

# Collaborative Group Discussion in Academic Settings

David McCULLOUGH

## 学術的環境における協力的グループ討論

David McCULLOUGH

### 要 約

知識を習得し創造するために、学習者が小さなグループになって共に学習するという概念には、長い歴史があり現代教育の中で重要な地位を得ている。学生同士がお互い助け合うことから、協力する事は演題について学ぶ上で最も効率的な方法として提案されてきた。この論文では、教室内での協力的活動に欠くことのできない見解を考察している。協力的な学術的討論の重要な特徴の要点が述べられ、現代の教室環境に協力する事を適用する例が説明されている。

**Key words:** collaboration, groupwork, discussion, cooperative learning, socio-cognitive

## 1. Introduction

Group discussion among learners is a collaborative engagement between individuals who assist each other in using the skills which make discussion possible. Group-talk can be regarded as a social activity where learning is intimately bound to collective endeavour. This article will examine arguments that frame learning as a socially located activity, will discuss how collaborative talk has come to be regarded as central to the process through which learning takes place and will outline the chief features involved in collaborative talk. Finally, the arguments for a conscious application of collaborative learning methodologies to classroom situations will be outlined.

## 2. Socio-cognitive Perspectives

Modern socio-cognitive theories of learning emerged from the work of the Russian psychologist Vygotsky following the translation of his works into English in the 1960s. Vygotsky (1978) suggested that human beings, in their interactions with the world, make use of mental 'tools' which have been shaped by the culture within which they live. The use of these tools in mental processes, according to Vygotsky:

*abolishes and makes unnecessary several natural processes, whose work is accomplished by the tool; and alters the course and individual features (the intensity, duration, sequence, etc.) of all the mental processes that enter into the composition of the instrumental act, replacing some functions with others (i.e., it re-creates and reorganizes the whole structure of behavior just as a technical tool re-creates the whole structure of labor operations) (1981, pp. 139–140).*

Human thought, therefore, is fundamentally shaped by the intellectual artefacts of society. It is 'mediated', to use Vygotsky's term, by these tools which are the creations of human history, society and culture. Our own mental processes are intrinsically linked to the society and culture around us, our actions are inseparable from the social context and learning is essentially a socio-cognitive process which depends on our acquiring the 'tools' of knowledge through interaction with other humans. In attempting to explain how learning is shaped by the assistance of others, Vygotsky proposed the theory of the Zone of Proximal Development (ZPD). This refers to the distance between the level of a learner's actual development and the potential level of performance which becomes possible when the learner comes into social contact with a more expert interlocutor. Conversation,

according to the socio-cognitive tradition, is the key to learning.

### **3. Collaborative Learning**

#### **3.1 ZPD in Group Learning**

For writers in the socio-cognitive tradition the metaphor of a Zone of Proximal Development is one that can usefully be applied to not just teacher—student conversations but also to situations where students are working together. Anyone who has mastered a concept can assist another learner in the process of acquiring and making use of a concept. This process (Rogoff, 1998) requires activity on the part of both participants in the transaction. An act of will to create or know something, a ‘doing’ is required from the learner if this collaborative process is to work. When the natural process of talking through a complex problem or situation with others takes place, many learning benefits have been shown to emerge (Rodrigues, 2000, Dede, 1995, Petraglia, 1998). The group process creates a kind of distributed ZPD where all members can benefit in ways that include developing the ability to reason at a deeper level, acquiring new perspectives on the problem and generating greater motivation to focus on the task at hand. As Lunenberg (1998, p76) points out, collaborative learners develop the deeper knowledge required to assist others:

*.....to understand a concept to the point of being able to explain it to others is when real learning has occurred and positive knowledge has been acquired.*

#### **3.2 Neurological Explanations of Collaboration**

A neurological explanation of how the process of mental collaboration is possible has been offered by scientists such as Rizzolatte and Gallese (reported by Motluk, 2001), who discovered what they describe as ‘mirror neurons’ in the 1990s. These neurons, elsewhere described as ‘imitation neurons’, seem to be responsible for a mental process of observation and matching between what is being observed and a corresponding inner state. Wesson (2001) outlines evidence that mirror neurons are particularly active in classroom situations when a student is watching another student perform. Goldman (Motluk, 2001) has used this discovery to posit a ‘simulation theory’ which suggests that these neurons play a role in allowing human beings to understand what is happening in the minds of others by ‘mimicking’ in their own minds what the other appears to be thinking, feeling or doing. Rizzolatte and Arbib (Wesson, 2001) suggest that mirror neurons play a role in allowing two or more individuals to have a common awareness of what is being transacted between them.

### **3.3 Collaboration and Cognitive Development**

Whatever the biological basis for collaboration in learning, there is strong evidence that collaboration promotes not just learning, but also the development of higher-level cognitive skills. As Klemm and Snell (1996) indicate, the purposes of learning extend beyond rote memorization to include the need to be able to critically evaluate teaching materials and then to apply them in practice. These higher-level learning processes are, they suggest, more readily achievable in the context of group collaboration where there can be an internal dynamic of criticism and a group will to find applications. The individual is therefore assisted in developing not just new concepts but also the ability to work with concepts on a more sophisticated level.

### **3.4 Origins of Collaborative Learning**

The notion of learners working together in groups to promote learning has roots (Johnson and Johnson, 1994) in the nineteenth century and particularly in the writings of American educational philosophers such as Dewey and social psychologists such as Deutsch (1949) and Lewin (1935). The effectiveness of cooperative learning was extensively investigated in the latter part of the 20th century (Johnson and Johnson 1999, Webb 1989) and cooperative discussions were found to have a clear association with improved achievement, with increases in higher-order thinking and with positive changes in the affective outlook of students.

### **3.5 Collaborative and Cooperative Learning**

A distinction has been drawn (Panitz 1996, Edwards 2002) between the notion of cooperative learning, with roots in American education, and collaborative learning approaches which stemmed from efforts by British educationalists, particularly in the field of English literature, to involve students in a more active way in the learning process. According to Panitz (1996) cooperative learning has developed as an approach which helps students to interact in the process of reaching a content-specific goal. Cooperative learning environments are therefore more teacher centred and more concerned with enabling students to acquire canonical knowledge.

Collaborative learning, in contrast, is based on a philosophy of learning which regards the process, rather than the outcomes, as being of primary importance. It therefore promotes respect for the contributions of each individual, shared authority and a sense of responsibility. At the root of collaborative learning is a view of knowledge closely tied to the socio-cognitive approach to learning. This approach rejects a traditional concept of knowledge as the fixed foundation of civilization and regards knowledge as a socially constructed entity and learning as a social process (Bruffee, 1995). Collaborative learning

is therefore student centred as it empowers students to form their own views of knowledge and “braves the risks of empowerment” (Rockwood, 1995, p 8 ) by accepting that the outcomes of collaborative work may be different from the expectations of the teacher. In this view, the teacher is a helper in the learning process rather than the arbiter of knowledge. The source of authority for assessing the work of the group in the classroom lies with:

...first, the small group, second, the plenary group (the whole class) and finally... with the requisite knowledge community” (Rockwood, 1995, p 9 ).

### **3.6 Principles of Collaborative Learning**

A basic set of principles for the effective implementation of collaborative learning has been outlined by Kagan and Kagan (1994). These are:

- 1 . Positive Interdependence – a group feeling of the need to ‘sink or swim’ together.
- 2 . Individual Accountability – the sense of each participant that they must play a role.
- 3 . Collaborative Skills – skills particular to group work which should be taught to students.
- 4 . Equal Participation – respect for the importance of each participant.
- 5 . Simultaneous Interaction – students do not ‘wait their turn’ to speak but often interrupt and speak over each other.

Johnson and Johnson (1999) have further developed the principle of Positive Interdependence into nine factors which may be involved in the creation of a sense of effective group work. These are:

- 1 . Goal Interdependence – students share a goal.
- 2 . Resource Interdependence-students have differentiated information resources, as in jigsaw activities.
- 3 . Role interdependence – each student has a role within the group such as chair, recorder etc.
- 4 . Identity interdependence – the group has a ‘team spirit’.
- 5 . Fantasy interdependence – the group deals with an imaginary situation such as being a team of astronauts dealing with a problem.
- 6 . Outside enemy interdependence – the group works to overcome outside competitors such as other learning groups.
- 7 . Task interdependence – each student has a particular piece of work to achieve within the overall task.
- 8 . Environmental interdependence – the learning environment promotes group

work through the placing of chairs, tables, materials etc.

9. Reward/Celebration Interdependence – the group recognize and enjoy their mutual achievement.

The role of the teacher in creating the conditions for interdependence is vital. Teachers frame goals, or tasks, for groups to complete, provide resources to the group, assign roles within the group and play an important role in creating the atmosphere within which the group operates. An important implication of the principles outlined by Kagan and Kagan (1994) and by Johnson and Johnson (1999) is that collaborative group work is envisaged as an ongoing project whereby students can gradually acquire the teamwork and motivational and strategic skills necessary for effective group work.

#### **4. The Social Framework of Collaborative Learning**

##### **4.1. ZPD as Community**

Collaborative talk is vital for learning but such talk rarely takes place between absolute equals. All learners can be regarded, in Vygotsky's (1978) words, as "novices" who through their own efforts, and through the support of others, gradually enter a speech or knowledge community and move towards a more central position in that community where they can themselves be regarded as "experts" and assume the ability to help other novices.

##### **4.2. Language Socialization**

This view of learning as an inherently social process has been applied to the initial acquisition of language and culture in young children by Schieffelin and Ochs through their studies of how Samoan children develop. Language socialization provides a theory which strongly links language acquisition to the development of cultural modes of behaviour. The role of a parent or caregiver in language socialization is described as "an interactional display (covert or overt) to a novice of expected ways of thinking, feeling, and acting" (Ochs, 1986, p 2) and children are regarded as novices who are being assisted in developing the skills which enable their entry into, and effective participation in the group formed by the members of their local culture:

*....through their participation in social interactions, children come to internalize and gain performance competence in these sociocultural defined contexts (Ochs, 1986, p 2).*

The process of entering a social community through collaborative interaction with members of that community involves the creation of a particular sense of identity as a

member of a community (Schieffelin and Ochs, 1986). A child's concept of self is interwoven with their acquisition of the cultural rules that penetrate the surrounding culture and the progress to adulthood is a gradual process of adopting those cultural rules, which vary greatly between cultures (Brown, 1996, p39).

### **4.3. Situated Learning, Cognitive Apprenticeships and Discourse Communities**

The process whereby adults pass on cultural information to children can also be seen to take place in a similar fashion between adults who are working together. Lave (1988), in his Situated Learning Theory described the formation of communities of learners where 'oldtimers' function as experts and help newcomers move towards the centre of the community from an initial role at the periphery. Teaching others is, in fact, an activity that can be observed in almost every situation where humans are involved in mutually working towards similar goals.

Brown et al. (1989) applied the concept of community-based learning to academic organizations such as universities. Learners at university undergo a 'cognitive apprenticeship' through social interactions both formal and informal with others who can play the role of 'expert' for the learner. Students taking part in academic study are, in fact, assuming a peripheral role in a particular discourse community (Romero, 1988) which is comprised of all the meaning making activity of the individuals, both expert and beginner, who comprise the community.

The implication of this view of socially based learning is clear. The key element in learning is the social environment, the community of learners. Learning is acquired, not in a one-to-one relationship with the teacher, but in a multi-directional learning environment where learners help each other to learn. Rockwood (1995) suggests that teachers can best capitalize on the nature of learning by directing students to work cooperatively as they help each other acquire the basic foundational knowledge of their discourse community. As they move beyond the foundational stage, learners should be encouraged to participate in the fully collaborative inquiry by which new knowledge is created.

## **5. Features of Collaborative Talk**

### **5.1 Analysis of Collaborative Talk**

The talk that emerges when people interact through small group collaboration has been described from several perspectives. Conversation Analysis has revealed that conversation is deeply patterned and that a sophisticated organisation exists which can be analysed in various ways. Sociocultural insights have extended the view of scaffolding as a process of support between teacher and student to include the mutual support that exists between collaborative peers. The scope of analysis of collaborative talk has been

broadened to include suggestions on how gesture, eye-contact and tone of voice can be included in holistic interpretations of the individual's contribution to discussion. This broad interpretation has been portrayed as an integrated model of communication where every communicative action is shaped by the group environment and which, in turn, reshapes that environment. Finally, the social, intentional and motivational psychology of participants has been shown to be vital to a complete understanding of contributions to group discussion.

## **5.2 Patterns of Collaborative Interaction**

The development of Conversation Analysis (Sacks, 1992), has thrown light on the patterns that exist within the seemingly random exchanges of dialogic conversation. The clearest focus of discovery and investigation within this type of analysis has been the fact that participants in conversation collaborate closely to organise the 'turns' of speech between them. This fact was "discovered independently by different investigators" (Goodwin, 1981 p2) and has been described as involving a process of "ratification" (Goffman, 1976) of the respective roles of participants as 'speaker' and 'hearer' through a process of "collaborative action" (Sacks et al., 1974). The commencement of turns and the organisation of transition from one speaker to another is part of a process of collaboration that affects not only these turning points but also strongly influences the content of an individual turn. Goodwin (1981, 1984) describes how both listener and speaker are mutually active as co-participants in the construction of meaning within a turn. Speakers have been shown (Goodwin and Goodwin 1987) to be actively respondent to the involvement of the listener, and to adapt the content and shape of their turn in response to that involvement.

## **5.3 Peer-scaffolding**

Vygotsky's proposal of a Zone of Proximal Development (ZPD) whereby the presence of a more 'expert' person assists the learner to achieve more than could have been achieved alone, rested on a process of support which has been described as 'scaffolding'. The scaffolding offered by the expert through questioning, suggestion, reshaping and repair is the mechanism by which the learner can transcend the boundaries of their existing ability. Recent discussion of ZPD has suggested (Wells, 1999; Goos et al., 2002) that it has relevance as a descriptor of the learning that takes place within small groups where members of the group have incomplete but roughly equal levels of ability and where the participation of each member creates the environment for all to out-perform their existing developmental level. Group members create between them a collaborative scaffolding network which is based on "grounding acts" (Veerman, 2000): continuous acceptance,



rejection or comments on the speech acts of others by team members.

#### **5.4 Non-Verbal Features of Talk**

Collaborative talk takes place within a physical, three-dimensional zone where non-linguistic factors play an important role. Kendon (1990) refers to the “concrete observable behaviours” (1990, 3) which are accessible to an analysis that will lead to a fuller understanding of interactive talk. These behaviours, according to Kendon (ibid.) include:

*....where they look, when they speak or remain silent, how they move, how they manage their faces, how they orient to one another, and how they position themselves spatially.*

Olsher (2005) argues for the study of “embodied action” which involves the co-production of meaning through language and through physical activity such as gesture, pantomime, head shakes and so on. He also describes “material action” as embodied action which makes use of objects. One example of the relevance of this type of analysis is Olsher’s description (ibid.) of “embodied completions”. These are completions of interactive turns that are accomplished by physical means, rather than through speech, and which are made use of by both L1 and L2 speakers.

#### **5.5 Psychological and Social Factors**

The motivation of learners to actively contribute to collaborative discussion may have an important bearing on their success. A study conducted by Slavin (1995) found that, where students had a positive attitude towards collaborative activity and towards their own responsibility to contribute to the group, training in collaborative skills had little effect. In other words, the motivational position of the students was the overriding factor in their successful participation in such activities. These factors may be shaped by culture and social class. Pepitone (1985) found that middle class children from American cities tended to be more individualistic whereas rural children were more focussed on the value of collaboration and were more ‘other’ oriented. Siner (1993) suggests that the institutional atmosphere of a school can have an important impact on collaboration. An atmosphere that promotes collective study and collaborative work will tend to produce students who are positively motivated to succeed in this type of activity. As agents within the cultural framework of society, the behaviour of learners can be regarded as stemming from the sense of obligation they feel to behave within the limits set by the surrounding society. Traum and Allen (1994) and Traum (2000) suggest that communication within a group is shaped by a combination of obligations and goals. When planning behaviour, they say,

individuals consider their obligations to societal norms as well as their personal goals. Obligations will take precedence when the individual is deciding what to do next.

### **5.6. Situated Activity Systems**

These various approaches to describing collaborative talk reveal that a complex, multifaceted process is at play. While isolating and describing individual factors or behaviours can be useful, reduction of this type must contribute to a holistic understanding of what is involved in collaborative interaction. One attempt to create an overarching conceptual framework for understanding collaborative talk is the notion of a situated activity system (Goodwin and Goodwin 1987). Participants in a situated activity system are continuously making use of syntactic and semantic structures, intonation, gesture and inferential processes to create interactively sustained action which is shaped and reshaped by the participants and by the social and cultural framework within which they are active.

## **6. The Promotion of Collaboration as a Classroom Tool**

For schools of thought such as Social Constructivism, which represent the modern application of Vygotskian ideas to theories of learning, educational talk is central to learning (Shunk, 2000). Followers of Vygotsky have therefore argued that the emphasis in education should rest on collaborative learning methods, which require learners to develop teamwork skills and to see individual learning as essentially connected to the success of group learning (Lave and Wenger, 1991; Gredler, 1997). Social constructivists see in the very factor that makes discussion difficult for many teachers – its unpredictable nature and the fact that it involves multiple competing voices—a uniquely effective teaching tool.

Despite the weight of research supporting classroom discussion, a great deal of evidence (for example Christoph and Nystrand, 2001) shows that most teachers in the modern age rely heavily on training students to recite facts and avoid making use of discussion in the classroom. This deep-rooted approach to education has held sway through much of the past century. As Christoph and Nystrand (2001) cite, mid twentieth century researchers such as Corey (1940), Bellack et al. (1966), and Hoetker (1967) all found that teachers spent about two thirds of instructional time talking and that more than 80% of all teacher questions sought to elicit recall in a recitation format. More recent studies, such as Tharp and Gallimore (1988) have shown similar results.

One contemporary study that underlines the predominance of recitative methods over dialogic methods in modern day classroom activity is Nystrand's large-scale quantitative study of eighth and ninth-grade English and social studies classes in American schools.

Open discussion, defined by the researchers as a free exchange involving at least three students and which continued for at least 30 seconds, averaged less than 50 seconds in eighth grade and less than 15 seconds in ninth grade. In more than 95% of all English classes there was no discussion at all (Nystrand, 1997). Where a dialogic style of education was being offered they found that it had a strong effect on development and that open discussion was the most powerful method of all.

## **7. Conclusion**

A strong case has been made by thinkers in the socio-constructivist and socio-cognitive traditions that talk between learners should be regarded as an important part of how learning takes place. Classroom discussion, from this point of view, is more than just a pedagogical technique. It is, or should be, the foundation of learning. Studies of how learners talk together in the classroom are revealing that, beneath the surface, deeply patterned interactions are taking place which build and reinforce knowledge that can be applied in practice.

While it is true that cooperative approaches to learning have become commonplace in many classrooms around the world, genuinely collaborative discussion is still relatively rare in learning situations. As studies, such as that of Nystrand (1997), have shown on many occasions, classrooms are generally dominated by the teacher's voice. Students, even when they take part in groupwork, are generally working to confirm their acquisition of the foundational knowledge which is controlled and confirmed by the teacher. Collaborative discussion, aiming for educational goals which cannot be entirely shaped by the teacher, is something that few teachers have experience in organizing and few students have participated in. So much is to be gained, however, by encouraging learners to become active creators of new knowledge that the risks and difficulties of collaborative discussion should be welcomed by teachers.

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