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Chapter 2: Roots of Cooperative Learning in General Education
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As we proceed with our discussion about cooperative learning, we must take a moment to present a basic overview about four foundational psychological theories. In so doing, our purpose is to acquaint the reader with aspects of theory and research that may be helpful to teachers in understanding the historical development of this approach and its significance to the teaching of a second language.

Social psychology

Alport (1954) worked on the goal of facilitating effective group dynamics. His investigations of how best to help people from different racial groups come to live together more harmoniously led him to derive three conditions which he believed essential for interaction to result in greater harmony and more productive relations: 1) interactors must be of equal status, 2) they must have common goals, and 3) their collaboration should be officially sanctioned.

In the 1970s, Aronson and his colleagues (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978) applied these three conditions to the classroom and created the well-known cooperative learning technique, Jigsaw. They were working at the time to improve racial relations among students in recently integrated schools in the Southwest U.S. In Jigsaw, each member of the group has unique information (helping to promote equal status), which they must share with groupmates in order for the group to achieve its goal (common goal). This collaboration, of course, takes place with the teacher's (official) sanction.

Jigsaw, which is appropriate to any subject area, has been used in second language teaching using print (e.g., Coelho, Winer, & Winn-Bell Olsen, 1989; Geddes, 1981; Johnson, 1981) and spoken texts (Harmer, 1998). Furthermore, the concept of providing each group member with unique information that must be combined has long been popular in second language teaching. Spot-the-Difference tasks (Morgan Bowen, 1982) and Strip Stories (Gibson, 1975) are just two examples. In the literature on second language tasks (e.g., Pica, Kanagy, and Falodun, 1993; Platt & Brooks, 1994), the terms *information gap* and *required information exchange* have been used to describe tasks like Jigsaw in which group members are each given unique information.

While Alport's original three conditions are very useful to consider, it is also important to note, at the same time, that since 1954 there have been developments in our understanding of each. For example, it is highly unlikely that any two

students are really of "equal status" in any real sense, that is, how they are treated by other class members both by individuals and groups within the class as well as by the teacher is bound to differ, despite being in the same classroom and following the same behavioral guidelines. This same point of view holds with regard to the notion of "common goals." Indeed, how goals and subgoals are formed and how they change in relation to working with particular people in particular circumstances has become a primary area of focus within the study of classroom interactions (for example, see Engestrom et al., 1999 and McCafferty et al. 2001). Finally, the role of the teacher as "sanctioning" activities, attitudes, etc., has changed considerably, teachers becoming more "facilitators" than "ship captains," as was the prevalent model in the U.S. in the 1950s.

Subsequently, Johnson and Johnson (1994b) developed many applications of the concept of *interdependence* to education. They believed that too many instructional practices, for instance, teacher-fronted pedagogy and norm-referenced assessment, encourage students to feel negatively interdependent with their classmates. The Johnson's goal was to find ways to increase the feeling of positive interdependence within learning groups. A whole approach to doing cooperative learning, known as Learning Together, has developed from their work.

Developmental Psychology

Although throughout history there have been many prominent thinkers and researchers who have diligently studied human cognition as it unfolds in the course of a lifetime, we have chosen to turn our focus to two of the most notable developmental psychologists of the 20th century: Jean Piaget and Lev Vygotsky.

For Piaget, each person constructs his or her own personal understanding of the world around them through a search for equilibration, i.e., a match between current *schemas* (background information) about the world and how it works, on the one hand, and what is experienced, on the other. Piaget's ideas have been widely interpreted as supporting the creation of classroom environments in which students play active roles as they engage in real or at least realistic tasks (Slavin, 1995). Scholars working in the Piagetian tradition emphasize the value of social contexts for arousing productive cognitive conflicts (Doise & Mugny, 1984). For instance, Murray (1982) found that two students neither of whom was able to do a particular task alone were able to learn to complete the task when working together.

Piaget's epistemological views about psychological development assume the growth of consciousness progresses through preordained, irreversible levels (i.e. what happens at a later stage of development is enabled by what happened at previous stages). Thus, according to this theory, every child must go through the same structure of cognitive development in a fixed sequence, the stages of which are distinctively graduated.

In this regard, Piaget and Vygotsky greatly differ. Because Piaget considered development to be a pre-coded aspect of our biology, the attempt to

accelerate development through learning with the help of teachers or others is highly restricted: learning cannot precede development. For Vygotsky, unlike Piaget, a child is at once surrounded by sociocultural contexts that exert an immediate influence on development through interaction: in other words, learning leads development. Moreover, *semiotic mediation*, i.e., the use of signs and symbols deriving from the sociocultural milieu that help us to understand our world (principally language), he argued, becomes the primary vehicle for human cognitive growth. Vygotsky (1981: 163) explained:

> Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people, as an interpsychological category, and then within the child as an intrapsychological category.

Thus, for Vygostky, there is a very definite role to be played by actively directed learning, both in the maturation of individual human beings and in the history of human culture. Vygotsky called the mechanism that enables such learning the *Zone of Proximal Development*.

The Zone of Proximal Development (ZPD)

As stated above, this is a key concept for Vygotskian theory in that it distinguishes the difference between what a child can do on her or his own, cognitively, and what she or he can do in conjunction with an adult or more capable peer (Vygotsky, 1978). However, Newman and Holtzman (1993), for instance, believe that Vygotsky had a much more dynamic view of the ZPD, that the spatial metaphor, i.e., speaking of what is "in" the zone, detracts from its transformational powers. They argue that the ZPD is better thought of as an "activity" than a "place," and moreover, that it is capable of transforming the thinking of all participants involved. This perspective further accentuates the co-constructed nature of interaction (more on this in Chapter 3) and adds an important dimension to thinking about positive interdependence in relation to cooperative learning.

In a related concept, Wood, Bruner, & Ross (1976) introduced the notion of *scaffolding* in which an analogy is drawn to the process of building an architectural structure. As the building nears completion, the scaffolding is gradually withdrawn. In the same way, helpers remove the support given to students as the students move closer to being able to do the task independently.
Many cooperative group activities have emerged from this perspective on human development, e.g., peer tutoring (Alfassi, 1998; Palincsar, Brown, & Martin, 1987) and cross-age tutoring (Samway, Whang, & Pippitt, 1995).

Also, while Vygotsky may have emphasized the role of more expert others in co-constructing ZPDs, more recently attention has turned to how students at a similar level of shared understanding can help one another. For

instance, Koschmann (1996) states that the interaction patterns of scholars working to create new knowledge in their field shows how people's ideas can converge to mutually construct knowledge.

The notion that peers can help each other is very much in line with student-centered perspectives on education, and also fits with what Johnson, et al. (2002) say about positive interdependence. This notion can be further elucidated by the concept of a *community of practice.*

Community of Practice

This approach to learning derives from a sociocultural (Vygotskian) perspective and emphasizes the relationships between human action and the social context in which the action occurs. Within this framework, language learning is more broadly seen as a set of social practices situated in classroom life. Constructs such as *legitimate peripheral participation* (Lave & Wenger 1991) have increased our understanding of how people acquire knowledge, skills, and identities through participation in social practices. One of the essential premises of the community of practice framework is the notion that learning occurs as newcomers fulfill various peripheral roles alongside more experienced or competent members in the community as they gradually become able to fully participate.

However, it is important to note that, in Lave and Wenger's (1991: 92) words, "the social structure of [a community practice], its power relations, and its conditions for legitimacy define possibilities for learning" (p. 92). That is to say, that cultural, historical, and institutional forces may constrain the types of practices available to particular members of a community. Certainly this concept applies to cooperative learning as realized in the second half of this book because of the variety of contexts in which it is experienced.

Cognitive psychology

Cognitive psychologists, e.g., Wittrock (1974), Craik and Lockhart (1972), and Palincsar and Brown (1984), have also been looked to in validating the use of cooperative learning. Wittrock emphasizes the value of having students repeat and restructure information and ideas. Webb (1989) and Webb and Farivar (1994) report that in groups of primary school students learning math that greater learning occurred when students asked for assistance from groupmates and received explanations compared to when requests for assistance were ignored or responded to with answers that did not include explanations. Furthermore, contrary to what some critics of cooperative learning fear, these explanations benefited both the receiver and the giver. Webb and Farivar go on to speculate that students may be more aware of what their peers do not understand because the material is new to them as well, unlike the teacher for whom the material has often become second nature. Moreover, again because of being closer to them in terms of background

knowledge, fellow students may also be able to explain in ways that their peers can understand better.

Craik and Lockhart developed the *depth of processing* concept (the deeper the elaboration of thought, the more likely something will be understood and remembered). In an attempt to bring the work of Wittrock and Craik and Lockhart into the classroom, a number of cooperative learning techniques have been developed by scholars in the cognitive psychology tradition, for example, the dyadic MURDER script (Hythecker, Dansereau, & Rocklin, 1988). In MURDER, pairs of students read a text divided into sections. After reading a section silently, the pairs stop, and one summarizes the main points of the section while the other checks the summary. Then, they both elaborate on the main ideas, for instance, providing examples, opinions, and connections to prior reading. The pair continue going through the sections of the text, rotating the roles of summarizer and monitor, until upon completing the text, at which point they formulate an overall summary. Furthermore, the Cooperative Controversy technique (Johnson, Johnson, & Holubec, 2002) promotes students' ability to see different perspectives by asking them to alternate - representing opposing sides in a debate before finally speaking on behalf of their real view and striving to reach consensus with their groupmates.

Motivational theories in psychology

In a teacher-fronted classroom, reinforcement for positive learning behaviors usually comes mainly from the teacher. Indeed, in the typical teacher-fronted classroom, students often feel negatively interdependent with one another, competing against each other for reinforcement from the teacher in such forms as praise and grades. In contrast, when students feel positively interdependent with each other, they become an alternative source of positive reinforcement for one another.

Slavin (1995) and his colleagues at John Hopkins University have done a great deal of research and curriculum development in cooperative learning from this tradition, generating and testing techniques such as Student Teams-Achievement Divisions (STAD). For STAD, the teacher first presents material, then students work in teams that are heterogeneous with regard to such characteristics as past achievement, gender, and ethnicity to study together in preparation for a quiz. Each student contributes to any rewards the team may get (for example, certificates) based on a comparison of the scores for the team across time; grades, however, are based solely on the scores that each individual student achieves. This approach has also been demonstrated to be useful in relation to second language learners. For example, Gomasatitd (1997) in a modified version of STAD found that its use significantly correlated with improvement in English language proficiency for second-year business administration majors at a Thai university.

While STAD and many other cooperative learning techniques are designed for use with any subject area, researchers at Johns Hopkins designed Cooperative Integrated Reading and Composition (CIRC) specifically for the language arts

curriculum in American schools (Slavin, 1995). Recognizing that within a single class there may be a wide range of reading and writing proficiencies, CIRC involves students in two types of groups in addition to whole class instruction on reading strategies. They meet in same-level reading groups in which the teacher introduces a text for reading, teaches vocabulary and skills such as prediction, and discusses texts after they have been read. However, students' main group is a heterogeneous one formed with one member of their reading group and two students from another group. In the main group, students work on activities based on the texts introduced in their reading group. Students check the progress of the members of the other pair in their group and provide peer feedback on group members' writing. As in STAD, a cooperative reward structure is used in which students' earn points for their group based on a comparison of their most recent work and their past average. These team points go toward certificates or other rewards. Also, like STAD, while individual performance affects group rewards, each individual's grade is based solely on their own work.

In a number of studies of second language learning, CIRC was associated with higher achievement (Calderón, Hertz-Lazarowitz, Ivory, & Slavin, 1997; Hertz-Lazarowitz, Lernor, Schaedel, Walk, & Sarid, 1992; Slavin & Yampolsky, 1991). Calderon, et al. studied the use of CIRC in a transitional bilingual program for Spanish-dominant lower primary school students in the U.S. The researchers found significantly higher mean scores on measures of both reading and language for third grade students who had participated in CIRC for two years and longer when compared to those who had received "traditional reading methods emphasizing round-robin reading and independent workbook practice activities" (p. 4). Furthermore, to a statistically significant extent, students who had participated in CIRC met the criteria to exit the bilingual education program.

Humanist psychology

Maslow (1968), a leading humanist psychologist, proposed a hierarchy of needs which humans strive to accomplish. He divided these needs into two types: *maintenance needs* and *growth needs*. The maintenance needs must be fulfilled in order for growth to take place. Among these maintenance needs is the need for interpersonal closeness. Rogers (1979) also stressed the role of positive interpersonal relations and empathetic understanding, arguing that the support they provide is essential for student psychological growth.

In conjunction with affective concerns, Humanists emphasize the uniqueness of each individual and the need for self-initiative as opposed to one-size-fits-all and teacher-fronted instruction. This emphasis of the individual might be seen as being in contradiction with cooperative learning, which focuses on interaction between people. However, on a continuum from teacher lecture to self-study, cooperative learning represents a major step away from dependence on teachers and toward greater reliance on self and peers. Further, the purpose of cooperative learning is not to get everyone to think alike, but to get everyone to

think and to share and develop their thinking through engagement with others. This view is seen as supportive of democratic practices (Daniels, 1994; Ruddock, 1991).

Second language educators have been influenced by humanist psychology (Brookes & Grundy, 1990; Moskowitz, 1978). The importance of groups for creating an atmosphere that promotes individual development is highlighted by Moskowitz (1978: 2) who states that a key purpose of humanistic second language learning activities is "to help build rapport, cohesiveness, and caring... to help students to be themselves, to accept themselves, and to be proud of themselves." Links with cooperative learning seem clear in the introduction to the resource book of activities for humanistic language learning by Puchta & Schratz (1993: 3-4):

1. To be successful, students need the skills and attitudes for "cooperative interdependence in learning."
2. Because cooperative interdependence takes time for students to develop, teachers must continually be helping students toward this goal.
3. Cooperative interdependence entails the development of empathy and tolerance for others[1]. (The sharing of feelings aids this development.)
4. Constructive, non-judgmental feedback is vital.
5. Students should share power in deciding on instructional matters.
6. The development of collaborative skills should be combined with the development of language skills.

Prapphal (1991) reports a study with an English class at a Thai university organized according to humanistic and cooperative learning principles. Based on informal evaluation by the students and their teacher, Prapphal notes that cooperative learning "appears to facilitate the learning process both cognitively and affectively" (p. 37). However, it is important to point out that how cooperative learning may interface with a particular culture is of course something that deserves consideration as cultural dispositions toward learning a second language have been shown to be very different (e.g., Crago 1992).

Global education

Closely related to the humanist perspective is a belief in connecting what happens in the classroom to the world outside (Dewey, 1966; Freire, 1970), that educators have a responsibility to help students develop not just in the subject area being taught in a particular course, but as active citizens of their schools, country and of the world - people who are willing to address problems and make appropriate changes. Toward this end, an area of education has arisen sometimes known as *global education* (Bergstrom, 1987; Pike & Selby, 1988). Components of global education include peace education (Reardon, 1988), environmental

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[1] However, we would rather submit "acceptance of others" as we believe this phrase is in better accord with the goals of cooperative learning.

education (Knapp, 1988), development education (Fountain, 1995), and human rights education (Shiman, 1993). Crucial to the goals of global education is that students realize that positive interdependence exists between themselves and their fellow homo sapiens, as well as with the other species inhabiting the planet. Starting at the level of the small classroom group, cooperative learning can help students put this realization of positive interdependence into action and can promote among students the ability and the inclination to cooperate at the classroom level and beyond by making cooperation not just part of the "how" of learning but also part of the content as well (Jacobs, 1997; Sapon-Shevin & Schniedewind, 1991).

Global education has also appeared as a trend in second language education (Cates, 1990; Ghaith & Shaaban, 1995a; UNESCO, 1987)[2]. Additionally, as part of a trend toward content-based and theme-based language teaching (Crandall, 1987), entire textbooks for second language students have been devoted to global issues (Abraham, 1998; Brown & Butterworth, 1998), as well as appearing as one among many themes in L2 textbooks (Jacobs and Goatly, 2000).

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[2] For instance, global issues special interests groups exist in the International Association of Teachers of English as a Foreign Language (http://www.countryschool.com/gisig.htm) and the Japan Association of Language Teachers (http://langue.hyper.chubu.ac.jp/jalt/nsig/globalissues/gi.html).