education sciences

MDPI

Article

Exploring the Migration to a Digitalised Curriculum at UKZN

Simon Bheki. Khoza

Curriculum Studies, School of Education, College of Humanities, University of KwaZulu-Natal, Durban 4000, South Africa; khozas@ukzn.ac.za

Abstract: The COVID-19 revolution has demanded that higher education institutions (HEIs) in South Africa, as in most other countries globally, migrate to a digitalised curriculum (DC). The DC is a plan for or of digital technology-driven education. The COVID-19 revolution compelled the University of KwaZulu-Natal (UKZN) to migrate to a DC in order to complete the 2020 academic year or calendar. Pragmatism, critical discourse analysis (CDA), and community of inquiry (CoI) with natural identity (NI) framed the document analysis used to generate data for this study. Purposive convenience sampling was used to select the published documents that carry information on the migration to a DC at UKZN. It was for this reason that this study explored and understood the migration to a DC at UKZN through the use of digital resources. Findings suggested that, while the UKZN had the professional identity of migration through engaging Moodle, it began the migration through the use of WhatsApp, Facebook, Skype, and Zoom video conferencing technology (ZVCT), promoting societal identity. The migration seemed to miss the personal or pragmatic identity as an important ingredient of a DC, which addresses individual personal needs. Consequently, this study recommends a DC that balances performance-based, competence-based, and pragmatic/personal identities in order to address professional, societal, and personal needs, respectively, for natural identity realisation.

Keywords: COVID-19; digitalised curriculum; educational experience; natural identity; pragmatic curriculum

Citation: Khoza, S.B. Exploring the Migration to a Digitalised Curriculum at UKZN. *Educ. Sci.* **2021**, *11*, 682. https://doi.org/10.3390/educsci11110682

Academic Editors: Maiga Chang, Kuo-Chen Li, Emerita Bañados, Cheng-Ting Chen and Wen-Chi Vivian Wu

Received: 26 August 2021
Accepted: 19 October 2021
Published: 26 October 2021

1. Introduction

Migration in education is a process of moving resources from one educational space to another. Resources are objects or persons that communicate education and training [1]. Resources or technologies are divided into hardware (tools/machines), software (materials working in conjunction with the hardware to carry information), and ideological-ware (experiences, theories, ideologies, or ideas). Migration in higher education institutions (HEIs) is divided into performance-based (qualification), competence-based (socialisation), and pragmatic (subjectification) curricula [1–3].

Performance-based curriculum is a teaching and learning environment dominated by learning management systems (LMSs) and/or other resources prescribed by HEIs. Examples of popular LMSs are Blackboard, Moodle, and Web CT, amongst others [4]. Competence-based curriculum is a teaching and learning environment dominated by social media sites (SMSs) [5] or any other resources that may not be prescribed by HEIs [6]. Some examples of popular SMSs are Facebook, WhatsApp, YouTube, and others. Pragmatic curriculum is a teaching and learning environment driven by resource users' needs in selecting and utilising relevant resources/technologies required by the user's situation [7–9]. When the COVID-19 revolution compelled HEIs to migrate to a digitalised curriculum (DC) (online learning), the migration was dominated by either a performance- or a competence-based curriculum [10,11].

On the one hand, when the migration is dominated by the performance-based curriculum, it favours academics with prescribed resources/technologies over students. On the other hand, when the migration is dominated by competence-based curriculum, it favours

students over academics, students with experience of SMSs joining HEIs [12–14]. This study was based at the University of KwaZulu-Natal (UKZN), which was established in 2004 as a result of the merger between the then University of Natal and the University of Durban-Westville. The UKZN is in the province of KwaZulu-Natal, one of the provinces with more under-resourced rural areas than urban areas. As a result of the under-resourced rural areas/communities, the UKZN accommodates approximately 78% of students from these areas.

However, despite the majority of students coming from under-resourced areas/communities, the UKZN is currently ranked number 483 by the Center for World University Rankings (CWUR) (https://cwur.org/2021-22.php) (accessed on 13 June 2021). It was interesting to know and understand how, in these circumstances, this HEI managed to maintain its world university ranking position within the top 500, even during the COVID-19 era. This point of interest is one of the reasons for this study being conducted. The migration at the UKZN in South Africa began with the competence-based curriculum in which Zoom video conferencing technology (ZVCT) was used as a resource for teaching, learning, research, and meetings. Academics with knowledge/skills of the DC organised workshops to train their colleagues on the DC.

The workshops included training on Moodle LMS, which is driven by the performance-based curriculum. Only academics were trained to embrace a DC, assuming that students had knowledge of digital technologies, especially SMSs. However, that a pragmatic curriculum was missing in the migration was a cause for concern. The pragmatic curriculum addresses the tension between the performance- and competence-based curricula [4,12,15,16]. The missing pragmatic curriculum was another reason for conducting this study, which explored the migration to a DC at the UKZN. The study sought to understand whether this HEI did justice to students and academics during the COVID-19 revolution. Such a revolution arose in an unprecedented and rapidly changing situation that could demand the use of advanced digital technologies/resources [17]. The next section discusses the DC with the three migration presences as identities.

2. Digitalised Curriculum (DC) with Migration Presences as Identities

A digitalised curriculum (DC) is a technology-driven curriculum in which ideological-ware resources (experiences, theories, ideologies, or ideas) are used to identify and drive hardware (tools/machines) and/or software (material that carries information) resources relevant to educational needs or situations [10]. A DC is divided into competence-based, performance-based, and pragmatic identities (presences). A competence-based DC refers to the ability to conduct educational actions or to achieve learning outcomes at basic or societally acceptable levels. Academics and students identify themselves as members of social groups that support their learning [4]. Both the academics and students learn when the academics facilitate learning during class interactive activities. This suggests a societal identity [18] promoted by the presence of social activities [19]. The main principles of a competence-based DC are learning outcomes, social media sites (SMSs) with activities, facilitation, everyday knowledge or content, and peer assessment [18].

A performance-based DC refers to a curriculum with the ability to achieve educational actions or to master course content at prescribed highest levels. Academics identify themselves as members of specific professions in order to teach students by instructing them to follow certain explicit rules of their professions [9,15]. Academics teach using sources prescribed by course/subject content to be learned by the students as professionals [16]. This suggests a professional identity [18] that is promoted by the presence of teaching prescribed content [19]. Its main principles are prescribed teaching objectives, content, learning management systems (LMSs), and summative assessment [9,13].

A pragmatic DC has the ability to find and understand individuals' needs based on the experiences that inform their educational actions. Academics and students cognitively reflect on their personal experiences in order to understand their personal/individual needs and identities before the teaching and learning takes place, based on these individual needs

and situations [20]. This suggests a personal identity [18] that is promoted by a cognitive presence [19] of individual internal intelligence [21]. The main principles of a pragmatic DC are reflection, aims, formative assessment, researcher role, and environmental needs [11,22]. Since the inception of the Third Industrial Revolution (3IR), also known as the computer or digital revolution of the 1960s, there has been a contestation between the competence-based and performance-based DC that is mostly addressed by the pragmatic DC [1,18].

In 1658 in South Africa, a competence-based curriculum was first introduced for slaves and poor or disadvantaged communities [23]. It was intended to help children of the disadvantaged or under-resourced communities to acquire basic skills or competencies to be used in achieving outcomes required by their communities and workforces [24]. The competence-based curriculum was intended to produce skilled labourers trained to assist professionals in various sectors. In 1998, a competence-based curriculum was introduced in South Africa as the prescribed curriculum, with 12 critical learning outcomes for learners. This curriculum had advanced from the previous one, which did not have clearly stated outcomes [25].

Advantaged or well-resourced schools, which constitute 20% of schools in South Africa, set about facilitating learners who would achieve higher-order learning outcomes. This was because schools invested in educational technologies for the 3IR, also known as the computer or digital technology revolution [8,23]. Learning outcomes are learners' goals, or what learners achieve by the end of their learning process. The learners from these well-resourced schools were observed to be higher achievers once they joined HEIs than those from under-resourced schools in terms of learning outcomes. Learners had knowledge and skills of various educational technologies used by HEIs [26,27]. This suggests the importance of educational technologies/resources in the achievement of learning outcomes.

SMSs are examples of educational technologies used by HEIs as part of the 4IR [28]. According to Kim, Hong and Song [29], educational technology is a way of thinking that involves the use of digital technologies (hardware, software, and ideological-ware) as the major ingredient of the DC. SMSs with relevant activities are the most important educational technologies for facilitating a competence-based DC [5,30]. Students interact with SMS activities in order to reflect on their experiences, producing everyday knowledge or content to be used in the achievement of course learning outcomes. While students use the SMSs to share their experiences and to critique one another (peer assessment), academics grow concerned about their achievement of teaching objectives [13].

Teaching objectives are academics' short-term goals used to subdivide a prescribed course content or school knowledge in order to drive a performance-based DC [1,23]. Educational technologies used in driving content are LMSs that are prescribed by HEIs. After students have been drilled by academics to master the course content, they are assessed by means of summative assessment activities in order to be graded. The summative assessment is used to establish what the students are cognitively missing in order to inform the grading decisions. Figure 1 shows examples of resources and activities found in various LMSs such as Moodle used by the UKZN.

However, when educational technologies are driven by a pragmatic DC, they may combine both LMS and SMS resources/activities based on the needs of academics and students. A pragmatic DC is driven by what works for the curriculum users based on their needs and situations [10,12]. As a result of being driven by users' needs, a pragmatic DC begins with reflections in which the curriculum users initially reflect on their experiences and needs in order to understand their identities [16,31]. Based on the users' needs and identities, aims, as long-term goals, are established to frame the lessons.

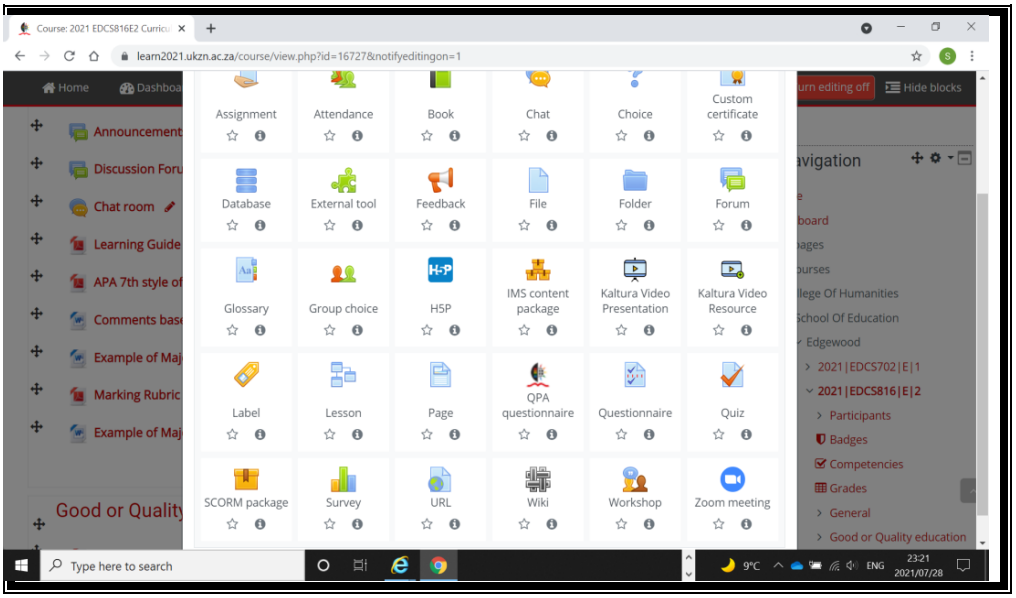

Figure 1. LMS resources and activities (Moodle).

During the reflection process academics use formative assessment questions to establish students' needs. Therefore, academics accomplish their teaching roles as researchers while also motivating their students to learn as researchers [31,32]. In turn, the teaching and learning environment for a pragmatic DC becomes a research space in which both academics and students strive to research, thus understanding their identities as part of their teaching and learning processes or systems [18,31]. Such processes or systems suggest what Khoza [18] denoted as Natural Identity (NI), suggesting a framework DC for the COVID-19 revolution.

The Framing of the Study

According to Garrison, Anderson and Archer [19], a DC, as an educational experience, should be treated as a process of building a community of inquiry (CoI) underpinned by three presences. These are the social (competence-based), teaching (performance-based), and cognitive (personal/pragmatic) presences (Figure 2a). The three presences are supported by three connectors that link them. Social and cognitive presences are connected by means of a supporting discourse. Cognitive and teaching presences are connected by means of content selection. Teaching and social presences are connected by means of climate setting.

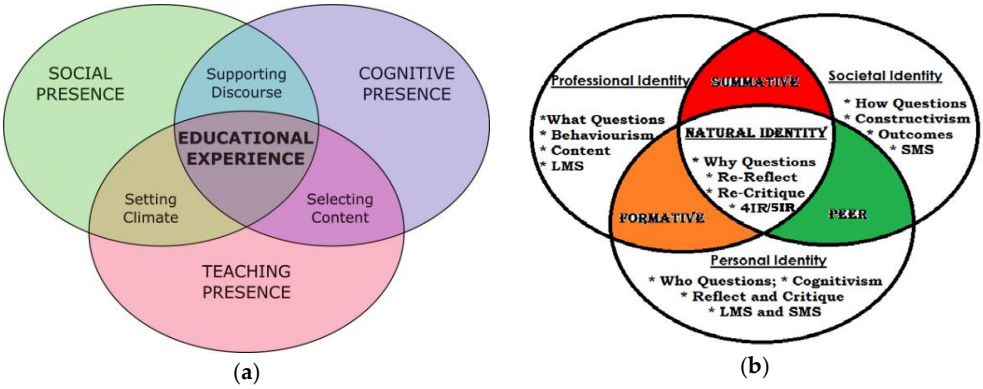

Figure 2. (**a**) Community of Inquiry (CoI) adapted from Garrison, Anderson [19]; (**b**) Natural Identity framework [18].

In support of CoI and applying it to a DC, Khoza [18] identified the three presences of DC as societal (competence-based), professional (performance-based), and personal (pragmatic) identities for the Natural Identity (NI) (Figure 2b). The NI is a human response to the philosophical "why" question of education. This question addresses challenges of the Fourth Industrial Revolution (4IR) and the COVID-19 revolution, also known as the Fifth Industrial Revolution (5IR). The NI, as the centre of personal, societal, and professional identities, is driven by "self-re-reflection", and re-critique of human experiences that respond to novelty or uncertainty. For this reason, the study used NI as a framework. The NI framework is formed by three identities as presences of a DC.

The NI framework suggests that a DC has four important questions to be addressed in order to promote successful teaching and learning processes. Such processes therefore tackle professional (teaching), societal (social), and personal (cognitive) needs for the realisation of the NI (educational experience). The questions are the descriptive "what", the operational "how", the personal "who", and the philosophical "why" of education. Descriptive "what" questions are addressed through the principles of professional identity that inform the performance-based DC [33].

The performance-based DC should take place after academics have understood the issues such as the behavioural objectives, content, LMS, and summative assessment. Operational "how" questions are addressed through the principles of societal identity that inform a competence-based DC [34]. In a competence-based DC, students strive to understand the "how" of learning outcomes. SMSs with learning activities, facilitation, and "how" peer-assessment processes are positioned in constructing knowledge (constructivism). Personal identity is in line with the pragmatic DC established through reflections and critiques such as who is teaching and learning. The NI framework further establishes the cognitive levels of students through formative assessment [18,35]. As a result, the three forms of identity produce NI as a framework of education that addresses the philosophical "why" (why academics and students teach and learn respectively in particular ways) of education, through re-reflection and re-critique [10].

3. Research Design and Methodology

The purpose and objective of this study was to explore the migration to a DC at the UKZN in order to understand whether this HEI had ratified students and academics during the COVID-19 revolution. The following research questions guided the study.

1. What is the migration to a DC at the UKZN during the COVID-19 revolution?
2. Why is the migration to a DC at the UKZN during the COVID-19 revolution achieved in particular ways?

This study adopted a pragmatic paradigm that allowed researchers either a qualitative or quantitative approach, or both, in the interrogation of the phenomenon at hand. The pragmatic paradigm recommends the interrogation of actions in order to predict the results of one's experiences [36,37]. Migration to a DC involves experiences that reflect through actions. Such actions should be driven by individual or personal needs and situations so that the individual is able to address societal and professional needs based on personal strengths. The pragmatic paradigm worked well in this study with the critical discourse of analysis (CDA) in interpreting actions of academics and students involved in the migration to a DC at the University of KwaZulu-Natal (UKZN). Although other sampled publications did not declare the names of HEIs where the studies were conducted, the publications qualified because they were conducted by UKZN academics fully aware of UKZN migration to a DC.

The CDA is a process or system of collecting and analysing published documents in order to understand the underpinning experiences of the actions that have taken place [18,38]. This study purposively and conveniently selected the 11 most accessible publications [10,12,17,39–46] on migration published at the UKZN during the COVID-19 revolution to be analysed as data sources. Google Scholar was used to search for these publications. Google Scholar is one of the most powerful search engines used by researchers

in the perusal of published scholarly publications. This suggests that the data-collection method was a document analysis.

Document analysis is stronger than other methods in addressing the descriptive "what" questions [47,48] because it stores written records of the actions. However, document analysis is also capable of addressing philosophical "why" questions by establishing the reasons behind any action [11,49,50]. Four principles of trustworthiness were taken into consideration to ensure dependability (consistency through the use of direct quotations), transferability (applicability of the study to various contexts), confirmability (elimination of bias through triangulation), and credibility (truth value, including having authors of the analysed publications authenticate the findings). Through a guided method of data analysis, data on migration were interrogated to produce themes of the findings presented in the next section on findings and discussions. Although these data sources were in the public domain, I applied for and received ethical clearance from this HEI. I also communicated with authors of these publications to gain clarity on some of the points, and to address the issue of ethics.

4. Findings and Discussions

The findings on the migration to a DC at the UKZN revealed four themes to be considered in the process of this migration (Table 1). The themes were based on the four questions of the natural identity framework for migration (Figure 2b). These themes were: (1) descriptive "what" questions; (2) operational "how" questions; (3) personal "who" questions; and (4) philosophical "why" questions. The findings revealed the lack of awareness of personal/pragmatic and natural identities in the process of migration. The findings are presented and re-contextualised within relevant literature under these themes.

Table 1. Themes and categories of findings.

Theme	Category
THEME ONE: Descriptive "what" questions	• Moodle • Specialised content/knowledge • Teaching objectives • Summative assessment
THEME TWO: Operational "how" questions	• Learning outcomes • Facebook and WhatsApp • Facilitation • Peer assessment
THEME THREE: Personal "who" questions	• Reflection • Aims • Formative assessment • Researcher • Blended learning
THEME FOUR: Philosophical "why" questions	• Re-reflection • Critique • Identity

4.1. THEME ONE: Descriptive "What" Questions

4.1.1. Moodle

The Modular Object-Oriented Dynamic Learning Environment (Moodle) was prescribed as a learning management system (LMS) for migration to a DC. Moodle is an Australian LMS that was developed in 1999 by Martin Dougiamas, a student at Curtin University of Technology. When it gained international recognition, it was adopted and prescribed by several HEIs on various continents. In 2016, the UKZN was one of the HEIs that prescribed Moodle as a mandatory LMS. However, "*even after this initiative, some academics have not been using Moodle in teaching and learning*" [10]. Moodle was not mandatory before 2016. It was then introduced to replace the UKZN LMS designated an open learning system (OLS) developed by Alan Amory, an erstwhile UKZN academic.

Unlike Moodle, which has an Australian professional identity, the OLS had a pragmatic identity, having been developed based on the UKZN's needs. When Amory designed the OLS, he initiated a UKZN needs analysis, thereafter designing an LMS that addressed the UKZN needs. As a result of the foreign identity of Moodle, most academics resisted it, even once it was compulsory to use. However, the COVID-19 revolution compelled all academics and students to use Moodle. "*The University of KwaZulu-Natal has a learning management system such as Moodle, which was not fully used by academics and students before the COVID-19 pandemic . . . "* [40]. "*Before the implementation of Moodle, the teaching and learning trial which became known as the dry-run was conducted from 18 May 2020 to 22 June 2020 . . . "* [41]. Even after a dry run, academics used Moodle reluctantly, uploading the content of their modules with limited engagement (limited discussion forums, chats, etc.).

4.1.2. Specialised Content/Knowledge

International specialised content or school knowledge [23] is the drive of a professional or performance-based DC [10]. This content is internationally standardised to be searched and downloaded per research engines used for scholarly research. A performance-based DC is driven by the prescribed specialised content that must be mastered by students for "*enhancing learning and improving the academic performance of the students*" [40]. The content for other modules was reduced because of the limited time for the 2020 academic year.

Therefore, using Moodle to upload module content was seen as a better way of affording students the relevant content to be mastered so as to pass their modules. The student pass rate increased in the 2020 academic year when the call for "no student should be left out" was implemented by the academics. This gave students several opportunities to improve their marks. However, students who failed group projects were not given second opportunities, even if these were the last modules for their qualifications [10]. These students were discriminated against. All other students, even with one or two remaining modules to complete their qualifications, were given more opportunity to repeat and pass these; or one outstanding module in order to graduate. Academics had to change their teaching objectives that were initially aligned with their modules in order to address "*the rural-based students' experiences with the exclusivity of electronic-based platforms adopted for teaching and learning at UKZN*" [41].

4.1.3. Teaching Objectives

When the academics reduced the content, they "had to reduce the teaching objectives as their short term-goals for teaching because other students had limited access to Moodle . . . " [42]. Reduced teaching objectives of a performance DC also demand the deduction of summative assessment tasks [12].

4.1.4. Summative Assessment

Summative assessment, also known as assessment of learning, is used for grading students to establish whether they have mastered their module content [13]. Some popular examples of summative assessment are tests and examinations. Almost all the examinations that were planned for the 2020 academic year were converted to short online tests, quizzes, assignments, and/or projects. Academics at the UKZN were trained by fellow academics who could use Moodle assessment activities (Figure 3) and resources (Figure 4).

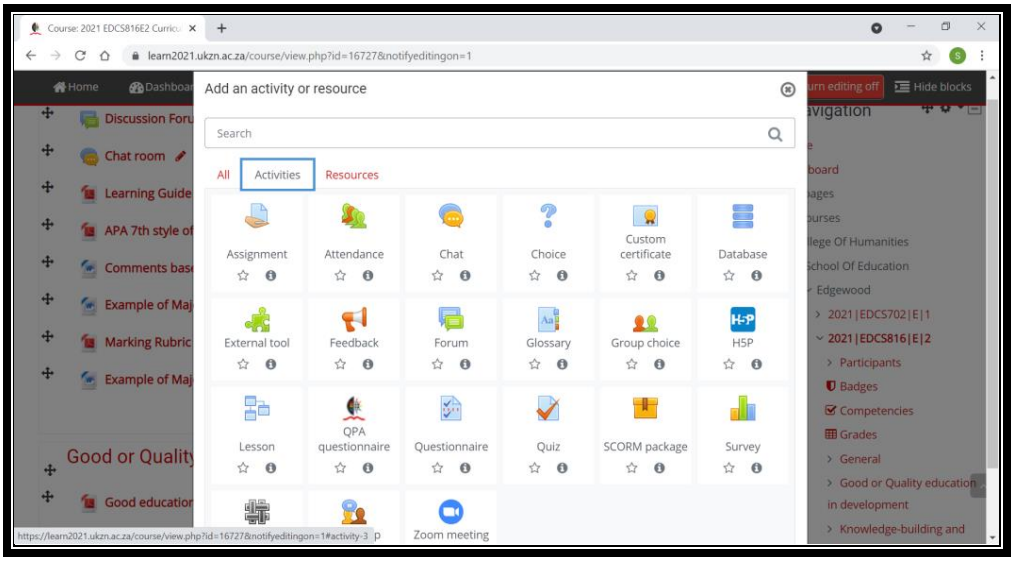

Figure 3. Moodle activities.

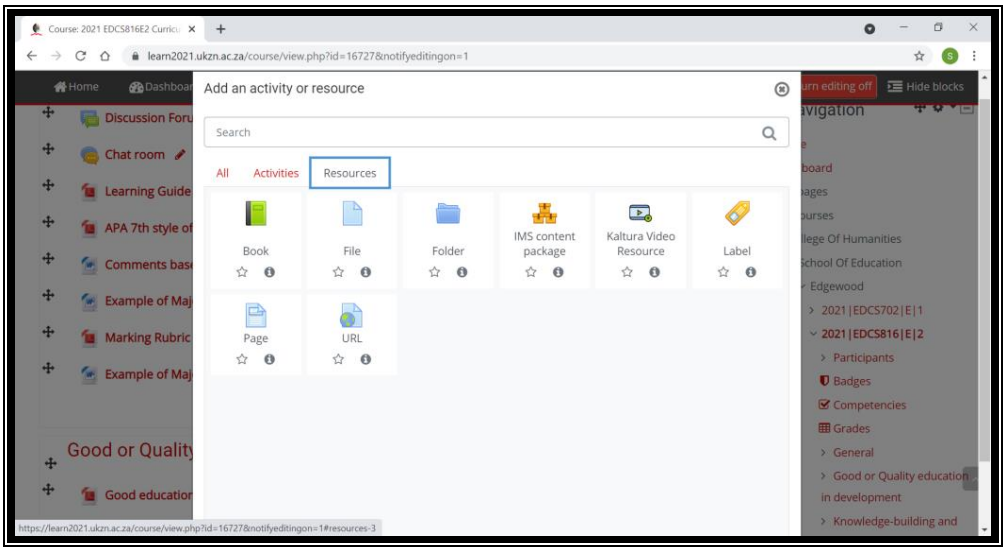

Figure 4. Moodle resources.

Zoom video-conferencing technology (ZVCT) activity (Figure 5) and Kaltura Video Resource (KVR) (Figure 6) were added to Moodle to address Moodle's inability to produce live video-conferencing activity and video recording/production resources, respectively.

Some assessment activities included questions that were asked and recorded through ZVCT. Students also had to produce and record their answers through ZVCT [12]. The KVR was used to produce videos and quizzes based on the options shown in Figure 7.

Video Quiz for assessment was used to produce and record videos that played and asked certain questions. These various activities and resources were useful because they were able to facilitate/accommodate various teaching, learning, assessment, and research styles that helped the UKZN to increase its pass rate [42]. Students were given many opportunities to improve their work even after they had failed some assessment tasks or had not attended lectures through ZVCT [43]. The process of giving students more attempts during the semester lectures and towards the end of the semesters was known as a catch-up period [41,46].

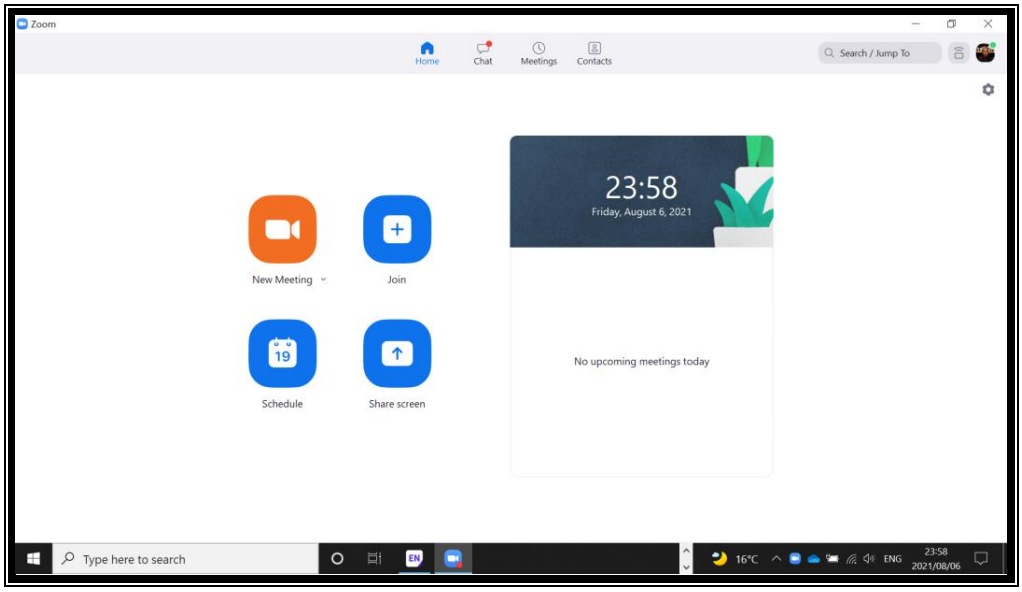

Figure 5. Zoom video-conferencing technology (ZVCT).

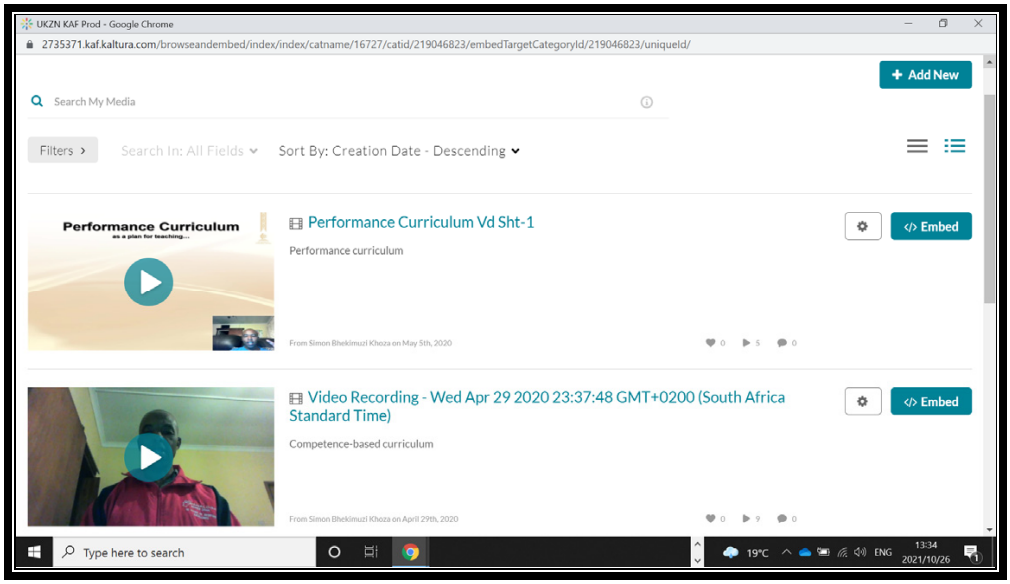

Figure 6. Kaltura Video Resource (KVR).

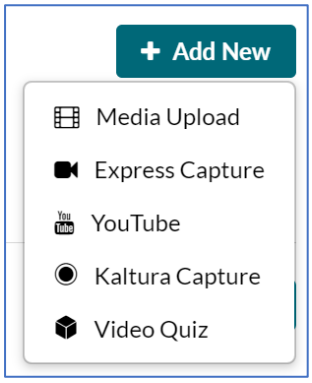

Figure 7. Kaltura options.

The main advantage of the UKZN DC was that almost all classes/lectures were offered through ZVCT or PowerPoint. These classes were recorded so that students could watch and listen to them whenever they had time [45]. The students were able to review the video-recorded lectures even when they were unable to attend the lectures, since they were given a video link to watch after each of the lectures [10]. The UKZN teaching and learning plans had thus to be adjusted to make teaching and learning operations realistic.

4.2. THEME TWO: Operational "How" Questions

4.2.1. Learning Outcomes

Specification of learning outcomes in each of the modules requested by UKZN teaching and learning leaders signalled how teaching and learning operations were expected to play out [12]. The operations were anticipated to follow a competence-based DC, which was driven by the achievement of learning outcomes by students in order to pass their modules [8]. Students were given several opportunities of resubmitting their assessment tasks until they achieved their module learning outcomes. Although this process of repeating assessment tasks was good for students because it increased the number of students who passed the modules, it overloaded or overwhelmed academics, who had to repeat the teaching and marking of tasks several times [40].

Although online markers were employed to support the academics with marking, academics had to moderate all the tasks that were marked by the markers in order to check them for consistency. Academics had to use SMSs over and above Moodle resources/activities to facilitate the operational processing of repeating lectures and assessment tasks. Academics then needed social activities to de-stress—the processes were tediously stressful [39].

4.2.2. Facebook and WhatsApp

Facebook and WhatsApp were examples of SMSs used by UKZN staff and students to communicate what they were doing. These two SMSs are among the most popular [7]. Staff and students had their personal and/or UKZN Facebook pages that they used for social and/or professional activities [4]. Students received data bundles from the UKZN every month through their mobile phones. UKZN acquired these data bundles from organisations such as Vodacom, MTN, Telkom SA, and Cell C. Academics were expected to facilitate the learning processes that involved mostly WhatsApp.

4.2.3. Facilitation

Facilitation was the role played by academics who coordinated the content used by students to achieve module learning outcomes [43]. Other students supplied specific content generated to influence the learning processes according to their needs [40]. Most of the students valued their fellow students' knowledge over that of the tutors when the tutors were involved [4].

4.2.4. Peer Assessment

Students were encouraged to critique one another's work before submitting such to the academics. When the students engaged the peer-assessment processing through critiquing one another's work, they assessed one another in order to learn [42]. Peer-assessment processes are capable of helping students to reflect on their work in order to address their personal needs before they address societal and professional needs [18].

4.3. THEME THREE: Personal "Who" Questions

4.3.1. Reflection

Reflection is defined as an interrogation of beliefs taking various forms of knowledge based on evidence, in order to make life decisions [51]. In other words, reflection is the conscious mind process or system that interrogates subconscious experiences in order to produce new actions. In 2020, during ZVCT workshops conducted at the UKZN to

assist staff with knowledge/skills of using Moodle, the staff members reflected on their personal experiences (I was one of the facilitators). Instead of reflecting on the ideologies or pedagogies of Moodle resources/activities, staff members reflected on their technical and/or societal challenges imposed by Moodle resources/activities and PowerPoint usage.

Some of the staff members believed that Moodle resources/activities were not user-friendly for them: they were unable to apply them. For example, when they were told to record their PowerPoint presentations for their classes, these staff members took approximately an hour to record their presentations. When they tried to upload their presentations to Moodle, they realised that the presentations were too long or too large for Moodle, which only allowed a maximum of 10 MB [10]. Once they realised the challenges of uploading the recorded PowerPoint presentations or Kaltura videos, staff members sought and found new, alternative solutions.

The innovative ways included downloading and creating their personal OneDrive, Google Drive, and/or YouTube channel. Staff members presented live Zoom/Microsoft Teams lessons while recording them; then they shared/published these on their OneDrive, Google Drive, and/or YouTube channel. When students observed this practice, they became excited. Students created their own YouTube channels and published their own recorded presentations. Some examples of the academic and student links are: (1) https://www.youtube.com/watch?v=LksFuLQZRhE; (2) https://youtu.be/gYXPbjaDmg8; and (3) https://youtu.be/2TXsRGyUcRg (4) https://youtu.be/1M6x9UjEOEc (accessed on 18 October 2021). Reflections on who designed these resources and activities, as well as their aims in order to establish relevant pedagogies, ideologies, or theories, were missing from the records of the majority of students and other academics.

4.3.2. Aims

Aims are long-term teaching goals that help academics to establish relevant pedagogies, ideologies or theories underpinning educational technologies [1]. None of the educational technologies (resources) used by the UKZN was designed based on the needs of UKZN staff and students [10]. For example, ZVCT, which was launched in 2013, was founded in 2011 by Chinese-American businessman Eric S. Yuan in California for business meetings and conferences, not for formal education. In 2009, WhatsApp was introduced by Jan Koum and Brian Acton as a communication resource for Smartphone and other mobile phone users, not for formal education [7]. As a result, these resources are driven by societal identities that may be understood through formative assessment [5,13].

4.3.3. Formative Assessment

Formative assessment, also known as assessment for learning, is used by academics before, during, and after lessons [9,52]. Academics use formative assessment questions that are asked in order to establish relevant ideological-ware resources/theories underpinning educational technologies that they plan to use [5,53]. Migration at the UKZN seemed to miss this important ingredient of understanding theories or original reasons and aims for specific educational technologies. This suggests that academics should research specific ideological-ware/theories that underpin useful educational technologies before they are exploited.

4.3.4. Researcher Role

The DC users assume the role of researchers if they need to balance issues of a performance and/or competence-based DC [4,5]. Most of the academics at the UKZN assumed roles of either facilitator or instructor. As facilitators, they followed opinions of other people on the use of a competence-based DC, mostly involving SMSs [54]. As instructors, they had to read rules about the use of a performance DC, rigorously following those rules. The LMSs were for the most part used strictly to drill students with module content in order to support students to achieve high performance [44]. This suggests that the researcher role promoted a blended learning environment.

4.3.5. Blended Learning

Blended learning is an educational environment that combines face-to-face (F2F) education and DC [55]. Blended learning in this study was defined as a combination of the competence-based curriculum (societal identity for the social presence) and performance-based curriculum (professional identity for the teaching presence) learning that produced personal identity. This was because F2F education was not applicable. The UKZN, like other HEIs in South Africa, was compelled to use only a DC to save its 2020/2021 academic year(s). It was not possible to use a F2F environment, the HEI also having been affected by the COVID-19 national lockdowns [12]. The DC used by the UKZN missed a pragmatic DC that leads to the NI achieved through addressing "why" questions of education. This involves re-reflection, critique, and natural identity.

4.4. THEME FOUR: Philosophical "Why" Questions

4.4.1. Re-Reflection

In 2021, the UKZN staff and students had to re-reflect on why they did what they did in 2020 when they migrated to the DC. They had to move to the DC as the only solution of saving the 2020 academic year. "*The call to exclusively migrate learning to [DC] a practical solution to salvage a difficult situation in many ways*" [41]. Although the staff members were trained by their colleagues, students faced access challenges because approximately 78% of the students came from under-resourced communities/families [10]. "*Students from poor rural areas face challenges such as lack of or no network coverage, lack of or irregular supply of electricity supply and no academic support at home . . . "* [40]. The re-reflection suggested that students migrated to a performance DC that compelled them to follow UKZN prescribed rules of education; and a competence-based DC in which they were trained by their fellow volunteer colleagues.

This kind of migration suggests what Grossi, de Souza Elias, Chamon and Leal [54] and Khoza [18] described as a migration without educational technology centres (ETCs). The ETCs are under the leadership of experienced educational developers or technologists (ED/Ts), whose main responsibility is to collaborate with individual academics, various HEI departments or sectors, and the HEI at large. The ETCs have researched information underpinned by relevant ideological-ware resources (pedagogies/theories). The UKZN did not have ETCs, which resulted in staff members relying heavily on volunteer fellow academics' support. During the re-reflection period, academics were able to critique their experiences of a competence-based and performance-based DC.

4.4.2. Critique

A critique is a process of interrogating one's experiences in order to distinguish between what is good, and therefore to be encouraged; and what is not good, and therefore to be discouraged. The critiques were limited to some issues of professional and societal identities, deficient in personal values that may have been generated by the COVID-19 revolution [12]. The missing or limited critiques of personal/pragmatic identities capable of promoting a pragmatic DC signalled the need for ED/Ts to support staff and students to find their identities of critiquing educational technologies. For example, staff members used ZVCT without even interrogating the USA "US" extension, albeit used in South Africa.

4.4.3. Identity

"Identities are conscious thoughts interrogating subconscious thoughts that drive teachers to understand their personal needs" [18]. The teaching and learning processes suggested that it was difficult for the academics and students to realise natural identity because their migration to DC missed the pragmatic/personal identity that leads to the realisation of the natural identity. Realisation of the natural identity is the power of understanding how the human mind operates during any action. The human mind is divided into the conscious, unconscious, and subconscious (Figure 8).

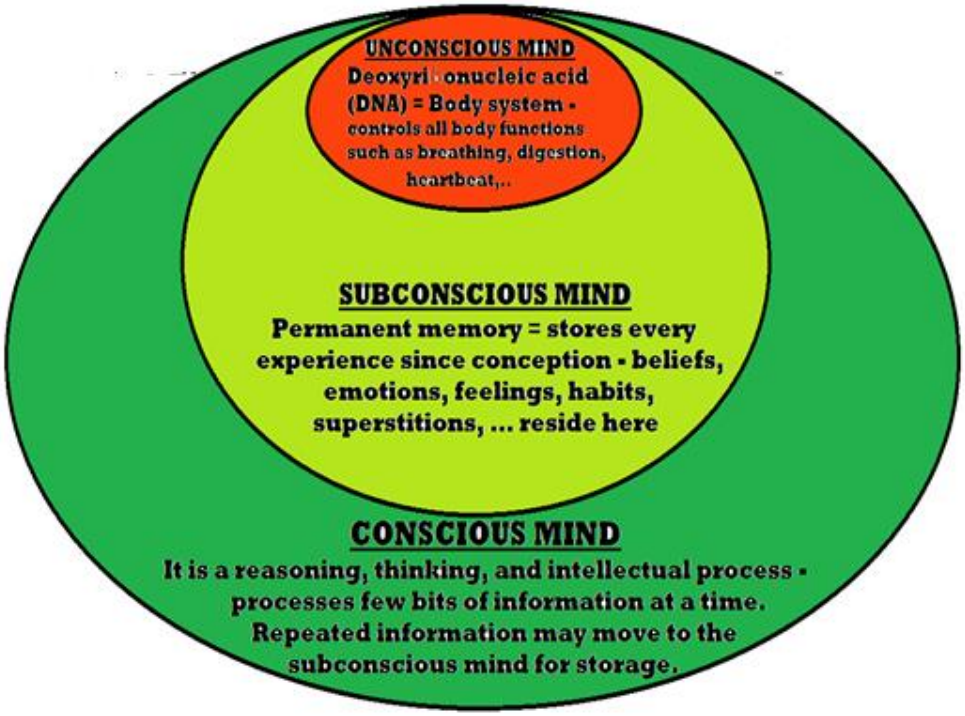

Figure 8. Human mind divisions.

The body's unconscious mind controls all bodily functions such as breathing, digestion, heartbeat, and others through its deoxyribonucleic acid (DNA) [18,56]. The subconscious mind is a permanent memory that stores every experience since inception (beliefs, emotions, feelings, habits, superstitions, and others reside here) [8]. The conscious mind is the reasoning, thinking, intellectual human activity that processes certain pieces of information at a time [56]. This suggests that repeated information may easily move from the conscious mind to the subconscious mind for storage. Humans realise and understand these divisions when they reflect pragmatically. Pragmatic and natural identities are driven by personal individual needs of the Fourth Industrial Revolution (4IR), and natural needs of the COVID-19 revolution or 5IR, respectively [18].

Nonetheless, UKZN leaders began to introduce various units that represented educational technology centres (ETCs) after realising the importance of these facilities through studies conducted by UKZN scholars, although the conducted studies were on the use of various types of technology (hardware and software). UKZN leaders were able to grasp the importance of establishing UKZN needs for producing UKZN identity. Technology champion committees, Distance Education Unit committees, and other committees were formed by the UKZN leadership through the UKZN's colleges and schools [8]. The committees were formed and tasked with conducting studies around understanding the UKZN's needs. This was in order to promote a DC that may work for the UKZN based on the UKZN's identity. This suggests the beginning of a pragmatic DC at the UKZN.

5. Conclusion and Implications

While staff and students at UKZN survived and managed to complete the 2020 academic year despite the circumstances of COVID-19, a cause for concern still existed regarding the missing awareness of pragmatic and natural identities—the most important ingredients of an effective DC [18]. When a pragmatic identity must drive a DC, it must be supported by an educational technology centre (ETC). Such a centre must employ education developers that continuously conduct research in order to establish relevant theories/pedagogies for all educational technologies/resources used by staff and students.

The absence of an ETC with ED/Ts conditioned the academics to think that, on the one hand, students learned because academics had constructed a good tutorial environ-

ment [40] for them, with relevant resources that helped them to learn (societal identity of a competence-based DC). Such environments afforded education to friends and other people who learned with the students, mostly through social media sites (SMSs such as Facebook, WhatsApp, etc.). As long as they achieve outcomes at any level of complexity, students were happy with what they have achieved as groups. Societal identity worked well for students who had one or two modules outstanding to complete their qualifications—academics had been told that "no students should be left out". Societal identity was applied only in outstanding modules (not projects). It was unfortunate for those who had outstanding group projects. Even only one outstanding project meant the repeating of the project in 2021, through application of the professional identity.

On the other hand, the situation conditioned the academics to believe that students learned and achieve high marks when they were drilled to master their module content (professional identity of performance DC). Students learned while guided by prescribed strict rules of their disciplines in order to define any action according to their discipline rules. Professional identity was only applied to group/student projects in which other students had to repeat the outstanding project(s) in 2021. This indicates one-size-fits-all students who choose their disciplines. All students were expected to achieve high marks after they have mastered their module content, mostly through learning management systems (LMSs).

However, with these two positions, academics missed the notion of individual internal intelligence as the most important ingredient of any action (personal identity of pragmatic DC) [37]. In other words, students learn when they are internally ready to learn (mindset), based on their individual needs and situations, irrespective of being with groups/friends or drilled with their course content [17]. Students learn through connecting relevant personal information that addresses their needs [12]. The absence of pragmatic identity led to treating module(s) differently from project(s), without considering the individual needs of students. Students' needs always escalate, whether addressed or not, according to any new demands of their situation.

Therefore, the actions of addressing those needs and demands also advance or graduate, actions not being static [18,37]. In the 21st century, individual actions have been enhanced by a range of resources that have helped humans to realise their individual potentials or abilities [17]. Some of these resources that have been enhancing human actions are autonomous vehicles, artificial intelligence (AI), robotics, the Internet of Things (IoT), and many others [57].

When humans have done their best but achieve negative results, they believe that nature is responsible for enhancing or driving actions in the universe. If they still achieve what they believe are positive results/outcomes, people believe that the actions of success are driven by certain people (societal), professions (professional), or their individual and unique internal intelligence (personal/pragmatic). People are compelled to acknowledge the natural forces because they fail to produce positive results or outcomes. These natural forces that have been enhancing human actions during the COVID-19 revolution are clearly and newly driven by nature. They have introduced a new natural identity driven by a new revolution, termed the Fifth Industrial Revolution (5IR). This suggests that identities are hierarchical in nature. Societal identity is at the lowest level, with a majority of humans practising it. The next level is professional identity, followed by personal/pragmatic identity. Natural identity is at the highest level, with the minority of humans practising such.

Author Contributions: Conceptualisation, S.B.K.; methodology, S.B.K.; software, S.B.K.; validation, S.B.K.; formal analysis, S.B.K.; investigation, S.B.K.; resources, S.B.K.; data curation, S.B.K.; writing—original draft preparation, S.B.K.; writing—review and editing, S.B.K.; visualisation, S.B.K.; supervision, S.B.K.; project administration, S.B.K.; funding acquisition, S.B.K. S.B.K. has read and agreed to the published version of the manuscript.

Funding: Dr Blossom Bulelwa Piliso's Award for The Conversation Africa Competition from the Witwatersrand University CoE-Human Development and Tamsen Rochat as well as DST-NRF Centre of Excellence in Human Development.

Institutional Review Board Statement: The protocol has been granted EXEMPTION FROM ETHICS REVIEW (UKZN Protocol reference number: 00014074) because the study did not involve humans or animals.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data sources were 11 publications published on UKZN migration to a DC [10,12,17,39–46].

Conflicts of Interest: The author declares no conflict of interest.

References

1. Khoza, S.B.; Biyela, A.T. Decolonising Technological Pedagogical Content Knowledge of First Year Mathematics Students. *Educ. Inf. Technol.* **2020**, *25*, 2665–2679. [CrossRef]
2. Biesta, G. What is Education For? On Good Education, Teacher Judgement, and Educational Professionalism. *Eur. J. Educ.* **2015**, *50*, 75–87. [CrossRef]
3. Hao, Q.; Barnes, B.; Wright, E.; Branch, R.M. The influence of achievement goals on online help seeking of computer science students. *Br. J. Educ. Technol.* **2017**, *48*, 1273–1283. [CrossRef]
4. Sokhulu, L.H. Students' experiences of using digital technologies to address their personal research needs during the COVID-19 lockdown. *Afr. Identities* **2020**, *18*, 1–17. [CrossRef]
5. Makumane, M.A. Students' perceptions on the use of LMS at a Lesotho university amidst the COVID-19 pandemic. *Afr. Identities* **2021**, *2021*, 1–18.
6. Branch, R.M. New Media for Educational Change. In *New Media for Educational Change*; Deng, L., Ma, W., Fong, C., Eds.; Springer: Bishan New Town, Singapore, 2018; pp. 3–8.
7. Khoza, S.B. Students' Habits Appear Captured by WhatsApp. *Int. J. High. Educ.* **2020**, *9*, 307–317. [CrossRef]
8. Khoza, S.B.; Fomunyam, K.G. Can Alignment of Digital Resources with Needs Produce a New Curriculum Theory for Teaching? In *Curriculum Theory, Curriculum Theorising, and the Theoriser: The African Theorising Perspective*; Fomunyam, K.G., Khoza, S.B., Eds.; Brill–Sense: Boston, MA, USA, 2021; pp. 219–236.
9. Shoba, M.E. Theorising teachers' experiences of teaching reading in the African context. In *Curriculum Theory, Curriculum Theorising, and the Theoriser: The African Theorising Perspective*; Fomunyam, K.G., Khoza, S.B., Eds.; Brill–Sense: Boston, MA, USA, 2021; pp. 237–255.
10. Khoza, S.B.; Mpungose, C.B. Digitalised Curriculum to the rescue of a Higher Education Institution. *Afr. Identities* **2020**, *18*, 1–21. [CrossRef]
11. Ngubane-Mokiwa, S.A.; Khoza, S.B. Using Community of Inquiry (CoI) to Facilitate the Design of a Holistic E-learning Experience for Students with Visual Impairments. *Educ. Sci.* **2021**, *11*, 152. [CrossRef]
12. Mpungose, C.B.; Khoza, S.B. Students' Reflections on the Use of Zoom Video Conferencing Technology for Online Learning at a South African University. *Int. J. Afr. High. Educ.* **2021**, *8*, 159–178. [CrossRef]
13. Makumane, M.A.; Khoza, S.B. Educators' Reasonings and their Effects on Successful Attainment of Curriculum Goals. *South Afr. J. High. Educ.* **2020**, *34*, 95–111. [CrossRef]
14. Branch, R.M. Reducing Sepsis Prevalence in Acute-Care Hospitals: System Design and Usability Barriers It Professionals Need to Overcome. Ph.D. Thesis, Colorado Technical University, Colorado Springs, CO, USA, 2020.
15. Makumane, M.A. Theory of Enactment Strategies as a Way forward in Enacting a French Integrated Curriculum in Lesotho. In *Curriculum Theory, Curriculum Theorising, and the Theoriser: The African Theorising Perspective*; Fomunyam, K.G., Khoza, S.B., Eds.; Brill–Sense: Boston, MA, USA, 2021; pp. 295–319.
16. Ndlovu, E.M.; Khoza, S.B. Alternative Ways of Implementing the Curriculum. In *Curriculum Theory, Curriculum Theorising, and the Theoriser: The African Theorising Perspective*; Fomunyam, K.G., Khoza, S.B., Eds.; Brill–Sense: Boston, MA, USA, 2021; pp. 320–334.
17. Khoza, S.B. Academics' "Why" of Knowledge-Building for the Fourth Industrial Revolution and COVID-19 Era. *Int. J. High. Educ.* **2020**, *9*, 247–258. [CrossRef]
18. Khoza, S.B. Can Teachers' Identities Come to the Rescue in the Fourth Industrial Revolution? *Technol. Knowl. Learn.* **2021**, *26*, 1–22.
19. Garrison, D.R.; Anderson, T.; Archer, W. The first decade of the community of inquiry framework: A retrospective. *Internet High. Educ.* **2010**, *13*, 5–9. [CrossRef]
20. Khoza, S.B. Master of Education Students' Reflections: Which Curriculum Reasons Are Promoted or Limited by Skype Resources? *Progress. South Afr. J. Open Distance Learn. Pract.* **2017**, *39*, 1–19. [CrossRef]
21. Morgan, D.L. Pragmatism as a Paradigm for Social Research. *Qual. Inq.* **2014**, *2914*, 1045–1053. [CrossRef]
22. Khoza, S.B. Lecturers' Reflections on Curricular Spider Web Concepts Transformation Strategies. In *Transformation of Higher Education Institutions in Post-Apartheid South Africa*; Ivala, E.N., Scott, C.L., Eds.; Routledge–Taylor & Francis Group: New York, NY, USA, 2019; pp. 15–26.

23. Hoadley, U. *Pedagogy in Poverty: Lessons from Twenty Years of Curriculum Reform in South Africa*; Routledge–Taylor & Francis Group: London, UK, 2018.
24. Khoza, S.B.; Fomunyam, K.G. Introduction: Theorising Curriculum Approaches and Praxis. In *Curriculum Theory, Curriculum Theorising, and the Theoriser: The African Theorising Perspective*; Fomunyam, K.G., Khoza, S.B., Eds.; Brill–Sense: Boston, MA, USA, 2021; pp. 1–11.
25. Khoza, S.B. Student teachers' reflections on their practices of Curriculum and Assessment Policy Statement. *South Afr. J. High. Educ.* **2015**, *29*, 179–197. [CrossRef]
26. Le Grange, L. Decolonising the University Curriculum. *South Afr. J. High. Educ.* **2016**, *30*, 1–12.
27. Mpungose, C.B. Beyond limits: Lecturers' reflections on Moodle uptake in South African universities. *Educ. Inf. Technol.* **2020**, *25*, 5033–5052. [CrossRef]
28. Makafane, D.T.; Chere-Masopha, J. COVID-19 Crisis: Challenges of Online Learning in One University in Lesotho. *Afr. Perspect. Res. Teach. Learn.* **2021**, *5*, 126–138.
29. Kim, H.J.; Hong, A.J.; Song, H. The roles of academic engagement anddigital readiness in students'achievements in university e-learning environments. *Int. J. Educ. Technol. High. Educ.* **2019**, *16*, 21–34. [CrossRef]
30. Mpungose, C.B. Student Teachers' Knowledge in the Era of the Fourth Industrial Revolution. *Educ. Inf. Technol.* **2020**, *25*, 5149–5165. [CrossRef]
31. Ai, B. Constructing an academic identity in Australia: An autoethnographic narrative. *High. Educ. Res. Dev.* **2017**, *36*, 1095–1107. [CrossRef]
32. Mashinini, V. COVID-19 and National University of Lesotho: Experiences and Challenges. *Int. J. Educ. Res.* **2020**, *8*, 157–180.
33. Ilonga, A.; Ashipala, D.O.; Tomas, N. Challenges Experienced by Students Studying through Open and Distance Learning at a Higher Education Institution in Namibia: Implications for Strategic Planning. *Int. J. High. Educ.* **2020**, *9*, 116–127. [CrossRef]
34. Ike, R.N.; Agbaeze, E.K.; Udoh, B.E.; Adeleke, B.S. Challenges Associated with the Implementation of Knowledge Management in Nigerian Tertiary Institutions. *Int. J. High. Educ.* **2019**, *8*, 70–76. [CrossRef]
35. Manyike, T.V. Postgraduate supervision at an open distance e-learning institution in South Africa. *South Afr. J. Educ.* **2017**, *37*, 1–11. [CrossRef]
36. Kaushik, V.; Walsh, C.A. Pragmatism as a Research Paradigm and Its Implications for SocialWork Research. *Soc. Sci.* **2019**, *8*, 255. [CrossRef]
37. Morgan, D.L. *Integrating Qualitative and Quantitative Methods: A Pragmatic Approach*; Sage: Thousand Oaks, CA, USA, 2014.
38. Creswell, J.W.; Creswell, J.D. *Research Design: Qulitative, Quantitative, and Mixed Methods Approaches*; SAGE Publications: London, UK, 2018.
39. Naidu, T. The COVID-19 pandemic in South Africa. *Psychol. Trauma Theory Res. Pract. Policy* **2020**, *12*, 559–561. [CrossRef]
40. Nyawo, J.C. A Comparison of Undergraduate Students' Perception of Tutorials before and during the COVID-19: A Case of the University of Kwazulu-Natal in the Discipline of Public Governance. *Int. J. High. Educ.* **2021**, *10*, 217–228. [CrossRef]
41. Mhandu, J.; Mahiya, I.T.; Muzvidziwa, E. The exclusionary character of remote teaching and learning during the COVID-19 pandemic: An exploration of the challenges faced by rural-based University of KwaZulu Natal students. *Cogent Soc. Sci.* **2021**, *7*, 1–14.
42. Nyambuya, V.P.; Nyamaruze, P.; Dube, M.; Shumba, K. Rethinking education in the age of 'social distancing': A qualitative inquiry on University of KwaZulu-Natal students' responses to online learning in the context of COVID-19. *J. Afr. Educ.* **2021**, *2*, 107–126. [CrossRef]
43. Mpungose, C.B.; Khoza, S.B. Postgraduate Students' Experiences on the Use of Moodle and Canvas Learning Management System. *Technol. Knowl. Learn.* **2020**, *26*, 1–16. [CrossRef]
44. Mpungose, C.B. Emergent transition from face-to-face to online learning in a South African University in the context of the Coronavirus pandemic. *Humanit. Soc. Sci. Commun.* **2020**, *7*, 113–125. [CrossRef]
45. Mpungose, C.B. Is Moodle or WhatsApp the preferred e-learning platform at a South African university? First-year students' experiences. *Educ. Inf. Technol.* **2020**, *25*, 927–941. [CrossRef]
46. Mpungose, C.B. Is Moodle a Platform to Decolonise the University Curriculum? Lecturers' Reflections. *Afr. Educ. Rev.* **2020**, *17*, 100–115. [CrossRef]
47. Esau, O. Emancipatory action research. In *Education Studies: For Initial Teacher Development*; Ramrathan, L., Le Grange, L., Higgs, P., Eds.; Juta & Company (Pty) LTD: Cape Town, South Africa, 2017; pp. 444–455.
48. Nieuwenhuis, J. Qualitative research designs and data-gathering techniques. In *First Steps in Research*; Maree, K., Ed.; Van Schaik: Pretoria, South Africa, 2016; pp. 72–100.
49. McNiff, J. *Action Research—Principles and Practices*, 3rd ed.; Routledge: London, UK, 2013.
50. McAteer, M. *Action Research in Education*; SAGE Publications: London, 2013.
51. Dewey, J. *How We Think: A Restatement of Reflective Thinking to the Educative Process*; Heath: Boston, MA, USA, 1933.
52. AlDahdouh, A.A. Jumping from one resource to another: How do students navigate learning networks? *Int. J. Educ. Technol. High. Educ.* **2018**, *15*, 45–58. [CrossRef]
53. Akugizibwe, E.; Ahn, J.Y. Perspectives for effective integration of e-learningtools in university mathematics instructionfor developing countries. *Educ. Inf. Technol.* **2020**, *25*, 889–903. [CrossRef]

54. Grossi, M.G.R.G.; de Souza Elias, M.C.A.; Chamon, C.M.; Leal, D.C.C.C. The Educational Potentialities of the Virtual Learning Environments Moodle and Canvas: A Comparative Study. *Int. J. Inf. Educ. Technol.* **2018**, *8*, 514–519. [CrossRef]
55. Kong, S.C.; Chan, T.-W.; Griffin, P.; Hoppe, U.; Huang, R.; Kinshuk; Looi, C.K.; Milrad, M.; Norris, C.; Nussbaum, M. E-learning in school education in the coming 10 years for developing 21st century skills: Critical research issues and policy implications. *Educ. Technol. Soc.* **2014**, *17*, 70–78.
56. Ramsøy, T.Z.; Michael, N.; Michael, I. A consumer neuroscience study of conscious and subconscious destination preference. *Sci. Rep.* **2019**, *9*, 1–8.
57. Schwab, K. *The Fourth Industrial Revolution*; World Economic Forum®: Geneva, Switzerland, 2016.