




Analysis of Connectivism as a Tool for Posthuman University Classrooms

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ABSTRACT

In the posthuman era, teaching and learning through technologies are becoming increasingly important, most especially in the university system. Connectivism, a theory of learning that emphasises the importance of connections between people and information, is one of the most influential educational philosophies driving today's educational dynamism. In a posthuman world, where technology is constantly evolving and becoming more sophisticated, connectivism is argued to provide a framework for understanding how students learn and how can technology be used to facilitate learning. This study argues that connectivism is one of the ways in which classroom stakeholders can be made to prepare for the posthuman era. The study is located within the transformative paradigm to enable the researcher to tailor the argument toward transforming the university classrooms and developing a new way of thinking about society's present social boundaries by pursuing truth within a postmodern framework. In the same vein, conceptual analysis was adopted to make sense of the argument since it helps to interoperate and dismantle complex and ambiguous concepts toward meaning making. The analysis begins by presenting connectivism and its potential assumptions. The assumptions were juxtaposed with the posthuman agenda by arguing the relationship between posthumanism and connectivism and lastly, how it prepares classroom stakeholders for building students' capacity ahead of the emerging interaction between human (students) and non-human (technologies). The study concludes that connectivism viewpoint is one of the unavoidable philosophies of the future.

KEYWORDS

Posthumanism; connectivism; university classrooms; classroom stakeholders.

INTRODUCTION

Few would argue that we are living in an age of accelerating change. Every day, it seems the world is confronted with new technologies and new ways of doing things. And as the world becomes more complex and interconnected, the pace of change is only likely to increase. In such a rapidly changing world, the need for posthumanism is fast becoming unavoidable and a compulsory devil that we must learn to live with. However, posthumanism as a concept itself sounds ambiguous but easy to summarise as a perspective on how change takes place in the world. And in today's world, technology and change are complementarily synonymous. This is in line with the argument that posthumanism is an approach that recognises the fundamental importance of technology in our lives and future (Buchanan-Oliver, 2015; Murray, 2020). It rejects the notion that humans are somehow separate from or above technology; instead, it recognises that human beings are increasingly intimate partners with technology and that the future depends on the ability to work together and alongside the evolving technologies (Cecchetto, 2013; Dalibert, 2014). Based on this, I can advance my argument that posthumanism de-recognised the traditional humanist approaches to dealing with change. For example, humanists often assume that humans can control change by using reason and science (Gilabert, 2011; Wentzer & Mattingly, 2018); but in a world where technologies are evolving at an exponential rate, this may no longer be possible. Therefore, the only hope is to embrace change and work with it rather than working against it (Johnson & Sdunzik, 2023; Lubinga et al., 2023; Pushpanadham et al., 2023).

While posthumanism may sound like a radical way of thinking, in reality, it is simply a recognition of how things are already. As the world continues to change at an ever-increasing pace, universities and their pedagogical space are bound to begin the process toward posthumanism. Because in the posthuman era, teaching and learning through technologies are importantly not negotiable as it renders various traditional pedagogies useless (Knox, 2016; Peters et al., 2022). That is, the traditional methods of teaching and learning are no longer sufficient in a world where technology is changing at an ever-accelerating pace. Therefore, universities must adapt their methods to keep up with the times by incorporating more technologies into their curricula (Mpu et al., 2022; Zembylas, 2018). This will not only ensure that students are prepared for the future but also that they are able to learn in ways that are more engaging and effective (Kilinc et al., 2018). This argument is in consonance with the recommendation that universities should make use of technologies such as artificial intelligence and virtual reality to create more immersive and interactive learning experiences (Adu et al., 2022; Campbell & Blair, 2018; Kadirire, 2007; Sevnarayan, 2022). By making these changes, universities can stay at the forefront of education and ensure that their students are equipped with the skills they need to thrive in the posthuman era.

Since posthumanism is fast becoming unavoidable, connectivism provides a much-needed framework for understanding how students learn and how technology can be used to

facilitate learning. Connectivism emphasises the importance of connections between people and information, and its popularity is due in large part to its dynamism (Bell, 2009; Goldie, 2016). In other words, connectivism is constantly evolving to meet the needs of a changing world. This makes it an ideal educational philosophy for the 21st century, when posthumanism is rapidly reshaping our understanding of what it means to be human. As we enter this new era, connectivism will continue to play an important role in helping us adapt and thrive. That is, it is an idea that could very well hold the key to unlocking the potential of posthumanism in the educational sphere, hence forms the major contribution to knowledge in this study. That is, the study explores the potential of connectivism theory as an educational partner in the posthuman era.

Research Questions

Based on the above aims of the study, which is to explore the potential of connectivism theory as an educational partner in posthuman era, the following questions are raised:

- What are the assumptions of connectivism theory?
- How can assumptions of connectivism theory assist classroom stakeholders in preparing for the posthuman era?

METHODOLOGY

The study is located within the transformative paradigm to enable the researcher to tailor the argument toward transforming the university classrooms (Rammel & Vettori, 2021; Underhill & McDonald, 2010) and developing a new way of thinking about society's present social boundaries by pursuing truth within a postmodern framework (Mertens, 2017). In order to engage in this study, the researcher must locate himself within a framework that can provide guidance for both the research process and the dissemination of the argument. The transformative paradigm was chosen as it offers a way to view education as habilitation: the process of becoming something other than what one presently is. Further, this paradigm sees universities as playing a role in social transformation, which is a hallmark of posthumanism as an idea by providing opportunities for students to critically engage with ideas and values that shape their lives (van Reenen & van der Merwe, 2016). Within this paradigm, research is seen as a means of pursuing truth that has the potential to challenge existing power relations and contribute to social change (Mertens, 2007). This framework enables universities to be seen as sites of critical inquiry, where students can explore the world around them and challenge existing social boundaries.

This argument started by presenting connectivism theory from its entomological point of view followed by its assumptions which were deduced from the theoretical presentation of connectivism theory. I proceed to argue the link between each of the assumptions and posthuman practices. This was made easy with the help of conceptual analysis as a method of interpreting concepts. That is, in order to make sense of the theory of connectivism, I adapted conceptual analysis. Conceptual analysis is a tool that helps to disambiguate and make meaning

of complex concepts (Laurence & Margolis, 2003). It does this by breaking down the concept into its component parts and then examining how those parts contribute to the whole. In this way, conceptual analysis can help to clarify the relationships between concepts and reveal hidden assumptions (Furner, 2004). By applying conceptual analysis to the theory, I was able to make sense of the argument and reconceptualised how connectivism could be applied in practice in preparation for the posthuman era. As a result, I argue that conceptual analysis is a valuable tool for this study.

PRESENTATION OF THEORY AND ITS ASSUMPTIONS

This section discusses the theoretical underpinnings of connectivism, as well as its assumptions, importance, and relevance to posthuman education. This was accomplished by first describing the theory of connectivism and then going through each assumption's practical application toward posthumanism.

Connectivism theory

Around 2005, George Siemens and Stephen Downes published articles on connectivism. Connectivist ideas were first presented in 2004 by George Siemens in an online essay entitled "Connectivism: Learning as a Network Creation". An Introduction to Connective Knowledge was published in 2005 also by Stephen Downes (Western Governor University [WGU], 2021). The articles focus on how technology affects the learning process and how the digital era has accelerated access to knowledge. Each, however, has a distinct perspective. George Siemens focuses on the role of technology in connectivist learning (Siemens, 2005), while Stephen Downes emphasises the importance of networks (Downes, 2005). Nevertheless, both views are important contributions to the field of education and provide insights into how technology is changing the way we learn.

This is confirmation that this concept has been around for a while, but it is only now that scholars seem able to combine information and thoughts in a helpful approach. It acknowledges the role that technology plays in education, and the ongoing connectedness allows people to make choices about learning, the sources of learning and the reasons for learning (Utecht, 2019). There are three key aspects to connectivity: first, the idea that we are constantly connected to a network of people and information; second, the way in which technology can be used to connect us with others; and third, the way in which we can use connectivity to learn (AlDahdouh et al., 2015; Goldie, 2016; Tschofen & Mackness, 2012). The first aspect is perhaps the most important, as it recognises that we are never alone; there is always someone or something we can connect with. The second aspect is important because it acknowledges that technology is not just a tool for education but a medium through which we can connect with others. The third aspect is important because it recognises that connectivity can be used to learn; we can use it to access new information and ideas and to share our own knowledge and understanding. Connectivity is, therefore, an important concept in education and one that we should all be aware of.

Learning, according to connectivism, is not just the sum of our own internal knowledge construction. Rather, what we can obtain via our external networks is also considered to be learning (Marais, 2011). Two words—nodes and links—have been frequently used in describing how people acquire and link information in a network, thanks to this theory. In connectivism, students are regarded as "nodes" in a network. A node is an item that can be linked to another object, such as a book, webpage, person, or anything else (Banihashem & Aliabadi, 2017; Pettenati & Cigognini, 2007; Western Governor University, 2021). That is, connectivism is based on the idea that we learn when we establish connections between various "nodes" of knowledge and continue to create and maintain them.

Many theories, on the other hand, regarded students only as information receivers. Connectivism, on the other hand, endorses the concept that learning takes place across networks and is informed by connections and connectedness. As a result, one may argue that connectivism places a high value on technology; therefore, creating a connectivist classroom extends digital learning possibilities, which is the foundation for posthuman argument. This is in line with theorists such as Downes (2005) and Siemens (2005), who argued that connectivism provides a more accurate representation of how learning occurs in the digital age, which could be replicated in posthuman age. Hence, it could be seen as a response to changes with argument that knowledge is created through interactions between people and networks of information (Siemens, 2005). In order to learn, individuals need to be connected to a network of people and information which places more emphasis on technologies, including the internet of things.

Assumptions of Connectivism Theory

In the section, the four assumptions of connectivism theory as deduced from the above theoretical concept of connectivism. These assumptions are; that learning and knowing as a process of connections, learning is dependent on humans and appliances, up-to-date knowledge through connections, and connectedness and interactivity.

Learning and knowing as a process of connections: In connectivist classrooms, learning and knowledge rest in the diversity of opinions via various technological and collaborative tools. That is, learning and knowing occur as a process of connections among individuals with different perspectives. This type of learning environment is often constructed around open-ended questions or problems, with students working collaboratively to find solutions (Thota, 2015). Connectivist classrooms can be found in many settings, including online courses and traditional brick-and-mortar schools. The key characteristic of this type of classroom is that it values the diversity of students' experiences and ideas. By encouraging students to share their perspectives, connectivist classrooms create a rich learning environment where new insights can emerge not only from them being human but also from their interaction with non-human intelligent appliances. In this way, connectivist classrooms provide an excellent model for 21st-century learning where posthumanism could be housed.

Learning is dependent on humans and appliances: In connectivism theory, as deduced above, there are two main arguments deduced from the principle that knowledge is more critical than

knowing. The first argument is that humans are more important than appliances in the learning process. The second argument is that knowledge is more critical than knowing. The second argument is based on the idea that humans are fallible and that they rely on appliances to store and process information. Connectivism theory stresses the importance of humans in the learning process and argues that knowledge is more critical than knowing. This theory provides a framework for understanding the role of humans and appliances in the learning process and how they interact with each other to create new knowledge. One can then argue that connectivism assumes that handling ever-increasing amounts of information and managing attendant uncertainty by connecting information sources and individuals (Goldie, 2016) enables learning to occur by creating relationships between different pieces of information and people. **Connectedness and interactivity:** From the above theoretical presentation, connectedness and interactivity are important aspects of connectivism theory. In particular, the theory emphasises the importance of connections between people and between people and technology. This emphasis on connectedness has led to a focus on sharing information and resources, as well as on providing support for others. In addition, the theory's focus on interactivity has led to a discussion of the role of technology in connectivist learning. Cormier (2011) argues that technology plays an important role in connectivist learning, providing a conduit for connections between people and between people and information. Similarly, Siemens (2010) argues that technology can help facilitate connections between people by providing a platform for sharing information and resources. Ultimately, the theory of connectivism suggests that connectedness and interactivity are important factors in facilitating learning.

Up-to-date knowledge through connections: It is easy to conclude or argue from the above analysis of connectivist theory that connectivist classrooms promote up-to-date knowledge through connections which is one of the aims of connectivist learning process (Guder, 2010). Connectivist classrooms achieve this by enabling students to connect with experts and other learners in order to learn from them. In addition, connectivist classrooms provide students with access to a variety of resources that they can use to learn about specific topics. This abundance of information helps to ensure that students are able to gain the most up-to-date knowledge available. Consequently, it is evident that connectivist classrooms are effective in promoting up-to-date knowledge.

CONNECTIVISM AND POSTHUMANISM IN PREPARATION FOR THE FUTURE

This section discusses the links between connectivism and posthumanism with references to how posthumanism is unfolding or could be unfolded in the 21st-century classrooms. This was discussed under the following sub-headings: Learning and knowing as a process of connections and posthumanism, learning is dependent on humans and appliances and posthumanism, connectedness and interactivity and posthumanism, and up-to-date knowledge through connections and posthumanism.

Learning and knowing as a process of connections and posthumanism

In the posthuman classroom, learning and knowing is a process of connection and interrelationships between people, devices, and data. The internet of things facilitates this process by linking students and faculty with each other and with a wealth of resources. As a result, learning is no longer confined to the traditional classroom setting but takes place anywhere and anytime (Houlden & Veletsianos, 2019). This shift has profound implications for how universities design their curricula and support students. Therefore, to understand learning and knowing as a process of connections is to situate oneself within a posthuman understanding of the world. In a posthumanist world, everything is connected - humans, non-humans, machines, objects, etc. (Hasse, 2022; Hasse, 2019; Sage, 2016), and these connections are what enable learning and knowing to occur. In university classrooms, this is playing out in the form of the internet of things, where students are using connected devices to access and share information. This has led to a more networked and distributed form of learning, which is more collaborative and individualised. While this shift has been challenging for some, it is ultimately leading to a more inclusive and democratic form of education; hence it supports students in developing the skills they need to navigate the ever-changing landscape of posthuman learning.

Learning is dependent on human and appliances, and posthumanism

Based on the above theoretical analysis, one can argue that learning depends on humans and appliances, which means that effective human beings are not alone but in connection to other artificial and non-human assistants, which means posthumanism is taking place in university classrooms. In particular, it is important to underscore that the posthuman classroom is not simply a classroom with technology added in or used as an instructional supplement. Rather, technology must be fully integrated into all aspects of teaching and learning for the learner to be successful. When used in this way, technology has the potential to transform the very nature of learning itself, moving it beyond the simple transmission of information to a more active and creative process of constructing knowledge (Bond et al., 2018; Guraya, 2020). With this in mind, the posthuman classroom has great potential to enhance learning for all students. One of the key advantages of this approach is that it allows students to overcome the limitations of their individual abilities. By working with artificial assistants, they can extend their cognitive capabilities and access new sources of knowledge. In addition, posthuman classrooms promote collaboration and communication between students, as they are often required to work together in order to complete tasks. This type of learning is highly effective and prepares students for the challenges of the 21st century.

Connectedness and interactivity, and posthumanism

Learning is a social activity that is fundamentally dependent on the interactivity of students with other students and with gadgets. This means that an effective classroom is one that is highly connected and interactive in nature. Posthumanism is a theory that emphasises the interconnectedness of all things and the importance of technology in human life (Welch, 2014). This theory has begun to impact university classrooms, which are now more connected and

interactive than ever before. As a result, students can now access a wealth of information and resources from anywhere in the world. They can also connect with other students and scholars in order to discuss course material and collaborate on projects. In addition, new technologies such as virtual reality and artificial intelligence are beginning to change the way we learn. These technologies have the potential to create even more connected and interactive learning environments in the future. As posthumanism continues to impact education, it is important to consider its implications for the future of learning.

Arguably, in a posthuman classroom, students are connected and interactive with each other as well as with the gadgets they use. This means that learning is not just about acquiring information from a teacher or a textbook but about engaging in the process of dialogue and exchange with others. As such, posthuman classrooms provide an ideal environment for developing critical thinking and collaboration skills. In addition, the use of technology in posthuman classrooms allows for a more personalised and individualised learning experience. For example, students can access online resources at their own pace and receive targeted feedback from their instructors. As a result, posthuman classrooms have the potential and already revolutionising higher education classrooms (Penprase, 2018).

Up-to-date knowledge through connections and posthumanism

Up-to-date knowledge through connections and relevant to posthuman classrooms. Based on the above theoretical analysis, connectivism preaches from time to time and updates information towards an effective learning classroom. In a posthuman classroom, knowledge is not simply transmitted from teacher to student; rather, it is created through the interactions between students and teachers, as well as between students and the resources available to them. In order to ensure that students have access to the most up-to-date knowledge, it is essential that they be connected to a network of relevant resources. This can be done using social media, online forums, and other online spaces where students can share their ideas and connect with others who are interested in the same topics. By engaging in these kinds of activities, students will not only be able to access more information, but they will also be able to learn from each other in a more effective way. In a posthuman classroom, knowledge is created through connections, and it is these connections that make learning possible. In the current digital world, it is important for university students to have access to updated and reliable information. After all, they are preparing for their future careers in a rapidly changing world. One way to ensure that they have up-to-date knowledge is through connections with others who are also knowledgeable about the latest trends.

Conclusion and recommendations

The study concludes that connectivism viewpoint is one of the unavoidable philosophies of the future. As such, connectivism provides a valuable framework for ensuring that university students have access to the latest knowledge towards acclimatising themselves ahead of the future. Connectivism theory stipulates that learning occurs when learners are connected to a diversity of resources and perspectives. In a rapidly evolving world, it is essential for university

students to have access to a wealth of knowledge to equip them with the skills they need to succeed in the future. The study found that connectivism provides a powerful lens through which to view the ever-changing landscape of knowledge. In an age where information is constantly becoming outdated, it is important for university students to be able to adapt and learn new things quickly. Connectivism theory provides a valuable framework for helping students to do just that.

Based on the above conclusion, the study recommends that university classrooms should be made to create technologically enabled learning and knowing through connections, learning with the incorporation of appliances, enabling classrooms that enhance up-to-date knowledge through connections, connectedness, and interactivity. This is argued as a dimension in which posthumanism can be made manifest. The posthuman classroom would need to allow for multiple ways of accessing, manipulating, and interacting with information and each other. Real-time access to rich resources outside the confines of the classroom would enhance learning beyond current levels. The study sees this as essential in developing richer knowledge construction for all students.

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