

# Preface

Collaborative learning has been widely adopted in the field of education. The advantages of collaborative learning have been well documented in the literature. This book centers on two crucial issues of collaborative learning. One is collaborative knowledge building, another is co-regulation and socially shared regulation. Successful collaborative learning depends on whether group members can co-construct knowledge as well as jointly regulate motivation, emotion, cognition, and behavior or not. This book aims to analyze collaborative knowledge building from the perspective of information flows and promotes co-regulation and socially shared regulation during collaborative learning. This book is structured into three parts.

## Part I

The first part of this book consists of three chapters. This part focuses on analysis of collaborative knowledge building from the perspective of information flows. Chapter 1 proposes a new method to analyze the processes and outcomes of collaborative knowledge building. This method has been validated by 497 participants in both face-to-face and online collaborative learning. Chapter 2 aims to analyze knowledge elaboration based on a knowledge map approach. The indicator of measuring knowledge elaboration has been validated by 527 participants in face-to-face and online collaborative learning environments. Chapter 3 analyzes and validates the algorithm of knowledge convergence by 192 participants in an online collaborative learning environment.

## Part II

The second part of this book consists of three chapters. This part focuses on analysis of co-regulation and socially shared regulation in collaborative learning. Self-regulated learning is not included in this part because regulation in a

collaborative learning context mainly refers to co-regulation and socially shared regulation. Chapter 4 focuses on analysis of co-regulation behavioral patterns through a cluster and sequential analysis method in a CSCL environment. In addition to co-regulation, socially shared regulation is very crucial for successful and productive collaborative learning. Chapter 5 analyzes how group members collectively regulate themselves in a collaborative learning environment. Chapter 6 aims to promote collective efficacy, group cohesion, and collective regulatory skills through a socially shared regulation mechanism.

## Part III

The third part of this book consists of four chapters. This part shares four case studies closely related to collaborative learning. In Chap. 7, the author shares how to promote productive collaborative learning through co-constructions of concept maps. In Chap. 8, the author seeks to revise the traditional jigsaw method to make collaborative learning more structured and productive. In Chap. 9, the author has developed peer assessment APP to facilitate real-time feedback and to engage students in collaborative learning. In Chap. 10, the author shares how collaborative inquiry learning is performed among four elementary schools over three months.

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