

## Chapter 8

# Collaborative Learning: Leveraging Concept Mapping and Cognitive Flexibility Theory

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### ABSTRACT

*This chapter explores the interface between collaborative learning (CL), concept mapping (CMing) and cognitive flexibility theory (CFT). The major argument of the chapter is that concept maps (CMs) are versatile and multi-purpose tools with cross-disciplinary applications. In view of this, the chapter reports on 15 research studies to serve a dual purpose: to support its argument and to demonstrate the link between CL and CMing on the one hand, and between CMing/CL and CFT on the other hand. The focal points of the chapter are: CMs as tools for supporting and facilitating CL; CMs as assessment tools in CL environments; CMs as drivers for collaborative curricular initiatives; CMs as higher-order thinking and problem solving tools; and CL/CMs and CFT.*

### INTRODUCTION

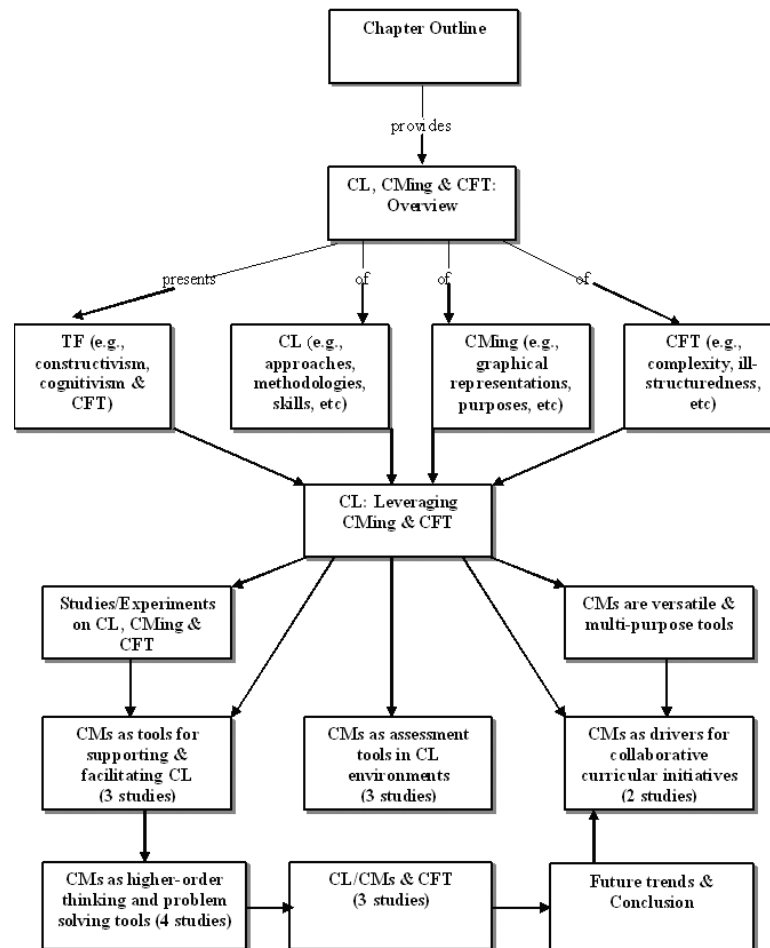
Collaborative learning (CL) lies at the heart of collective learner-directed learning approaches. It represents a major shift away from teacher-dominated learning approaches to a more egalitarian view of learning. It is a methodological innovation which encourages a co-production of knowledge, a co-determination of meaning, collective problem solving, and multiple perspectives among learners and between learners and teachers. It also enhances

cognitive skills and harnesses different learning styles. Above all, CL serves as an antidote to individualistic and competitive *winner-takes-all* learning tendencies. As such, it fosters a communitarian spirit and a sense of togetherness among learners. Most importantly, it acts as a vehicle for navigating and bridging cultural diversity and linguistic pluralism.

It is against this background that both concept mapping (CMing) and cognitive flexibility theory (CFT) come into the picture. For example, CMing is used to generate ideas, design complex structures, communicate complex ideas and evaluate under-

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Figure 1. Chapter outline represented through a concept map



standing or identify misunderstanding. Additionally, it promotes relational and critical thinking. It also helps abstract important information; organise and structure knowledge; integrate new knowledge with old knowledge; retain knowledge for longer spells; and apply knowledge to new contexts (Milam, Santo & Heaton, n.d.).

In this context, CFT espouses the view that learning is better leveraged through a variety of problems and cases. It argues that learners tend to acquire complex and ill-structured knowledge through multiple perspectives or multiple repre-

sentations. It further maintains that the proof of the newly acquired knowledge lies in its successful application by learners to new and different knowledge domains. Thus, the multiple perspectives or representations of knowledge and the successful application of any knowledge to new contexts can be better facilitated by both CL and CMing. This is particularly so as CL leverages the collective views of several learners and since CMing encourages representing knowledge from different angles. On this basis, *Figure 1* provides a CM outline of this chapter.

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