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TREND OF EDUCATION RESEARCH IN PRE AND POST COVID19 PANDEMIC

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Education research trends are related to the style of types or their directions conditioned by social demand or the specificity of cultural changes at a given time and place (Potyrala, 2020). Accordingly, educational tendencies are of certain regularities with outlines in the development of ideas related to education and upbringing showing perspectives that can be predicted by describing models, planning research on future processes, as well as taking preventive measures. Before the turn of the century, the education research was delving on the evolution of traditional face-to-face education towards digital education with the advancement of the technologies in developing 21st century students coming from the alpha, Y and Z generations. Trilling and Fadel (2009) foresaw the 21st century student need learning traditionally school subjects with contemporary content themes to be combined with the 21st century skills. They developed the 21st century knowledge and skills rainbow (Figure 1) consisting of four domains, drawing the partnership of the traditional core subjects and the three 21st learning skills as additional themes: Life and Career Skills; Learning and Innovation skills and Information, Media and Technology skills. Education in the 21st century highlights globalization and internationalization (Boholano, 2017).

Figure 1
The 21st Century Knowledge-and-Skills Rainbow, (Trilling & Fadel, 2009, p. 48)

The growth of blended learning (BL) is paced and technological, innovated with digital tools. BL integrates face to face teaching with web-based learning. Poon (2014) recognised that BL is likely to be developed as the leading teaching approach for the future as one of the top ten educational trends to occur in the 21st century. Despite BL is rapidly changing teaching and learning in higher education, it is not yet fully embedded and institutionalised in education either as an area of practice or a field of research (Smith & Hill, 2018).

Another area of concern is Environment Education (EE) as the climatic change has raised the emergency in the 21st century. Climate change models and long-term forecasts are hard for the public and policy makers to grasp, as they challenge intuition and short-term thinking since having a complex and slow temporal dimension (Manzanedo & Manning, 2020). Thus, a globally coordinated response to climate change is needed. Over time, the definition of EE

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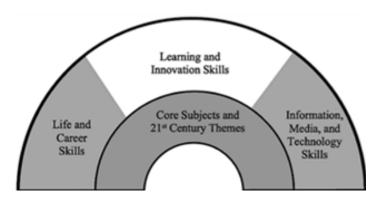
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has been transformed and has progressively extended its objectives towards the sustainability of development resulting in the approach of an environmental education for sustainability (EES), considering, above all, the new challenges of the 21st century (Gutiérrez et al., 2006). Salazar (2018) reiterated the definition of EE as the educational and cultural process through which subjects build knowledge and develop capacities, attitudes, and values that allow them to understand the environmental and socio-cultural reality to establish a responsible relationship with the environment and implement actions to address environmental problems. Researchers in this area believe that education institutions should provide EE and EES. UNESCO (2019) reasoned why EE has been fostered as a benchmark in the pedagogical and institutional field. There have been a lot of debate of how EE and EES can be integrated into the education curriculum at all levels. According to Gaudiano (1997) and dos Santos et al. (2020), it must also be transcended beyond classroom education and consider wider educational spaces where the subjects can influence and can also be influenced.

The unprecedented Covid19 pandemic declared in March 2020 by World Health Organization, created a global crisis establishing isolation and social distancing as a new global behavioural norm (Manzanedo & Manning, 2020). The pandemic crisis has affected all aspects of everyday life and work, and the global economy. The whole education ecosystem was disrupted with the entire shutdown process by May 2020 (United Nation report, 2020) into a remote emergency teaching and learning approach adopting virtual classroom platform with online educational tools reforming the entire traditional educational system. The crisis in fact paved the way for digital learning (Dhawan, 2020). There is a pressing need to innovate and implement alternative educational and assessment strategies (Pokhrel & Chhetri, 2021). Thus, the emergence in this field of research has been initiated by earlier pre Covid19 researchers' findings from studies on developing the E-learning tools and methods on teaching and learning. These studies were reviewed at the beginning of the discontinued face-to face teachings by others seeking for the alternative education system. The span of the Covid19 pandemic has created opportunities of novelty research as it has become increasingly exploratory and fertile for worldwide researchers. At earlier Covid19 age, research highlighted certain dearth such as the weakness of online teaching infrastructure, the limited exposure and readiness of teachers to online teaching, the information gap, non-conducive environment for learning at home, equity, and academic excellence in terms of higher education (Pokhrel & Chhertri, 2021). The disparity becomes obvious due to issues pertaining to a reliable internet connection and access and affordability to digital devices. Towards the later period, many researchers explored on psychological and mental distress in the teaching and learning community.

The transitioning of pandemic to endemic declared by some governments has seen a new normal in the education system with a generation of unfinished learning to get back on track. Dorn et al. (2021) used the term of unfinished learning which captures the reality that students not given the opportunity during the adverse age of the Covid19 to complete all the learning they would have in a typical year as students have disengaged from the education institution and slipped backward, losing knowledge or skills they once had. In addition, this also includes students moving on to the next grade unprepared having missed key building blocks of knowledge that are necessary for success which is not just academic knowledge, but social skills, behaviours, and mindsets to succeed in the learning environment or in the workforce. An accurate assessment of the depth and extent of unfinished learning will best enable to support students in catching up on the learning they missed and moving past the pandemic and into a successful future.

The pandemic has obviously shown there are other aspects of the teaching process to that of face-to-face traditional process. Many advantages and disadvantages, positive and negative aspects on E-learning are reviewed by Gherhes et al. (2021) which establish the premises for the implementation of future solutions regarding the didactic process, seen from a new perspective.

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A complete return to face-to-face learning may no longer be entirely possible. A very pertinent question is as posed by Gherhes et al. (2021): *What will future education look like*? It must be acknowledged that Covid19 pandemic has accelerated E-learning regardless of whether the teachers and students/learners are ready or not. There is also clear evidence that the 21st Century Skills cannot be achieved entirely dependent on it. Blended learning or BL, one of the newest pedagogical concepts of the 21st century, combining face-to-face teaching with online teaching, thus creating a hybrid learning system, has been extensively studied by various researchers. Even before the pandemic, it has been stated hybrid system would offer the benefits of both education systems, some predicting that it could even be the "new normal" in the education of the future (Norberg, 2011). The case study mentioned by Potyrala (2017) that students perceive the presence of other people (friends) in their educational experience as an important part of this experience.

The education system decimated by pandemics showing the importance of prevention and early action offers important lessons for the global climate crisis despite the deep time lags of climatic dynamics (Manzanedo & Manning, 2020). The action now to prevent the worst potential consequences of the global climatic crisis that the present and future generations will almost certainly have to bear should draw that EE and EES have parallelism of action on the pandemics. Intensity of integration of EE and EES into the learning curriculum at all levels of formal education including research to address climatic change as a visible significant problem of the 21st century should therefore be heightened and implemented.

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