



Dynamics of Curriculum Development in the Digital Space

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Abstract. The unprecedented challenges that were experienced by Higher Education Institutions (HEIs) globally as a result of the COVID-19 pandemic-necessitated intervention strategies such as virtual curriculum development, remote teaching, learning, assessment, and working from home arrangements to sustain the institutions' academic activities. Virtual curriculum development constituted developing programs and qualifications online drawing from the guidelines of the Quality Assurance Framework (QAF) hence it was used as a point of reference for the curriculum development processes during COVID-19 and moving forward. This paper focuses on the dynamics experienced by the Curriculum Development Specialists (CDSs) in one of the HEIs in South Africa during the transitioning to the online teaching and learning using the descriptive case study and document analysis. The paper draws from the morphogenesis theoretical framework by Archer.

It emerged from the results that the HE was resilient during the transition from face-to-face teaching and learning to online and blended learning. Compliance with the policies such as curriculum development, teaching and learning, assessment and evaluation of teaching and learning. Institutions had to comply with the DHET, CHE, and SAQA policies before, during, and after the lockdown period. In light of the findings, the study concludes teaching and learning in online space have been in place before the lockdown, and the academics and students need to be at par with the developments in virtual curriculum development, teaching, and learning. The HEIs should resource the infrastructure with resources such as smart classrooms, laboratories, and libraries for a smooth transition into fully digital space.

Keywords: Curricula, Blended learning, Intervention, Lockdown

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1 Introduction

The COVID-19 pandemic posed a huge challenge to education systems globally and South African Higher Education System was not an exception. Various studies by John [1]; du Mashau, [2]; Morgan, Tsa and Hsu, [3]; Baloyi and Malatji [4] show that Teaching online has challenges including the attitudes associated with virtual teaching and learning, knowing how to use blended learning equipment and available online teaching and learning resources. The research question to be addressed in this paper is how the HE's facilities such as infrastructure and policies be improved and revised to align with virtual curriculum development. The paper therefore seeks to explain the dynamics experienced by CDSs in one of the South African HEIs during the transitioning in curriculum development before, during, and post-lockdown period with regards to the university structure and culture.

Following this introduction, the paper presents the background, review of the literature, followed by the theoretical framework upon which the research question hinges. The theoretical framework is followed by the research methods that were used to collect and analyse the data. The presentation of the results, followed by a discussion of the results and how they link to the literature are also presented in the paper. Finally, the paper presents a conclusion drawn from the results and areas for further research.

2 Background

Amid the COVID-19 pandemic the teaching and learning in the HE concerned was affected during the shift from face-to-face to fully online during the lockdown. The main reason for this change was the COVID-19 pandemic, which limited access to face-to-face sessions. Facilities such as lecture halls were used to accommodate a certain number of students without consideration of the COVID-19 seating arrangements. Laboratories such as Science and ICT were in such a way that they accommodated physical interaction. There were limited spaces for virtual laboratories.

There were various changes from the curriculum development perspective that affected the curriculum design, the core responsibility of the CDSs. The changes were also on and revision and development of qualifications, and accreditation, mostly staying with Quality Assurance (QA). For instance, prior lockdown curriculum development used to take place in round tables that enabled easy sharing of documents and probes during the engagement with the academics.

In terms of qualifications development, HEQC implemented a streamlined online qualification submission system at the beginning of year 2022. One reason for this change was the COVID-19 pandemic, which limited access to face-to-face meetings. Higher Education Institutions (HEIs) went through the process in various ways. For example, some HEIs were compelled to revise their submissions to conform to the new

CHE templates and submission processes. The online submission system started with a view of serving time in reducing the number of forms-and as a preparatory work towards self-approval. It is on this background that the paper envisages examining the experiences of CDSs in one of HEI in South Africa in transitioning to the digital space and how the structure and culture affect their roles in designing curriculum online. Opportunities, challenges, strategies, and interventions are discussed and supported by the literature review.

3 Literature Review

Teaching with technology has been a practice for a long time. According to Baloyi and Malatji [4], technological developments have affected education by changing content and pedagogical processes for instance, interactive whiteboards replacing chalkboards and the rise of computing as a discrete subject [5]. This means there was a gradual adaption to online teaching and learning. During lockdown, there was a sudden adoption of online learning in HEI. Implementing in HEIs has proven difficult as there was no adequate training for online curriculum design, teaching and learning. In writing on how educators handled the sudden shift to online learning, Mpungose [6] attests that transitioning to online in such a short period is challenging.

That was a reality for lecturers, students, and parents. For instance, one could juggle a full course load of teaching while caring for her young children at home. In some instances, not all students had the same technology or support at home. For teachers, the shift to online education has meant rethinking lesson plans to fit a very different format. The curriculum was being revisited to cater for teaching online, because a lot of it was dependent on contact learning yet lessons should have been delivered virtually. In relation to the CDSs agency, it was a daunting task to train academics to use online learning where they also needed to be trained on how to deal with issues of online learning including monitoring, authentic learning, and ethics regarding teaching and assessments on online platforms. In essence, curriculum design on online space has its affordances and challenges.

3.1 Opportunities of Teaching Online

Despite the challenges such as transitioning to online learning with limited training, unavailability of resources to teach online and the resistance to change by the academics, Baloyi and Malatji [4] contends that in the online space, the education of the implementation of virtual curriculum development ensures valid, reliable, and cost-effective assessments of complex aspects of 21st-century expertise and competencies across academic disciplines (p. 67).

In the same vein, Du Plessis, van Vuuren, Simons, Frantz, Roman and Andipatin [7] posit that there are opportunities including flexibility, accessibility, and affordability. For instance, development curriculum virtually allows CDSs to schedule the workshop

at a convivence space and time. Though, there are drawbacks, especially in the South African context these days due to load shedding, however, one can align the meetings with the load schedule. It may not accommodate all the participants as lead schedule schedules differ, but one can try to accommodate most academics as possible.

Ideally, virtual curriculum development can take accommodate large number of participants regardless of the venue. Mpungose [6] states that one of the affordances of curriculum development virtually is the possibility of eliminating logistics associated with contact setting. When considering that venues, catering, and traveling may not require when developing a curriculum using an online setting, one can save on the budget for online engagements. Online learning may seem as the panacea with the era for industrial revolution. The United Nations (UN)'s Sustainable Development Goals, a blueprint for creating a more just world, has named "quality education" as its fourth goal. One target of that goal is ensuring that by 2030, all children have the means to complete a "free, equitable, and quality primary secondary and tertial education." [8]

In preparing for future, the (QAF) is to guide curriculum development for qualification and program developments in transitioning to a mixed mode of offering and fully online qualification types. Amongst other developments for the QAF is to transition into operational planning from project planning and consulting with both internal and external stakeholders. According to CHE [9], the main aim of the QAF is to build interactive versions of the implementation plan that may change over time while communicating clearly with the HE sector on each new step on virtual teaching and learning in HEIs.

It's worth noting that in the South African context, the curriculum development in HEIs is guided amongst others by internal (internal structures, such as HE Teaching and Learning Policies, Assessments, Guidelines for submitting qualifications, governance structures such as Teaching and Learning Committees, Faculty Boards, and Senate) and external (Department of Higher Education (DHET), CHE, South African Qualifications Authority (SAQA) National Qualification Framework (NQF) and accreditation bodies). The HEIs had to comply with teaching and assessment strategies such as face-to-face versus virtual delivery mode of learning.

3.2 Challenges of Virtual Curriculum Development

Although there are opportunities regarding the curriculum development online, the daunting task for the HEIs is compliance. The resources and capacity of facilities may not be adequate in some universities to accommodate fully online learning. In terms of offering programmes, some institutions such as the one where the study was conducted is not accredited to offer qualification on a distance mode.

Regarding the roles and responsibilities of the CDSs were traditional trained to offer academic design capacity building to academics on contact basis. With recent developments in curriculum development, CDSs need to reinvent the curriculum into a new form using the tools academics and students had access to.

4 Theoretical Framework

This study is underpinned by the structure, culture, and agency morphogenesis theory of Margaret Archer [10]. Morphogenesis refers to change that is taking place within universities. Archer [10] argued that culture, structure, and agency are located at the level of the reality of the universities, meaning, any changes that occur in the HE affect these three aspects. In the context of this paper, the university structure refers to physical resources such as the laboratories, lecturer halls, board rooms, and finances. Culture refers to the aspects of the HEI such as committees, workshops, teaching events, and policies. While agency include individual actors within the university regarding their capabilities, abilities and roles. In viewing actions in structure, culture, and agency a logical relationship between ideas in respect of various issues, i.e. i) how does the institution constructs or understand itself; ii) how does an institution assure and promote quality, iii) how does the institution understand T&L; and iv) how does the institution construct student learning for success [11].

Boughey [11] advocates that cultural systems can influence social structures and vice versa, but they can only do so indirectly and mediated by structuring the situation of actions through constraints and enablers. This implies that culture, structure, and agencies can either enable or constrain the university's functionalities. To identify the interplay of categories, each has to be analysed separately.

5 Research Methods

The research methodology for this paper is discussed in the sub-sections below.

5.1 Research Approach and Design

The study applied a quantitative approach and took a positivist stance in examining how CDSs experience and adapt in the virtual space of academic support. A descriptive, case study research design, followed by the analysis of the QAF [10] was used as they are customary approaches within the auspices of qualitative research [12][13]. A descriptive case study design was chosen since it can be managed in various ways Maree and Pietersen [14] in addition to allowing for representative samples to be used to examine the entire population [15]. According to Bhattacharjee [12], “descriptive research examines what, where, and when of a phenomenon”. The researcher intended to draw

on fresh experiential facts from the study participants on how they have been affected by COD-19 regarding curriculum development. This is the case with the current study; fresh data were collected to study the phenomenon.

5.2 Data Collection and Processing

The study was conducted in one of the HEIs in South Africa using data from the document analysis and triangulated by open-ended interviews with the three informants who have expertise in curriculum development for the qualification's development in the HE. Firstly, the QAF was critically examined. The content of the document was checked using the following criteria consisting of curriculum development approach, principles, practice, processes, content and context.

For data that emerged from the QAF and the interviews, the author of this paper used thematic analysis where the narratives from the two data sources were captured in the EXCEL Spreadsheet Windows 2010. This involved undertaking an intense immersion process with a repetitive rereading of the transcripts to gain familiarity with the content. This strategy of persistent observation improves the trustworthiness of the research by providing an in-depth focus on the characteristics of a situation relevant to the phenomena being studied [16]. This strategy was performed consistently throughout the analysis to maintain data credibility. As suggested by Creswell and Creswell [13], the repetition of themes showing the repetition of responses was identified, captured, and tabulated.

6 Results and Discussion

The following themes on experiences were identified according to HE as a structure, culture, and the roles of the CDSs in terms of documents required for curriculum development, submission process, settings, opportunities with the two submission systems (uploading documents manually and online), and challenges. The first section of the results draws from the QAF. Table 1, below shows the QAF.

Table 1. QAF prior to and post COVID 19 qualifications submissions

Criteria	Traditional submission system	New submission system
Process	Uploading different forms to external bodies such as DHET, CHE and SAQA	All forms can be uploaded at once including the combined SAQA and CHE forms.
Settings	Institutional profile including mission and vision, policies signed and not older than five years automatically create reference submission number.	The attachment of policies forms, the institutional profiles, module templates and the site of delivery were filled in the forms.

	Upload module outlines and guides.	
Opportunities	All information was captured on the form which was then submitted.	<p>Separate aspects of the forms have been made as a template e.g. section for WIL is now a template on its own.</p> <p>Uploading CVs of external examiners before the programme is developed. Minutes of approval library budget can now be uploaded.</p>

The two submission systems have similarities and differences. For instance, the policy documents used for programme development such as the HEQSF criteria for programmes from 1-13 are still followed. In addition, programme descriptors are consulted in programme development while CESM classification accreditation according to different levels from 1 to 13 is still in place. Though the CHE and SAQA forms are now combined, there are similarities in some of the sections that used to be full in the previous and current forms. The major difference is in the process, for example, the structure of an HEI should provide all in their profile. Some of the aspects that were captured on the form are now templates which make more work to be done rather putting everything in one form.

There used to be constant face-to-face meetings with curriculum developers and the faculties' curriculum development teams. Documents were in the form of either hard or soft copies. The meeting could be in a board room or any decent space where program development could have been discussed. The minutes were made available, and the forms were manually signed, scanned, and sent through e-mails.

With the new online systems, there are scheduled online meetings; program requests are made via online meetings; the minutes and processes are documented online, and the forms are signed with online signatures. There are now SHAREPOINT systems that keep updating comments and any developments in the documents being developed.

The processes and procedures drawing from Morphogenesis theory for new qualification development are captured in Table 2 below:

Table 2. Dynamics experienced by Curriculum Development Specialists due to COVID-19 Pandemic

Dynamics	Sources of the Dynamics	Prior lock-down	During lock-down	Post lock-down
Structure (Resourcing)	(Resources-Physical, Financial and Human)	Boards rooms	Online Platform	Both round tables and online
	Budget allocation	Budget only for face-to-face interactions	Budget for data	Budget for both face-to-face and online interactions
Culture (Resilience)	Policies	Offerings as per approval by the CHE	Contingency measures	Contingency measures
	Compliance	Manual review processes	The process was at halt	Revised online submission documents
Agency (Art of interaction)	Enabling factors	Face-to-face engagements with curriculum team	Engage with curriculum development team online	Engage in curriculum development regardless of the space
	Constraining factors	System glitched	Institutions profile ready uploaded to allow submission at any-time	Online system not always accessible

Table two shows that there were three main dynamics experienced during the transitioning to virtual curriculum development. The university's resilience emerged as the affordance to the HEI in spite of the challenges appeared in the literature.

It emerged from tables one and two that there are challenges to remote learning including a lack of resources and capacity-building programs, connectivity issues, and slow adjustment to new ways of discourse in learning institutions including HEIs. For example, in Taiwan, there have been cases where students feel not part of the learning system [3]. In some African countries such as Kenya, the use of digital space for learning has been a challenge even before the COVID-19 pandemic started. Mulewa, et al. [15] report that infrastructure was a prohibiting factor to implementing teaching in using Information Communication Technology (ICT) in schools. In writing about Global

Perspectives on Higher Education, Tamrat [17] confirms that HE in Kenya shifted to using digital space to facilitate teaching and learning.

South Africa has the same experiences as other countries in Africa and abroad. While there were no preparations for the COVID-19 pandemic, there were instinctual challenges and a lack of resources in some HEIs [2][18]. Some of these challenges are experienced during the online HEQC submission, for example, time is one of the challenges. The turnaround time (about three months) to implement the project was short. There were instances when the submission portal was down. The submissions of qualifications already in the pipeline were affected by the shift to online submission. One of the challenges with the new streamlined submission system was the time for the HEIs to prepare for the submission process. There was a three-month giving to making changes by the HEIs but was not enough to allow 26 South African HEIs to submit several qualifications and changes to the existing qualification.

Given that QAF is about quality, institutions take responsibility in terms of quality assurance and management of academic programs. The main responsibility of CDS is to ensure that quality enhancement takes place during the curriculum development process. However, in doing so as HEI, we had to remain compliant with changing times Higher Education Institutions (HEIs) went through the process in various ways. For example, some HEs were compelled to revise their submissions to conform to the new CHE templates and submission processes. The institutions should comply with facilities such as libraries, and laboratories (computer, language, and science), and the policies should be reviewed and updated to align with the new changes in qualification submission processes.

On the positive side, once the HEI's profile is on the QAF dashboard, the online submission process will be faster and the submission task will be reduced thus the feedback turnaround time. The new submission is regarded as a vehicle for HEI's self-approval opportunity. However, the transition needs time for full online operations. It merged the key informants with their challenges with the HEI's preparedness to use the HEQC online systems and limited pilot of the project. Hence the QAF is piloting and providing capacity to the stakeholders.

7 Conclusion and Recommendations

It is worth noting that teaching via virtual platforms was there before to the lockdown, however, the utilization was limited since there was no pressure on curriculum development via online platforms.

In the year 2019, the virtual curriculum development started with a view related to methodological approaches to teaching and learning and assessments. The reality is that

not all HEIs were enabled to implement curriculum development on online platforms. The academics need time to prepare to effectively teach on the online system. For example, using the LMS system cannot be the way of a repository for study material but for the facilitation of teaching and learning where fully with the student can be recognized. With the current infrastructure in the HEI where the study was conducted, physical facilities should be enablers of virtual teaching and learning. While the institutional culture enables quality assurance with teaching in blended mode. Curriculum development specialists should support and keep academics abreast with the new online curriculum development. It is recommended that HEIs should fund teaching and learning in virtual spaces to enable online teaching and learning activities.

The study recommends that HEIs remain compliant in terms of their methodological approach and the quality of teaching. QAF facilitates institutions to identify and implement various strategies that contribute to sustaining academic activities and are not limited to engaging in emergency remote learning and teaching. Finding alternative ways to support students and reallocation of budgets to address emerging needs is highly recommended. CDS should support the quality matters capacity program and pilot the QAF for the successful implementation of Hybrid learning and teaching.

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