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

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VOLUME 7

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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 skateboard 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 poses 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

reading and language arts program. The instructional elements the teachers used included: cooperative learning classroom processes; high interest reading materials; explicit instruction in reading comprehension strategies; integrated reading, writing, and language arts instruction; and a writing process approach to language arts.

The chapter describes the teachers' implementation of these instructional methods with students in a large urban school district and the impact it had on students' discourse and achievement. The chapter highlights the potential teachers have to use cooperative learning to increase student learning by making instruction more engaging and responsive to the nature of early adolescence.

In the following chapter, Huber and Huber discuss structuring group interaction to promote thinking and learning during small group discussions among high school students. The authors argue that teaching and learning in the upper grades of high school often presents contradictory classroom experiences to students. On the one hand students have learned to adapt to traditional teacher-centered learning while on the other, they are expected to self-regulate their learning processes. Along with these experiences different preferences for learning situations and individual roles in these situations develop. Indicators for these effects of classroom experiences are those episodes in small group interactions in classrooms, which are characterized by activities of mutual teaching and learning.

This chapter describes typical findings from recent studies in Jigsaw groups that show that 'experts' for a specific part of the common learning content achieve significantly more in their domain of expertise than teammates who are supposed to learn from them. In expert groups the discussions usually promote cognitive elaboration, while in many Jigsaw groups the authors observed less discussions, questions, and explanations, but expert-centered teaching.

Structuring group interaction by learning scripts and integrating small group discussions in a 'sandwich' style of teacher-centered activities, group discussions, and individual learning has shown to counter-balance dysfunctional distributions of roles in classroom processes. A sandwich model of cooperative teaching/learning in the upper grades of high school is described and results from two evaluation studies are presented and discussed. The chapter concludes with a summary of the findings and makes recommendations both for teachers and researchers who study group processes in classrooms.

In Chapter 7, *Feedback and reflection to promote student participation in computer supported collaborative learning: A multiple case study*, Prinsen, Terwel, Volman, and Fakkert review and examine what is known in the literature about differences in participation and learning outcomes of students differing in gender, ability, pre-knowledge and social-ethnic background when working in a CSCL environment. The authors argue that if there are differences between these student categories and their participation in CSCL environments then more attention should be paid to ways of including these students that lead to enhanced learning outcomes. This chapter also offers a critique on the way researchers report on the design of learning environments in their research. In order to address this concern, that authors approach CSCL as an ICT-application, in which the computer is used for communicative and collaborative ends. The chapter begins with a short summary of research into the differences in ICT and computer mediated communication. In the

following sections the differences in participation, in the quality of participation, and in the outcomes of CSCL are discussed. The chapter concludes with a look into the future in which some possible avenues for research on CSCL are explored.

In his chapter, *School and inclusive practices,* Ashman, looks at some of the implications of peer support for students with diverse learning needs. Ashman takes a broad view of peer-mediated teaching and learning approaches as most forms (e.g., cooperative learning, peer-tutoring, peer-assisted learning strategies) have been used in special education and inclusive education settings. He draws attention to nexus between inclusive education and peer-mediated learning approaches where both are directed toward pedagogical efficiencies aimed at improving the learning of all students.

While there is a large research database relating to peer-mediated approaches for students with diverse learning needs, the literature is far from conclusive about their successes. Ashman reviews studies that have focused on students with intellectual disabilities, behavioural and social-emotional difficulties, and also gifted and high-achieving students.

In *Developing language and mastering content in heterogeneous classrooms*, Lotan describes the classroom conditions that support development in English as well as mastery of social studies content in mainstream, academically and linguistically heterogeneous middle schools. Lotan reports on a study where she found that the language designations attributed to transitional students by the school underestimated their linguistic and academic capacities as indicated by their performances in the classroom. Students from different language proficiency levels benefited similarly from the intellectually rigorous curriculum and from the quality of interactions with peers during cooperative group work. Lotan proposes that teachers need to rethink linguistic segregation and ensure access to challenging and grade-appropriate curricula and instruction for all students. These findings make theoretical, methodological, and practical contributions to the field of teaching and learning in heterogeneous classrooms where teachers need to accommodate children with diverse needs.

Theoretically, the emphasis on the linguistically rich and academically rigorous social context that leads students to use English to interact in the classroom and to demonstrate subject matter knowledge adds to a greater understanding of second language acquisition at the secondary level. Methodologically, exploring the quality and quantity of interaction at the cooperative, small group level and its relationship to second language growth and mastery of content by individual students reflects the theoretical stance while practically, from the findings, Lotan presents teachers with a model of effective research-based practice that expands their repertoire of strategies for teaching in heterogeneous classrooms.

In the following chapter, *Teacher Practices and Small-Group Dynamics in Cooperative Learning Classrooms*, Webb draws attention to the role collaborative peer learning environments have received due to the potential they hold for improving learning and achievement. Webb notes that students can learn from each other in many ways, for example, by giving and receiving help, sharing knowledge, building on each others' ideas, recognizing and resolving contradictions between their own and other students' perspectives, observing others' strategies, and internalizing problem-solving processes and strategies that emerge during group discussions. This chapter focuses

on students' helping behaviour within small groups, specifically the exchanging of explanations about the content being learned. The purpose of the chapter is to summarize research about the helping processes that have been found to predict learning outcomes in peer-directed small groups and the classroom conditions that bring about effective helping behaviour.

The chapter is organized in four parts. The first part briefly reviews the theoretical bases underlying the benefits of different kinds of help. These include perspectives of Piaget, Vygotsky, and motivational theories. The second part reviews the kinds of helping processes found to predict student learning outcomes. These include help-seeking and help-giving behaviour of students within groups. The third part explores how the evolution of dynamics in groups may promote or hinder productive helping processes, with special attention given to the roles and responsibilities of students in help-seeking or help-giving roles. The fourth part describes features of the classroom context that influence group dynamics in classrooms. These features include teacher behaviour, task structure and content, and classroom reward and recognition structure.

In Chapter 11, *Explanation Giving and Receiving in Cooperative Learning Groups*, Ross proposes that students who more frequently give explanations to their peers are more likely to learn from small group discussions than students who offer explanations less frequently. Ross argues that the effect of explanation giving on learning is more powerful than other types of information exchange. This finding has been consistently demonstrated in observations of naturally occurring groups as well as in studies of formally structured cooperative learning groups. The instructional challenges posed by these research findings are: explanation giving is rare even when teachers ask students to explain their solutions; usually only upper ability students offer explanations of their thinking, meaning that the students who could most benefit from this powerful learning strategy are least likely to engage in it; asking for an explanation usually does not contribute to the learning of the explanation seeker; and the quality of explanations provided by even the most able students tends to be poor.

Ross describes practical classroom strategies for improving the quality and frequency of explanations in cooperative learning groups. These strategies have been assessed in observational studies that link student behaviour to achievement outcomes. The most promising instructional techniques involve teaching students how to generate explanations within the context of specific subjects, such as mathematics.

In the final chapter, *Teachers' and students' verbal behaviours during cooperative learning,* Gillies proposes that teachers play a critical role in promoting interactions among students and involving them in the learning process. Yet, while much is known about how teachers can promote discourse among students and how students, in turn, help each other, little is know about teachers' verbal behaviours during cooperative learning. This chapter builds on research undertaken by Hertz-Lazarowitz and Shachar that identified the differences in teachers' verbal behaviours during cooperative and whole-class instruction. It does this by discussing two studies undertaken by the author that examined the difference in teachers' verbal behaviours during cooperative and small-group instruction in high school classes and the additive benefits derived from training teachers to use specific communication skills to enhance children's thinking and learning during cooperative learning in elementary classes.

The chapter also discusses how students model many of the verbal behaviours their teachers use in their own discourse with each other and how this promotes students' verbal reasoning and learning. Finally, the theoretical implications of the role teachers play in the social construction of knowledge, both at the interpersonal and personal level, are discussed with particular emphasis on specific strategies teachers use to scaffold and challenge students' learning.

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