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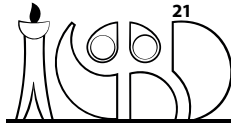
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Design Thinking as a strategy to inculcate Problem-based Learning (PBL) in undergraduate education across South Asian Universities

Shakuntala Acharya¹, **Apoorv Naresh Bhatt**¹, **Amaresh Chakrabarti**¹, **Venkata Sk Delhi**², **Jan Carel Diehl**³, **Nelson Mota**³, **Andrius Jurelionis**⁴, **Riina Subra**⁵

¹ Indian Institute of Science Bangalore, India

² Indian Institute of Technology Bombay, India

³ Delft University of Technology, Netherlands

⁴ Kaunas University of Technology, Lithuania

⁵ Aalto Global Impact, Aalto University, Finland

Abstract. The Bologna declaration states that, “successful learning and studying in higher education should involve students in deep learning”. However, a survey of faculty across institutes in Nepal and Bhutan highlight that the undergraduate students in engineering and management lack skills needed to be industry ready. They face difficulty in getting employed after graduation and if placed, then struggle during their employment due to insufficient practical experience, lack of good communication skills and unawareness of larger socio-economic contexts.

Undergraduate curricula across these South Asian institutes are predominantly instructional and not adequately hands-on, due to the following constraints ;

- University directed lesson plans that offer Educators little avenue for incorporating changes,
- Heavy syllabi to cover within that lesson plan and restricted time for practical activities, that constraint both Educators and students
- Dearth of motivation in students to innovate during the stipulated practical hours within a course,
- A general lack of awareness on sustainable development goals and their local implications in the students
- Fewer collaborations and less number of co-instructors to guide in practical, real-world issues that can be addressed in course durations.

The Erasmus+ funded project, “Strengthening Problem-based learning in South Asian Universities” is an endeavour to address these pressing concerns in education quality, employability and overall sustainable development of the region, and to imbibe deep learning capabilities. Problem-based learning (PBL)

is a learner-centered approach (Savery, 1999) where students strive to resolve real world problems (Torp and Sage, 2002). PBL methods are reported to support the development of specific skills, such as, critical thinking, complex problem solving, self-learning, collaboration and people management, communication etc. (Duch, Groh and Allen, 2001) that are also recognised as top skills by the World Economic Forum (2016). And though studies have revealed that the 'level of knowledge tested', as a learning outcome, was found to be equivalent to that of traditional approaches, students who experienced PBL showed; (i) improvement in problem-solving skills (Albanese and Mitchell, 1993; Vernon and Blake, 1993) and (ii) increased engagement and motivation to learn, as they preferred PBL to the traditional methods of teaching (Denton, Adams, Blatt, & Lorish, 2000; Torp & Sage, 2002). Therefore, as an empirical study to assess the above and in turn, inculcate problem-based learning in South Asian Universities, the young faculty of the inexperienced institutes from Nepal and Bhutan, alongside the students from the experienced institutes from India and Europe, were mentored by faculty and researchers from the latter to undertake several multidisciplinary case studies. The strategy of 'Design Thinking' was employed to methodologically guide the cases and keep it consistently problem-based, i.e., the learning process is driven by the problem and there is no one correct solution (Hmelo-Silver, 2004). Results showed that the participants reflected improvement in problem-solving skills and increased motivation, apart from enhanced collaboration and communication ability. Based on these findings, further development of curricula to imbibe PBL in its existing courses and guidelines to train the trainers for implementation of the same, is currently in progress.