates from teaching and that a person cannot be taught directly, but the process of teaching may merely be facilitated. He continues to state a person will only truly learn what they perceive as the maintenance or enhancing of the self; that learning only occurs once the self is in a relaxed environment and the perception of the field of experience is differentiated from learning, where the threat to the self is minimised. This, therefore, means that people are encouraged and expected to acquire a complex set of attributes over and above skills and knowledge, the process and capabilities of self-directed learning is crucial, once again reiterating heutagogy as an important approach to learning (Ashton & Elliott 2007).

Even though the benefits of heutagogy promote lifelong learning and independent, problem-solving students in the real-world context, it requires a student to take responsibility for their own learning and thus needs mature, self-motivated students to learn and to receive a qualification (Ashton & Elliott 2007). What differentiates heutagogy from other learning methodologies in an ODeL environment is the development of confidence and competence in students to challenge interpretations of reality that may be in opposition to their views (Ashton & Elliott 2007). Heutagogy also fosters students an ability to know how to learn (Ashton & Elliott 2007) through self-directed, computer-based learning (Palaiologos 2011). Heutagogy, therefore, transcends mere problem solving through enabling proactivity (Hase & Kenyon 2000). This learning does not take place in isolation but includes the production of knowledge through collaboration within a social environment through networks (Singh, cited in Ashton & Elliott 2007). Ashton and Elliott (2007) reiterate that social environments are 'conducive to stimulating learning' and are crucial where knowledge generation and acquisition is shared by the educator and students.

Therefore, it is envisioned that to promote self-directed learning in terms of the qualification as a whole, the course content must be developed in relation to the Bachelor of Consumer Science Honours Stream qualification. Therefore, each individual module should be treated as a part of the curriculum that aims to satisfy the outcomes of the qualification. The modules should be developed in terms of clearly specified objectives that should be met to achieve the module-specific outcomes. The modules should be divided into units, each with its associated outcomes for the modules, but the manner in which the students should reach these objectives should be left to them to determine and to achieve, while the lecturer should

merely act as a facilitator in this process. Therefore, the students must assume the responsibility of self-directed learning to become co-creators of knowledge instead of being 'taught' a specific aspect of the curriculum in a certain way. If the students then become these co-creators of the course curriculum, then it is assumed that they will reach the competencies associated with the relevant qualification. Therefore, Clothing and Textile Product Development should enable the student to complete the module as per the specified module-related outcomes, but should further enhance self-directed learning and the ability of the students to adapt and apply this ability to other 'real-world' and or work-related scenarios as well.

### ***Considering technologies***

A debate within academia exists regarding whether media influences learning or whether media serves only as a mere mode of delivery. Richard E Clark is of the opinion that media will not influence learning, while Robert B Kozma is of the opinion that media does indeed influence learning. It is assumed that media acts as a mere mode of delivery and does not influence the student's achievement in terms of learning per se (Clark 1983). The basic premise of this argument is that if learning can be achieved through the delivery of various modes of media, then the media in itself is not responsible for the learning process (Clark 1983; Clark 1994). Kulik, Kulik and Cohen (Clark 1983) conducted a study and came to the conclusion that if the same instructor designed the same course, but changed the mode of delivery, the positive effect that media has on the outcome is almost negated. Clark (1983) states that it is, therefore, the ability of the instructor to present a well-designed and structured course that results in the learning of students and not the media that is used.

With this in mind, Clark (1983) very importantly states that certain elements of different media may serve as conditions to facilitate the learning process of students lacking in skills being modelled. This should not be misinterpreted in deeming that media will influence learning, but rather that systems of symbols that correlate to familiar media may serve as sufficient conditions for learning from instruction. These systems operate as vehicles for methods that reflect cognitive processes that are deemed necessary for sufficient completion of a learning task. As some form of media is required in the instructional process, so too must some symbol system be present in the learning process. Clark (1983) asserts, "Neither the medium nor the symbolic elements are chosen in the process influences the learning, but rather the critical features of the necessary cognitive processes that underlie the construction that is responsible for learning".

Based on this, incorporating technologies into the mode of delivery should serve to enhance the conditions of learning for the students and should not merely be introduced for the sake of the use of technologies. Schmidt (2018) states that lecturers must assess the advantages and disadvantages of technology tools before choosing the specific tool for incorporation into the course curriculum. Effective online distance education requires that the tools assist the outcomes of the qualification.

Since 2000, the world has changed radically, and new developments occur at an unprecedented pace with social networks, mobile platforms, apps, advanced analytics and big data, clouds and artificial intelligence all coming together. This can be labelled as the fourth industrial revolution. The revolution represents a paradigm shift where the manufacturing world is converging with the digital world enabling organisations such as higher education institutions to plan and produce their products and production facilities digitally (Bloem et al. 2014). According to Baird and Fisher (2006) students who were raised in the 'always on' world of interactive media, the internet and digital messaging technologies, resulted in various expectations of learning styles for this generation of student. This generation of net-centric students places great value on using the web to create a customised learning experience that

is self-paced and instant, through multiple forms of interactive, social and self-publishing media tools. The proliferation of the online social environment has resulted in challenges for teaching practitioners in terms of lesson planning, structure and content, which may be mediated through enabling a heutagogical approach (De Freitas & Neumann 2009).

For students to stay actively involved in the teaching and learning process, there should be adequate opportunities for engagement in terms of assessment opportunities and activities by the students. This can be achieved through scaffolding the structure of the online teaching and learning environment, namely procedural scaffolding (the navigation of the course in the online environment), metacognitive scaffolding (tools in assisting students in planning, monitoring and evaluating their work and progress), conceptual scaffolding (strategies that assist students with the understanding of the course content) and lastly, strategic scaffolding (instructional support from the lecturer, timely and ongoing student support) (Stavredes 2011).

For Clothing and Textile Product Development, the scaffolding approach thus requires that the module should be developed in a manner that is easily navigated in the online environment. The students must be guided through the online environment. For students that have been studying at Unisa, this orientation might not be necessary, but the Consumer Science Honours qualification admits students from traditional contact institutions as well, and therefore this orientation is crucial. Because the course content in the online environment is available from registration of the module, the online environment might seem overwhelming to the students. Clothing and Textile Product Development should include a time schedule and an explanation of the expectations of the students in terms of the teaching and learning environment and assessment opportunities. The second component is concerned with the metacognitive aspect. Clothing and Textile Product Development should have a detailed schedule of due dates, assessments, and what is expected of the student to assist them with time management and planning activities for the module. Students will be monitored in the module in terms of their progress. The online nature of the module requires online discussion and collaborations, which must be monitored to encourage student participation and assist in the learning process. Marks awarded for assessment opportunities will serve as a guide to measure formal progress. Struggling students will be identified, and relevant mediating strategies will be employed, such as contact sessions, phone conferences, additional notes, support, among others. Because the module will be designed based on heutagogy, it is imperative that students also evaluate themselves to determine their progress, and, thus, self-reflection and self-evaluation will be incorporated into the module to achieve this.

## Conclusion

The current economic and social climate in which students (people) find themselves, therefore, requires the ability of self-directed learning. The acquisition of the ability to learn and the fostering of proactivity may be deemed more important than relevant subject-specific knowledge, in some instances, but will be necessary for all instances to negotiate the ever-changing real-world landscape successfully. Students need to have the ability to adapt to changing demands in the real-world context, and therefore the development of self-directed learning is crucial in forming a holistic approach to life-long learning. This renders heutagogy imperative as a learning methodology regarding a postgraduate qualification.

When developing a course or a module, the capacity of modern technologies and the needs of the students are key considerations for development (Chen 2007). To accommodate the honours student, technologies must provide relevant exposure to the online environment that an advanced degree requires. Clothing and Textile Product Development does require a physical production of garments, but taking into cognisance the module outcomes, attending



a practical session in one designated location may not be optimum. Therefore, technologies should be used to mediate this concern. Students can produce their garments and create visual evidence that can then be sent to the lecturer and fellow students for assessment opportunities using various technologies.

A contribution can be made towards the social environment of South Africa and that of the economy of the country by equipping students with the ability to acquire new knowledge, to learn various skills pertaining to contextual factors through means of self-directed learning and associated competencies. All of these aspects should result in equipping students with the relevant competencies to become active participants in the country.

### \*Acknowledgement

Parts of this article flowed from a range of discussion posts and assignments at the University of Maryland, University College (UMUC) as part of a *Certificate in Technology in Distance Education and e-Learning* and have been integrated and reworked in service of the main line of argumentation.

### References

- Abel, R 2017, 'Shaping the educational technology innovation ecosystem', viewed 15 March 2017, <<http://er.educause.edu/articles/2017/7/shaping-the-educational-technology-innovation-ecosystem>>.
- Anders, A 2015, 'Theories and applications of massive online open courses (MOOCs), pp. The case for hybrid design', *International Review of Research in Open and Distributed Learning*, vol. 16, pp. 39-61.
- Ashton, J & Elliot, R 2007, 'Juggling the balls – study, work, family and play: student perspectives on flexible and blended heutagogy', *European Early Childhood Education Research Journal*, vol. 15, pp. 167-181.
- Baird, DK & Fisher, M 2006, 'Neomillennial user experience design strategies: utilizing social networking media to support "always on" learning styles', *Journal of Educational Technology Systems*, vol. 34, pp. 5-32.
- Blaschke, LM 2012, 'Heutagogy and lifelong learning: a review of heutagogical practice and self-determined learning', *International Review of Research in Open and Distance Learning*, vol. 13, no. 1, pp. 56-71.
- Bloem, J, Van Doorn, M, Duivesteyn, S, Excoffier, D, Maas, R & Van Ommeren, E 2014, 'The fourth industrial revolution. Things to tighten the link between IT and OT', viewed 14 March 2017, <<https://www.sogeti.com/globalassets/global/special/sogeti-things3en.pdf>>
- Chao, IT, Saj, T & Hamilton, D 2010, 'Using collaborative course development to achieve online course quality standards', *International Review of Research in Open and Distance Learning*, vol. 11, pp. 106-126.
- Chen, S 2007, 'Instructional design strategies for intensive online courses: an objectivist-constructivist blended approach', *Journal of Interactive Online Learning*, vol. 6, pp. 73-86.
- Chetty, D 2013, 'Connectivism: probing prospects for a technology-centered pedagogical transition in religious studies', *Alteration Special Edition*, vol. 10, pp. 172-199.
- Clark, RE 1983, 'Reconsidering research on learning from media', *Review of Educational Research*, vol. 53, pp. 445-459.

- Clark, RE 1994, 'Media will never influence learning', *Educational Technology Research and Development*, vol. 42, pp. 21-29.
- De Freitas, S & Neumann, T 2009, 'The use of "exploratory learning" for supporting immersive learning in virtual environments', *Computers & Education*, vol. 52, pp. 343-352.
- Department: Higher Education and Training (DHET) 2012, 'Draft policy framework for the provision of distance education in South African Universities [Policy brief]', viewed 21 April 2017, <[http://www.che.ac.za/sites/default/files/publications/DHET\\_Draft\\_Policy\\_Framework\\_on\\_Distance\\_Education\\_in\\_South\\_African\\_Universities\\_May\\_2012.pdf](http://www.che.ac.za/sites/default/files/publications/DHET_Draft_Policy_Framework_on_Distance_Education_in_South_African_Universities_May_2012.pdf)>.
- Ertmer, PA & Newby, TJ 2013, 'Behaviourism, cognitivism, constructivism: comparing critical features from an instructional design perspective', *Performance Improvement Quarterly*, vol. 26, pp. 43-71.
- Feldstein, M 2017, 'What is the next generation? Educause review', viewed 23 June 2018, <<http://er.educause.edu/articles/2017/7/what-is-the-next-generation>>.
- Glatthorn, AA, Boschee, F & Whitehead, BM 2009, *Curriculum leadership. Strategies for development and implementation*, 2<sup>nd</sup> ed. Sage Publications, Inc., India.
- Hase, S & Kenyon, C 2000, 'From androgogy to heutagogy, in UltiBase Articles', viewed 17 April 2018, <<http://ultibase.rmit.edu.au/Articles/dec00/hase2.htm>>.
- Heydenrych, JF & Prinsloo, P 2010, 'Revisiting the five generations of distance education: Quo vadis?' *Progressio*, vol. 32, pp. 5-26.
- Holmberg, B 2005, 'The evolution, principles and practices of distance education', vol. 11, *Oldenburg. Bibliotheks und Informationssystem der Universität Oldenburg*, viewed 9 August 2017.
- Kirby, D 2016, 'Changing the landscape of higher education. Huffpost: The Blog', viewed 5 February 2019, <[http://www.huffingtonpost.com/david-m-kirby/changing-the-landscape-of\\_b\\_13127826.html](http://www.huffingtonpost.com/david-m-kirby/changing-the-landscape-of_b_13127826.html)>.
- Mischke, G 2010, 'Towards effective curriculum design in ODL', *Progressio*, vol. 32, pp. 145-163.
- Palaiologos, G 2011, 'From pedagogy to andragogy and heutagogy: thinking distance education and self-directed learning', viewed 3 December 2011, <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1967851](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1967851)>.
- Peters, O 2010, 'Distance education in transition, developments and issues', 5th ed., *Oldenburg. Bibliotheks und Informationssystem der Universität Oldenburg*, viewed 20 June 2017, <<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.477.2748&rep=rep1&type=pdf>>.
- Ramdass, K 2016, 'Curriculum engineering: a South African case', 2016 Proceeding of PICMET'16: *Technology Management for Social Innovation*, pp. 1732-1739.
- South African National Qualifications Authority SAQA 2014, 'NQF', viewed 28 August 2018, <<http://www.saqa.org.za/list.php?e=NQF>>.
- Schmidt, L 2018, 'Distance education and technology. Theme 9 [learning material]', viewed 6 April 2018, <<https://my.unisa.ac.za/portal/site/ODL5902-18-Y1/page/0728f70d-223d-4e80-bd55-330803afeeab>>.
- Stavredes, T 2011, *Effective online teaching: foundations and strategies for student success*, John Wiley and Sons, San Francisco, CA.
- University of South Africa (UNISA) 2015, 'Open distance learning policy [policy brief]', viewed 4 April 2019, <<http://www.unisa.ac.za/static/>>

corporate\_web/Content/Colleges/CGS/schools,%20institutes%20&%20research%20cha  
irs/institutes/documents/odl-policy\_version5\_16Sept08.pdf>.

University of South Africa (UNISA) 2016a, *Mission*, viewed 4 April 2019,

<<http://www.unisa.ac.za/sites/corporate/default/About/Who-we-are/Our-strategy>

University of South Africa (UNISA) 2016b, *Timeline*, viewed 4 April 2019,

<<http://www.unisahistory.ac.za/timeline/periods/the-imperial-project-1800s-1918/>>.

Van den Akker, J 2004, *Curriculum perspectives: an introduction, in curriculum landscapes and trends*, Springer, Dordrecht.

Williams, PJ 2016, 'Research in technology education: looking back to move forward... again', *International Journal of Technology and Design Education*, vol. 26, pp. 149-157.

Yang, Y & Tian, D 2017, 'The research of multimedia curriculum design and curriculum development in modern distance education', *2017 3<sup>rd</sup> IEEE International Conference on Computer and Communications*.