

Transforming Rural Higher Education for the Postdigital Era

Chinaza Uleanya

University of Johannesburg, South Africa

Abstract

Postdigital education has become a major subject receiving attention and consideration from various perspectives. For instance, there are crucial issues revolving around the meaning of “postdigital” in the context of education with regard to its implications for educational research and practice and its impact on the learning spaces of higher education, among other issues. However, the focus has been on education in general without any specific focus on rural higher education. Thus, the need to consider rural higher education in the era of postdigital education is pivotal, especially considering its peculiar nature. Hence, this study explores the transformation of rural higher education to fit into the postdigital era through the use of a review method. Relevant literature was reviewed from which themes were generated in the presentation of findings. The findings of the study show, among others, that there are misconceptions regarding the postdigital era and postdigital education—technologies taking over the entire teaching and learning spaces. However, the study also showed that, for rural higher education in the postdigital era, hybridity is pivotal. The study recommends, among other things, that policies promoting hybridity and discouraging the notion of technologies taking over the entire teaching and learning spaces should be made and implemented.

Keywords: developing and underdeveloped nations, postdigital, postdigital education, rural higher education

Author Note

Chinaza Uleanya  [0000-0002-7732-0905](https://orcid.org/0000-0002-7732-0905)

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Correspondence concerning this article should be addressed to: Chinaza Uleanya, Department of Education Leadership and Management, University of Johannesburg, Johannesburg, South Africa. Email: chinazauleanya@yahoo.com

Transforming Rural Higher Education for the Postdigital Era

This paper attempts to contribute to the ongoing conversation on postdigital education, but in the context of rural higher education. The works of Facer and Selwyn (2021) and Wagner (2018) show that the quest for digital education is on the increase. Franklin posits, “All levels of reality have been profoundly affected by ... technology” (1999, p. 25). This shows the influence of technology on human society and a contributory reason for the quest for it. Meanwhile, this quest has been aggravated following the outbreak of the COVID-19 pandemic and the sudden transition of teaching and learning activities from on-site to online (Li & Lalani, 2020). This is happening regardless of the preparation of institutions of learning (primary, secondary, or tertiary), especially in developing and underdeveloped nations and predominantly in African countries (Wale-Oshinowo et al., 2020). In the same vein, the challenge regarding the lack of preparation for the sudden transition from face-to-face teaching to online teaching and learning seems worse with regard to rurally based institutions of learning in rural developing and underdeveloped nations, as is the case in many African countries. This is due to the lack of enabling facilities needed for the transition of teaching and learning activities from face-to-face to online. For instance, a report by UNICEF (2017) shows that in the African continent, about three out of five youths are not online. In congruence, Mwakideu (2021) states, “Despite recent growth in internet connectivity, Africa lags behind other regions of the world.” This is corroborated by the report presented in Table 1 below.

Table 1*Number of Internet Users in Selected African Countries as of January 2022*

Country	Population in Millions
Nigeria	109.2
Egypt	75.66
South Africa	41.19
Morocco	31.59
Ethiopia	29.83
Algeria	27.28
Kenya	23.35
Ghana	16.99
Congo DR	16.5
Tanzania	15.6
Sudan	14.03
Uganda	13.92

Source: Statista 2023

Similarly, the report on countries with the lowest internet connectivity also shows that African nations are lagging behind, as seen in Table 2.

Table 2*Countries with the Lowest Internet Penetration Rate as of July 2022*

Country	Percentage (%) of population not using the internet
North Korea	99.9%
Eritrea	91.5%
Comoros	91.5%
Central African Republic	89.6%
South Sudan	87.5%
Somalia	86.1%
Niger	84.9%
Burundi	84.8%
Congo DR	82.6%
Papua New Guinea	80.3%

Source: Statista 2023

Attempts have been made and are still ongoing to resolve the issues making African nations lag behind. For instance, in their research on South Africa, Mlachila and Moeletsi argued that “money is clearly not the main issue since South Africa’s education budget is comparable to OECD countries as a percent of GDP and exceeds that of most peer sub-Saharan African countries in per capita terms” (2019, p. 2). This position is in contrast to the view of Marchetta and Dilly (2019), who consider funding a challenge in the context of African nations. According to Mlachila and Moeletsi (2019), policy is a major issue hindering the transformation of the education sector in the desired direction. Thus, the need for review of policies is suggested. This corroborates the work of Gakusi who asserts that African nations should “try again more realistic policies and better define means to effectively implement them (2008, p. 1). The foregoing indicates that policy is a crucial factor capable of hindering developing and underdeveloped nations from experiencing transformation in their education system. Similarly, the work of Marchetta and Dilly (2019) following research in which five African countries were adopted as a case study, shows that policy is a major factor worth considering as a hindrance to the transformation of education in Africa. Marchetta and Dilly (2019) further highlighted access to technology as a hindering factor capable of making African nations lag behind.

Meanwhile, technology is somewhat considered to be the solution to various forms of challenges in the teaching and learning domain. The findings of a report by UNICEF and the African Union Commission (2021) suggest that access to information and communications technology (ICT) infrastructure, addressing inequities in digital learning, and ensuring that there is sufficient teaching capacity are part of the challenges befalling the education sector of African nations. Technology is seen as having a paramount role to play in resolving the challenges (UNICEF, 2021). In congruence to the importance placed on technology, Franklin, alluding to a common platitude in human society, states, “The computer can do it

all” (1999, p. 59). This has contributed to an increase in the quest for the digitalization of education, regardless of other variances. Hence, in the words of Franklin, “... technology has built the house in which we all live. The house is continually being extended and remodelled. More and more of human life takes place within its walls, so that today there is hardly any human activity that does not occur within this house” (1999, p. 10). This suggests the extent to which technology has been relied upon in different spheres of human endeavour, including education. Furthermore, Suoranta et al. state, “Digitalization and datafication are reshaping roles and practices in higher education” (2021, p. 1). Furthermore, “Higher education is becoming increasingly data driven (Suoranta et al., 2021, p. 2). Meanwhile, scholars such as Knox et al. (2020), Mirrlees and Alvi (2020), Jarke and Breiter (2019), and Manolev et al. (2019) hold the opinion that the scope as well as the discourse of complex concepts such as teaching and learning are constricted by datafication. This and more seems to have led to the move and demand for a postdigital society, and by extension postdigital education, which is envisaged to be a driver of such society (Dufva & Dufva, 2019). Thus, Peters et al. (2018), as well as Peters and Jandrić (2018a; 2018b), posit that education is to be considered and handled as public goods.

According to MacKenzie et al. (2022), Jandrić et al. (2018), and Frau-Meigs et al. (2017), in a postdigital society, citizenship changes following the distortion of digital technologies. Burbidge et al. (2020) add that technologies blur interpersonal and human-machine relationships. Going by the earlier work of Yuval-Davis (1997), this can be viewed from a perspective of a broad understanding of citizenship as multitiered, which Banks (2008) and Osler and Starkey (2005) consider as involving culture and identity. Van Gunsteren (1998) explains citizenship as something individuals do rather than have; Jørring et al. (2018), Pedersen et al. (2018), Lindgren (2017), and Carretero et al. (2017) views citizenship an instance of digital citizenship being an important aspect. However, MacKenzie

et al. (2022) hold the view that rather than probing into readiness for digital citizenship, an appropriate investigation should be into the process of becoming ready. Suffice to state that the stage is yet to be set for a postdigital era at this point. Thus, the reason for this study is to explore how higher education can be transformed for suitability in the postdigital era, with emphasis on rural areas.

Conceptualization of Terms

Postdigital Era and Postdigital Education

According to the Networked Learning Editorial Collective (NLEC) posits, “Postdigital lens quickly reveals the damage done by simple oppositions: framing the world as digital or material, virtual or real, online or face-to-face, artificial or natural, technical or human” (2021, p. 318). This suggests that the postdigital era is one that involves the use of a humanistic approach in problem-solving with less importance placed on computerised solutions and numerical analysis. In the context of this study, postdigital era is the term used to mean a period in which a blended emphasis between humans and computers/technologies in solving problems is the order. The blended form of an education system to be experienced during the postdigital era is considered to be postdigital education in the context of this study.

Rural Higher Education

Review of the works of Thompson (2014), Miller and Kissinger (2007), and Nkomo and Sehoole (2007) suggest that the term rural higher education can refer to the education provided by tertiary institutions of learning with certain features and which is advantageously and strategically established in rural areas to perform certain specific functions of empowering the people. In this study, rural higher education implies any form of education provided by tertiary institutions of learning that are established in rural communities.

Methodology

The study employed a literature review as the method to generate data. Thus, relevant literature was reviewed for the study. This supports the works of Snyder (2019) and Torraco (2005). Baumeister and Leary (1997) hold the view that the act of reviewing literature in a research project allows for critically evaluating the views of several scholars over a precise matter, which is of interest to the researcher at the moment. In the context of this study, the works of different scholars on higher education and the postdigital era with regard to rural areas were explored, reviewed, and adapted. Table 3 succinctly shows the various subject areas where relevant literature was reviewed following the extant works of some identified scholars.

Table 3

Different Subject Areas and Relevant Reviewed Literature

Area covered	Search item(s)	Study
Postdigital Era and Postdigital Education	Postdigital	Facer and Selwyn (2021), MacKenzie et al. (2022), Suoranta et al. (2021), Burbidge et al. (2020), Li and Lalani (2020), Knox et al. (2020), Mirrlees and Alvi (2020), Jarke and Breiter (2019), Manolev et al. (2019), Jandrić et al. (2018), Wagner (2018), Frau-Meigs et al. (2017).

	Meaning	Kozleski (2020), Parmigiani et al. (2020), Waitoller (2020), Haug (2016), Hardy and Woodcock (2015).
	Statistics of internet use	Mwakideu (2021), UNICEF (2017).
Rural Higher Education	Rural Higher Institution	Thompson (2014); Miller and Kissinger (2007); Nkomo and Schoole (2007).
Methodology	Review method	Snyder (2019), Torracco (2005), Baumeister and Leary (1997).
Experiences with digital and technology in rural higher education	Experiences with digital and technology in rural higher education in underdeveloped and developing nations	Zarei and Mohammadi (2022), Olanrewaju et al. (2021), Adnan and Anwar (2020), Bisht et al. (2022), Diab and Elgahsh (2020), Sangster, Stoner and Flood (2020), Fry and Cilluffo (2019), Livingston (2016), Trucano (2014).
The changing world	Role of technology in the changing world	Lamb et al. (2022), Bozkurt and Sharma (2020), Carvalho et al. (2016), Bayne et al. (2013).
Understanding Postdigital Rural (Higher) Education	Postdigital Rural Education	Goodyear (2021), Fawns (2019), Feenberg (2019), Knox (2019), Lewis and Kahn (2010), Biesta (1998), Usher and Edwards (1994).

Learning in the postdigital era	Where learning occurs in the postdigital era	Fawns (2019)
Transforming rural higher education	Transforming rural higher education	Allen and McLaren (2021), Fataar and Norodien-Fataar (2021), Kalantzis and Cope (2012), Peters et al. (2020).

Findings

The findings of this study are presented in the following identified themes: the changing world (of education); the role of technology; understanding postdigital, rural, higher education; where learning occurs in the postdigital era; and the transformation of rural higher education for the postdigital era.

Theme 1: Experiences with Digital Technology in Rural Higher Education

Review of the work of Trucano (2014) shows that there are promising uses of technology in rural communities of underdeveloped and developing nations. In congruence, as part of the promises of technologies in rural underdeveloped and developing nations, Livingston (2016) opines that in combating inequality, classroom technologies help in narrowing education gap in developing countries. However, such promises are yet unrealizable, as shown in the works of different scholars (Bisht et al. 2022; Fry & Cilluffo, 2019; Zarei & Mohammadi, 2022). The reason that the promises of technology in rural developing and underdeveloped nations are unrealizable is attributed to the following: lack of electricity (Olanrewaju et al., 2021; Trucano, 2014), lack of internet or poor internet connection (Diab & Elgahsh, 2020; Sangster et al., 2020; Zarei & Mohammadi, 2022), students' socioeconomic background (Fry & Cilluffo, 2019), poor technological infrastructure (Bisht et al. 2022; Zarei & Mohammadi, 2022), lecturer related challenges (Zarei & Mohammadi, 2022), education policy issues (Zarei & Mohammadi, 2022), and

financial challenges (Adnan & Anwar, 2020; Zarei & Mohammadi, 2022), among others. The foregoing indicates that while the inclusion of technologies in education is promising and worthwhile, underdeveloped and developing nations are failing to harness the benefits due to various challenges.

Theme 2: Changing World (of Education): Role of Technology

The world is changing, so issues such as pandemics, wars, local conflicts, and other natural disasters are causing interruptions to education (Bozkurt & Sharma, 2020). This is evident in the ongoing COVID-19 pandemic, which has disrupted and affected education across the globe, and in the same vein, the ongoing Russia-Ukraine war, which has had an impact on many students. Similarly, Lamb et al. (2022) hold the view that the nature of university learning spaces, which may be complex in some instances, continues to change. This is somewhat due to the introduction and use of technologies. For instance, Lamb et al. (2022), citing the works of Bayne et al. (2013) and Carvalho et al. (2016), state that both teachers and students have increasingly developed the ability of negotiating learning spaces outside the four walls of the institution (campus). Lamb et al. (2022), while expatiating on the changing and complex nature of universities, further state that the ability of teachers and students to interact outside the physical learning spaces is enhanced by new pedagogies that hinge on the potential of technology. This suggests the influence of technologies in the changing university complex, which in the context of this study is described as rural higher education. Meanwhile, according to Bozkurt and Sharma (2020), students in the future may not be particular about *what*, but about *how* they are taught during a time of crisis. Hence, an empathetic approach to teaching should be desired. The questions remain: Should the visions of continuous learning with EdTech tools be desired? What should be done and how can ensuring that learning takes place in a safe learning environment be promoted? Bozkurt and Sharma (2020) suggest that the obsession of transmitting knowledge using EdTech tools

should be abolished. In other words, the role of technology is to be considered as supportive, rather than the only needed phenomenon. Thus, following a review of the work of Bozkurt and Sharma (2020), it is pivotal to be prepared and re-engineer education using online and offline methods to appropriately respond to different forms of interruptions experienced in the postdigital era. In the context of this study, while inclusion of technologies in teaching and learning as well as inclusion of online practices in rural higher education are paramount in the postdigital era, the need to consider offline modes of learning is also to be seen and treated as crucial. Suffice to state that in transforming rural higher education for a postdigital era in underdeveloped and developing nations, technologies are not the outright answer, but only one of the contributing suitable, adaptable, and considerable factors.

Theme 3: Understanding Postdigital Rural (Higher) Education

In order to successfully contribute to the transformation of rural higher education in underdeveloped and developing nations in the postdigital era, there is need for the term postdigital to be well understood, especially from the submission of scholars. This is because there are various misconceptions regarding education in the postdigital era. For instance, review of the work of Fawns (2019) suggests that there is speculation that education in the postdigital era will be submerged into technology. This is perhaps due to the common belief that technology is *the* solution, rather than *a* solution or part of the solution. Meanwhile, Franklin (1999) states that when societies find new technological resolutions to problem(s) they face, before proceeding to embracing such technologies as solutions, it is better to first investigate what the technologies may prevent (rather than only what they promise). However, Franklin's advice seems to be rarely taken, due to the obsession of the society with technology.

Meanwhile, the obsession and quest for the inclusion of technology in education even where it is not necessary seems to be on the increase. For instance, according to Feenberg,

“Over the last 30 years, schools, university administrators have been obsessed with computers and the Internet. Technology has been considered to be able to modernise the supposedly tradition-bound institutions (onsite teaching and learning)” (2019, p. 8). However, Feenberg further states that “attempts to automate education using the new technology have not met with the expected success” (2019, p. 8). This implies that the postdigital higher education—by extension, rural higher education—is not considered to oppose the practices of the cyber or virtual world to the world of face-to-face experiences. Thus, imbricating and integrating online and on-site teaching and learning activities and thereby causing an overlap between the digital and daily actions and interactions of humans is desirable practice. Furthermore, Knox (2019), elaborating on the works of Lewis and Kahn (2010), Biesta (1998), and Usher and Edwards (1994), explains that true and reliable education tends to be viewed from the standpoint which allows for “pure” human relationships, that is between students and their teachers in a physical contact space. This corroborates the work of Fawns (2019), who holds the view that postdigital education should be seen as taking into consideration the digital and non-digital, and the material and social. This is with regards to both the design of educational activities and the actual experiences (the way and manner in which activities are carried out).

From another angle, Goodyear (2021) proposes that the issue of postdigital education can be understood from the standpoint of research and curriculum for postgraduates and undergraduates respectively. For instance, Goodyear (2021) holds the view that the majority of literature on issues revolving around teaching and learning in the higher education sector in many instances implicitly or explicitly focuses on undergraduate courses, not postgraduate. Also, a majority of educational technology in the literature on higher education tends to take the form of practical how-to advice (e.g., teachers’ guides) (Goodyear, 2021). The paucity of published literature on what, how, and why students learn, is suggestive of little

concern/emphasis in the area. Goodyear further states that: “The literature of higher education is notoriously silent on these matters... But there are also vast acres of published work in which one reads of such-and-such an educational innovation, or approach to teaching, without glimpsing what it is that students have actually learned, and how, or what they experienced (beyond a simple sense of liking or hating it) (2021, p. 235). Additionally, Goodyear posits that what is to be understood by postdigital education is expected to be capable of taking cognizance of the following:

“(1) question more carefully the nature of claims about ‘the digital’; be wary of the traps that are set when the digital and material (or non-digital) are set up as two exclusive and exhaustive categories; embrace the knowledge that the digital is here to stay, (2) think carefully about – and inquire fearlessly into – the sets of arrangements that constitute each instance of online postgraduate education; look out for whose interests are being served; search for the outer boundaries of what can and should be changed in the near future” (2021, p. 249)

Furthermore, Goodyear (2021) holds the view that when teaching for postgraduate students in online situation, it is crucial to configure and reconfigure necessary elements such as the social, digital, material, and hybrid. From the foregoing, it can be deduced that the postdigital rural higher education context is not one in which technology is considered *the* but rather *one of* the driving forces for learning. Thus, a hybrid mode of learning is envisaged. This is in addition to the issues of what is to be taught, who determines what is to be taught, and how such those things are determined, among other considerations. The foregoing implies that in transforming rural higher education in underdeveloped and developing nations in the postdigital era, there is a need to embrace hybridity. In other words, while technologies are to be considered important and useful, we should be cognizant of and treat humans as just as important and useful in the context of modes of education.

Theme 4: Where Learning Occurs in the Postdigital Era

Where learning occurs is a serious question that demands an answer (Fawns, 2019). Review of the work of Fawns (2019) suggests that techno-centric terms like e-learning, online learning, and digital education are all used to imply that learning takes place in a virtual space, independent of the physical and material constraints of the “real world.” However, how true is this notion? If it is true, then face-to-face teaching and learning would be abolished. Should this be the case? Fawns (2019), by way of supposedly responding to this, recommends that in a postdigital education scenario, digital and non-digital, material and social, both the designing and performing of educational activities and practices be considered pivotal. Similarly, Franklin writes that technology “also identifies and limits the content of what is permissible” (1999, p. 22). This suggests that technology has its own forms of limitation(s). Thus, from the foregoing, in transforming the rural higher education for the postdigital era, it is important that the use of a hybrid pattern—virtual and physical spaces for teaching and learning activities—is duly considered. In this regard, the necessary facilities capable of promoting teaching and learning in both virtual (online) and physical (on-site) spaces should be made available. This goes against the notion of focusing only on the use of online spaces and technologies for teaching and learning activities. Suffice to state that in transforming the rural higher education of African nations in the postdigital era, both on-site and online modes of learning are to be treated as paramount.

Theme 5: Transforming Rural (Higher) Education for the Postdigital Era

Having considered the concepts of postdigital and postdigital education, the question remains: How can rural higher education be transformed to suit the demand of the postdigital era? In attempting to answer this question, allusions are made to the works of Franklin (1999), among other scholars. Firstly, going by the review of the work of Fataar and Norodien-Fataar (2021) and the assumption of technology being a solution to all challenges

and needs of education in the Fourth Industrial Revolution era, overhauling the education system with the use of technologies may have been a too-hasty answer to the question. For instance, Fataar and Norodien-Fataar state,

“Even if the move to online platforms during the pandemic had not been so precipitous, in-person learning was, in any event, ripe for radical transformation. *Such a transformation could productively be founded on what recent theorising on digital technology in education describes as a postdigital perspective of education* (2021, p. 161, italics added for emphasis)

Meanwhile, Franklin states, “In order to understand the real world of technology and cope with it, we need to have some knowledge of the past, as well as to give some thought to the future” (1999, p. 11). This is not, however, not without being cognizant of the present; thus, Franklin, in attempting to describe projected reality, which in the context of this study can be described as postdigital rural higher education, defines it as “the vernacular reality of the future. It is influenced or even caused by actions in the present” (1999, p. 25). This suggests the need to consider previous as well as present experiences in rural higher education system before predictions for the postdigital era are made. In keeping to this and to the notion that technology is the solution to the challenges of the higher education system, Franklin states, “Technology that had been perceived to liberate its users began to *enslave* them” (1999, p. 59, italics added for emphasis). Suffice to state that the enslavement of users by technology, regardless of their status, is to be reconsidered. Meanwhile, review of the work of Fawns (2019) is suggestive that in the postdigital era, disruptive technologies are to be implemented as the standard. In other words, technologies are to take first place over and above humans. This is suggestive of technology becoming the slave driver, while humans remain the slaves. In a converse opinion, technology is expected to be the second best after humans. Fataar and Norodien-Fataar (2021) alluding to the works of Kalantzis & Cope (2012) as well as Peters et

al (2020), based on the experience of teaching and learning during the outbreak of COVID-19, assert that, “Teaching during the COVID-19 pandemic *reinforced the conventional wisdom that the gold standard for learning is traditional face-to-face, while online is second best*” (p. 161, italics added for emphasis). In congruence, Allen and McLaren state,

“The calls for the full digitization of universities echo this same possible destruction for the sector. This is not a Luddite warning to reject all digitization, instead, it is a rejection of the hyper-capitalization of higher education and the disruption promised by for-profit businesses, along with a reminder that the sector should be a local public good” (2021, p. 1)

The foregoing indicates that in the postdigital era, the transformation of rural higher education is not expected to be an issue of technology being considered as the “only” solution to “all” challenges and needs. Thus, leaders/stakeholders of education in underdeveloped and developing nations are expected to ensure that technology is not seen as the only but as one of the factors enhancing successful teaching and learning. Hence, technology is not to be considered as an idol which supersedes other factors and should be worshipped.

Conclusion and Recommendations

Technology seems to be upheld and applauded as “the” solution to all challenges as well as “the” answer to all questions of rural higher education in many developing and underdeveloped nations. This is evident in the sudden shift from on-site to online teaching and learning due to the outbreak of the COVID-19 pandemic, as well as in the disruptions that will be brought about by disruptive technologies in the Fourth Industrial Revolution. Also, considering the misconception of total digitalization and technologies becoming the standard during the postdigital era, more credit, preference, and preeminence is given to technology over and above humans. However, in order to transform underdeveloped and developing nations’ rural higher education in the postdigital era, recognition should be given

to humans together with technologies. Thus, rather than considering machines/technologies to be the solution, they should be seen and used as tools for solving problems and proffering answers to questions. This corroborates the argument of Franklin, who states, “If we do not wish to visualize people as sources of problems and machines and devices as sources of solutions, then we need to consider machines and devices as cohabitants of this earth within the limiting parameters applied to human populations” (1999, p. 22). In brief, rural higher education of underdeveloped and developing nations can be transformed in the postdigital era through the promotion of hybridity and implementation of well-designed policies. The following recommendations are made sequential to the findings of the study:

- Humans should be considered and treated as pivotal in proffering solutions to the challenges of rural higher education. This can be done by empowering humans to be able to manipulate technologies in achieving the desired results. Thus, workshops, trainings, and orientation programs, among others, should be organized periodically.
- Policies of rural higher education of underdeveloped and developing nations should be revised and made adaptable for the postdigital era. Hence, due planning, implementation, and monitoring processes should be put in place to ensure that the policies are effective. The policies should be targeted at catering to the needs of the local environment. In other words, relevant policies that discourage the notion of technologies taking over the teaching and learning spaces, and that promote hybridity in rural higher education, should be made and implemented. The implementation of such policies can be achieved by ensuring constant monitoring.
- Glocalization, which means proffering solutions to local challenges while being cognizant of global standards, should be promoted. This can also be achieved through designing an appropriate curriculum for rural higher education.

- Infrastructures needed to promote hybridity in the teaching and learning activities should be made available.

Limitations and Suggestions for Further Study

The study was limited to a review on transforming rural higher education of underdeveloped and developing nations in the postdigital era. The information considered vital was deduced from the review of relevant literature following previously conducted research across the globe. To this end, it may be difficult to generalize the findings from this study, given the difference in research sites and other factors contributing to the findings of the previous research reviewed for this study. Hence, it is suggested that a similar study be conducted on how rural higher education of underdeveloped and developing nations can be transformed for the postdigital era using the case of one or more specific countries. This can be done through research involving the collection of quantitative and/or qualitative data. Thus, the use of quantitative and/or qualitative and/or mixed research approaches is encouraged for such study.

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