DCU Working Definition and Descriptor of CBL

Definition

According to DCU, Challenge-Based Learning (CBL) is a process of collaborative engagement with peers, academics, and stakeholders to develop solutions to real-world social, technological, environmental and economic challenges of urgency and significance. CBL is a distinctively learner-driven pedagogy where learners, with the support of academics, define the dimensions of the challenge to be worked on. Throughout the process learners are given opportunities to acquire the necessary knowledge and skills to propose solutions for the challenge in question[1].

Elaboration

CBL is an emerging pedagogy that involves students working in teams with stakeholders to investigate and co-create solutions for significant societal problems. CBL can take different formats (e.g. nano, mini, standard) reflecting different timeframes and includes sharing of experience and solutions with the wider community. It is an innovative pedagogy that involves students continuously sourcing information, seeking feedback, and iteratively building, testing, and refining tentative solutions. Students, academics, and other experts seek to bring a global, creative and multidisciplinary mindset to suggested challenges and solutions. There may be a continuum of experience and skill levels (from novice to expert) within a group and variations in the extent of multidisciplinarity. Groups will be working in an uncertain and ambiguous environment.

With CBL, the challenge setter typically identifies an open-ended challenge where an effective solution is not already available, or where the challenge itself lacks sufficient information/definition in order to transition to an effective solution. In the process of framing the challenge and creating the solution, a range of disciplinary knowledge and transversal skills are developed by students. Outputs will be varied (e.g. prototype, presentation, report with recommendations) and are usually accompanied by an implementation plan. The potential impact of CBL depends on the resources available to all parties. CBL implementation at DCU is exploratory and flexible within a guiding framework. It typically follows a three phase approach (Engage - Investigate - Act), the same overarching framework as that used by ECIU university.

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[1] This working definition of CBL was developed by the DCU CBL Working Group. It was developed through discussions with CBL practitioners, reviewing various definitions from the literature including the conceptual framework of CBL characteristics from Gallagher and Savage (2020), and various ECIU explanations of CBL.

Key differences between Problem Based Learning (PBL) and Challenge-Based Learning (CBL) are outlined in the table below. This table is adapted from the work of Membrillo-Hernández et al. (2019) and has been tailored for the DCU context :

PBL	**CBL**
Students build knowledge through a predefined task or a pre-designed problem.	Students are exposed to relevant situations, real and open, that demand a solution for which there is not an existing, pre-made response.
In PBL, it can be an individual or a team task.	Students using CBL always work collaboratively. They work with educators, experts, mentors and peers on real-world problems. They work in teams to inform, tease out and define the challenge to be addressed. In CBL there could be a challenge provider/setter but there could also be a situation where the team identifies the stakeholders.
Problems may be real or fictionalised.	Challenges are always rooted in the real world and require a working solution/prototype or recommendation(s) to an open problem.
Solutions to PBL problems may or may not be implemented or evaluated.	CBL requires students to create a solution/prototype or recommendations leading to concrete action. This will involve consideration of implementation and evaluation elements.
The focus is more on the learning process than the product in PBL. In the process, PBL always uses existing knowledge.	In CBL the focus is learning through and with the process and through development of solution/prototype. CBL should always create new knowledge. It is the challenge itself that triggers the generation of this new knowledge and identifies the necessary tools or resources.
PBL may use a PBL-oriented framework.	CBL should be nuanced or informed by a CBL framework