WHAT THE EXPERTS HAVE TO SAY ABOUT COLLABORATIVE LEARNING

Before delving into the world of CL it would be most appropriate to look first at what some of the experts on CL learning have said. Their research and writing has formed the theoretical and practical basis for a variety of CL paradigms used today. Many of the issues dealt with by these CL theorists and practitioners are still with us today. The adoption of CL as a favored teaching paradigm is a slow process and will require substantial commitments from policy makers, administrators and faculty. You will see this as we start our review by quoting the father of modern education, John Dewey, who over 80 years ago alerted us to the difficulties inherent with establishing this educational paradigm. Other authors quoted in this section are Kenneth Bruffee, David and Roger Johnson, Robert Slavin,

JOHN DEWEY

USE OF THE LECTURE AS THE PRIMARY TEACHING METHOD

Intentional education signifies, as we have already seen, a specially selected environment, the selection being made on the basis of materials and method specifically promoting growth in the desired direction. Since language represents the physical conditions that have been subjected to the maximum transformation in the interests of social life- physical things which have lost their original quality in becoming social tools- it is appropriate that language should play a large part compared with other appliances. By it we are led to share vicariously in past human experience, thus widening and enriching the experience of the present. We are enabled, symbolically and imaginatively, to anticipate situations, In countless ways, language condenses meanings that record social outcomes and presage social outlooks. So significant is it of a liberal share in what is worth while in life that unlettered and uneducated have become almost synonymous.

The emphasis in school upon this particular tool has, however, its dangers-dangers which are not theoretical but exhibited in practice. Why is it, in spite of the fact that teaching by pouring in, learning by a passive absorption, are universally condemned, that they are still so intrenched in practice? That education is not an affair of "telling" and being told, but an active and constructive process, is a principle almost as generally violated in practice as conceded in theory. Is not this deplorable situation due to the fact that the doctrine is itself merely told? It is preached; it is lectured; it is written about. Bit its enactment into practice requires that the school environment be equipped with agencies for doing, with tools and physical materials, to an extent rarely attained. It requires that methods of instruction and administration be modified to allow and to secure direct and continuous occupations with things. Not that the use of language as an educational resource should lessen; but that its use should be more vital and fruitful by having its normal connection with shared activities. "These things ought ye to have done, and not to have left the others undone." And for the school "these things" mean equipment with the instrumentalities of cooperative or joint activity.

SOCIAL NATURE OF LEARNING

For when the schools depart from the educational conditions effective in the out-of-school environment, they necessarily substitute a bookish, a pseudo-intellectual spirit for a social spirit. Children doubtless go to school to learn, but it has yet to be proved that learning occurs most adequately when it is made a seperate conscious business. When treating it as a business of this sort tends to preclude the social sense which comes from sharing in an activity of common concern and value, the effort at isolated intellectual learning contradicts its own aim. We may secure motor activity and sensory excitation by keeping an individual by himself, but we cannot thereby get him to understand the meaning which things have in the life of which he is a part. We may secure technical specialized ability in algebra, Latin or biology, but not the kind of intelligence which directs ability to useful ends. Only by engaging in a joint activity, where one person's use of material and tools is concsiously referred to the use other persons are making of their capacities and appliances, is a social direction of disposition attained.

page 38-39

EFFECTIVE DIRECTION OF STUDENTS TO LEARING OPPORTUNITIES

The natural or native impulses of the young do not agree with the life-customs of the group into which they are born. Consequently they have to be directed or guided. This control is not the same thing as physical compulsion; it consists in centering the impulses acting at any one time upon some specific end and in introducing an order of continuity into the sequence of acts. The action of others is always influenced by deciding what stimuli shall call out their actions. But in some cases as in commands, prohibitions, approvals, and disapprovals, the stimuli proceed from persons with a direct view to influencing action. Since in such cases we are most conscious of controlling the action of others, we are likely to exaggerate the importance of this sort of control at the expense of a more permanent and effective method. The basic control resides in the nature of the situations in which the young take part. In social situations the young have to refer their way of acting to what others are doing and make it fit in. This directs their action to a common result, and gives an understanding common to the participants. For all mean the same thing, even when performing different acts. The common understanding of the means and ends of action is the essence of social control. It is indirect, or emotional and intellectual, not direct and personal. Moreover it is intrinsic to the disposition of the person, not external or coercive. To achieve this internal control through identity of interest and understanding is the business of education. While books and conversation can do much, these agencies are usually relied upon too exclusively. Schools require for their full efficiency more opportunity for conjoint activities in which those instructed take part, so they may acquire a social sense of their own powers and the materials and appliances used.

KEN BRUFFEE (1993)

What is says (the book) is that we should begin to think about college and university education in a way that is quite different from the way we have thought about it in the past. We should think of it as a process of cultural change. And we should think of college and university teachers as agents of cultural change. The book maintains that, to serve effectively as agents of cultural change, teachers have to organize students to learn collaboratively. And for collaborative learning to work, college and university teachers have to examine and revise longstanding assumptions that we all hold about what teachers do and why they do it. (pvii)

Collaborative learning gives students practice in working together when the stakes are relatively low, so they can work effectively together later when the stakes are high. They learn to depend on one another rather than depending exclusively on the authority of the teacher. They learn to construct knowledge as it is constructed in the academic disciplines and professions- the knowledge communities that students aspire to join when they attend colleges and universities. And they learn the craft of interdependence.

The craft of interdependence is not new to most college and university students. Many of them already know they will need it when the go to work in the "real" world of government, industry, business, finance and the professions, where collaboration, consultation and teamwork are increasingly the norm, not the exception. So some students prepare themselves for collaborating productively after they graduate by organizing themselves whenever they can to collaborate at school. They play ball; they plan dances, parties, and protest marches; they publish newspapers, run charitable programs, and organize self help groups.

Interdependence is the rule in most colleges and universities, too, of course, for faculty and administrators as well as students. Everybody is on some council, committee or task force. Everybody collaborates everywhere, in fact, except where it counts educationally. Most students do not collaborate in their classes. If they do, they may pay a stiff price. As a result, most college and university students get no experience in applying the craft of interdependence to thinking about substantive issues and to making reliable decisions.

Colleges and universities do not cultivate the craft of interdependence among students educationally, because traditional college teaching has little use for collaboration, does not teach it, distrusts it, and often penalizes it. Only in rare instances have college teachers overcome or suppressed this distrust in favor of the benefits of constructive interdependence. (pp1-2)

Most of us, including most college teachers, assume a foundational (or cognitive) understanding of knowledge. Knowledge is an entity that we transfer from one head to another- for example, from a teacher's head to a student's of from a staff member's head to the head of the boss. Collaborative learning assumes instead that knowledge is a consensus among the members of a community of knowledgeable peers- something people construct by talking together and reaching agreement.

Collaborative learning is a reacculturative process that helps students become members of knowledge communities whose common property is different from the common property of the knowledge communities they already belong to. It extrapolates from Kuhn's conclusion that to understand knowledge we have to know "the special characteristics of the groups that create it and use it". We gain access to the common property of one or another community by reacculturating ourselves so as to acquire the special characteristics of its members. The most important of these special characteristics is fluency in the language that constitutes the community, the language in which community members construct the knowledge that is their common property. (p3)

The job of college teacher is to represent the knowledge communities of which they are members in a way that will most effectively reacculturate potential new members. College teachers help students cross the boundaries that divide members of disciplinary communities from those who want to join them: biologists from biology students, sociologists from socialogy students, philosophers from philosophy students.

The most effective way to help students cross these boundaries is not however, direct influence, apprenticeship, or what is sometimes called "collaboration" between students and teachers. College teachers tend to overrate somewhat their direct influence on students, and as long ago as 1962, Theodore Newcomb cited research that contradicted the trsditional assumption that there was some "magic" about it. Newcomb argued instead that college teachers have their greatest influence indirectly, when they establish conditions in which students "spend a good deal of time together-particularly.... without a sense of constraint- jointly (creating) norms, concerning their common interests, by which each of them is influenced".

To effect this indirect influence, collaborative learning provides teachers with an important tool: transition communities or support groups that students can rely on as they go through the risky process of becoming new memnbers of the knowledge communities they are trying to join. In transition communities students can achieve together what John Dewey calls the ideal aim of education: the "power of self-control" as they develop the ability and confidence to exercise the craft of interdependence. First, they learn to vest authority and trust, tentatively and for short periods of time, in other members of their transition group. Then with more confidence, they learn to vest authority and trust in the larger community that comprises the class as a whole. Finally they learn to vest authority and trust in themselves as individuals who have internalized the language values and mores of the still larger community, the community of knowledge peers, that the teacher represents and they have been striving to join. (p4)

Collaborative learning is not a universal educational cure-all, and it does not make obsolete such time-tested pedagogical activities as lecture, drill, and recitation. There are times in every college course when the best thing teachers can do is tell students something, make them repeat something, or ask them to respond to a question. If we understand knowledge as a social construct rather than a cognitive entity, then lecturing, drilling and leading recitations are appropriate and effective only within the context of structured conversation among students:collaborative learning. Collaborative learning in not just another arrow in a teacher's quiver of pedagogical tricks. It requires teachers to subordinate and transform traditional teaching methods.

Johnson, Johnson & Holubec (Cooperation in the Classroom 1991)

When students are required to compete with each other for grades, they work against each other to achieve a goal that only one or a few students can attain. Students are graded on a norm-referenced basis, which requires them to work faster and more accurately than their peers. In doing so they strive to be better than their classmates ("Who can beat Jim in math?"), work to deprive others (You win, Jim loses?"), to celebrate classmates' failures ("Jim did not do his homework, that puts you ahead."), view resources such as grades as limited ("Remember in a class of 30, only 5 can get an A."), recognize their negatively linked fate(the more you gain the less for me, the more I gain, the less for you), and believe that the more competent and hard working individuals become "haves" and the less competent and deserving individuals become "have nots" (only the strong prosper). In competitive situations there is a negative interdependence among goal achievements; students perceive that they can obtain their goals if and only if the other students in the class fail to obtain their goals. (Deutsch, 1962; Johnson & Johnson, 1987). Unfortunately, most students perceive school as predominantly a competitive enterprise. They either work hard in school to do better that the other students, or they take it easy because they do not believe they have a chance to win.

When students are required to work individualistically on their own, they work by themselves to accomplish learning goals unrelated to those of the other students. Individual goals are assigned each day, students' efforts are evaluated on a criteria-referenced basis. Each student has his or her own set of materials and works at his or her own speed, ignoring the other students in the class. Students are expected and encouraged to focus on their strict self interest )"How well can I do?"), valuing only their own efforts and own success ("If I study hard, I may get a good grade."), and ignoring as irrelevant the success or failure of others ("Whether Jim studies or not does not effect me."). In individualistic learning situations, students goal achievements are independent; students perceive their learning goals as unrelated to what othet students do (Deutsch, 1962, Johnson & Johnson 1987).

Cooperation is working together to accomplish shared goals. Within cooperative activities individuals seek outcomes that are beneficial to themselves and beneficial to all other group members. Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other's learning. The idea is simple. Class members are split into groups of from two to five members after receiving instruction from the teacher. They then work through the assignment until all group members have successfully understood and completed it. Cooperative efforts result in participants striving for mutual benefit so that all group members benefit from one's efforts, recognizing that all group members share a common fate. recognizing that one's performance is mutually caused by oneself and one's colleagues, and feeling proud and jointly celebrating when a group member is recognized for achievement. In cooperative learning situations there is a positive interdependence among students' goal attainments; students perceive that they can reach their learning goals if and only if the other students in the learning group also reach their goals (Deutsch, 1962; Johnson & Johnson, 1987)

In the ideal classroom, all students would learn how to work collaboratively with others, compete for fun and enjoyment, and work autonomously on their own. The teacher decides which goal structure to implement within each lesson. If cooperation is the only way students learn in school, they may never learn to compete appropriately for fun or have the opportunity to follow a learning

trail on their own (Johnson & Johnson 1987, 1988). Thus competitive and individualistic work should supplement cooperative learning when it is appropriate.

Cooperative learning is the most important of the three types of learning situations, yet currently it is the least used. Current evidence indicates that class sessions are structured cooperatively only for 7 to 20 percent of the time. On the other hand, what we know about effective instruction indicates that cooperative learning should be used when we want students to learn more. like school better, like themselves better, and learn more effective social skills. It is clear from research that classrooms should be dominated by cooperation among students.

Johnson, Johnson, & Karl Smith (Active Learning: Cooperation in the College Classroom, 1991)

The Old Paradigm of Teaching

The old paradigm of college teaching is based upon John Locke's assumption that the untrained mind is a blank sheet of paper waiting for the instructor to write on it. Student minds are viewed as empty vessels into which instructors pour their wisdom. Because of these and other assumptions, facullty think of teaching in terms of these principal activities:

1. Transfering knowledge from faculty to students. The faculty's job is to give it. The student's job is to get it. Faculty transmit information that students are expected to memorize and then recall.

2. Filling passive empty vessels with knowledge. Students are passive recipients of knowledge. The faculty own the knowledge that students memorize and recall.

3. Classifying students by deciding who gets which grade and sorting students into categories by deciding who does and who does not meet the requirements to be graduated, go on to graduate school, and get a good job.

4. Conducting education within a context of impersonal relationshops among students and between faculty and students. Based on the Taylor model of industrial organizations, students and faculty are perceived to be interchangeable and replaceable parts in the "education machine."

5. Maintaining a competitive organizational structure in which students work to outperform their classmates and faculty work to outperform their colleagues.

6.Assuming that anyone with expertise in their field can teach without training to do so. This is sometimes known as the content premise-- if you have a PhD in the field, you can teach

The old paradigm is to transfer the faculty's knowledge to a passive student so that faculty can classify and sort students in a norm-referenced, competitive way. The assumption was that if you have content expertise, you can teach.

New Paradigm of Teaching-

College teaching is changing. We are dropping the old paradigm of teaching and adopting a new paradigm based on theory and research that has clear applications to instruction. Faculty ought to think of teaching interms of several principal activities.

1. Knowledge is constructed, discovered, transformed and extended by students. Faculty create the conditions within which students can construct meaning from material studies by processing it through existing cognitive structures and then retaining it in long-term memory where it remains open to further processing and possible reconstruction.

2. Students actively construct their own knowledge. Learning is conceived of as something a learner does, not something that is done to the learner. Students do not passively accept knowledge from the instructor or curriculum. Students activate their existing cognitive structures or construct new ones to subsume the new input.

3.Faculty effort is aimed at developing students' competencies and talents In the new paradigm, the emphasis is on the development of student competencies and talents which are considered dynamic and always susceptible to change.

4. Education is a personal transaction among students and between the faculty and students as they work together. All education is a social process that cannot occur except through interpersonal interaction (real or implied). Learning is a personal but social process that results when individuals cooperate to construct shared understandings and knowledge. Faculty must be able to build positive relationships with students and to create the conditions within which students build caring and committed relationships with each other. The college then becomes a learning community of committed scholars in the truest sense.

5. All of the above can only take place withina cooperative context. Ideally, administrators would in turn create a cooperative, team-based organizational structure within which faculty work together to ensure each other's success.

6. Teaching is assumed to be a complex application of theory and research that requires considerable instructor training and continuous refinement of skills and procedures. Becoming a good teacher requires at least one lifetime of continuous effort to improve.

Elizabeth Cohen ( Designing Groupwork 1986)

Groupwork is an effective technique for achieving certain kinds of intellectual and social learning goals. It is a superior technique for conceptual learning, for creative problem solving, and for increasing oral language proficiency. Socially, it will improve intergroup relations by increasing trust and friendliness. It will teach students skills for working in groups that can be transferred to many student and adult work situations. Groupwork is also a strategy for solving two common classroom problems: keeping students involved with their work, and managing students with a wide range of academic skills. (p6)

CONCEPTUAL LEARNING

After an instructor has introduced new concepts and has illustrated how they apply, students must obtain some active practice in using these new ideas and in applying them in various ways. This is as true for students in my graduate seminar as it was for Geraldo, a fourth grader. Traditional methods of accomplishing these goals include written papers, written exercises during class time (seatwork) and large group instruction. During question-and-answer activities teachers ask the students questions, and one student at a time tries to answer, while the rest of the class listens.

There are obvious limitations to these techniques. Clearly, when recitation is used, only one student at a time gets the active practice. There is no evidence that listening to other people assimilate new concepts is the same experience as doing it for oneself. Exercises and essays are the time-honored method of teachers everywhere. Yet low achievers and less-motivated students are often reluctant to do these prescribed exercises and may complete them partially, if at all. If the teacher assigns the work during class, these students are very likely to be disengaged from their task. If the teacher assigns homework, many students, especially in schools with a poor climate for learning and in classes in the lower-level tracks in the high school, will fail to do it.

Even among the better-motivated high school students, essay assignments or written reports have their limitations. Understanding and assimilating new concepts and writing about them demand both cognitive processes and writing skills. Problems with writing are compounded with problems of thinking. Take, for example, the high school bioloby student who writes: "In the case of chlorophyll, photosynthesis will take place." Does the student understand that photosynthesis cannot take place without chlorophyll? The teacher can only guess about the student's understanding of the process. Furthermore, until the student gets back the corrected essay or exercise, there is no chance to discover confusion and error. As every busy instructor knows, the lag between a student's turning in a paper and receiving it back with adequate comments may be embarrassingly long.

Groupwork can be more effective than these traditional methods for gaining a proper understanding of abstract concepts. This is not to say that groupwork under all conditions will be more effective. Two basic conditions must be met for groupwork to facilitate conceptual learning:

\* The learning task should require conceptual thinking rather than learning to apply a rule or memorization.

\* The group must have the resources to complete the assignment successfully. These include intellectual skills, vocabulary, relevant information, and properly prepared task instructions. (p8-9)

There is no particular advantage in giving a group a set of routine computational examples to complete. They will respond by doing the most sensible thing-copying the answers of the student who is best and fastest at computation. The same thing will happen if you give the group a quiz to complete on facts of science or history. Contrast these examples with assigning a group the task of solving a difficult problem in arithmetic, discovering what makes a battery in a flashlight work, interpreting a passage of literature, understanding the phototropic behavior of plants, deciding what is wrong with the grammatical construction of some sentences, role-playing historical events, or learning how to plot a set of cooredinates. These are all examples of conceptual tasks that can be gighly effective in the group setting.

In tasks that are conceptual, students will interact in a way that assists them in understanding and applying ideas. Researchers have been able to show that group interaction has a favorable effect on understanding mathematical concepts and on reading comprehension. In bilingual classrooms where children were talking about working together on tasks using math and science concepts that demanded thinking skills, the more they talked and worked together, the more they learned how to do word problems (Cohen & Intili, 1981).

Exactly how does talking and walking together assist conceptual learning? A number of research studies provide important clues to how this process works. Webb (1982) emphasizes the benefits of explaining to others, especially when the material is complex and requires integration or reorganization. Putting concepts into words in the context of explaining to a peer is particularly helpful for concept attainmnent (Durling and Shick, 1976).

The student who does not initially understand the cancept also stands to gain from the peer process. Children who receive help improve their achievement test scores, depending upon the quality of the help they receive (Webb 1982). Even kindergarten children have been shown to learn very abstract concepts when placed in a group with peers who already understand the idea (Murray, 1972).

Disagreement and intellectual conflict are a desirable part of the interraction in a problem-solving group. Johnson and Johnson (1979), who have worked extensively with cooperative learning groups in classrooms, state that conceptual conflict resulting from controversy in the group forces individuals to consider new information and to gain cognitive understanding in a way that will transfer to new settings. Exposure to different points of view in an interaction helps childrento examine their environment more objectively and to use other perspectives than their own; it helps them to reach a more advanced stage of cognitive development, as described by Piaget (1951), Inhelder, Sinclair, & Bovert (1974), Sharan & Sharan, (1976). (p9-11)

Small groups are not a panacea for all instructional problems. They are only one tool, useful for specific kinds of teaching goals and especially relevant for classrooms with a wide mix of student academic and linguistic skills. The choice of groupwork as a strategy depends upon what the teacher is trying to achieve. Most teachers will want to use groups in combination with a variety of other classroom formats for different tasks. (P1)