Exploring Collaborative Concept Mapping In Calculus

Abstract

For the past 25 years, concept mapping has been considered primarily a solitary assessment instrument where individuals build an external illustration representative of some notion of held concept images. This study explored the role of concept mapping to collaborative settings and what discourse is generated as Calculus students engage with their individual concept maps to construct a map representative of the group's collective perceptions of calculus concepts. By using adjacency matrices to explore the structure of the concept maps, the study compared individual maps against one another, against aggregated maps and finally against the collaborative concept maps. In particular, the study identified differences in structure and emphasis across the students' maps and identified different discourse models generated by various methodologies employed to generate the collaborative maps. These observations were triangulated with student utterances during the collaborative concept mapping activity and reflections on both the individual and collaborative concept mapping activities.

Keywords: Concept mapping, Collaborative, Calculus, Concept Image