

I Computer-Supported Collaborative Learning

Robyn M. Gillies

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Editors

The Teacher's Role in Implementing Cooperative Learning in the Classroom

 Springer

The Teacher's Role in Implementing Cooperative Learning in the Classroom

COMPUTER-SUPPORTED COLLABORATIVE LEARNING

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The *Computer-Supported Collaborative Learning Book Series* is for people working in the CSCL field. The scope of the series extends to 'collaborative learning' in its broadest sense; the term is used for situations ranging from two individuals performing a task together, during a short period of time, to groups of 200 students following the same course and interacting via electronic mail. This variety also concerns the computational tools used in learning: elaborated graphical whiteboards support peer interaction, while more rudimentary text-based discussion forums are used for large group interaction. The series will integrate issues related to CSCL such as collaborative problem solving, collaborative learning without computers, negotiation patterns outside collaborative tasks, and many other relevant topics. It will also cover computational issues such as models, algorithms or architectures which support innovative functions relevant to CSCL systems.

The edited volumes and monographs to be published in this series offer authors who have carried out interesting research work the opportunity to integrate various pieces of their recent work into a larger framework.

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R. M. Gillies • A. F. Ashman • J. Terwel
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The Teacher's Role in Implementing Cooperative Learning in the Classroom

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The Teacher's Role in Implementing Cooperative Learning in the Classroom: An Introduction

Robyn M. Gillies, Adrian F. Ashman, and Jan Terwel

Peer-mediated learning is well recognised as a pedagogical practice that promotes learning, higher level thinking, and prosocial behaviour in students from pre-school to college. Children and adolescents learn from each other in a vast range of formal and informal settings. These include casual social meetings with friends, at skate-board parks, and even on the beach or ski slope. In formal settings, young people are often required to work and learn together and, indeed, small and large group sessions are common in all educational environments from preschool to tertiary education.

Peer-mediation has been the cornerstone of a range of instructional technologies that includes cooperative learning, peer collaboration, and peer-tutoring known under several labels (e.g., Classwide Peer-tutoring, Peer-Assisted Learning Strategies). The developers and advocates of these and many other peer-mediated learning programs argued that by working together, students have many opportunities to learn and develop a greater understanding of others with diverse social, interpersonal, adjustment, and learning needs (Shachar, 2003; Stevahn & King 2005).

This book is predominantly about cooperative learning that was developed by many scholars and researchers in the past four decades. Among the most important researchers we mention, David Johnson and Roger Johnson, Robert Slavin, Elizabeth Cohen and Noreen Webb. It is the apparent success of this approach (see Johnson & Johnson 1989) that led Slavin (1999) to suggest that it is one of the greatest educational innovations of recent times.

The most successful and influential approaches are not simply techniques to present the same old content in a different manner but have their roots in one of the Grand Theories on human development, teaching, and learning. The Johnsons explicitly mention Deutsch as a great inspiration in formulating their interdependence theory on cooperative learning. Cohen's work is firmly rooted in sociological theories and especially focused on social status. The work of Webb has been inspired by socio-cognitive theories on interaction and learning, originally developed by Piaget and Vygotsky while the research conducted by Slavin has been inspired by motivational theories, which apparently have their roots in behaviourism and management theories.

All authors of the subsequent chapters in this book are directly or more indirectly inspired by these Grand Theories or Schools for Thought (Bruer 1993) and stand on the shoulders of the already mentioned initiators of the cooperative learning

movement in the last four decades. However, recent developments in social and cognitive theories, for example, socio-constructivism, on how knowledge is collaboratively constructed and the revolution in information technology have largely influenced theory and practice of cooperative learning as can be seen in, for example, computer supported collaborative learning (CSCL).

Although initial research on cooperative learning focused on the social and educational benefits, research over the last two decades has examined the factors that mediate and moderate learning that occurs when students participate in small groups. Included in this research are studies that have examined the role that students play in mediating each other's learning through to those that examine the types of help they provide, the quality of that help (see Ross & Cousins 1995; Terwel et al. 2001; Webb 1992), and the conditions required for successful helping to occur (Webb & Mastergeorge 2003). Other studies have examined how teachers can train students to use specific cognitive and metacognitive questioning strategies to facilitate discussion, thinking, and learning during cooperative group work (see King 1997; O'Donnell 1999; Palincsar & Herrenkohl 1999). More recently, the focus has moved to the role of teachers' discourse during cooperative learning and its affect on the quality of group discussions and the learning achieved (see Gillies 2004; Hertz-Lazarowitz & Shachar 1990) and meta-analytic studies that have examined collections of studies to gauge the extent of the effects of cooperative versus other teaching-learning configurations (see e.g., Johnson & Johnson 2002; Neber et al. 2001).

Despite the well-documented benefits of cooperative learning, implementing this pedagogical practice in classrooms, or indeed any of the structured peer-mediation programs, is a challenge that many teachers find difficult to accomplish (Cohen, 1994). Difficulties may occur because teachers often do not have a clear understanding about how to establish effective cooperative groups, the research and theoretical perspectives that have informed this approach, and how they can translate this information into practical classrooms applications.

Teachers' reluctance to embrace cooperative learning may also be due to the lack of time to learn about peer-mediated approaches, because of the challenge they perceive it might pose to their control of the learning process, the demands it places on classroom organisational changes, or the professional commitments that is required to sustain their efforts (Cohen et al. 2004). There is no doubt that getting cooperative learning up and running in a classroom requires a commitment to embedding the procedures into the curricula and in implementing, monitoring, and evaluating it.

The teacher's role in implementing cooperative learning in the classroom provides a comprehensive overview of these issues. In many chapters there are clear guidelines and discussion about how cooperative learning practices can be embedded into classroom curricula. This volume also provides an overview of the major research and theoretical perspectives that underpin the development of cooperative learning, outlines how specific small group experiences can promote interaction, thinking and learning, discusses key roles teachers play in promoting student discourse, and demonstrates how interaction style among students and teachers is crucial in facilitating discussion, problem-solving, and learning.

An Overview of the Chapters

The book is organised into three sections with the first section (Chap. 1–3) presenting both the research and theoretical perspectives that underpin successful small group work, including examples of how class teachers can implement cooperative learning. The second section (Chap. 4–9) highlights different ways in which teachers can structure group interactions among students to promote discourse and learning. The final section (Chap. 10–12) focuses on how students can be taught different cognitive and metacognitive skills to enhance discussions in small groups. The key roles teachers play in implementing this pedagogical practice and in promoting thinking and learning is a theme that is highlighted throughout the book.

In the Chapter 1, *Social Interdependence Theory and Cooperative Learning: The Teacher's Role*, Johnson and Johnson draw on their extensive experience in both the research and practical aspects of cooperative learning to draw out the factors that lead to success in academic tasks. They first provide a brief historical overview of the theoretical underpinnings of cooperative learning and then highlight the key role social interdependence plays in establishing a group structure that motivates group members to work together, build quality relationships, and actively support each other's learning. The outcomes of successful cooperative experiences lead to higher level reasoning and problem-solving, greater effort to achieve, enhanced relationships among group members, and improved psychological health.

In Chapter 2, *Beyond the classroom and into the community: The role of the teacher in expanding the pedagogy of cooperation*, Hertz-Lazarowitz argues that cooperative learning now has the potential to change teachers from conducting 'a set of cooperative learning methods' to implementing a 'cooperative learning critical pedagogy' that is part of the critical pedagogies that aim to change the nature of schooling and society. Based on research and theorizing since 1979 up until the present, this chapter presents four developmental elements that have contributed to a cooperative learning critical pedagogy. These involve: first, teachers' thinking on cooperative learning as a set of methods; second, teachers' perceptions and attitudes related to this approach to teaching and learning; third, teachers' instructional behaviours in the cooperative classroom and beyond, and finally, the restructuring of cooperative learning as a critical pedagogy. Hertz-Lazarowitz proposes that more theory on 'cooperative learning pedagogy' is needed so teachers can be empowered to use it effectively to create an impact on teaching and society.

The following chapter by Baines, Blatchford and Kutnick reviews the research on grouping students, the central premise being that all children in classrooms will be seated in some form of group. The authors argue, however, that this is only the starting point for a social pedagogic understanding of how classroom contexts may promote or inhibit learning. There is substantial evidence that seating pupils in groups is unlikely to relate to the learning purpose or intention of many lessons. The first challenge, the authors propose, is for teachers and researchers to understand how student groups are currently used in primary and secondary schools and how the use of groups may relate to classroom learning. The authors discuss two studies

that they undertook that map group size and composition found in classrooms against intended learning tasks, patterns of group interaction and the role of the teacher. Findings of their research using Social Pedagogic Research into Groupwork (SPRinG) show that learning within groups is often limited due to their composition and that learning potential is often mismatched with pedagogic intent. The second challenge is determining how group work can be made more effective in classrooms. Here the chapter draws upon another study that shows how a relational approach to training for group working and committed teachers can support advanced cognitive knowledge, motivation and social development in children. Social pedagogic implications are drawn from these studies, noting the need for group training and involvement of teachers.

King in her chapter, *Structuring peer interaction to promote higher-order thinking and complex learning in cooperating groups*, argues that a major challenge in implementing cooperative learning approaches is to stimulate higher-level thinking and learning. She argues that higher-level learning requires learners to go beyond mere review of information or retrieval of previously-acquired knowledge to engage in thinking analytically about that knowledge, relating it to what they already know, and using that knowledge to construct new knowledge, solve new problems, and address new issues. A number of research studies have documented a direct relationship between the level of the verbal interaction within cooperating groups and the level of thinking and achievement of group members. Examination of the verbal interaction within these groups reveals specific ways in which learning is mediated by that interaction itself. Based on these findings King developed a form of cooperative learning called Guided Reciprocal Peer Questioning to structure group interaction to promote higher-order thinking and learning. The approach is inquiry-based and is characterized by sequenced question-asking and answering with a direct focus on metacognition and the roles of mediation and modelling. It has been used effectively with groups in a number of classroom contexts ranging from fourth graders to graduate students in a variety of subject areas. The theoretical underpinnings of this approach are also presented as are research findings from several studies.

In Chapter 5, *Cooperative learning and literacy instruction in middle level education*, Stevens argues that early adolescence is a time of important developmental changes as students become more capable of handling complex tasks, develop more independence, and become increasingly peer focused. Despite this, typical middle level instruction does not adequately match the developmental growth of the students, often focusing on didactic instruction and low-level skills. Research has documented the impact of this developmental mismatch contributing to a decline in student achievement and motivation resulting in lower attendance, achievement, and attachment. This chapter describes a cooperative learning approach based upon a teaching-learning approach that emphasizes Tasks, Autonomy, Recognition, Resources, Grouping, Evaluation, and Time (called the TARRGET model). Stevens describes the implementation of the model in a Student Team Reading and Writing Program that guided teachers in the redevelopment of their literacy program to be more developmentally responsive to the needs and abilities of early adolescents in urban middle schools. To address some of the structural and curricular issues described above, the teachers implemented a cooperative learning approach to an integrated