

Connectivism for improved learning outcomes in higher education in the digital age – A scoping review

Senadheera V.^{1*}, Muthukumarana C., Rupasinghe T., Ediriweera D.

In the current context, there is a substantial need to update instructional strategies used in higher education, to cater the learning needs of current learners, who are called as digital natives. Connectivism, which is a learning theory that intends to explain how learning occurs in the digital age, can be used to bridge the gap between instructional strategies and how learning occurs in digital natives. The objective of this scoping review was to examine how connectivism has been applied in higher education, describe the findings and to understand the impact of connectivism on the success of student learning in higher education. Nine databases were searched for eligible publications. SCOPUS, EBSCOhost, Emerald, JSTOR, Taylor and Francis, PubMed (MEDLINE), ERIC, ACM and IEEE Xplore were searched using the keyword 'connectivism'. The search retrieved 1560 records of which 24 articles were selected according to inclusion and exclusion criteria. Included studies which were published 2009 through 2022, were from 18 countries and represented 12 study fields including; language learning, education, medicine, and engineering. In reported studies, either connectivism has been applied alone or it has been combined with another learning theory to design teaching/learning activities. These studies predominantly have used the online mode (54%), followed by blended learning mode (25%) and face to face mode (21%). Among these studies, 67% have been intended to deliver skills such as; writing, teaching and work-based learning, and 33% have been intended to deliver both theory and skills such as; biostatistics, chemistry and pedagogical practices, while no study has been designed to deliver a theory alone. To evaluate the outcomes of the teaching/learning activities, 75% of the studies used qualitative approaches, 12.5% used quantitative approaches and 12.5% used mixed methods. According to the findings, 17% of studies have reported that, connectivist learning environment has exhibited a significant positive impact on the academic performance of students through the promotion of higher order learning activities such as; synthesizing information, creating new knowledge and applying. More importantly, it has resulted in an enhancement of several attributes of learners which are required in the current job market. Accordingly, 17% of studies reported enhanced creative thinking, 21% self-management of learning and 50% enhanced interactions with peers as outcomes of using connectivism to design teaching and learning. Bringing connectivism to higher education is a method to incorporate formal education into the learning needs of the digital age and it has the potential to offer improved learning outcomes for higher education students. These improved outcomes are more pronounced when connectivism is used to deliver skills (deliver functioning knowledge/ put knowledge into action) compared to when it is used to deliver theory (declarative knowledge/content knowledge). Overall, it can be concluded that the successful integration of principles of connectivism in skill related teaching has a positive impact on students' learning and promotes lifelong learning.

Keywords: Connectivism, Higher education, Outcomes, Digital age, Learning theory, Lifelong learning

¹ University of Kelaniya, Sri Lanka
*vindyasenedheera@gmail.com