Inclusive approach of university education to advance SDGs based upon system thinking and design thinking

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This study is to propose the conceptual architecture to advance the UN Sustainable Development Goals (SDGs) in the arena of university level education based upon system thinking and design thinking.

The pursuit of SDGs is considered one of major drivers to realize sustainability of the earth for the next century (Moyer & Hedden 2020), and the higher education to enhance comprehension of SDGs is deemed to take critical role to fulfil that purpose (Lane 2017, Chankeseliani & McCowan 2020). Yet the pedagogic methodologies for calibrating the conceptual architecture have been on the process of development to encourage this study proposing one model with fresh perspective based upon inclusive approach.

The SDGs requires to incorporate system thinking in the pedagogic methodology to enhance the comprehension since interdisciplinary approach is required to address the inter-twined and wicked problems (Buchanan 1992) on the planet. The system thinking is composed by three major conceptual elements; it is science of the human beings and artifacts (Simon 1969); systems need to be constructed and their behavior observed to understand them (Legasto et al. 1980, Sterman 2000); and it contributes to construct the holistic and inclusive view as causal loops about problems of the earth (Senge 1990).

It also requires incorporating the design thinking in that pedagogic methodology for SDGs since it has been developed to address the social issues with systemic and innovative way since 1990s. It is one of major methodologies to consider how system analysts apply systems engineering for fixing the wicked problems (Camillus 2008). Discourses of design thinking connects to the social innovation theories (Verganti 2009, Johansson-Sköldberg et al. 2013) and this science of the artificial is well attuned to reflection in educational fields for introducing more co-design ways of knowing and creating the meanings through active learning (Pande & Bharathi 2020).

The author proposes to construct the educational architecture based upon the system thinking and the design thinking for active learning. It has three phases of comprehension of SDGs; holistic reflection of wicked problems of the earth, particular those related to social inclusiveness, reframing of them by collective approach, and ideation for prototyping a feasible solution through speculative design (Bleecker 2009, Dunne & Raby 2013). This presentation qualitatively argues the efficacy of the system and design thinking-based pedagogic architecture in higher education.

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