Competency-based entrepreneurship education: analysis of the 'disruptive innovation' theory in African higher education institutions.

IRENE, B.O., OPUTE, A.P., IBIDUNNI, A.S., CHUKWUMA-NWUBA, K. and ONOSHAKPOR, C.M.

2023

African Journal of Economics, Politics and Social Studies, Vol. 2 (2023), Issue 1
DOI: https://doi.org/10.15804/ajepss.2023.1.01

Competency-Based Entrepreneurship Education: Analysis of the 'Disruptive Innovation' Theory in African Higher Education Institutions

Bridget Obiageli Irene
Coventry University (United Kingdom)
https://orcid.org/0000-0003-2864-4767

Abdullah Promise Opute
G-Prom consulting (Germany)
https://orcid.org/0000-0001-6221-1856

Ayodotun Stephen Ibidunni
Covenant University, Lagos (Nigeria)
https://orcid.org/0000-0001-5790-3508

Kemi Chukwuma-Nwuba
Coventry University (United Kingdom)
https://orcid.org/0000-0003-0174-5752

Chioma Masi Onoshakpor
Robert Gordon University (United Kingdom)
https://orcid.org/0000-0003-4092-100X

ABSTRACT: This aim of this article is to examine several entrepreneurial education innovations (competency-based education as a disruptive innovation model and pedagogy in the HEIs) using a comprehensive systematic literature review (SLR). It is accepted practise to undertake systematic literature reviews when implementing evidence-based policy. This article discusses the ways higher education has evolved in teaching leading to innovative scholarships that unsettle established institutional structures and academic practices. Particularly, within the African context as entrepreneurship is gaining increasing mention as a discipline at Higher Education Institutions (HEIs) given the potential employment and GDP contribution benefits. The findings support the conclusion that the move towards this high-quality, personalised approach, the focus is not only on the level of competency achieved by the student but also on validating the learning experience.

KEYWORDS: Competency-based Education, disruptive innovation, Entrepreneurship education and Higher Education Institutions (HEIs)

Corresponding author:
Dr. Bridget Obiageli Irene, Coventry University, Priory St, Coventry CV1 5FB, United Kingdom.
E-mail: bridget.irene@coventry.ac.uk.

1. Introduction

■ **Academic discourse has lauded the importance of entrepreneurship as economic activity (Opute, in-press; Ratten et al., 2017). Given this importance, entrepreneurship education is gaining prominence (Anderson, 2015; Iwu et al. 2019; Fayolle, 2008). Within the African context, this trend is also evident – there is a recent surge in Higher Education Institutions offering entrepreneurship education. Irene (2016) attributes this trend to the increasing wave of unemployment as the public sector is no longer able to meet the job demands. The employment substance is further underlined by a recent South African study (Iwu et al., 2019) which submits that entrepreneurship can become an alternative to traditional employment. Maximising the employment impact of entrepreneurial activities however hinges on entrepreneurial competencies and skills, for as noted by GEM (2015) business success will depend on the competencies and skills of the graduates.**

Interestingly, despite the proliferation of entrepreneurship education, studies have shown that 1.7% are graduate entrepreneurs (Irene & Hussain, 2020; Chukwuma-Nwuba, 2021; Matthews et al. 2021). This, therefore, raises the question of the effectiveness of the current structure/approach of entrepreneurship education programs to meet the challenges of the current socio-economic climate (Dadariah et al., 2015). This study was therefore conducted on the basis of evaluating the current literature of entrepreneurship education in HEIs juxtaposed with the innovative learning approaches and the disruptive innovation approaches to propose a new approach to entrepreneurship education in African HEIs.

Presently, HEIs are undergoing fundamental disruptions vis-à-vis the various new tools and virtual learning environment (VLE) as a result of the rapid development of ICT which has inevitably brought about changes in education and therefore the structure of HEIs (Hilmi, 2016). According to Christensen (2008), HEIs are "…moving up the quality chain and losing touch with the mainstream…", and are undergoing a sort of "disruptive innovation and catalytic change". Nonetheless, there is a myriad of technological innovations in HEIs (Mangana, 2017; Mykhailyshyn et al., 2018; Al-Imarah & Shield, 2019), and online competency-based education (CBE) is one of the latest in this line of disruptive technologies. The CBE is gaining in prominence and is becoming well known in Africa as a result of current funding streams from the U.S. government and foundations like Lumina and Bill and Melinda Gates specifically allocated for piloting CBE in HEIs (Bergeron, 2013). Increasingly, competency-based education (CBE), time-based credit hour model, is becoming a viable alternative to the traditional model of education. Primarily therefore, this research aims to answer the question: ***Can African HEIs improve their value proposition by adopting disruptive technologies especially the CBE for Entrepreneurship Education?***

2. Literature Review

While there is extensive literature on the CBE model from US and European HEIs, very little knowledge exists from South Africa or other African countries on the CBE model of education. During the last thirty years, the South African government have attempted to manage the relationship between education, training and work through the National Qualifications Framework (NQF). In the early years of South African democracy, educators and policy-makers drew strongly on developments of CBE in USA, Europe and Australia to set the stage for the implementation of the Outcomes Based Education (OBE) approach. Drawing on this approach there is now a notion that is generally accepted, that competence could be expressed in qualification statements without "prescribing any specific learning pathway or programme" (Schmidt, 2017).

2.1. Competency-Based Entrepreneurship Education

According to Igwe et al. (2019), understanding entrepreneurship in HEIs is a core research field that is not only 'interesting' but also 'challenging' for universities, governments and the business sector. Primarily, entrepreneurial education seeks to train people with entrepreneurial intentions (Rasmussen & Sorheim, 2006). Traditional methods therefore, were designed for the transfer of knowledge through a lengthy process of providing necessary information to learners, having them memorise the information and providing them with examples that illustrates the application of the information through case studies (Igwe et al., 2019). As documented by Igwe et al. (2019), this method

does not allow learners to individually develop skills needed for problem solving without the aid of their teachers. Consequently, they are unable to think entrepreneurially upon graduation (Igwe et al., 2019). These arguments among many others have led to many criticisms of existing business education programs especially for not being dynamic and transformational enough to meet the demands of the business environment demands. One such criticism is that business education is task-oriented and does not highlight the multi-dimensional complexities of business issues (Solomon & Tarabishy, 2005). In a study of entrepreneurship education in South Africa, Iwu et al. (2019) found that curriculum and course content may be relevant but not adequate.

In various fields of study, the general consensus among scholars is that academic programs should be designed to meet societal needs (Mulder et al., 2010). This view is also supported by Dana (2001) who inferred that in order for training programs to be successful, it should also be relevant to the host environment. In his study of entrepreneurship education and training across Asia, Dana (2001) found that the learning objectives and methodologies were varied across the countries surveyed (i.e. India, Indonesia, Malaysia, The Philippines and Singapore). He therefore concluded that there is a need to develop alternative methodologies for teaching entrepreneurship in transitional economies (p. 413). Accordingly, Shinato et al. (2013, p. 204) concluded after reviewing the current state of entrepreneurship education in Japan that there is a need to improve the quality of entrepreneurship education by developing methodologies which will enable 'information to be examined and teaching skills to be shared among people concerned all around the country'. These differing views have led to the push for the application of the CBE model to entrepreneurship (entrepreneurial and enterprising) education not just in HEIs but also in other educational settings (Izquierdo, 2008).

Current debate on competency-based education still does not answer the question of whether educators can teach entrepreneurial education. In the literature, the definitions of 'entrepreneurial' and 'enterprise' education are ambiguous and misleading. For example, Erkkilä (2000) conceptualises entrepreneurial education as encompassing both enterprise education and entrepreneurship education. To this end, enterprise education is more focused on personal development, mindset, skills and abilities in many European countries, whereas entrepreneurship education is more focused on specific context of setting up a business and becoming self-employed (QAA, 2012). On the other hand, the United States places more emphasis on entrepreneurship than on business education. There is also the unanswered question of whether or not the model of entrepreneurial education is fit for young learners as more in the HEI domain is taught entrepreneurship. According to Nelson (2018), the current model empowers HEI students theoretically and practically, particularly those with business / entrepreneurial intentions. However, the mode of delivery varies depending on the module. For instance, Madichie and Fiberesima (2019), suggests that the curriculum for business modules (in the context of the institution surveyed) is structured in the traditional time-based format with extra time allocated on separate business modules considered a progression route.

With the increasing academic focus on teaching the basics of "entrepreneurial" education in a primary or secondary school setting, some researchers have proposed a new action-based approach that suggests "learning by doing" (Rasmussen & Sörheim, 2006). According to Igwe et al. (2019), entrepreneurship education should include activities that allow students to engage with entrepreneurial practices and gain vital experience using the 'learn-by-doing' concept, an approach captioned 'experiential learning' by Cooper et al. (2004). Hoover and Whitehead (1975) describe experiential learning thus: "Experiential learning exists when a personally responsible participant (s) cognitively, affectively, and behaviourally processes knowledge, skills, and/or attitudes in a learning situation characterized by a high level of active involvement" (p. 25).

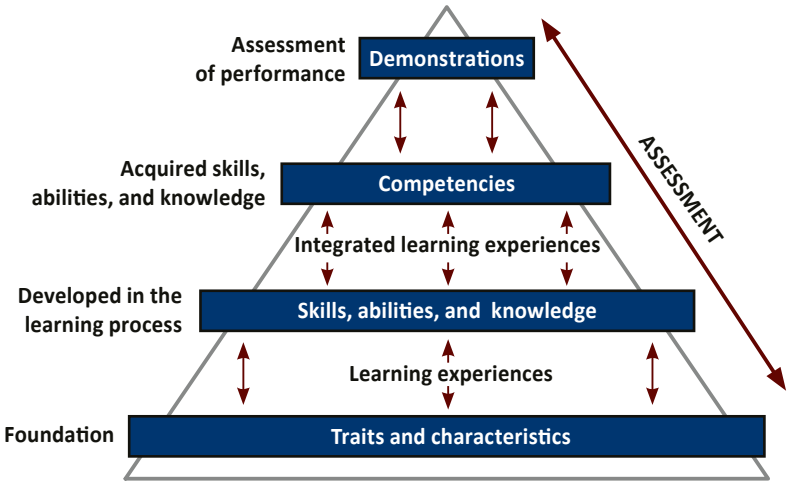
There is also a need to establish the connection (if any) between skill-based, experiential and entrepreneurial approaches as well as business approaches. This will include a validation process ensuring the inclusion of faculty members delivering both enterprising and entrepreneurial models of competency education. Traditionally, the core values associated with entrepreneurship/enterprise education are response to challenges, creativity and independence, mastery of new things, initiative taking and extending learned skills beyond the learning environment (Seikkula-Leino, 2007, p. 50). These 'acquired' traits are the leveraging input from social interaction, education and value-based schooling (Pulkkinen & Launonen, 2005; Laukkanen, 2008). Thus, the core values linked to entrepreneurial and enterprise education could be fostered through the competency-based education

system. the Finnish Ministry of Education identified the core values that the primary education system needs to promote in order to foster the development of an entrepreneurship-like attitude in the future of the schools. They include; "innovativeness, ability to take risks, responsibility taking, problem-solving ability, catching challenges, thinking and cooperation" (Kyro et al., 2007). This approach is also supported by the Japanese government with the enactment of the National University Reformation Law. This law revolutionised entrepreneurship education and led to the creation the professional graduate school system in 2003 (Shinato et al., 2013). According to Shinato et al. (2013) the policies were aimed at reforming national universities to significantly drive new ventures, especially university-originated ventures in order to address the problem of low rate of entrepreneurial activities.

Various degrees of entrepreneurial skills such as entrepreneurial motivation, characteristics, social role, personal development, knowledge and skills should be considered in applying the CBE model to entrepreneurial education (see Figure 1). These entrepreneurial skills are expressed in different degrees at start-ups, growth, expansion or social responsibility (Izquierdo, 2008).

The Competencies Model can be used to measure levels of mastery or expertise achieved by students, according to Banner (1984) (see table 1). Supporting that viewpoint, Gillies and Howard (2003) add that the model can be used to determine areas and mastery levels to identify areas of entrepreneurial skills to prioritise.

Figure 1. Conceptual Learning Model



Source: U.S. Department of Education, 2001.

Table 1. Levels of performance model (adapted from Banner, 1984)

Level	Title	Description
1	Novice	Someone with little or no experience in a given field and can only perform under direct supervision, tutelage and guidance.
2	Learner	Someone with some experience a given field that is able to perform with minimum supervision, tutelage and guidance.
3	Competent	Someone who can perform in a given field regularly and effectively without supervision, tutelage and guidance but from time to time require support and retraining in order to tackle new challenges.
4	Skilful	Someone who is skilled or experienced in a given field and can not only performs without supervision, tutelage and guidance but occasionally need a supervisor and is also able to teach and provide technical support for others on the job.
5	Expert (specialist)	Someone who is very skilful and very experienced in a given field, possessing high intuitive understanding, does not need a supervisor, and can act as a supervisor and mentor or innovator.

2.2. Disruptive Technology/Innovation

Higher education is presently being disrupted by various innovations (Irene, 2019; Garcia-Morales et al., 2021) and the rapid advancement of ICT has brought about various changes in education and HEIs in particular. As Christensen (2008) argued, colleges and universities are "…undergoing a form of disruptive innovation and catalytic change" (p. 43) poised to change social practices, the way we live, work and learn. Although the digital transformation process started a while back in HEIs, the Covid-19 pandemic helped with its acceleration (García-Morales et al., 2021). Consequently, some authors argued that the unprecedented interruption triggered by Covid-19 has a considerable impact on educational activity that totally transformed the entire educational system (Mishra, Gupta, & Shree, 2020). In the same vein, several authors stated that teaching methods and materials were quickly converted into online delivery formats (Dwivedi et al., 2020), thus disrupting the traditional methods that was hitherto endemic.

Earlier, Christensen et al. (2011) identified two vital features of disruptive innovation in HEIs.

1. Technology enabler: Online learning is considered as a technology driver in terms of technology enablers, which is disrupting the business model of HEIs and rapidly influencing the educational landscape. Another disruptor enabled by technology is the massive open online courses (MOOCS) that are freely available worldwide, encouraging peer learning and awarding certificates upon completion (Hilmi, 2016). MOOCs also have the added benefit of unlimited participation making it viable for all stakeholders (high returns for the institution and cost effective for the student).
2. Business model innovation: CBE is considered a disruptor as it forces HEIs to rethink their strategy in terms of business model innovation. CBE is capable of changing the existing business models of educational institutions and bringing the educational enterprise a different value proposition.

Since the pandemic, several information Systems (IS) have surfaced with studies analysing its consequences from the perspectives of automation, digital inequalities, digital education implications and communication among others (Carroll & Conboy, 2020).

Fully online competency-based education sustains innovation in terms of online learning, and it is also disruptive by being an alternative that combines online learning and CBE. The possibility of delivering fully online programs implies that WGU and direct assessment models can be regarded as technology enablers. In the next section the systematic review methodology adopted will be briefly explained. The article will continue by exploring the results and explaining the thematic aspects of the reviews and use this information to make a case for the introduction of the CBE model in African HEIs.

3. Methodology

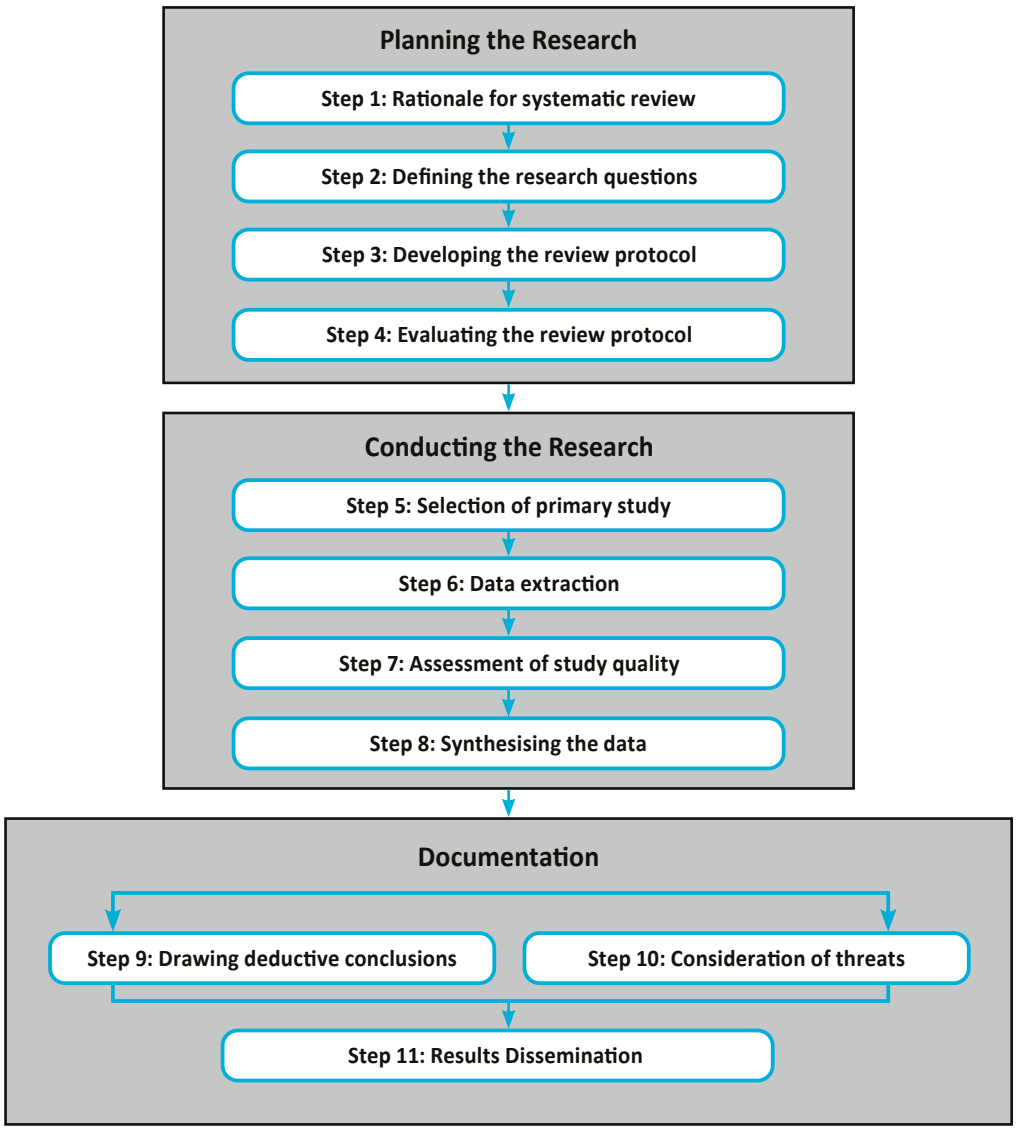
3.1. Systematic literature review and PRISMA

This qualitative research uses a Systematic Literature Review (Groenland & Dana, 2020) to present a detailed review of articles published in various academic journals focusing on education, pedagogy and technology over the past decade on the competency-based model of education in HEIs. The qualitative strategy is employed in this research because according to Dabic et al. (2020), using a quantitative strategy sometimes limits the ability of the researcher to explore context and environment. A quantitative approach also affords researchers some flexibility as the research plan can be adapted or modified as required (Dana & Dana, 2005). This is particularly important as this study utilized only secondary data and it was vital that we employ a strategy which involved an inductive approach with some form of qualitative interpretation to enable an understanding of the phenomenon being investigated (Dana & Dana, 2005). Therefore, a systematic review was chosen for the purpose of this paper to enable the researchers use a precise question to produce evidence that can underpin issues concerning African HEIs. According to Zhang et al. (2010), systematic literature review (SLR) has gained popularity in research methodology especially in the software engineering and medical fields (with a number of well-documented standards and support for its use) since the 1990s. Furthermore, John and McNeal (2017) argue that systematic reviews use systematic and transparent methods to identify, select, and evaluate relevant published literature on a specific topic or question. Kitchenham and Charters (2007) also suggests that "A systematic literature review (often referred to as a systematic review) is a means of identifying, evaluating and interpreting all available research

relevant to a particular research question, or topic area, or phenomenon of interest".

This research utilizes the guidelines for Systematic Literature Review (SLR) proposed Kitchenham et al. (2010). Data was sourced from Journals and other sources using search keywords. The purpose was to obtain relevant resources that would help to answer the given research questions. The review process used the following steps which are adapted from Kitchenham et al. guidelines (2010): (1) protocol preparation which included defining the process; (2) the actual search; (3) data extraction; (4) study quality assessment; (5) analysis of the results; (6) drawing conclusions and; (7) reporting.

Figure 2. An overview of the process used in this research (adapted from Kitchenham et al., 2010)

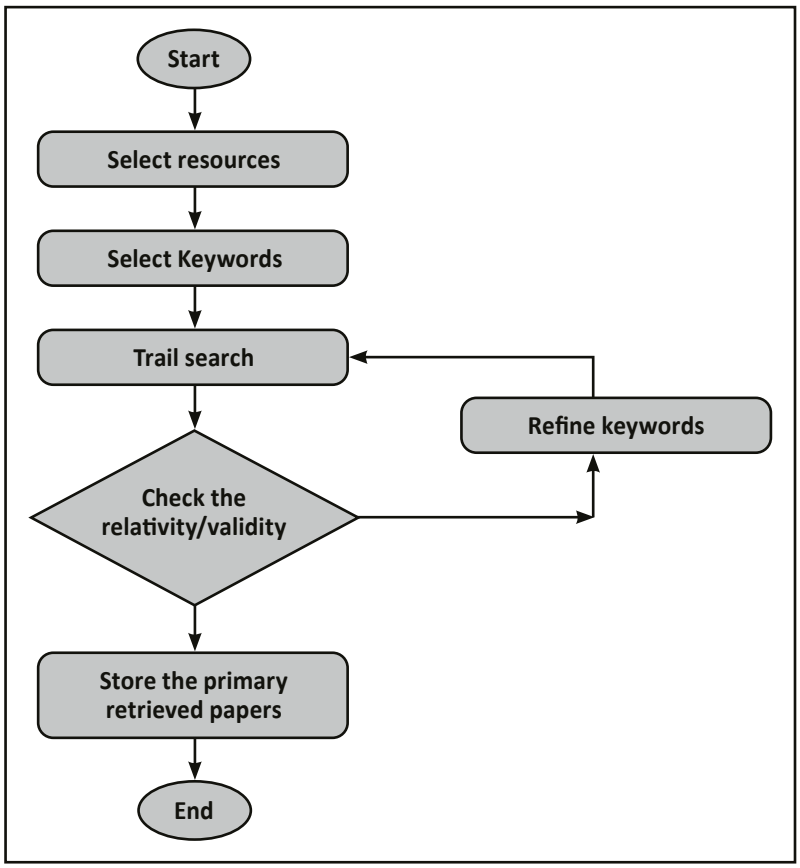


3.2. Data sources and search strategy

The objective of a systematic review is to sources as many primary studies relating to the research questions as possible. To achieve this objective, a search strategy was developed and applied to several electronic databases (figure 4). The search results are heavily impacted by the database and the keyword used in the searches. In order to obtain an overall idea about the amount of the articles, a quick search was performed (Appendix 1). The search was then modified by adding quotes to the keyword and re-running the search. The process of article identification follows the developed search strategy shown in figure 4 below. The keywords used in this research were derived from the research questions and the following electronic databases were used:

- IEEE Xplore (http://ieeexplore.ieee.org/Xplore/guesthome.jsp),
- ACM DL (http://dl.acm.org),
- Science Direct(http://www.sciencedirect.com),
- SpringerLink (http://link.springer.com),
- ABI/Inform (http://www.proquest.com),
- Ebsco (http://search.ebscohost.com/).

Figure 3. Article search strategy (adapted from Kitchenham and et al., 2010)



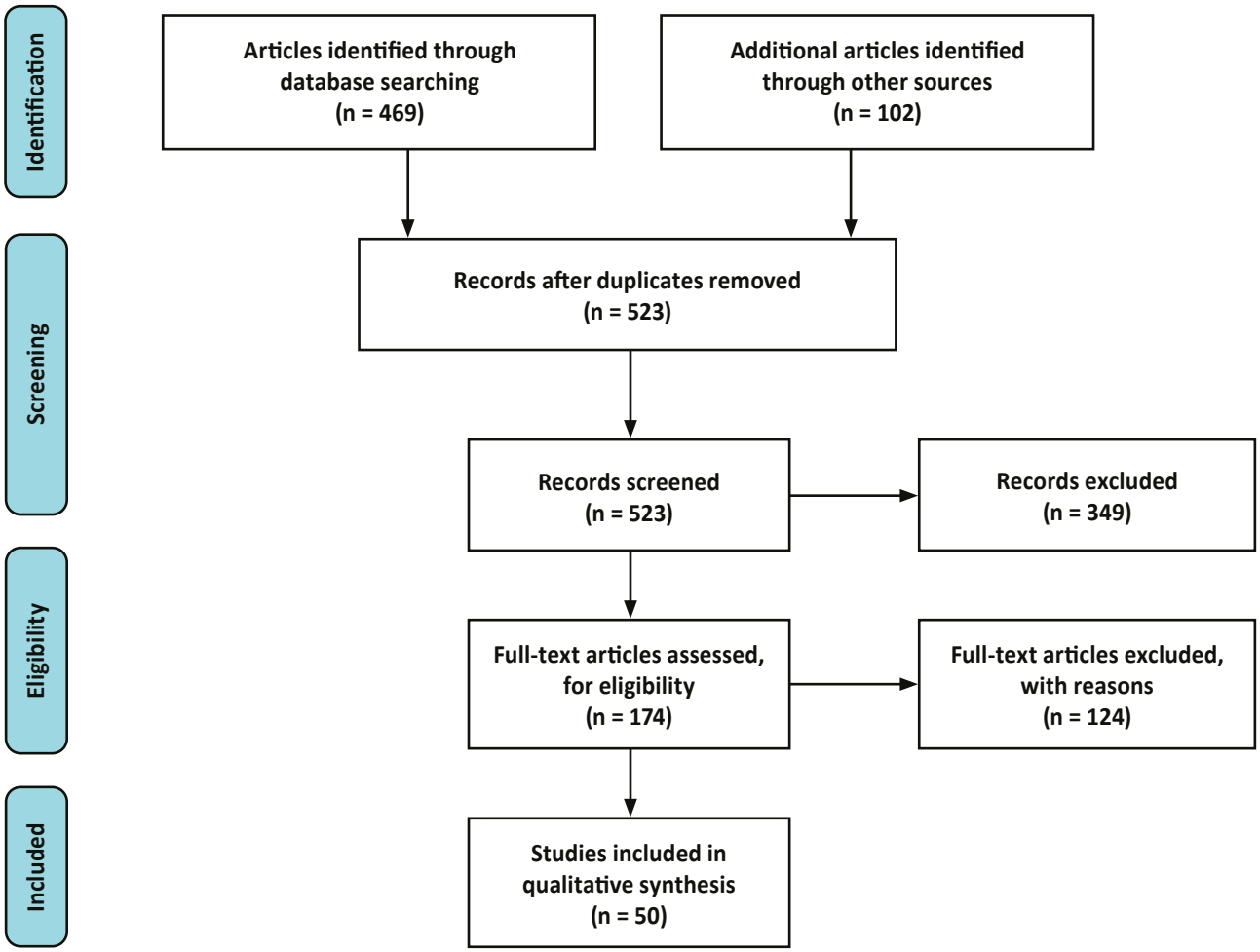
Reporting the review

According to Moher et al. (2009), when undertaking a systematic review, a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement is necessary. The PRISMA statement details the evidence-based minimum set of items used for reporting in this systematic review as shown in appendix 1. The results of this study are reported following the manner stated in the review protocol. While carrying out the review, relevant data were extracted as stated earlier using the data extraction forms, the data was then synthesized using appropriate data synthesis approaches and findings/results reported.

This paper systematically explored literature on EE in peer-reviewed published work between 1975 and 2019. There is an overwhelming retrospective amount of literature on Entrepreneurship Education (EE) (Fellnhofer, 2019). Commencing with a quick electronic search, it was found that competency-based education has been the focus of many scholarly researches with growing interest as a consequence of growing challenges facing HEIs and the need to provide quality and affordable education. Various databases were scanned using specific and precise search terms (Silverman, 2016). A similar systematic search of grey literature was also carried out. The Scopus database was chosen primarily to ensure that only high-quality studies were included. Therefore, only peer-reviewed articles excluding books, book chapters, conference papers and other non-referred publications were considered for review. The inclusion criteria included peer-reviewed Scopus indexed articles that have been published in English over the past decade. However, we have opted to include Hoover & Whitehead (1975) as the propositions and assumptions deduced from their research still hold and more recent studies have continued to hold them in high authority. The terms used for these searches included 'disruptive innovation in HEIs', 'competence-based education', 'technological approaches to entrepreneurial education', 'competence-based

entrepreneurial education' and several other phrases. Next, full-text research papers were extracted using data extraction tools such as Google Scholar, Science Direct, Springer link, Emerald insight, research gate. In order to validate the articles, rigor of conduct and strength of evidence were assured by cross-referencing and undertaking a duplicate check.

Figure 4. PRISMA Flow Diagram



3.3. Thematic Analysis

The authors read all 50 publications and then imported them into NVivo 11 software. The NVivo software enables the archiving, organising, and coding of qualitative data sources, such as journal articles (Bazeley & Jackson, 2013). The year of publication, journal, methodology/approach (conceptual, quantitative, qualitative, or mixed approaches), geographic region, and journal ranking were used to code the 50 articles. Additionally, in order to provide additional valuable information about the literature review beyond that which was judged to be important deductively at the earlier stages of this research and mentioned above, NVivo was used to analyse the most frequent words in the collection of articles. This allowed the key themes from the articles, that were identified using NVivo software, were the focus for a qualitative, thematic analysis, which aims to identify the ways higher education has evolved in teaching which has led to innovative scholarships that unsettle established institutional structures and academic practices that have been explored in the included articles in this systematic review. The final stage of the PRISMA methodology is to synthesize the findings which will allow for the production of knowledge about the topic under review. The findings are presented below under three key theme headings: the Value Proposition and Structure of African HEIs, the Quality of African HEIs and Disruption and the Future of African HEIs

4. Findings of the Review

4.1. Competency-Based Entrepreneurship Education

This study reviewed several articles to examine and establish the competency-based education as a disruptive innovation model in African HEIs. The literatures show that there is a variety of technological innovations in HEIs (Mangana, 2017), and online competency-based education is one of the latest in this line of disruptive technologies. Similarly, Hilmi (2016) argues that HEIs are experiencing important disruptions vis-à-vis the various new tools and virtual learning environment (VLE) because of the rapid development of ICT which has inevitably brought about changes in education and consequently the structure of HEIs.

Some authors also found that the South African government, for example, attempted to manage the relationship between education, training and work through the National Qualifications Framework (NQF) believed to be a 'steering mechanism' with which the state could achieve the social objective of educational reform and equity (Illeris, 2003; Lugg, 2007; Allais, 2007). In spite of the prominence that CBE is gaining and in Africa given funding streams from the U.S. government and Bill and Melinda Gates that is specifically allocated for piloting CBE in HEIs (Bergeron, 2013), findings suggest that very little knowledge exists from South Africa or other African countries on the application of the CBE model of education. Considering this outcome and the objectives of European Commission and the United Nations encouraging the implementation of strategies that develop entrepreneurial competencies, African universities seem to be lagging behind.

4.2. The Value Proposition and Structure of African HEIs

HEIs are traditionally organised in departments as it optimises the ability of faculty members to interact and have research outputs (in academic journals) around similar interests (Christensen et al., 2011). Depending on their interests and needs, students move from one academic department to another for modules. Furthermore, the fact that good HEIs have one of everything means the faculties can serve a wide range of students' interests. HEIs currently allow students to co-create learning through involvement in curriculum design in some instances (Hansen, 2016).

According to Christensen et al. (2011), only few HEIs actually calculate the "direct labour content" of their services. There is no known measured "burden rate" that encapsulates the portion of total costs incurred in the process of teaching students and conducting research compared to the complexity-driven overhead expenses required to manage the admission- graduation process. Therefore, they concluded that attempting to calculate this cost will be particularly difficult because the "direct labour" in a university (faculty) spend most of their time in "Pontiac-esque" overhead activities such as scheduling, expediting, repair and re-work, record keeping; and moving, storing, and managing human and non-human resources. To this end, Allen and Seaman (cited in Christensen, 2011) suggest that the overhead burden rate could be between 4.0 and 5.0 in traditional HEIs. This means that for every dollar spent on teaching, evaluation, and research, HEIs spend about four to five dollars on overhead.

Christensen et al. (2011) used the business model of the plants in Pontiac and Maysville to explain the "Pontiac-esque" model. According to them, traditional HEIs seeking to imitate prestigious institutions such as Harvard are adopting the Pontiac plant structure to optimise their faculty's "solution shop' activities. In this instance, value-added activities such as teaching are trivially forced to fit into this structure. On the other hand, the low-cost HEIs or low-price HEIs are structured like the Maysville plant. They are designed not as solution shops to enhance the faculty's ability to produce research outputs, but as value-adding process organisations designed to boost students' flow through the university. While typical traditional HEIs incur operating deficits of approximately 10% or more of their revenue, low-cost or low-price HEIs report operating profit of approximately 30% (Christensen et al., 2011; 2016).

The cost advantage of these disruptive low-cost HEIs, is further estimated at 40% when they implement the CBE model of education rather than the traditional time based/ credit hour model (Christensen et al., 2011).

4.3. The Quality of African HEIs

African HEIs are increasingly under criticisms from the point of view of the faculty due to the marginal research being conducted and the less comparative publications in high impact academic journals. Similarly, African HEIs and other online/distance learning disruptors have not effectively competed

lowering tuition or for profit (Botha, 2008). In fact, many of them charge higher tuition fees than state-supported schools, which are heavily subsidised, so they appear to be low-cost especially in places like Nigeria and South Africa. This means that students are satisfied and actually pleased that low-cost HEIs offer courses all year round regardless of the disparagement from traditional HEIs. Consequently, over 80% of African students attend low-cost HEIs (STATSA, 2018).

Second, it is important to examine the expectations of students about their HEIs in terms of value proposition. Taking the case of most 18-year-old graduates of high school, most of them regard the HEI as an out-of-home transition to independent adulthood and desire the institution to provide this service. Learning and graduating from a highly regarded institution are simply dimensions of their expectations. On the other hand, students typically look up to these low-cost HEIs with a laser-centric expectation: "help me to get better jobs" (Christensen et al., 2011). Therefore, students who ascribe to these HEIs do so different for reasons and as a result the meaning of quality differs significantly to them. It should be noted, however, that the value placed on the certificates of various organisations makes it imperative that employability be considered a major factor in the choice of HEIs for students.

Third, online learning technologies are now an upwardly scalable mechanism in their caches in relation to the quality of low-cost HEIs (Estelami, 2017). This therefore indicates that, over time, the African HEIs will have to figure out how to do better and better the "transition to independent adulthood" work. African HEIs urgently need to redefine their value proposition and adopt a student-centred approach that is more likely to cause disruption. This disruption will upset the status quo, focus on student-centred learning, change relationships, sharpen our insight, and design instruction to increase learning and lower costs (Nelson, 2018).

4.4. Disruption and the Future of African HEIs

Evidence reveal that African HEIs are under immense pressures from all sides showing the necessity for strategic change (Cloete et al., 2015). It also indicates that HEIs are affected by daunting challenges like dwindling financial support by government due to budgetary concerns, affordability of tuition, while the stakeholders demand more efficient, innovative, and productive in terms of learning and retention of students (Irene & Hussain, 2021). In spite of Government and policy makers view of technology as a vehicle to transform higher education at the outset of the technology boom (Robinson, 2016), findings show that lack of adequate technological infrastructure has not enabled the transformation in African HEIs. Consequently, there is deficiency in use of technology which has potential disruptive powers and cause interruptions to usual practices and policies. In the same vein, the absence of necessary infrastructural facilities has in African HEIs, has made it seem difficult to motivate students to think differently about ways to achieve course aims and objectives and the teachers have also continued with old unproductive curricula and methods of delivery (Ng'ambi et al., 2016).

In view of the above, the disruption theory and technological tools with the potential to disrupt existing teaching and learning models does not seem to have taken roots in African HEIs'. "Disruptive innovation", as already established in the literature, transcends software and technological programs, but includes models and approaches and this is yet to be implement (Robinson et al., 2016). Despite the importance of disruptive innovation in HEIs for upsetting the status quo, enable the students' centred learning, the engineering of new ways of thinking and the provision of the opportunities needed for higher education to survive and thrive Africa still lags considerably behind (Irene, 2021).

Other findings show that online students performed better in comparison to contact students, while blended learning produced the most reward in terms of (Friedrich, 2014; Nelson, 2016; Hanson, 2016):

- time spent on tasks,
- students having more control over their learning,
- providing more opportunities for reflection.

While online and blended learning have become commonly accepted models of learning in the developed countries, but the implementation of this model in Africa is nowhere near that of the developed countries (Flynn, 2013; Yuan & Powell, 2013). This is largely due to the lack of infrastructure to implement this model of education in most African settings. Irene (2019) pointed out that access to internet remains a luxury that most African students cannot afford even in countries like South Africa linked to wide gap between the rich

and poor. Despite South Africa having the highest urbanisation rate in the continent, finding reveal that the internet penetration rate of the total population remains at 27% with the device of choice being the mobile phone (OECD, 2017). Whereas South Africa has one of the highest mobile penetration rates in the world with 78% of the population using mobile phones, not all the users have access to the internet due to cost (Irene, 2019).

Given therefore the challenges faced by African HEIs to effectively implement the blended learning model, the competency-based model (especially in entrepreneurship education) could become a viable disruptor and can transform higher education in HEIs. By adopting the competency-based model, degrees will be awarded based on competency, rather than on the number of hours spent in classes and exams passed. Students can therefore move at their own pace, and instead of being charged by the credit hour, they are charged a fixed rate for a six-month term. The student progresses upon demonstrating mastery of a skill or a set of knowledge. Students can learn when it is convenient for them (given that it is online) and at the pace that is right for them. The learning can therefore be constant, so that students only progress once they have fully understood a set of concepts or a given unit. The benefit of adopting this model will be increased for four reasons:

- continuous improvement will be guaranteed,
- students, faculty, and parents can select a learning pathway that suits individual learners,
- issues of teacher shortages will be addressed,
- falling costs will no longer be a factor.

5. Conclusions and implications

Competency-based education as a practice in higher education offers an alternative learning model with operational implications around the roles of faculty and staff, the use of technology, student engagement and assessment, and the influence of external stakeholders. The literature review situates direct assessment CBE as a disruptive innovation. In addition, it builds a theoretical framework around the diffusion of innovation with the aim of exploring how HEIs have adapted their operations to implement CBE. Understanding how CBE has been propagated in the US and European countries through a HEI may enable African HEIs to determine whether to adopt this innovation and its operational strategy. Such knowledge may further benefit the higher education industry, accreditors, and policymakers in their quest to standardise and evaluate the implementation of CBE effectively. As stated earlier, the evolution of HEIs is best managed at the corporate level rather than at the level of the business unit because business units are not structured to evolve. Consequently, officials (i.e. elected state officials and boards of higher education) are vital stakeholders in responding to this crisis and they need to honestly engage with two vital questions:

1. **Is the traditional universities' business model sustainable in the African Context?**

Traditional HEIs have not been disrupt-able historically, therefore they have competed only on a sustaining-innovation basis, which essentially involves increasing tuition by 10% per academic year in order to remain competitive. Until now, students are not bearing the full associated cost because the HEIs have succeeded in subsidising tuition through donations from alumni, endowment earnings, and government funding. With the donations and grants/funding dwindling, the tenability of this approach is uncertain, particularly as evidence shows that online education is a disruptive technology that can be upscaled. It is our view that only very few HEIs would suggest 'yes'to this question.

2. **Is providing the best possible postsecondary education and training the primary obligation of African HEIs?**

To understand their roles as caretakers of institutions that have historically provided higher education, officials (i.e. elected state officials and boards of higher education) need to determine primary stewardships. Historically, as the HEIs ' mandate was clearly expressed, this was not an either – or decision, but one of 'it should be now'. If officials frame their responsibilities to align with the electorate's needs, then HEIs that implement technology – enabled models including the CBE must be seen as allies in the struggle to effectively provide higher education and training. Essentially, if officials view their responsibility as one of ensuring the health of today's higher learning institutions, then cost reduction and quality education through the adoption of disruptive innovations such as CBE must be considered vital, particularly in terms of African HEIs survival.

While entrepreneurship education has been delivered in the traditional credit hour model for the most part, the emerging approaches identified in this paper, such as online learning, blended learning and CBE, can dramatically and rapidly change the way students are trained in entrepreneurship. One might argue that these changes do not reflect an evolutionary outlook for education in

entrepreneurship but are of a more revolutionary nature. It is for this reason that the rate of change resulting from the use of these educational technologies may not allow many instructors and business schools to undergo a slow evolutionary transition, but rather demand a rapid response to revolutionary market changes triggered by a handful of institutions that proactively take advantage of these emerging disruptive innovations. In addition to the disruptive innovations discussed in this paper, distance learning for business schools is continually improving as this mode of teaching is increasingly gaining public acceptance. Consequently, the adoption of the CBE model will provide the students with additional benefits. While many people may have discounted the idea of earning an online entrepreneurial or business degree two decades ago, research has shown a shift in online degree perceptions by employers and academics (Allen & Seaman, 2015; Metrejean & Noland, 2011).

Despite this shift in perceptions and the growing trend in higher education, the acceptance and implementation of disruptive innovation in business and entrepreneurship education has unfortunately been difficult for many business faculties. As discussed earlier, the majority of faculty in business schools were themselves trained in the traditional credit hour model, and many may be unfamiliar and uncomfortable with emerging disruptors such as the CBE. Consequently, they are reluctant to adopt these new nonconventional models of education leading to lack of faculty participation in the CBE initiatives with nearly half of university faculty questioning the legitimacy and actual relevance of disruptive innovation (Allen & Seaman, 2015). According to Christensen (2016), failing to embrace disruptive innovation in higher education will be equivalent to the failures by industry practitioners in many failed industries.

Finally, it must be noted that it is no longer the case that technological barriers or lack of student access to the Internet are the primary challenges facing African HEIs. Rather, human factors associated with faculty training and motivation seem to be one of major factors. Most dominant factor is the cultural and technological gap that exists between teacher and student. Therefore, while the disruptive innovations are enablers, it is crucial that business school administrators proactively and assertively familiarise their faculty with these innovations in order to motivate and mobilise them to recognise and embrace the benefits of the CBE not only to the students but for the survival of African HEIs with utmost consideration for the technological revolution that is still active and dynamic.

5.1. Recommendations for HEIs

For traditional HEIs, the cost is mostly in the overhead due to the complex nature of their business models. The major factor influencing the cost position is that they are organised to optimise the completion rate of students, rather than being organised to optimise faculty's ability to do research. There is an urgent need for restructuring to optimise the completion rate by focusing more on one value proposition i.e. quality. African HEIs need to aspire for excellence in every field of research and teaching and to provide any course of study that students may want. Choosing an area of excellence could well be the beginning of a permanent solution for almost all African HEIs as through this focus they can reduce complexity. Such complexity reduction the complexity will lead to substantial cost reduction. Reduction of staff will not solve the economic viability problem in the short or long run, rather it may drive out quality faculty and exacerbate and accelerate the demise of HEIs. HEIs in the US and other European countries that have chosen this approach appear to have kept down fee increases below the 10% annual increase; however, they are still not competitive and are currently rethinking their strategies to adopt and implement disruptive innovations.

There is great opportunity for HEIs that seek to become the best teaching universities in Africa. Established HEIs do succeed, however galvanised through sustaining innovations. Administrators in traditional HEIs therefore need to structure online learning and CBE as a sustaining innovation that helps meet the quality needs of students. They need to essentially use it to disrupt the traditional classroom experience (Christensen, 2011). Adopting this approach offers a good strategy to leverage existing resources to implement the CBE and online model at a marginal cost and grow significantly.

5.2. Recommendations Policy Makers

It has already been established that African HEIs are faced with enormous challenges that may lead to their collapse, if not looked into. Policy makers, as core stakeholders must therefore take an active stand in this regard. As stated earlier, the time has come to award degrees based on competency, rather than on the number of class hours and on passing exams. By so doing, students can progress

at their own pace, and instead of being charged by the credit hour, they are charged a flat rate for a six-month term. This will enable the HEIs to provide quality and affordable higher education to African students.

The CBE and Online models are fast becoming the models of choice for several HEIs overseas who are rethinking the funding strategies of traditional institutions and looking to continue to be self-sustaining and competitive. Therefore, adopting these models for African HEIs will be beneficial for all stakeholders. The CBE and Online models also allow actionable assessments to be easily embedded into learning courses and make it possible for students to advance past concepts and skills they understand and have mastered, and rather focus their time where they need. Currently, most of the conventional ways of measuring education cannot be applied to this disruptive innovation as they focus on inputs such as time spent on modules, money spent per student (thereby affirming institutions that are expensive), and the ratio of students to teachers. Policy efforts from the Departments of Education in Africa that intentionally lock in the credit hour as the unit of measure based on seat time, hold back innovation to the detriment of students (Morgan, 2010).

Veering toward the recognition of mastery of specific competencies where time is variable could potentially make the recognition of lifelong learning a possibility, whereby people accumulate expertise over time through both formal and informal means. Policymakers needs a shift in focus from how to make higher education affordable, to how to make a quality postsecondary education affordable. The way forward is disruptive innovations such as the CBE.

References

Allais, S. (2007). *The rise and fall of the NQF: A critical analysis of the South African National Qualifications Framework*.

Allen, I. E., & Seaman, J. (2013). *Changing course: Ten years of tracking online education in the United States*. ERIC.

Allen, I. E., & Seaman, J. (2015). *Grade Level: Tracking Online Education in the United States*. ERIC.

Anderson, A. R. (2015). Conceptualising entrepreneurship as economic 'explanation' and the consequent loss of 'understanding'. *Int. J. Business and Globalisation, 14*(2), pp. 145–157.

Bergeron, D. A. (2016). No one gets it right every time: What does regular and substantive interaction mean? And who decides? *The Journal of Competency-Based Education, 1*, pp. 115–117.

Boritz, J. E., & Carnaghan, C. A. (2003). Competency-based education and assessment for the accounting profession: A critical review. *Canadian Accounting Perspectives, 2*, pp. 7–42.

Carroll, N., & Conboy, K. (2020). Normalising the "New normal": Changing tech-driven work practices under pandemic time pressure. *International Journal of Information Management*, 102186, 55.

Chisholm, L. (2007). Diffusion of the National Qualifications Framework and outcomes-based education in southern and eastern Africa. *Comparative Education, 43*, pp. 295–309.

Christensen, C. (2008). Disruptive innovation and catalytic change in higher education. *Forum for the Future of Higher Education*, pp. 43–46.

Christensen, C. M., & Eyring, H. J. (2011). *The innovative university: Changing the DNA of higher education from the inside out*. John Wiley & Sons.

Christensen, C. M., Horn, M. B., Caldera, L., & Soares, L. (2011). Disrupting College: How Disruptive Innovation Can Deliver Quality and Affordability to Postsecondary Education. *Innosight Institute*. Retrieved from https://files.eric.ed.gov/fulltext/ED535182.pdf.

Christensen, C. M., Raynor, M. E., & Mcdonald, R. (2015). What is disruptive innovation? *Harvard Business Review, 93*, pp. 44–53.

Christensen, C. M., McDonald, R., Altman, E. J., & Palmer, J. (2016). *Disruptive innovation: Intellectual history and future paths* (pp. 1–52). Cambridge, MA: Harvard Business School.

Chukwuma-Nwuba, E. O. (2021). September. Pedagogical Techniques in Entrepreneurship Education Programmes in Nigerian Universities. In *European Conference on Innovation and Entrepreneurship* (pp. 204–XIX). Academic Conferences International Limited.

Cohen, A. M., & Kisker, C. B. (2009). *The shaping of American higher education: Emergence and growth of the contemporary system*. John Wiley & Sons.

Cooper, S., Bottomley, C., & Gordon, J. (2004). Stepping out of the classroom and up the ladder of learning: An experiential learning approach to entrepreneurship education. *Industry and Higher education, 18*, pp. 11–22.

Dabić, M., Maley, J., Dana, L. P., et al. (2020). Pathways of SME internationalization: a bibliometric and systematic review. *Small Bus Econ, 55*, pp. 705–725. Retrieved from https://doi.org/10.1007/s11187-019-00181-6.

Dana, P. L. (2001). The education and training of entrepreneurs in Asia. *Education+ Training, 43*, pp. 405–416.

Dana, L. P., & Dana, T. E. (2005). Expanding the scope of methodologies used in entrepreneurship research. *International Journal of Entrepreneurship & Small Business, 2*, pp. 79–88.

Dwivedi, Y., Hughes, L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J., Upadhyay, N. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International journal of information management, 55*, 102211.

Erkkilä, K. (2000). *Entrepreneurial education: mapping the debates in the United States, the United Kingdom and Finland*. New York: Taylor & Francis.

Estelami, H. (2017). The Pedagogical and Institutional Impact of Disruptive Innovations in Distance Business Education. *American Journal of Business Education, 10*, pp. 97–108.

Fayolle, A. (2008). Three types of learning processes in entrepreneurship education. *International Journal of Business and Globalisation, 2*(2), pp. 198–207.

Fellnhofer, K. (2019). Toward a taxonomy of entrepreneurship education research literature: A bibliometric mapping and visualization. *Educational Research Review*.

Flynn, J. T. (2013). MOOCS: Disruptive innovation and the future of higher education. *Christian Education Journal, 10*(1), pp. 149–162.

Frank, J. R., Mungroo, R., Ahmad, Y., Wang, M., De Rossi, S., & Horsley, T. (2010). Toward a definition of competency-based education in medicine: a systematic review of published definitions. *Medical Teacher, 32*, pp. 631––637.

García-Morales, V. J., Garrido-Moreno, A., & Martín-Rojas, R. (2021). The transformation of higher education after the COVID disruption: Emerging challenges in an online learning scenario. *Frontiers in psychology, 12*, 616059.

GEM (2015). Global Entrepreneurship Monitor (GEM). Supporting Africa's young entrepreneurs: An investment in job creation and future prosperity for all: Nigeria. Retrieved from https://file:///F:/GEM%202015-youth-report-summariesNigeria-1434104122.pdf.

Gillies, A., & Howard, J. (2003). Managing change in process and people: Combining a maturity model with a competency-based approach. *Total Quality Management & Business Excellence, 14*, pp. 779–787.

Groenland, E., & Dana, L. P. (2020). *Qualitative methodologies and data collection methods: Toward increased rigour in management research*.

Hawkins, J. N. (2007). The intractable dominant educational paradigm. *Changing education*. Springer.

Hoover, J. D., & Whitehead, C. J. (1975). An experiential-cognitive methodology in the first course in management: Some preliminary results. In *Developments in Business Simulation and Experiential Learning: Proceedings of the Annual ABSEL Conference*.

Igwe, P. A., Okolie, U. C., & Nwokoro, C. V. (2019). Towards a responsible entrepreneurship education and the future of the workforce. *The International Journal of Management Education*. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S1472811718302696.

Immerwahr, J., Johnson, J., & Gasbarra, P. (2008). *The iron triangle: College presidents talk about costs, access, and quality*. Retrieved from http://hdl.handle.net/10919/83320.

Irene, B. (2016). *Gender and entrepreneurial success: a cross cultural study of competencies of female SMEs operators in South Africa*. Cardiff Metropolitan University.

Irene, B. (2019). Technopreneurship: A Discursive Analysis of the Impact of Technology on the Success of Women Entrepreneurs in South Africa. In *Digital Entrepreneurship in Sub-Saharan Africa*. Springer. Retrieved from https://link.springer.com/chapter/10.1007/978-3-030-04924-9_7.

Irene, B.N., & Hussain, T. (2021). The accessibility and affordability of education in Sub-Saharan Africa: The debate on low-cost and private higher education institutions. In *The Education Systems of Africa*, pp. 859–885.

Iwu, C. G., Opute, P. A., Nchu, R., Eresia-Eke, C., Tengeh, R. K., Jaiyeoba, O., & Aliyu, O. A. (2019). Entrepreneurship education, curriculum and lecturer-competency as antecedents of student entrepreneurial intention. *The International Journal of Management Education*. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S147281171830288X.

Izquierdo, E. (2008). *Impact assessment of an educational intervention based on the constructivist paradigm on the development of entrepreneurial competencies in university students*. Ghent University, Faculty of Economics and Business Administration.

John, K. S., & Mcneal, K. S. (2017). The strength of evidence pyramid: One approach for characterizing the strength of evidence of geoscience education research (GER) community claims. *Journal of Geoscience Education, 65*, pp. 363–372.

Kinser, K. (2007). Innovation in Higher Education: A Case Study of the Western Governors University. *New Directions for Higher Education, 137*, pp. 15–25.

Kyrö, P., Lehtonen, H., & Ristimäki, K. (2007). Yrittäjyyskasvatuksen suuntia etsimässä. In T. Kyrö, H. Lehtonen, & K. Ristimäki (toim.), *Yrittäjyyskasvatuksen monia suuntia. Yrittäjyyskasvatuksen julkaisusarja* (pp. 12–30).

Laukkanen, R. (2008). Finnish strategy for high-level education for all. In *Governance and performance of education systems*. Springer.

Lugg, R. A. (2007). *Making different equal?: social practices of policy-making and the National Qualifications Framework in South Africa between 1985 and 2003*. Institute of Education, University of London.

Madichie, N. O., & Fiberesima, O. (2019). Management education trends and gaps – A case study of a community education provision in London (UK). *The International Journal of Management Education*. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S1472811718302866.

Marshall, S. (2011). Change, Technology and Higher Education: Are Universities Capable of Organisational Change? *Journal of Asynchronous Learning Networks, 15*, pp. 22–34.

Matlay, H., Mohamad, N., Lim, H.-E., Yusof, N., & Soon, J.-J. (2015). Estimating the effect of entrepreneur education on graduates' intention to be entrepreneurs. In *Education+ Training, 57*(8/9), pp. 874–890. Retrieved from https://doi.org/10.1108/ET-03-2014-0030.

Matthews, C. H., Liguori, E. W., & Santos, S. C. (2021). Preface: entrepreneurship education-what is it we need to know? In *Annals of Entrepreneurship Education and Pedagogy* (pp. xvi–xxii). Edward Elgar Publishing.

Mcfarlane, D. A. (2011). Are There Differences in the Organizational Structure and Pedagogical Approach of Virtual and Brick-and-Mortar Schools. *Journal of Multidisciplinary Research (1947–2900), 3*.

Mckiernan, G. (2011). Configuring the'future textbook. *Searcher, 19*, pp. 43–47.

Metrejean, E., & Noland, T. G. (2011). An analysis of CPA firm recruiters' perceptions of online masters of accounting degrees. *Journal of Education for Business, 86*, pp. 25––30.

Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open, 1*, 100012.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of internal medicine, 151*, pp. 264–269.

Moravec, J. W. (2008). A new paradigm of knowledge production in higher education. *On the horizon, 16*, pp. 123––136.

Mulder, M., Gulikers, J., Biemans, H., & Wesselink, R. (2010). The new competence concept in higher education: error or enrichment'. In *Kompetenzermittlung für die Berufsbildung. Verfahren, Probleme und Perspektiven im nationalen, europäischen und internationalen Raum*, pp. 189–204.

Mykhailyshyn, H., Kondur, O., & Serman, L. (2018). *Innovation of education and educational innovations in conditions of modern higher education institution*.

Ng'ambi, D., Brown, C., Bozalek, V., Gachago, D., & Wood, D. (2016). Technology enhanced teaching and learning in South African higher education – a review of a 20 year journey. *British Journal of Educational Technology, 47*(5), pp. 843–858.

Norris, D., Brodnick, R., Lefrere, P., Gilmour, J., & Baer, L. (2013). Transforming in an age of disruptive change: Part 1: Back to the future, zooming to the present. *Planning for Higher Education, 41*, pp. 18–33.

Opute, A. P. (in press). Small and Medium Enterprises Marketing: Innovation and Sustainable Economic Growth Perspective (Chapter 2). In *Entrepreneurship Marketing: Principles and practice of SME Marketing*. Routledge Publishers.

Opute, A. P. (2017). Exploring personality, identity and self-concept among young consumers. In *Young Consumer Behaviour*. Routledge.

Pulkkinen, L., & Launonen, L. (2005). *Eheytetty koulupäivä: Lapsilähtöinen näkökulma koulupäivän uudistamiseen*. Edita.

QAA Guidance (2012). Enterprise and Entrepreneurship Education: Guidance for Higher Education Providers. Retrieved from http://www.qaa.ac.uk/en/Publications/Documents/enterprise-entrepreneurship-guidance.pdf.

Rasmussen, E. A., & Sørheim, R. (2006). Action-based entrepreneurship education. *Technovation, 26*, pp. 185––194.

Ratten, V., Ramadani, V., Dana, L-P., & Fayolle, A. (2017). Exploring family farms and sustainability entreprneurship in Australian farmers' markets. In W. Frost, & J. Lang (Eds.), *Exhibitions, Trade Fairs and Industrial Events* (pp. 173–182). CRC Press, Routledge.

Robinson, G., Morgan, J., & Reed, W. (2016). Disruptive innovation in higher education: The professional doctorate. *International Journal of Information and Education Technology, 6*(1), p. 85.

Sarkis-Onofre, R., Catalá-López, F., Aromataris, E., & Lockwood, C. (2021). How to properly use the PRISMA Statement. *Systematic Reviews, 10*(1), pp. 1–3.

Schmidt, M. J. (2017). The Perils of Outcomes-Based Education in Fostering South African Educational Transformation. *Open Journal of Political Science, 7*, p. 368.

Seikkula-Leino, J. (2007). Opetussuunnitelmauudistus ja yrittäjyyskasvatuksen toteuttaminen. *Opetus-ja kulttuuriministeriö, 28*. Helsinki: Yliopistopaino.

Shinato, T., Kamei, K., & Dana, L.-P. (2013). Entrepreneurship education in Japanese universities–how do we train for risk taking in a culture of risk adverseness? *International Journal of Entrepreneurship and Small Business, 20*, pp. 184–204.

Silverman, D. (2016). *Qualitative Research*. London: SAGE Publications Inc.

Slaughter, S., & Leslie, L. L. (1997). *Academic capitalism: Politics, policies, and the entrepreneurial university*. ERIC.

Soares, L. (2012). A 'disruptive' look at competency-based education: How the innovative use of technology will transform the college experience. *Center for American Progress*.

Solomon, G., & Tarabishy, A. (2005). Entrepreneurship Education in the United States: A Preliminary Report in the United States. *Washington, Dc: The George Washington University*.

Steiner-Khamsi, G. (2014). Cross-national policy borrowing: Understanding reception and translation. *Asia Pacific Journal of Education, 34*, pp. 153–167.

Ten, C. O., & Billett, S. (2014). Competency-based medical education: origins, perspectives and potentialities. *Medical Education, 48*, pp. 325–332.

Yuan, L., & Powell, S. (2013). MOOCs and disruptive innovation: Implications for higher education. Special edition, 60.

Zaenglein, J. B. (1977). Project 81: Reestablishing Partnerships. *Educational Leadership, 35*, pp. 118–122.