

ABSTRACT

Collaborative Learning: A Phenomenographic Study of STEM Students' Individual Characteristics Impact on Project-Based Learning in a Semi-Professional Environment

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Collaborative Learning (CL) in the context of Project-based Learning (PjBL) can be interpreted as a learning method that allows students to share their knowledge and collaborate amongst themselves while providing crucial elements of learning such as scaffolding, social interactions, and experience. These elements are vital to students not only for their lives but also for their careers as the demand from industry for strong and reliable professionals with good communication skills is growing every day (Abood, 2019). The research aims to investigate how STEM students operate and behave in a PjBL environment and how their individual characteristics may have an impact on the outcome of the project, on social interactions among students, and on their perspectives of CL based on their experience. The research will use multiple theories to cover different aspects of the research, the social interactions, the use of technology, and students' experiences of CL in a PjBL environment. Phenomenography, a methodology, focuses on the individual participants' experience and their conceptions of a certain phenomenon. The experience of an individual towards a phenomenon may be completely different from another individual as the experiences may vary (Ornek, 2008). Gathering and categorising different experiences towards a certain phenomenon may produce a new dimension and add new knowledge to the area of CL. STEM students are more familiar with the ideas of CL than other students. However, according to Kokkelenberg and Sinha (2010), more STEM students drop out their classes or switch to non-STEM classes compared to other disciplines. Conducting this research will contribute to the knowledge areas of STEM students' perceptions of CL, the impact of individual characteristics on social interactions and its impact on the outcome of the projects, and the impact of technology on CL in a PjBL environment.

References

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