CHAPTER 1

The Power of Cooperative Groups

Sandy Koufax was one of the greatest pitchers in the history of baseball. Although he was naturally talented, he was also unusually well trained and disciplined. He was perhaps the only major-league pitcher whose fastball could be heard to hum. Opposing batters, instead of talking and joking around in the dugout, would sit quietly and listen for Koufax's fastball to hum. When it was their turn to bat, they were already intimidated. There was, however, a simple way for Koufax's genius to have been negated: by making the first author of this book his catcher. To be great, a pitcher needs an outstanding catcher (his great partner was Johnny Roseboro). David is such an unskilled catcher that Koufax would have had to throw the ball much slower for David to catch it. This would have deprived Koufax of his greatest weapon. Placing Roger, the other author, at a key defensive position in the infield or outfield would also have seriously affected Koufax's success. Sandy Koufax was not a great pitcher on his own. Only as part of a team could Koufax achieve greatness. In baseball and in the classroom, it takes a team effort. Extraordinary achievement comes more often from cooperative groups than from isolated individuals competing with each other or working alone.

To understand the power of groups, it is first necessary to define instruction and assessment. We then discuss the power of groups in assessment and evaluation, the conditions needed for valid and reliable assessment, where groups should be used for instruction and assessment, and eight steps of using groups for assessment.

The Interrelationships Between Instruction and Assessment

To use the power of groups for assessment, it is first necessary to define the interrelationships between instruction and assessment. **Instruction** may be defined as the structuring of situations in ways that help students change, through learning. **Learning** is change within a student that is brought about by instruction. Teachers are responsible for instructing students to create learning. To determine the impact of instruction on learning, assessment procedures are required. **Assessment** involves collecting information about the quality or quantity of a change in a student or group. **Evaluation** may be defined as judging the merit, value, or desirability of a measured performance. Assessment should be continuous, as it is an essential aspect of instruction and learning. Evaluation, on the other hand, may be done only occasionally, as it is not necessary for instruction or learning but exists for other purposes. You can assess without evaluation, but you cannot evaluate without assessment. The quality of the assessment largely determines the quality of the evaluation.

Assessment may be conducted on individual, group, classroom, school, district, state, or national levels. **Individual assessment** involves collecting information about the quality or quantity of a change in a student, while **group assessment** is collecting information about the quality or quantity of a change in a group as a whole. Assessments may be conducted not only by the teacher but also by classmates and oneself. **Peer assessment** occurs when peers collect information about the quality or quantity of change in a student. **Self-assessment** occurs when a person collects information about the quality or quantity of a change in himself or herself. All four types of assessment (individual, group, peer, self) are necessary to maximize the learning of each individual student. While a great deal has been written about assessing the learning of individuals, much less is known about the assessment of groups and the use of peer and self-assessments to increase student learning.

Instruction, learning, assessment, and evaluation are so intertwined that it is difficult to separate them. Teachers plan instructional activities, students participate in them, the amount of learning is assessed, feedback is given to students, both students and teachers reflect on the results, and the processes of instruction and learning are modified to make them more effective, and occasionally, students' learning is evaluated (see Figure 1.1).

Transfer of Learning to Assessment Situations

Assessment has traditionally focused on individual-to-individual transfer of learning. Students worked in isolation from classmates (in

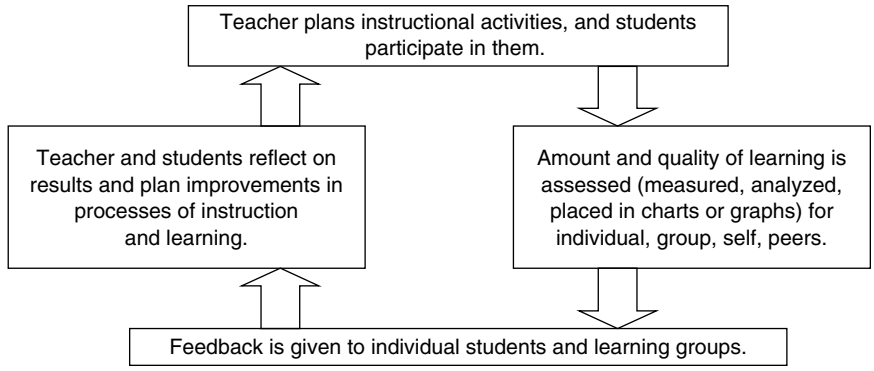

Figure 1.1 Interrelationships Among Instruction, Learning, Assessment, and Evaluation

either competitive or individualistic learning situations) and were given individual tests to assess their achievement. This practice was based on the assumption that individual assessment requires individual learning. This is a misconception. Group-to-individual transfer has been repeatedly demonstrated to be superior to individual-to-individual transfer (Johnson & Johnson, 1989). The purpose of cooperative learning groups is to ensure that all members learn and are, therefore, better able to perform on subsequent individual assessment measures as a result of their group experience.

Whose Learning Is It? Assisted Learning, Assisted Assessments, and Equalizing the Playing Field

Assessments have traditionally focused on unassisted student learning. Students were supposed to complete work by themselves (i.e., without the assistance of others). While there are assessment situations in which students should work alone, this does not mean that student learning should be unassisted. During learning situations, students should be exposed to sources of help and assistance, such as teachers, curriculum materials, resource experts, classmates, parents, private tutors, the Internet, educational programs on television or video, and so forth. All school learning is assisted and promoted by the instructional efforts of a wide variety of individuals within and outside of the school.

In learning situations, each student should receive the maximal amount of assistance possible. Thus the teacher should provide as much academic help and support as time allows. The curriculum materials and the instructional technology should be the best that the school district can afford. Parents should be enlisted to help students

with homework and to provide a tutor when a student needs one. Classmates and friends should be expected to provide as much academic help and support as they can. In the classroom, cooperative learning groups are used to provide the help and support that each student needs to maximize his or her learning.

In some assessment situations, certain students receive more help, assistance, and support than do other students. This raises the question, Whose work is it? and presents a potential threat to the validity of interpretations about individual scores. It may be unclear what a specific student can do individually. Homework is an example. Some students may turn in homework they have done themselves. Other students may seek out the teacher, receive help and assistance, and turn in teacher-assisted homework. Some students may get help from their parents or from a privately hired tutor and turn in parent-assisted or tutor-assisted homework. Other students may complete homework with their friends and turn in friend-assisted homework. Some students may have access to information on the internet and even enter chat-rooms in which help doing their homework is obtained; they hand in internet-assisted homework. When it comes to homework assessment, students who do not receive help and assistance are at a disadvantage. Communities in which parents are highly educated professionals, for example, may produce student work superior to that produced by students in districts with less educated and wealthy parents.

The disadvantage some students face because they have fewer or lower-quality sources of assistance than do classmates may be equalized through the use of cooperative learning groups. In cooperative learning groups, students who have access to the internet can share what they have found with their groupmates, students who have private tutors can pass on the tutoring, students who received extra help from the teacher can share what they learned, and so forth. Beginning each class period with a cooperative base group meeting in which students go over the homework and share what they have learned in completing it, for example, provides an opportunity to level the playing field and let each student benefit from the special resources and sources of assistance available to their classmates. Without cooperative learning groups, the classroom playing field may never be level.

The issue of assisted assessments is avoided when assessment procedures lead to individual performances on demand. For example, a student can write a series of compositions during a school year, all of which go through an editing process within the classroom (peer editing), the family (parent or sibling editing), or with a tutor (tutor editing). While these compositions reflect what the student is capable of (given the editing and feedback from classmates, parents, tutors, and

teachers), it does not reflect how well the student can write on demand. The teacher, therefore, may wish to give a test in which students are given a certain amount of class time (such as thirty minutes) to write an essay. The extent to which the writing skills learned transfer to new writing demands can then be assessed.

Instruction, learning, assessment, and evaluation are all interrelated. Assessment can focus on either individuals or groups, and assessments can be conducted by the teacher, classmates, or oneself. While assessments have often focused on individual-to-individual transfer of learning and unassisted student performances, assessment is enriched by group-to-individual transfer, and assessed learning and assessments help level the playing field so that all students have an equal opportunity to perform well. Assessments can be truly enriched by the power of learning groups.

Integrating Instruction and Assessment

A common misperception is that instruction and assessment are separate activities. In fact, instruction is considerably enhanced when it is integrated with assessment. Six of the interdependent ways that assessment can be integrated into instruction are as follows: First, assessment can require a systematic review of what is being learned. Such assessments can result in students engaging in the cognitive rehearsal of what is being learned. Second, assessment activities can require the integration of what is being learned with previous learning. Third, assessment activities can facilitate the creation of conceptual frameworks that provide organization and meaning to what is being learned. Fourth, assessment can require higher-level reasoning about what is being learned. This enhances the quality of the learning experience and enriches subsequent group discussions. Fifth, assessments can require a reconceptualization of what is being learned that integrates it into expanded cognitive frameworks. By asking students to use what they have learned in new ways, the result can be a rethinking of what has been learned and connecting it with other conceptual frameworks. Sixth, assessments can require students to extend their learning to new situations and problems. Transfer of learning is enhanced the more varied the situations in which students use what they are learning. Assessments can provide such varied situations. All of these ways of integrating assessment into instruction may be more effective when students are learning in groups and can discuss the results of the assessments with groupmates and then use the results of the assessment in the next phase of the learning activity. Refer often to the Checklist for Integrating Assessment Into Instruction as you make your lesson plans.

Checklist for Integrating Assessment Into Instruction

1. Systematically review what is being learned.
2. Integrate what is being learned into a conceptual framework.
3. Create conceptual frameworks within which to organize current learning.
4. Move reasoning about what is being learned to higher levels.
5. Require a reconceptualization of what is being learned.
6. Require an extension of what is being learned.

Power of Groups

The New York Yankees has been one of the best teams in baseball for most of its history (Sternberg & Grigorenko, 2000). There was a brief period of time, however, when the team was losing. This period occurred after the team's owner spent large amounts of money to hire some of the best baseball players in the world. These prima donnas could not work together, as each one tried to be the hero of each game. Despite the star players, the team was striking out. The same has happened in academic departments. One of the great English departments in the United States hired a collection of superstar professors (significantly increasing its reputation), but when the professors could not work together, the department's reputation plummeted.

Examples like this illustrate that in considering the effectiveness of a school or teacher, the degree to which individuals work together to promote each other's achievement and productivity largely determines effectiveness. The success of any one student or teacher cannot be separated from the success of the class or school as a whole. Any baseball or football player can tell you that although individual members make important contributions, their collective teamwork is the key to success. Unfortunately, the academic culture of the many schools tends to be so competitive or individualistic that teams are discouraged, despite the reality that most of the serious research is done in teams. This is true despite the fact that in the real world of work, teamwork is becoming more and more important. As science advances, for example, there is less and less that any one individual can do alone to make any substantial advance in research and knowledge. Much research can be accomplished only as teams work effectively together. Thus both working as part of a team and coordinating the efforts of multiple teams are becoming more and more important to advancing knowledge, scientific success, and the success

of almost any employee in any job. If schools are to be microcosms of the real world, teamwork has to be promoted throughout each school day.

Inevitability of Groups

The power of groups is reflected in their inevitability and ubiquitousness. Whether teachers encourage it or not, students will form groups. It is what humans do. No matter what historical period, no matter what culture, no matter what geographical area humans live in, people form groups and resist the dissolution of their groups (Gardner, Pickett, & Brewer, 2000; Manstead & Hewstone, 1995). There is a substantial survival advantage to joining groups and maintaining one's memberships in groups (Baumeister & Leary, 1995). Groups are better able to hunt for and grow food, find mates, and care for children. We are born into a group called the family, without which we would not survive the first few minutes, weeks, or years of our lives. We learn, work, worship, and play in groups. Our life is filled with groups from the moment of our birth to the moment of our death. Groups are so central to our lives that it is difficult to contemplate humans ever existing without them. If a being from outer space conducted a study of the people of earth, group membership would probably be the dominant characteristic noted. All of this means that groups are pervasive, and students will form groups no matter whether the teacher wants them to or not.

Groups Influence Behavior

The power of groups is reflected in the impact they have on students' actions. The groups we belong to largely determine our behavior (Johnson & F. Johnson, 2003). Groups provide information that helps us resolve ambiguity about the nature of our social world. It is within our family and peer groups that we are socialized into ways of behaving and thinking, where we are educated and taught to have certain perspectives on our world and ourselves. Groups are an important part of our identities, helping us define who we are (e.g., people wear shirts, hats, pins, and other items with the name of one of their groups on it). Groups establish social norms about what is and is not acceptable behavior. Groups influence what we value and what we aspire to achieve. The family we grew up in, the friends we have made and kept, the schools we attended, the organizations in which we work all influence our actions. It is the groups to which we belong to that give us faith and hope, determine how we perceive the world, shape what we aspire to and value, and influence what we consider appropriate and

inappropriate behavior. The groups we belong to influence what clothes we wear, what music we listen to, the slang and expressions we use, and the fads we follow, and they even determine how we perceive ourselves. The degree to which students value education, strive to achieve, and care about grades is largely influenced by the groups to which they belong. Groups influence almost every aspect of our behavior and lives.

Groups Enhance Achievement

The power of groups is reflected in their impact on individual achievement. Just as groups are central to every human culture, they are central to education. Communities send children to be educated in large groups known as schools. Schools divide students into smaller groups called "classes," and classes are divided into learning groups. Students tend to achieve and retain more when they work in cooperative learning groups than when they work competitively or individualistically (Johnson & Johnson, 1989). Benefits from group work include decreased student absenteeism and increased student preparation and effort (Dinan, 1995). Atkinson and Raynor (1974), theorists and researchers on achievement motivation, stated, "Achievement is a 'we' thing, not a 'me' thing, always the product of many heads and hands" (p. xi). Despite the North American myth of the remarkable individual who achieves great things in isolation from others, in business and industry, family life and parenting, communities and societies, and all other aspects of life, there is nothing quite so creative and productive as a cooperative group (Bennis & Biederman, 1997). It is groups that leave behind creations such as the atom bomb, a new computer, a family of cartoon characters, a walk on the moon, or a painted ceiling of the Sistine Chapel. The more sophisticated and technological the society, the more the coordinated contributions of many talented people are required to solve urgent problems. Building a global business, mapping the genetic structure of a disease, improving the human immune system—all are beyond the efforts of even the most gifted and energetic individual. It takes teams working together to achieve such goals. The history of the world is the history of extraordinary collaborations, where a group accomplishes much more than talented people working alone. Margaret Mead (as quoted in Bennis & Biederman, 1997) suggested that such groups be called, "sapiential circles."

This power of collaboration is also true in the classroom. Students working alone can complete simple assignments, learn simple procedures and information, and engage in well-learned behaviors. When new and complex knowledge and skills need to be mastered or extraordinary effort is needed, however, learning groups are necessary.

There are too many advantages to using groups in education to discuss them all, but here are some of the biggest: Groups can raise individuals' levels of aspirations. Groups can inspire individuals to achieve beyond their wildest expectations. Groups can give individuals insights and understandings that could never be achieved alone. Groups can ferment creativity and the unlocking of potential. Groups can change the way people perceive the world and the reality of their lives. Groups can provide variety, entertainment, and fun. If students were required to work alone all day, classroom life could be lonely, dull, boring, and alienating.

Groups Enhance Relationships

The power of groups is also reflected in their impact on interpersonal relationships (Johnson & Johnson, 1989). There are few life experiences more destructive than the absence of positive relationships with others, especially one's peers. All students need to have peers who know them well and like and respect them as individuals. Cooperative experiences, compared with competitive and individualistic experiences, result in more positive and supportive relationships (Johnson & Johnson, 1989). More friendships form and fewer students remain isolated when cooperative groups are used.

Groups Enhance Psychological Health

The power of groups is reflected in their impact of students' mental health (Johnson & Johnson, 1989). Membership in any group confers informational and emotional benefits to the member, including increased information resources, emotional resources, and the opportunity to take on different roles and identities. These processes are so powerful that people's mental health status is positively associated with the number of groups they belong to (Johnson & Johnson, 1989).

Groups Enhance Social Skills

The power of groups is reflected in their impact on the development of interpersonal and small-group skills (Johnson & F. Johnson, 2003). Developing teamwork skills (such as communication, division of labor, generosity in giving credit, constructive criticism, caring, sharing, support of others, and team spirit) can be at least as important to future career success as the development of individual academic skills. Therefore, students should be explicitly helped to develop interpersonal and small-group skills rather than leaving the development of these skills to chance. In fact, an exclusive emphasis on individual

academic learning can retard instruction and decrease learning. As Sternberg and Grigorenko (2000) note, there never really was or is a Lone Ranger, so why pretend otherwise?

Groups Help Make Assessments Meaningful

The power of groups is reflected in their impact on the perceived meaning of assessments. Involving students in assessment increases the meaning they attach to the assessments (Johnson & Johnson, 1996, 2002). Even high-stakes assessments can be resisted when they are perceived to be meaningless. Even low-stakes assessments can be entered into with great enthusiasm and effort when they are perceived to be meaningful. Assessments are perceived by students to be meaningful (1) when they have a significant purpose (such as contributing to the learning of groupmates and the common good); (2) when they consist of procedures, criteria, and rubrics that are clearly understood; and (3) when the results provide a clear direction for increasing the quality of learning and instruction. Unless the purpose is perceived to be significant, the procedures are clearly understood, and the results are perceived to be useful and relevant, the individuals whose performances are being assessed will not do their best and will not facilitate the assessment process.

Groups Provide the Framework for Involving Students in Making Assessments

The power of groups is reflected in their impact on student involvement in assessments. No matter how desirable an assessment procedure is, if it is time consuming and complex, teachers cannot use it. **Manageability** includes whether the available resources are adequate for the requirements of the assessment procedure and whether the value of the information obtained is worth the expenditure of the resources (Johnson & Johnson, 1996, 2002). Resources are required for (1) setting the learning goals in a way that induces student commitment to achieve the goals; (2) selecting the procedures to be used (such as tests, compositions, portfolios, projects, observations); (3) collecting and analyzing the data from diagnostic, formative, and summative assessments; and (d) recording and reporting results (includes charting the results and reporting activities such as student-led conferences). New learning goals are then set: either remediation to bring a student's performance up to the criteria for mastery or new goals for the next instructional unit.

The major issue in managing assessments is teacher time. Most teachers do not have much time to conduct assessments. Swain and Swain (1999), for example, note that in America, almost all of the

official working time of teachers is committed to the classroom instruction of students. Teachers in the United States devote more hours to instruction and supervision of students each week and have longer required workweeks than in any other developed, industrialized country, including the nations with six-day weeks, such as Japan and Switzerland. Consequently, most of the assessment activities must be done at night or on weekends. Swain and Swain conclude that teachers who spend twelve minutes to plan for each class session and nine minutes per week to assess each student's work have no choice but to work sixty hours a week or more. If teachers work forty-five hours a week, they will have six minutes to plan for each class session and three minutes per week to assess each student's work. Obviously, three minutes a week is not enough time to conduct any sort of meaningful assessment. The result may be the use of inadequate assessment procedures. Swain and Swain note that if it takes a teacher fifteen or twenty hours outside of school to grade essays from an assignment, then teachers may decide to assign fewer essays.

Time constraints can prohibit the use of many of the most effective and helpful assessment procedures. Teachers simply do not have the time to use them without help and assistance. If the more creative and effective assessment procedures are to be used, teachers need additional sources of labor. The most natural sources of help for teachers are students. Students are an ideal source of help because (1) they are always present in the classroom; (2) student commitment to implement the results of an assessment is greater when they collect, analyze, and interpret the data themselves; and (3) students may often learn more from conducting assessments than they do from receiving assessments. For these and many other reasons, it is often advisable (and necessary) to involve students in learning assessment rubrics and using them to reflect on and assess their own and their classmates' work.

Groups Empower Teachers to Enlarge the Scope of Assessments

The power of groups is reflected in the ways it enables teachers to increase the scope of assessments. Having students help conduct assessments allows teachers to do the following:

1. Provide students with powerful learning experiences that increase their achievement. Assessing the accuracy, quantity, and quality of their own and classmates' work tends to make the assessment and reporting processes important learning experiences. In addition, when students conduct assessments of classmates' work, they learn the criteria and rubrics used in assessment more thoroughly,

thus developing internal guidelines and greater understanding of how their work should be completed. Involving students in the assessment process can result in greater integration of assessment and instruction.

2. Conduct more frequent assessments. Having students assess each other's work significantly increases the frequency with which assessments can be conducted as well as the amount of work that may be assigned.

3. Assess a wider variety of outcomes. Outcomes that are ignored because they are too labor intensive to assess or require frequent and continuous monitoring may be included in an assessment plan when students are available to help. When students work together, covert reasoning and problem-solving processes, social skills, attitudes and values, and work habits may be made overt so that they can be assessed and improved.

4. Use more modalities in assessing students' work. In addition to assessing each other's reading and writing, students can observe each other presenting, performing cognitive and social skills, demonstrating higher-level reasoning procedures, using visuals such as graphs and illustrations, and even acting out or role playing aspects of the content being learned. This considerably enriches student assessment.

5. Use more sources of information in making assessments. Student involvement makes self and peer assessments available as well as teacher assessments. Self, peer, and teacher assessments can then be coordinated and integrated. Students as well as teachers can communicate the results of assessments to interested audiences.

6. Reduce sources of bias. There are at least two sources of bias in classroom assessments. The first is the inherent bias in making reading and writing prerequisites for revealing knowledge or engaging in a performance. The second is potential teacher bias due to such factors as neatness of handwriting (Sweedler-Brown, 1992) and teachers' perceptions of students' behavior (Bennett, Gottesman, Rock, & Cerullo, 1993; Hills, 1991). The more students assess each other's work, the less the potential there is for these biases.

7. Create classmate social support systems for remediation and enrichment activities. The limits on teacher time prevent teachers from constantly monitoring each student's efforts to learn and requires that only a sample be assessed. In small cooperative groups, classmates can continuously monitor each other's activities and provide both academic and personal support.

8. Create opportunities to assess group as well as individual outcomes. There are scientific, dramatic, or creative projects that may only be done by groups.

Groups Mediate the Impact of Evaluation

The power of groups is reflected in the ways the impact of evaluation is mediated. Students may be asked to perform on well-learned tasks and on new, complex tasks (see Figure 1.2). Whether they work in groups or are evaluated as individuals has considerable influence on their performance. Even the mere presence of others observing us work when our individual performance is being evaluated tends to improve our performance on well-learned tasks (Johnson & F. Johnson, 2003). This is known as the **social facilitation effect**. Social facilitation theorists conclude that working with other people when we are not being evaluated creates mild physiological arousal that energizes us to engage in the work and causes us to become particularly alert and vigilant, which results in our doing a good job (Zajonc, 1980).

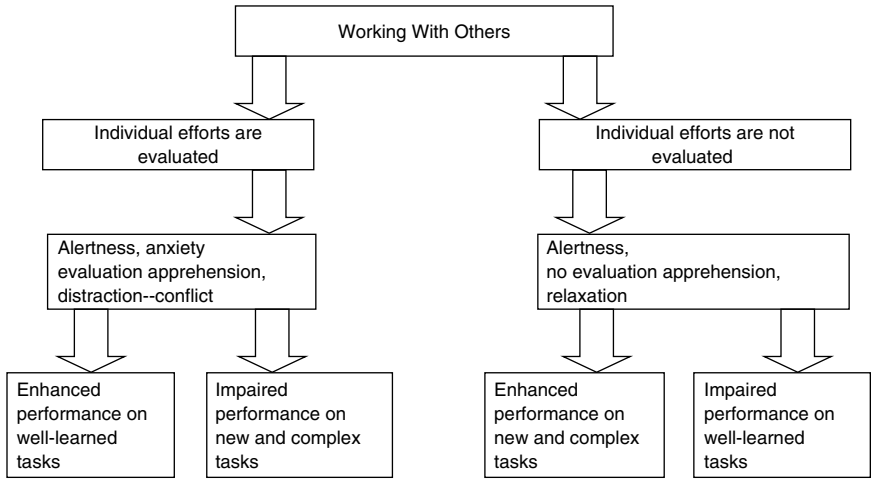

Figure 1.2 Groups and Evaluation

We tend to become more physically energized when we work with other people, and we know that we are going to be individually evaluated (more so than when we work alone), and the increase in psychological arousal makes it easier for us to engage in a dominant response but harder to do something complex or learn something new. When we are apprehensive about being evaluated, however, working with others

may result in evaluation apprehension and anxiety, which interfere with performance on new and complex tasks. The presence of others may create cognitive conflict over whether to attend to the evaluators or to the task, which distracts us from the task at hand and lowers our performance, especially on complex and new tasks (Baron, 1986).

Thus on new and complex tasks, our performance is higher when we work in the presence of others but are not evaluated. When individuals are not worried about being evaluated and they work together, they tend to be more relaxed and thus do better on difficult tasks (Jackson & Williams, 1985). When we are not going to be individually evaluated, working with others tends to relax us and reduce evaluation apprehension, enabling us to perform higher on complex tasks and learn new things; but under certain conditions, working with others may result in less effort on well-learned tasks.

Groups Enable the Assessment of a Wider Range of Outcomes

The power of groups is reflected in the range of outcomes that may be assessed. Most outcomes of instruction can be assessed either individually or in groups. Cognitive outcomes, such as domain-specific knowledge (declarative, procedural, schematic, and strategic knowledge in broad domains, such as humanities, social sciences, science), learning skills (such as comprehending, problem solving, decision making), reasoning with or applying knowledge in problem solving (verbal, quantitative, and spatial reasoning), and learning about one's learning, can sometimes be best measured individually and at other times best measured in groups. Personal and social outcomes, such as empathy, caring, compassion, and self-understanding, may be measured through individual questionnaires, but if teachers wish to assess students' abilities to engage in such behaviors, a group setting is necessary. In today's discussions about assessing learning and national, state, and local accountability systems, the desired outcomes of education are almost always confined to individual measurement of cognitive outcomes at the expense of personal, social, and civic outcomes.

Groups allow for the assessment of a wide range of outcomes that cannot be assessed when individuals work alone. Examples are as follows (Johnson & Johnson, 1996, 2002):

1. In groups, members give oral explanations, which tend to result in higher-level reasoning, deeper-level understanding, and long-term retention. These outcomes are often difficult to assess. To determine what students truly understand, it is necessary to make covert cognitive processes overt. Teachers listen to the group members working together and can determine the level of understanding students have

of the material they are studying. Without cooperative groups in which students are explaining to each other what they are learning, such assessment is not possible.

2. In groups, members may disagree with each other and challenge each other's conclusions and reasoning. Such intellectual conflict, when it is managed constructively, fuels higher-level reasoning, divergent thinking, creativity, and long-term retention (Johnson & Johnson, 1995c). Creative problem solving is especially enhanced by intellectual conflict among groupmates. The ways in which intellectual conflicts are managed and the creativeness of arriving at a conclusion can only be assessed in a group. Without cooperative groups in which students engage in intellectual conflicts, such assessment is not possible.

3. In groups, assessment can involve modalities other than reading and writing. Students who have trouble reading can learn assigned material orally. The discussion inherent in groupwork deemphasizes reading ability and emphasizes oral competencies. Groups provide an arena in which oral examinations on students' knowledge, reasoning, and problem solving can take place, and immediate feedback and remediation may be given.

4. In groups, social skills may be assessed. While a group works, communication must be effective, leadership must be provided, trust must be built and maintained, decisions must be made, conflicts must be resolved, and so forth. Such social skills cannot be assessed when students are working alone. Without cooperative groups, the assessment of social skills may not be possible.

5. In groups, attitudes and values may be more apparent and easier to assess. Working in cooperative learning groups tends to result in more positive attitudes toward learning and more prosocial values than does learning competitively or individualistically. Attitudes and values are reflected in behavior in interaction among group members and therefore are more open to assessment. Without cooperative groups in which students actualize their attitudes and values through the way they interact, such assessment may not be possible.

6. In groups, work habits may be more apparent and easier to assess.

7. In groups, civic outcomes, such as taking initiative, demonstrating social responsibility, engaging in civic projects, and so forth, can be measured.

8. In groups, a wide variety of skills and competencies (such as problem solving, interacting effectively with diverse peers, use of technology, writing, and speaking) can be assessed.

See Figure 1.3 for a comparison of group and individual assessment.

Characteristic	Individual Assessment	Group Assessment
Assessor	Teacher	Teacher, peer, self
Outcomes assessed	Cognitive	Cognitive, competencies, personal, social, civic, attitudes, values, work habits
Source of feedback	Teacher	Teacher, peers, self
Frequency of assessments	Limited by teacher time	Limited by teacher and students' time
Modalities	One	Many
Social comparison	Limited opportunity	Continuous opportunity
Instruments, procedures	Primarily objective tests	Objective and essay tests, compositions and presentations, observing, interviews, enactment of social skills.
Peer influences	Neutral or away from achievement	Toward achievement

Figure 1.3 Group and Individual Assessment

Conditions for Valid and Reliable Assessments

For assessments to be valid and reliable, the assessor must accurately perceive the assessee and the assessee's performances. The accuracy of perceptions is influenced not only by the validity and reliability of the assessment instruments but also by such factors as the trust level between the assessor and the assessee and the openness and honesty of the communications. The greater the trust level and the more open and honest the communications between the assessor and the assessee, the more valid and reliable the assessments will tend to be. The assessors typically are teachers, classmates, and oneself.

Accurate perceptions, trust, and open communication are characteristics of a cooperative relationship, which also promotes many other behaviors that facilitate accurate assessments. Competition, on the other hand, promotes misperceptions of each other and each other's behavior, distrusting and untrustworthy actions, closed and inaccurate communication, and many other behaviors that interfere with

and obstruct accurate assessments. Individualistic efforts tend to result in behaviors similar to competition. To understand how to conduct accurate assessments, therefore, it is necessary to understand how to build and maintain cooperative relationships. This is the focus of Chapter 2.

Where Groups Should Be Used

Instruction groups may be used in almost any lesson, subject area, grade, and curriculum unit. In deciding whether groups should be used in a lesson, however, teachers may use several guidelines. One set of guidelines involves the nature of the lesson. Groups should be used when (1) the instructional goals indicate their use, (2) there are limited materials, (3) the task is complex, (4) new material is being learned, (5) multiple perspectives are being studied, (6) creativity is required, (7) the task involves solving a problem, and (8) there are divisible responsibilities.

The second set of guidelines involves the findings of research. Groups should be used when (1) achievement, retention, deeper-level understanding, and higher-level reasoning are important; (2) intrinsic motivation, continuing motivation, and achievement motivation are important; (3) positive interpersonal relationships among students, especially diverse students, are important; (4) students need social support both academically and personally from their classmates and the teacher; (5) students' self-esteem and self-efficacy are important; (6) students' social skills, interpersonal competencies, and abilities to work as parts of teams are important; and (7) students' general psychological health is important.

The third set of guidelines involves tradition, that is, how you have structured the lesson in the past. If you have traditionally used groups for this lesson, then do so again.

Despite the many advantages of using groups, many teachers do not do so. Why is the power of groups ignored (see "Why the Power of Cooperative Groups Is Ignored).

Eight Steps of Using Groups for Assessment

Given that valid and reliable assessments depend on cooperative relationships among students and faculty and that learning groups may be used in almost any lesson, the use of learning groups in assessment needs to be discussed. There are eight steps in using groups for assessment:

Why the Power of Cooperative Groups Is Ignored

Directions: Consider the five sources of resistance to using cooperative groups given below. Rate yourself from "1" to "5" on each source.

1----------2----------3----------4----------5

Low	Middle	High
Not a concern of mine	Somewhat a concern	Consistently and strongly a concern

	The Causes of the Missed Opportunities to Capitalize on the Power of Groups
	1. **Belief that isolated work is the natural order of the world.** Such myopic focus blinds educators to the realization that no one person could have built a cathedral, achieved America's independence from England, or created a supercomputer.
	2. **Resistance to taking responsibility for others.** Many educators do not easily (1) take responsibility for the performance of colleagues or (2) let colleagues assume responsibility for their work. The same educators may resist letting students take responsibility for each other's learning.
	3. **Confusion about what makes groups work.** Many educators may not know the difference between cooperative learning groups and traditional groupwork.
	4. **Fear that they cannot use groups effectively to enhance learning and improve teaching.** Not all groups work. Most adults have had personal experiences with very ineffective and inefficient committees, task forces, and clubs and know firsthand how bad groups can be. When many educators weigh the potential power of learning groups against the possibility of failure, they choose to play it safe and stick with the status quo of isolated work.
	5. **Concern about time and effort required to change.** Using cooperative learning requires educators to apply what is known about effective groups in a disciplined way. Learning how to do so and engaging in such disciplined action may seem daunting.

First, teachers need to realize that groups have powerful effects not only on achievement and other instructional outcomes but also on assessments. That is the focus of this chapter.

Second, not all groups are powerful, and not all groups enhance instruction and assessment. There is more to making groups effective than seating students together and telling them they are a team. Poorly structured groups may be at best inefficient and at worst destructive to members. To be effective, learning groups need to be cooperative, with five basic elements (i.e., positive interdependence, individual accountability, promotive interaction, social skills, and group processing) carefully structured in the learning situation. Any assignment in any subject area may be structured cooperatively. There are three types of cooperative learning groups: formal cooperative learning, informal cooperative learning, and cooperative base groups. Each may be used to enhance the quality of assessments and integrate instruction and assessment. These are discussed more fully in Chapter 2.

Third, teachers make assessment plans that include cooperative learning groups as the setting in which the assessment is organized. While students learn in cooperative learning groups, teachers may assess individuals, groups, or both. The teacher decides which specific processes and outcomes (e.g., knowledge, reasoning processes, skills and competencies, attitudes and values, work habits) will be assessed, the sequence of the instructional tasks, the assessment procedures (tests, observations, portfolios, reports, and so forth), and the purpose of assessments (diagnostic, formative, or summative). Groups can provide immediate remediation and enrichment thus integrating instruction and assessment. Assessment plans are discussed in Chapter 3.

Fourth, groups are used as the setting in which each member is assessed as an individual. The basic purpose of a cooperative group is to make each member a stronger individual in his or her own right. There is a pattern to classroom life that can be summarized as learn it in a group, perform it alone. Most assessments begin, therefore, with the teacher using groups to more accurately assess each group member as a separate individual. Groups are necessary for the assessment of many individual outcomes. There are many individual performances (such as mastery of social skills, singing in harmony, playing an instrument in concert with others, passing the ball to a teammate in basketball, giving an encouraging remark to a groupmate who is too shy to participate, expanding on a classmate's idea, giving good explanations, summarizing and integrating the views of others, criticizing the reasoning of another person, and so forth) that can only be assessed within a group setting. Within learning groups, learning goals are set for each member. Assessment procedures are then used, such as individual tests, questionnaires, interviews, and observations. The

teacher may use the results of the individual assessments to structure the agenda for the next group session, and the group may use the individual assessments to provide remediation and further instruction of each member. Using groups to assess individuals is discussed in Chapter 4.

Fifth, on many assignments, groups produce a product that should be assessed. Obviously, group assessment cannot take place without groups. Group assessment involves having students work in small groups to complete a lesson, project, or test while a teacher or group members (or both) measure the level of performance of the group as a whole. There are many desired outcomes of school activities that can only be assessed if students work in groups and are assessed at a group level, such as performing a play, winning a basketball or volleyball game, or the making a video. Science experiments, dramatic or musical productions, team sports, history field projects and many, many more assignments may result in group products that are assessed as wholes. When group projects are assigned, problem-based learning used, and case studies are discussed, the result of the group effort is assessed. How to do so is discussed in Chapter 5.

Sixth, groups are necessary for peer assessments. Obviously, if students are to assess each other's learning, they have to work together so that each person's learning processes and quality and quantity of actual learning can be observed and understood. Peers may be the source of the most complete, accurate, and helpful assessments and feedback. The more students work together and the more cooperative the situation, the more accurate, fair, and insightful peer assessments will be. While teachers may sample students' behavior, groupmates continuously monitor each other's work and performances. Assessing each other's work increases the learning of each assessor, allows for more frequent assessments to take place, allows for the assessment of a wider variety of outcomes, allows for the use of more modalities in assessment and thereby reduces the bias inherent in making reading and writing prerequisites for assessment, allows for the use of more sources of information, reduces potential teacher bias in assessment, and creates peer social support systems for remediation and enrichment. Peer assessments are the focus of Chapter 6.

Seventh, the teacher may structure self-assessments based on the experiences of working cooperatively with classmates. Engaging in self-assessment requires a comparison process (either with a person's past performances, preset criteria, or the performance of similar others) and procedures for gathering information about such things as one's performances, actions, emotions, intentions, and values. All three types of comparisons are helpful, but it is the comparison of one's performances with the performances of others than is often most

informative. Self-assessments, therefore, are much more reliable and accurate when a person has been working cooperatively with others. Self-assessment is discussed in Chapter 7.

Last, the teacher may create group situations for assessment purposes, such as the use of role-playing situations, simulations, and academic controversies. This is discussed in Chapter 8.

Summary

Instruction, learning, assessment, and evaluation all take place in a network of interpersonal relationships in which people work cooperatively to maximize their learning and the learning of classmates. Instruction is aimed at producing learning that is then assessed and evaluated. Assessment should be continuous, but evaluation should be done only occasionally. The teacher plans instructional activities, the resulting learning is assessed, feedback is given to individual students and learning groups, students and teachers reflect on the results, and the processes of instruction and learning are modified to make them more effective; and occasionally, students' learning is evaluated. The effectiveness of instruction is considerably enhanced when assessment is integrated into the instructional activities. The use of learning groups has powerful effects on this process.

Assessment has traditionally focused on individual-to-individual transfer of learning and unassisted individual learning, which are reflected in both competitive and individualistic learning. The power of groups for both instruction and assessment has been relatively ignored to date. Students will form groups despite how learning is structured as forming groups is an essential part of human nature. Not only are groups inevitable and ubiquitous, they enhance achievement, positive relationships with classmates, psychological health, and social skills. In addition, learning groups help make assessment meaningful, provide the framework for involving students in the assessment process, and enable the teacher to conduct more frequent assessments, assess a wider variety of outcomes, use more modalities in assessing students' work, use more sources of information in making assessments, reduce biases in assessment, create support systems, and assess groups as well as the individual members. Groups mediate the impact of evaluation so that when students working in learning groups are being evaluated, they perform better on well-learned tasks, but when they are not being evaluated, they perform better on new and complex tasks. A much wider range of outcomes can be assessed when learning groups are used. Last, groups have powerful effects on students' behavior through socialization and development, social

influence, and attitude and value development. In short, the use of learning groups opens the classroom to assessment potentials that many schools have not dreamed of.

When learning groups are used for instruction and assessment, the validity and reliability of the assessments increase as the relationship between the teacher and the students and among the students becomes more cooperative and less competitive or individualistic. Learning groups may be used in any lesson, but they are especially apt when the task is complex and material is new, when positive relationships and social skills are important as well as achievement, and when it is traditional to do so.

There are eight steps in using learning groups for assessment purposes. Teachers should recognize the power of groups, know how to structure groups to ensure that they are cooperative, make an assessment plan, use groups to help in individual assessments, assess the groups as a whole, use peer assessments, use self-assessments, and create group situations in which targeted competencies and skills may be assessed. Each one of these steps is the subject of a chapter in this book.