Representation of Pragmatism in Scholarly Publications on COVID-19

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Abstract

Pragmatism is an important resource that has helped higher education institutions (HEIs) in Lesotho and South Africa to complete the 2020 academic year even when they were affected by COVID-19. Pragmatism is a philosophy of human actions combined with experiences in order to produce outcomes or consequences, where the reality is about what works according to individual needs based on a specific situation. During the COVID-19 era, pragmatism has been represented by the use of learning management systems (LMSs) and social media sites (SMSs). The representation of pragmatism, based on ten sampled publications of this study was divided into performance- (driven by LMSs) and competence-based (driven by SMSs) curricula. The purpose and objective of this study was to explore and understand the representation of pragmatism in ten scholarly publications purposively sampled for this study on education during the COVID-19 era. Document analysis framed by pragmatic paradigm, critical discourse analysis (CDA), and community of inquiry (CoI), was used to generate data for this study. The findings concluded that pragmatism was the reason for HEIs saving the 2020 academic year: pragmatism harmonised the tension between LMSs and SMSs which existed even before the COVID-19 era. Consequently, this study recommends the application of pragmatism in any uncertainty/novelty situation in education, in order to address individual needs before professional and societal needs.

Keywords: competence-based, COVID-19, curriculum, pragmatism, representation

1. Introduction

Pragmatism is a philosophy of human actions combined with experiences in order to produce outcomes or consequences; where reality is about what works according to individual needs based on a specific situation. In HEIs, pragmatism is represented by a performance curriculum in which actions are driven by learning management systems (LMSs); and/or a competence-based curriculum in which actions are driven by social media sites (SMSs) (Khoza, & Biyela, 2020). A performance curriculum demands the prescription of specific course content, objectives, resources (usually based on an LMS), time, teaching space, teacher role (instructor), and summative assessment, before the teaching takes place (Khoza, 2019; Mpungose, 2020a; Tyler, 2013). The performance curriculum addresses the "what" questions (what content, objectives, resources, time, space, role, and summative assessment?) of education. This suggests that students should be passive in order to be drilled by academics. Thus, students master the prescribed course content because they are restricted to the prescribed course activities. Some HEIs have made LMSs compulsory resources to be used for teaching and learning. While these HEIs make LMSs compulsory resources to promote a performance curriculum, thus improving student performance/throughput, most students prefer the use of SMSs in learning (Khoza, 2020b; Mpungose, 2020b). SMSs are driven by a competence-based curriculum which is underpinned by students' interactions with learning activities. Such is facilitated by academics in order to generate content used in the achievement of learning outcomes (Khoza, 2020a). This suggests a tension between the use of LMSs and SMSs in HEIs during uncertainty or novelty which was harmonised by pragmatism. Scholarly publications have been published on how HEIs have responded to COVID-19 novelty/uncertainty.

"COVID-19 is a name given to the coronavirus of 2019, a virus first detected in Wuhan city in the Hubei province of China" (Khoza, 2020a, p. 247). This virus (COVID-19) compelled HEIs to change to a digitalised curriculum (DC) (Khoza & Mpungose, 2020; Schwab, 2016) in order to complete the 2020 academic year; this after HEIs had shut down (lockdown) their face-to-face classes. During the lockdown, HEIs took the COVID-19 era as a revolution − Fifth Industrial Revolution (5IR), compelling HEIs to learn and use online activities. The COVID-19 situation is perceived as a revolution: "revolution is an unexpected, abrupt, unprecedented, and/or radical change that influences various sectors to perform their activities in new ways" (Khoza, 2020a, p. 248). COVID-19 caught the world off guard in introducing a new revolution which may be observed as the 5IR. The 4IR has not yet completed a century, only having begun this (twenty-first) century. Although the 1IR, 2IR, and 3IR each lasted at least a century, COVID-19 has apparently introduced the 5IR, replacing the 4IR before the end of the 21st century. The main noticeable resources used by HEIs for teaching, learning, meetings and conferences, workshops, and webinars, were Zoom, Microsoft Teams, and Skype technologies (Mpungose & Khoza, 2021; Sokhulu, 2020). These technologies were even incorporated into HEI learning management systems (LMSs).

This study therefore has explored and understood the representation of pragmatism in the scholarly digital technology publications on COVID-19. The study is driven by two questions: (1) What is the representation of pragmatism in the scholarly publications on COVID-19? (2) Why does the representation of pragmatism is in particular ways? This study presents discussions on the (1) literature review; (2) the research design and methodology; and the (3) findings and discussions, together with the conclusion.

2. Literature Review

This section discusses the representation of pragmatism (performance through LMSs and competence-based SMSs). This representation is conceptual framework of the literature for this study that supports the curricular spider web.

2.1 Representation of Pragmatism

Bernstein (1999) distinguished between two types of curricula: the vertical (performance) curriculum, and the horizontal curriculum. Bernstein further highlights that these two types of curricula communicate different forms of knowledge. The performance curriculum presents specialised knowledge in a systematic way, from the lowest to the highest level (Hordern, 2017; Makumane, 2018). This suggests that a performance curriculum is vertical in nature and is concerned with the hierarchical organisation of knowledge. In the same line of thought, Khoza (2019) affirms that the performance curriculum aims at presenting content that requires the application of the cognitive domain. New knowledge is thus built from existing knowledge, with the newly acquired knowledge being more complex than the older. In other words, the prescribed content, which outlines what Bernstein (1999) terms schooled knowledge, builds up students' knowledge through the teaching of independent subjects or disciplines replete with their own concepts and theories (Khoza, 2018; Makumane & Khoza, 2020).

The performance curriculum therefore assesses what learners should have achieved, and what is still missing, cognitively (Berkvens, van den Akker, & Brugman, 2014; Makumane, 2018). This type of curriculum is thus driven by the use of learning management systems (LMSs). LMSs support factual reflection that addresses what students learn through their objective experience as prescribe in their subjects (courses) (Makumane, 2021b; Mpungose, 2020b; Ndlovu & Khoza, 2021). According to Mpungose (2020a), LMSs are digital learning platforms that permit access, management, delivery, and assessment of course content, online. This assertion is supported by Khoza (2020b), who adds that LMSs drive a content-centred approach, in which content is taught hierarchically. This affirms that LMSs promote qualifications/professionalism: transmission and acquisition of knowledge are effected to attend to students' academic needs (Biesta, 2015; Sokhulu, 2020). Notably, the performance curriculum, through the use of LMSs, summons factual pragmatism. Here the cognitive domain plays an instrumental part in determining the success or failure of the curriculum in impacting a student's academic life (Makumane, 2021b; Schiro, 2013; Shoba, 2021).

HEIs have integrated social media sites (SMSs) to promote a competence-based curriculum. Such is preferred by most students because it helps with socialisation while they learn (Khoza & Biyela, 2020; Mpungose & Khoza, 2020). The main principles of a competence-based curriculum are outcomes, activities, SMSs, facilitation, generated content, and peer assessment (Hoadley, 2018; Khoza, 2020b; Van Deursen & Van Dijk, 2019). Students are given activities to interact with. Such activities produce content to be used to achieve learning outcomes; facilitators allow students to peer assess one another (Khoza & Fomunyam, 2021). This suggests that a competence-based curriculum addresses the "how" questions (how do facilitators facilitate learning, and how learners learn?) of education. Another important question of education is the "who" question that drives the pragmatic curriculum.

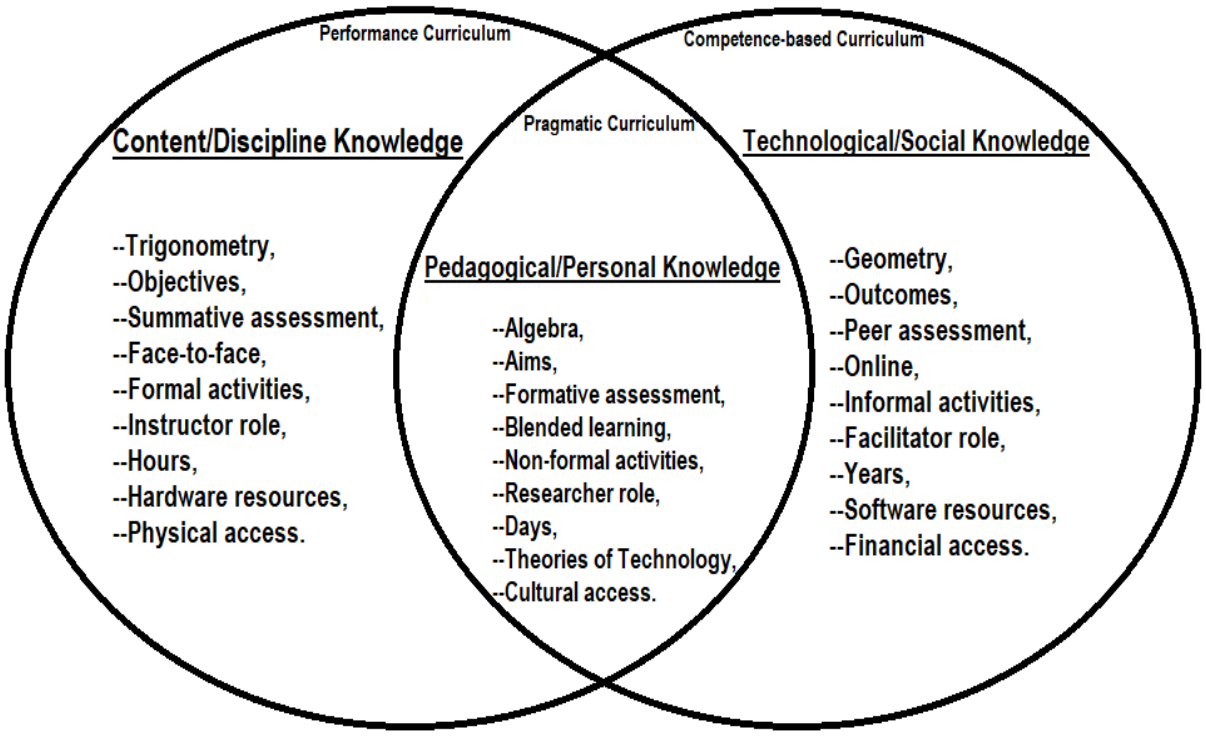

Figure 1. Pragmatism as the intersection adapted from Khoza and Biyela (2020)

Pragmatism is the intersection between a performance and a competence-based curriculum. According to Ngubane-Mokiwa and Khoza (2021), in support of Khoza (2019), the main principles of pragmatism are personal needs, aims, researcher role, non-formal activities, blended learning, theories of technology, and formative assessment. An individual should first reflect on these principles before any action of education takes place, allowing the individual to understand the reason/s for educational experiences. The pragmatic curriculum has its roots in pragmatism, which is a philosophy that attempts to bridge the gap between a scientific approach, based on facts, and naturalistic methods, deemed to be influenced by society through socialisation (Kaushik & Walsh, 2019; Morgan, 2014b). The implication of the latter assertion is that the pragmatic curriculum is bred by the convergence of a performance and a competence-based curriculum. Kaushik and Walsh (2019) put forth that, in pragmatism, reality is considered to be influenced by an individual's cognitive understanding as well as by socially constructed human experiences that translate into beliefs of that particular society. In other words, individuals' knowledge and socially constructed experiences influence unique thought, in terms of how the said knowledge and social experiences were deciphered by that particular individual (Kaushik & Walsh, 2019; Morgan, 2014b). Suffice to say that the pragmatic curriculum is driven by the nature of experience (both formal and informal) as opposed to the nature of reality.

Dewey's (1938) pragmatic orientation emphasised that human experience was vital in determining a unique individual. According to Morgan (2014a), Dewey was concerned with the sources of beliefs and the meanings of one's actions that translate into habit. Therefore, Dewey (1938) talks about habitual behaviour, which he claims is established through an individual's unique interaction with the environment. This suggests that a pragmatic curriculum favours individualism and individualistic views, which promote unique identities. Khoza (2019) insists that pragmatic curriculum drive the curriculum. Students may thus develop adequate knowledge, skills, values and attitudes to help them understand and use both the performance and the competence-based curriculum. In this way, students may be able to balance principles of these curricula in order to produce outcomes or consequences that benefit unique individual needs. This suggests that the representation of pragmatism in scholarly publications is based on the use of LMSs, driven by the performance curriculum; SMSs, driven by the competence-based curriculum; and digital theories which are driven by a pragmatic curriculum. Pragmatism therefore produces a pragmatic curriculum (generation of education theories) which combines the strengths of both the performance and competence-based curricula, in order to produce educational experiences.

2.2 Framework

According to Garrison, Anderson, and Archer (2010), supported by Ngubane-Mokiwa and Khoza (2021), educational

experience is underpinned by teaching presence (performance curriculum), social presence (competence-based curriculum), and cognitive presence (pragmatic curriculum), forming the theory known as the Community of Inquiry (CoI) (Figure 2).

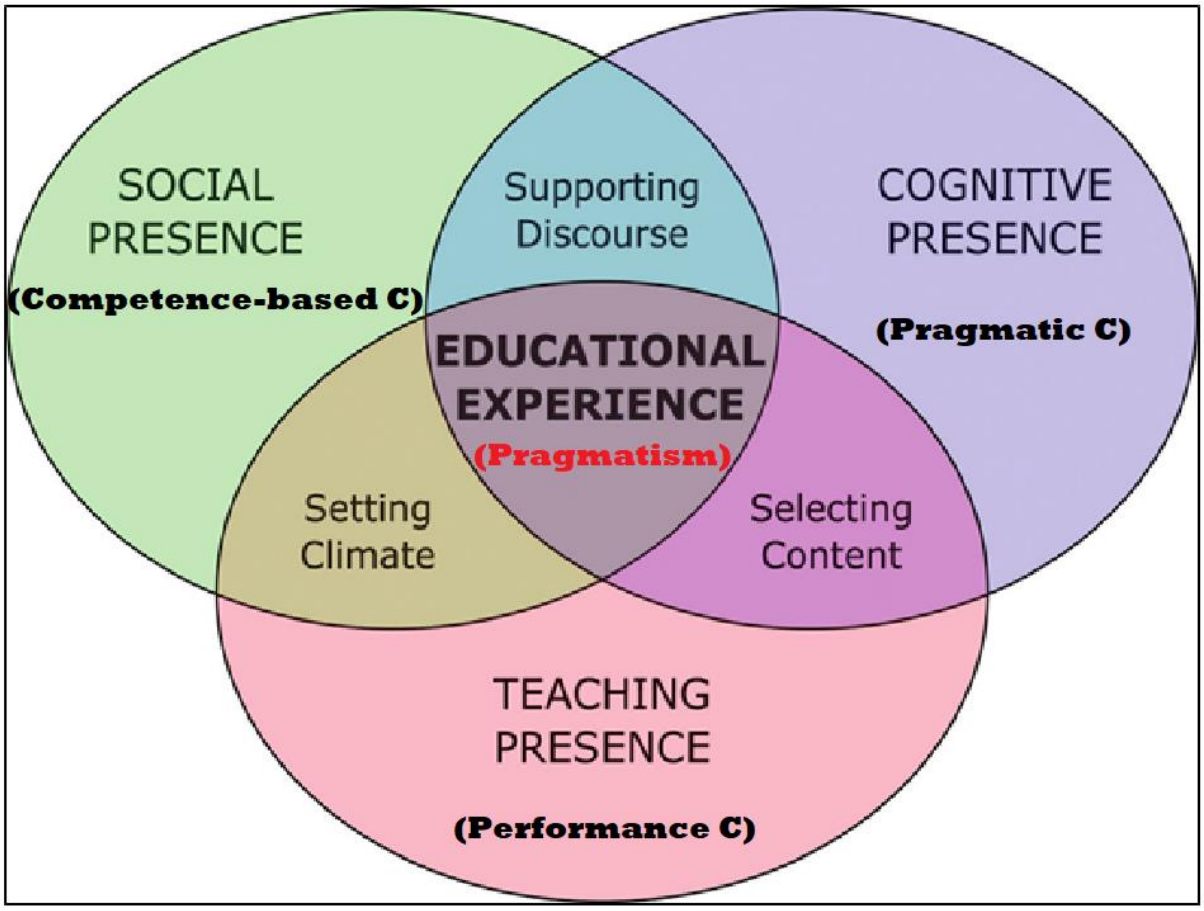

Figure 2. Pragmatism for Educational Experience from Community of Inquiry (CoI)

According to Garrison et al. (2010), supported by Ngubane-Mokiwa and Khoza (2021), publications on digital technology represent pragmatism (educational experience) through the CoI framework. The CoI comprises three forms of presence that represent the three forms of curriculum (Figure 2). A supporting discourse connects the pragmatic curriculum (cognitive presence) with the competence-based curriculum (social presence). Setting climate connects the competence-based curriculum to the performance curriculum (teaching presence). Selecting content connects the pragmatic curriculum with the performance curriculum. Therefore, this framework is used to shape research design. The methodology, which is applied by this study to explore the representation of pragmatism in digital technology publications on COVID-19 issues of education is discussed in the next section.

3. Research Design and Methodology

The pragmatic paradigm which may be dominated by either a qualitative or a quantitative methodological paradigm (Creswell & Creswell, 2018; Kivunja & Kuyini, 2017) is used for this study. This paradigm was appropriate for this study as it converges the scientific approach (quantitative) and naturalistic methods (qualitative) to breed digital theories (Kaushik & Walsh, 2019; Ngubane-Mokiwa & Khoza, 2021). According to Morgan (2014a), pragmatism as a paradigm is viewed as an attempt to produce knowledge within a social context. In other words, in pragmatism, knowledge is built from experiences, which are deemed to be largely social, and which are constant interactions of belief and action (Kaushik & Walsh, 2019; Morgan, 2014b). Thus, in using the CoI, this study examines social presence (competence-based curriculum), and cognitive presence (pragmatic curriculum) which are both inclined to the qualitative approach; together with the teaching presence (performance curriculum), which is inclined to a quantitative approach. These three ‘presences’ are believed to produce teaching and learning actions that favour effective attainment of digital curriculum goals (Khoza & Mpungose, 2020; Mpungose, 2020a).

The aim of this study was to explore the representation of pragmatism in digital technology publications on COVID-19 issues of education. Document analysis framed by the pragmatic paradigm, critical discourse analysis (CDA) and the CoI were used to generate and frame data. "CDA is a process of engaging and critiquing text found in published sources" (Ngubane-Mokiwa & Khoza, 2021, p. 5). Notably, document analysis is sometimes linked to a problem of incompleteness of documents being analysed. Therefore, ten scholarly publications conducted in Lesotho and South Africa were purposively selected for data purposes in this study, in order to authenticate the findings. Sampled publications were studies conducted by Khoza (2020a); Khoza and Mpungose (2020); Makafane and Chere-Masopha (2021); Makumane (2021a); Mashinini (2020); Mbambo-Thata (2020); Mbunge, Akinnuwesi, Fashoto, Metfula, and Mashwama (2021); Mpungose (2020c); Mpungose and Khoza (2021); and Sokhulu (2020). These sampled studies were selected according to their ability to elicit authentic and trustworthy information relevant to addressing research questions and objectives that guide this study (Kumar, 2012; Yin, 2015). These questions are:

1) What is the representation of pragmatism in the digital technology scholarly publications on COVID-19?

2) Why does the representation of pragmatism is in particular ways in the digital technology scholarly publications on COVID-19?

The data analysis method used is guided analysis. According to Samuel (2009), guided analysis involves determining categories prior to the generation of data, modifying those pre-determined categories as per interaction with data. Pre-determined categories were framed using the CoI principles as themes; these themes were negotiated and refined to accommodate those emerging from document analysis. Four principles of trustworthiness were taken into consideration to ensure dependability (consistency through the use of direct quotations); transferability (applicability of the study in different contexts); confirmability (elimination of bias through triangulation); and credibility (truth value- including authors of the analysed publications to authenticate the findings).

4. Findings and Discussions

The findings suggest that the representation of pragmatism was based on various forms of revolution. "Revolution is an unexpected, abrupt, unprecedented, and/or radical change that influences various sectors to perform their activities in new ways" (Khoza, 2020a, p. 248). The world has experienced four types of revolution (First, Second, Third, and Fourth Industrial Revolutions); and what is revealed by this study is the Fifth Industrial Revolution (5IR) which is emerging from the COVID-19 era. Based on the ten digital technology scholarly publications used for this study as the data sources, the presence of the first four revolutions in education produced the 5IR driven by COVID-19. As such, the findings are presented and discussed under the five industrial revolution presences (1IR presence, 2IR presence, 3IR presence, 4IR presence, and 5IR presence).

Table 1. Themes and categories of findings

THEMES	Categories
THEME ONE: 1IR PRESENCE	• Transportation • Communication • Mass production
THEME TWO: 2IR PRESENCE	• Electricity • Assembly lines
THEME THREE: 3IR PRESENCE	• Computers • The Internet
THEME FOUR: 4IR PRESENCE	• Artificial intelligence (AI) • Robotics • The Internet of things (IoT) • Autonomous vehicles
THEME FIVE: 5IR PRESENCE	• COVID-19 for the 10 years following digitalisation

4.1 THEME ONE: The First Industrial Revolution (1IR) Presence

The main resources of the 1IR which took place between 1760 and 1840 were animals, people, and steam engines (machines) used for transportation, communication, and mass production, respectively. Since COVID-19 started,

academics and students have pragmatically revealed their strengths in using various resources for survival. These include animals, people, and machines, as though they had missed the 1IR.

4.1.1 Transportation

During the 1IR, animals such as donkeys, horses, and others were used for physical transportation. During the COVID-19 era animals such as pigs and others have been perceived to have caused/infected humans with the COVID-19 virus. "*…associate this virus with 2018 fatal severe diarrhoea among pigs. COVID-19, …labelled as the greatest threat to humankind, causes symptoms like fever, cough, diarrhoea and fatigue to humans*" (Makafane & Chere-Masopha, 2021, p. 127). This suggests that transportation today is a psychological process of accepting any help from one's ideal specialists without counterargument; in order for one to learn according to the identity of the specialists. In other words, academics and students were compelled to seek for help from others in order to learn/survive. This resulted in using other people for communication that produced competence-based or the communicative approach.

4.1.2 Communication

A competence-based approached is a product of using people for communication. During the COVID-19 era learning has been influenced by the competence-based approach − learning is about collaborations that lead to the achievement of learning outcomes. "*The main principles of the competence-based curriculum [that drives the COVID-19 era] are learning activities, outcomes, facilitation, learning community, and distance learning"* (Khoza & Mpungose, 2020, p. 5). The communication of learning activities has been facilitated by means of social media sites (SMSs). SMSs are capable of mass production: they are used to invite friends as part of one's group for learning (Khoza, 2020b; Mpungose & Khoza, 2021).

4.1.3 Mass Production

SMSs have been used for group learning and/or collaborations. "*When students demonstrate, others observe 'how learning outcomes are achieved', based on the opinions and skills of other students. Academics use activities such as discussion forums, chat-rooms, Facebook discussions, Google discussions, inter alia, that promote groupwork of a learning community and of distance learning*" (Khoza & Mpungose, 2020, p. 5). The SMSs were used because most students did not have access to computers, relying on HEI computers. The access was one of the challenges they faced. *"I took two weeks without getting in touch with my lecturers because I had to source laptop since I have always relied on University computers"* (Makafane & Chere-Masopha, 2021, p. 133). However, the governments instructed HEIs that "*no student should be left out*" (Sokhulu, 2020, p. 10). As a result, academics had to teach all students according to individual pace. Some students even joined courses mid-semester, or towards the end of the semesters. Academics had to teach students even when they joined at a late stage of the semesters. Academics had to help all the students with 'catch-up' sessions in order to pass their courses. Students were given several attempts to improve their marks until they passed their courses. This practice suggests the representation of pragmatism through the competence-based curriculum, mostly supported by a tsunami of various electronic devices with SMSs. Electronic devices and computers/laptops need power to charge batteries.

4.2 THEME TWO: The Second Industrial Revolution (2IR) Presence

The introduction of electricity and assembly lines during the 2IR (late 19th century into the early 20th century) demanded a performance curriculum. The performance curriculum required that people be professional in what they were doing, based on specific disciplines or professional specialisations (Hoadley, 2018; Khoza & Fomunyam, 2021). During the COVID-19 era, students who relied heavily on the performance curriculum had learning challenges because they expected structured programmes with prescribed content to master, in order to pass their course with high marks (Ngubane-Mokiwa & Khoza, 2021; Sokhulu, 2020). This was very difficult for the students because "*academics had limited time to plan the structured programmes since they had their own personal needs*" (Khoza, 2020a, p. 253). Such, nevertheless, had to be addressed according to the demands of COVID-19. Although academics used learning management systems (LMSs) to upload course content for their students to learn online, in most cases they had to adjust the content to be aligned with their summative assessment resources.

In other cases, academics and students could not prepare for their online teaching and learning because they were losing electricity, experiencing power cuts or load-shedding. This challenge was worse in under-resourced areas. Here students were given data bundles by their HEIs to connect to the Internet, only to find that they had "s*everal hours without electricity power in their areas where they were unable to charge their electronic devices*" (Mashinini, 2020, p. 168). According to the principles of a performance curriculum, working without prescribed structure for the whole body of course content, or altering the prescribed structure tends to compromise the standard or credibility of

the course. At this stage studies have not revealed how much was compromised in terms of content coverage during the COVID-19 era. However, the presence of certain electronic devices and the Internet came to the rescue of HEIs.

4.3 THEME THREE: The Third Industrial Revolution (3IR) Presence

HEIs were able to complete their 2020 academic year through online learning that revealed the presence of the 3IR principles. The 3IR (computer/digital revolution) principles were observed in the 1960s (semiconductor), 1970s/1980s (personal computing), and 1990s (the Internet) (Schwab, 2016). During the COVID-19 era, staff and students had to use whatever worked for them to address their needs (pragmatic curriculum). For example, there were cases in which students had to rent "*accommodation closer to their HEIs in order to come closer to the fence of their HEIs and access the internet because they came from under-resourced families*" (Makafane & Chere-Masopha, 2021, p. 135). This suggests the representation of pragmatism that combines both the performance and competence-based curricula, which demands the 4IR resources.

4.4 THEME FOUR: The Fourth Industrial Revolution (4IR) Presence

The 4IR is a technological upgrade from the 3IR, which introduces digital technologies such as artificial intelligence (AI), robotics, the Internet of things (IoT), and autonomous vehicles that are designed to transform lives (Schwab, 2016; Sokhulu, 2020). These digital technologies, as posits Sokhulu (2020, p. 2), "*blur the line between the physical and the digital world".* This suggests that the introduction of the 4IR saw a transformation from the use of computers and the Internet to more complex and advanced technologies that aid in teaching and learning. This latter assertion implies that digital technologies in the 4IR encompass hardware (HW) (teaching presence), software (SW) (social presence) and ideological-ware (IW) (cognitive presence) resources (Khoza & Mpungose, 2020; Makumane, 2021a; Mpungose & Khoza, 2020; Sokhulu, 2020).

IW resources represent a pragmatic curriculum, being theories and ideas that motivate academics and students to use HW and SW resources effectively (Khoza & Mpungose, 2020). "*In the process of using both HW and SW resources, students are motivated to address their learning needs,"* (Makumane, 2021a, p. 8). This suggests that IW resources are used to manage actions/experiences in order to effectively use technology for learning and research. During the COVID-19 pandemic, students in the Lesotho context claim that their cognitive presence was "*somewhat neglected as ThutoLMS was not aligned to their personal identities in order to manage their learning,"* (Makumane, 2021a, p. 15). In the same context, Makafane and Chere-Masopha (2021, p. 135) assert that "*online learning has created chaos in teaching and learning and frustration for students to learn.*" These assertions imply that the issue of pragmatism, in which students could use their unique experiences with digital technologies, was hampered by the strict imposition of the use of formal LMSs, without adequate training and without adapting such to students' needs by incorporating informal learning platforms. Mpungose (2020a) indicates that inclusion of SMSs in HEIs may enhance effective attainment of outcomes and help address students' individual needs, augmenting active participation and interaction.

Conversely, in the South African context for some HEIs, the representation of pragmatism was evident. Some LMSs had incorporated SMSs to promote socialisation and to enhance students' experiences of using digital technologies in their learning during uncertainty/novelty ties (Khoza, 2020a; Sokhulu, 2020). Khoza (2020a) posits that "*a combination of professional and societal [presences]produces personal or pragmatic [curriculum]*." In this way, during the pandemic, students and lecturers depended on both their teaching presence and social presence to build their own understanding of theories (Khoza, 2020a; Mpungose, 2020c). Therefore, the pragmatic curriculum that students and lecturers used during the pandemic provided "*support for the self-actualization identity that emerges from individuals' tolerance of uncertainty or novelty*" (Khoza, 2020a, p. 249). This suggests that both lecturers and students used 4IR resources to their advantage. Both parties became innovative, creative and problem-centred through the effective use of both HW and SW resources localised to their needs.

4.5 THEME FIVE: The Fifth Industrial Revolution (5IR) Presence

Gunpoint use of online education that has compelled HEIs to forge 10 years ahead of globalisation suggests the 5IR. The introduction of the 5IR was demanded by the emergence of COVID-19, through forceful imposition of "*online teaching, learning, research and assessment processes/systems as the way of knowledge building,*" (Khoza, 2020a, p. 247). Crawford, Butler-Henderson, Rudolph, and Glowatz (2020) claim that content was transferred to an online environment without necessarily adapting online pedagogy. This was owed to a swift shift from traditional face-to-face teaching to online platforms in the face of the uncertainty/novelty. This suggests that academics and students who were not accustomed to online platforms were compelled to use these platforms to continue the teaching and learning process. "*Academics became frustrated, anxious, angry, and resistant through technostress or cyberphobia*," (Khoza, 2020a, p. 247). The techno-stress was caused by academics struggling with their cognitive

presence "*using both HW and SW resources without adequate training and online teaching guidelines proved challenging due to digital technology illiteracy and lack of technological resources*," (Makumane, 2021a, pp. 3-4). Mpungose (2020b) argues that such circumstances may cause frustration, anxiety and resistance in using prescribed digital technologies. This suggests that the COVID-19 pandemic forced academics and students to use their somewhat limited experiences with digital technologies in order to create experiences that would help them cope with the uncertainty/novelty.

Seemingly, the 5IR introduced forced pragmatism (Khoza, 2021). Individuals were compelled to translate HEI beliefs about online teaching and learning into their own individual habits. Such would promote meaningful teaching and learning experiences. Therefore, individuals were compelled to adapt to the digitalised curriculum, alien to them, in order to develop knowledge, skills, values and attitudes that "*benefit the professional and social needs of users to help them self-actualise (producing their personalisation experience)*," (Sokhulu, 2020, p. 5).

However, the introduction of the 5IR evidenced the issue of a digital divide as "*data cost is a major digital divide that inhibits access to learning in digital spaces*," (Mbambo-Thata, 2020, p. 35). This suggests that online learning promotes a digital divide through limited access to HW (computers, cellphones tablets), SW (Internet, data, software) and IW (benefits of technology through observable outcomes) (Khoza, 2017; Makumane, 2021a; Mpungose, 2020c). The digital divide is perpetuated by socio-economic factors, social class, geographical area, and educational background (Govender & Khoza, 2017; Van Deursen & Van Dijk, 2019). To curb this digital divide, measures were taken by HEIs through the provision of 5IR resources. This was to improve connectivism for students, so as to maximise the use of the pragmatic curriculum during uncertainty/novelty periods to achieve desired outcomes (Mpungose & Khoza, 2021).

5. Conclusion and Implications

The findings conclude by revealing a tsunami of digital technologies used for education during the COVID-19 era introducing the 5IR. The COVID-19 arrival demanded a new revolution which may be seen as the 5IR. The 5IR compelled HEIs to migrate from face-to-face to electronic learning (e-learning). Although there were challenges that were faced by staff and students, the 2020 academic year was saved by almost all the HEIs and the staff and students pragmatically understanding their identities. The situation (COVID-19 novelty) faced by the staff and students compelled them to reflect on/in/for their actions, guided by their experiences. Reflection as the cognitive process, where conscious mind interrogates subconscious thoughts (Khoza, 2020b), helped the staff and students to understand their personal or pragmatic needs, and to be able to address them (Makumane & Khoza, 2020; Sokhulu, 2020). Staff and students found new identities that are pragmatically aligned with the "new normal" or the 5IR which they should cherish and treasure while they still can.

Industrial revolutions come and go, and people start to miss them when they have not treasured/cherished them by mastering their knowledge, and skills in order to generate personal values required by the next revolution. HEIs realised that e-learning is here to stay; and that it demands transformational values (reflections, translation, rotation, and enlargement) with their underpinning needs (Khoza & Biyela, 2020; Khoza & Mpungose, 2020). This suggests that pragmatism came to the rescue of HEIs to overcome the COVID-19 challenges, and take advantage of the 5IR by strengthening e-learning as their compulsory pedagogy of education. This was observed as one of the benefits of the COVID-19 era (5IR). However, although HEIs did well pragmatically, there may be a need for a follow-up study comparing students' results of 2019 and 2020 in order to understand whether reducing course content is a good idea for the HEIs.

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