What is Cooperative Learning?

Cooperative learning is a structured process in which a team masters the learning objectives for a defined activity. In the context of a Process Education™ learning environment, the learning objectives include both mastery of content and the development of certain learning skills from the cognitive, social, affective, and/or psychomotor domains (as identified in Pacific Crest’s Classification of Learning Skills\(^1\)).

Cooperative learning should not be confused with group work which involves placing students in groups and telling them to work together on a task. Cooperative learning is more structured and comprehensive. It takes into account the following:

- the organizational structure of the team,
- accountability for performance (both team and individual),
- the relationship between the members of the team,
- the relationship between the facilitator and the team,
- protocol for evaluation and assessment of performance, and
- the manner in which the performance of the team and the individuals in it are rewarded.

Today there are many research centers, programs, and publications devoted to continuing the long and rich history of research, theory, and practice associated with cooperative learning.

Two higher education-based centers for cooperative learning define the term in the following manner.

The Cooperative Learning Center at the University of Minnesota:

Cooperative learning is a relationship in a group of students that requires positive interdependence (a sense of sink or swim together), individual accountability (each of us has to contribute and learn), interpersonal skills (communication, trust, leadership, decision-making, and conflict resolution), face-to-face promotive interaction, and processing (reflecting on how well the team is functioning and how to function even better).\(^2\)

Cooperative Learning Program, Southeastern Center for Cooperative Learning, Florida Community College:

Cooperative learning is instruction that involves people working in teams to accomplish a common goal, under conditions that involve both positive interdependence (all members must cooperate to complete the task) and individual and group accountability (each member is accountable for the complete final outcome).\(^3\)
The Office of Educational Research and Improvement (OERI) of the Department of Education defines cooperative learning as:

a successful teaching strategy in which small teams, each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject. Each team member is responsible not only for learning what is taught but also for helping teammates learn, thus creating an atmosphere of achievement.4

Characteristics of Cooperative Learning

While cooperative learning can take different forms and be implemented in numerous different contexts, it is distinguished by certain characteristics or key elements. These characteristics5, 6 include:

- intentional team/group formation,
- mutual (positive) interdependence,
- high-level communication and face-to-face interaction,
- inter- and intra-group teaching,
- individual accountability and ownership of performance,
- a focus on recognizing and developing learning skills,
- ongoing reflection and assessment, and
- a sense of shared community.

Intentional team/group formation

In cooperative learning settings, groups or teams are formed based on the learning objectives and a set of predetermined criteria. This is in contrast to groups which are randomly formed or situations where students are allowed to select their own group members (see pages 12-14 for information about designing teams).

Mutual (positive) interdependence

When a student believes that he or she cannot survive alone, that the entire group is required for success, then a state of interdependence exists. With this in mind, instructors should utilize cooperative learning in situations where teams will outperform individuals with the required task or work product. To increase interdependence among teams, consider the following:

- have teams produce a common work product that involves a sharing of resources and a division of labor;
- use task delegation and assigned roles (see pages 15-20 for more information) within the team;
- foster and build a sense of identity (e.g., learning team member’s names, having a team name, sharing of personal information, etc.); and
- provide rewards for team achievement or performance.
Communication and face-to-face interaction

In cooperative learning settings, students help, assist, encourage, and support each other’s efforts to learn. This requires oral communication from all team members at a level that goes beyond normal conversation to include in-depth discussions, teaching each other, and providing assessment feedback.

Intra-group teaching

Cooperative learning allows for much greater student interaction and the possibility for students to teach each other. This includes explaining how to solve problems, discussing the nature of concepts, teaching new knowledge, and making the connections between present and past learning.

Individual accountability

Although students learn as a group, each individual is accountable for his or her own learning. Examples of how an instructor can promote individual accountability include:

- giving individual grades (using written exams or, oral exams while monitoring group work);
- randomly calling on individual students to present his or her team’s answer, solution, or discovery; and
- assessing individual performance and providing feedback to help that individual improve future performances.

Recognizing and developing learning skills

Learning objectives should include explicit attention to the development of specific cognitive, social, affective, and/or psychomotor skills. By its nature, cooperative learning requires the use of skills associated with communication, teamwork, and management processes as well as the affective processes of value development and personal development.

Ongoing reflection and assessment

Assessment and self-assessment are vital processes for improving future performance. The process of assessment and its associated skills come into consideration when instructors want teams and individuals to focus on improving performance over time. The “SII Method” is a simple, yet powerful tool for assessment. This method involves identifying strengths (and why they are strengths), areas for improvement (and how to implement the improvement), and insights gained (and their significance).
A sense of shared community

High performing teams develop a sense of shared community among members. This is the result of camaraderie, respect, social cohesion and bonding. This requires a continuity of group interaction over a period of time. See pages 38-44 for information regarding models of group development.

Differences between Cooperative and Collaborative Learning

For a discussion about the differences between cooperative and collaborative learning, refer to the following paper:

Matthews, Roberta S., James L. Cooper, Neil Davidson, and Peter Hawkes. “Building Bridges Between Cooperative and Collaborative Learning.” Change, July/August 1995, Volume 27 No. 4

Role of Facilitation in Cooperative Learning

Cooperative learning requires the instructor to be directly involved in the learning process, acting as a facilitator of learning rather than an expert source of information. In other words, the instructor becomes a manager of the classroom process rather than a manager of knowledge. The task is to empower students to do the learning themselves. This requires:

- preparation – what is expected to happen in class,
- setting up the situation – making sure that everyone is doing what you plan for them to do,
- planning for contingencies – what to do if unexpected things occur, and
- facilitating the process – maintaining a stimulating, challenging, educational, and supportive atmosphere; in order to do this, one must be assessing the process as it occurs and make the necessary adjustments, i.e., “real-time” curriculum planning.

“Team”

A group is a collection of individuals that have been put together to work toward a common goal. A team is a group that has become synergistic. While the members may be strong personalities with highly developed specialized skills, the successes of the team are the result of collective effort and group consensus. There is mutual support, collaboration, and clear, open communications with one another. According to the Tao of Teams', there is a clarity of values: evolved team members do not confront opposing values, they recognize them as personal beliefs; learning is in discussion; and strength is in collaboration.
Cooperative Learning Theories and Research

During this century, there has been no shortage of research, experiments, and studies concerning the effectiveness of cooperative learning (more than 600 experiments and 100 correlational studies). According to Johnson and Johnson, more than a third of all studies comparing cooperative learning, competitive, and individualistic learning have been conducted with college students making it one of the most researched instructional practices. They point out that research on cooperative learning has a validity and generalizability that is rarely found in educational literature. Scholars from different backgrounds and disciplines have validated results using studies in different contexts and settings with all types of subjects (varying age, sex, class, nationality, and cultural background). A review of this literature, and a summary and analysis of the literature can be found in the 1993 book by Johnson and Johnson published by Interaction Book Company.

One comprehensive study of particular note is by Astin in 1993. In this longitudinal study of more than 27,000 students at 309 institutions, Astin determined that two environmental factors had the largest positive influence on college students academic development, personal development, and satisfaction. These were (1) student-student interaction, and (2) student-faculty interaction. In short, the degree of active engagement and personal involvement in learning controlled, to a great extent, the quality of the educational outcomes. Cooperative learning utilizes both.

Results of studies have shown that the use of cooperative learning leads to improved academic achievement, improved attendance and retention, positive relationships among students and a “sense of community.” The above-mentioned outcomes were cited and documented in the 1998-1999 Annual Report for the Southeastern Center for Cooperative Learning.

Models of Cooperative and Collaborative Learning

There are many different models of cooperative and collaborative learning currently being used in higher education. The most prevalent models include:

1. The Structural Approach (Spencer Kagan)
2. Social Interdependence Theory (David Johnson and Roger Johnson)
3. Group Investigation (Shlomo Sharan and Yael Sharan)
4. Collaborative Models (Kenneth Bruffee)
5. Team Learning (Larry K. Michaelsen)

Refer to Appendix E on pages 73-75 for specific papers and publications written by the authors mentioned above.
Benefits of Cooperative Learning

The benefits of cooperative learning for the learner/student include improved learning, development of skills, and facilitation of personal growth.

Improved learning:

- Students take ownership for learning; helping to create a love of learning and excitement for discovery.
- Students learn to teach each other (there is a role reversal, students see themselves as teachers) and when you teach, you learn better. Students can learn more than was intended or presented by the instructor.
- Students perceive themselves as experts; students’ knowledge is viewed as expert by other students.
- Students participate in active learning; learning is active.
- Students are able to attain deeper levels of content mastery and understanding.
- Students engage in practices that model the real world; gaining valuable experiences in the process.
- Students are able to observe and assess different learning styles and learning processes; varied models of learning enhance personal growth.

Development of skills:

- Students build self confidence in their learning skills.
- Students learn to enhance communication and social skills.
- Students are able to improve their self-assessment skills when performing the role of reflector (see page 17);
- Students are able to build skills in the affective domain.

Personal growth:

- Students have fewer feelings of isolation and alienation.
- Students gain confidence as they contribute to the team’s efforts; a feeling of being valued and sharing in the team’s successes.
- Students gain an appreciation for diversity.
- Students discover that their own life experiences are important and can contribute positively to the learning process.
- Students are able to perform and improve performance with various team roles (see pages 15-20) which contributes to personal growth.
The benefits of cooperative learning for **teams** include an improved learning environment, improved team performance, and improved teamwork skills.

**Improved learning environment:**

- Teams have the opportunity for a more lively and engaged way to learn.
- Teams have the potential to engage in more intellectual and emotional pathways than could be done as an individual.
- Teams provide for a diversity of learning experiences within the group.
- Teams provide a greater level of comfort because each team member has others to depend on.
- Teams offer a “safe” environment with the ability to provide members with attention and affirmations.
- Teams are willing to take more risks than are individuals.
- Teams help to provide a sense of purpose and focus.

**Improved performance:**

- Teams have strength in numbers; the whole is greater than the sum of its parts.
- Teams allow for efficient utilization of expertise, abilities, and proficiencies.
- Teams help to reduce errors (fallacies); errors are caught more quickly and more often by a team than by individuals.
- Teams stay less stuck than individuals (minimizing spinning one’s wheels).
- Teams reduce wasted effort and frustration attributed to non-productivity through time wastage.
- Teams increase efficiency; they are able to process and deal with a greater volume of work (task delegation).
- Teams allow for increasing the degree of challenge set by the instructor; more difficult learning, problem solving, communication, and assessment tasks and projects can be given to teams than to individuals.
- Team decisions or solutions arrived at by consensus create ownership or commitment because team members want to see the team succeed.
- Team decision-making processes (simultaneous generation and evaluation of options) are more efficient and resourceful than can be derived from a single individual or a sequential decision-making process.
- Teams reduce the number of poor performers because student colleagues instantly become teaching assistants in the learning process.
**Improved teamwork skills:**

- Team members learn to cooperate on common goals.
- Team members are able to develop an appreciation of interpersonal differences.
- Team members (when they get acquainted with each other) become more caring and supportive; committed relationships are formed more so than those formed in a traditional classroom settings.\(^{16}\)
- Team members are able to improve their social interactions.
- Teams members who experience initial frustration associated with cooperative learning are able to learn from their experiences and to improve future performance in cooperative learning settings.
- Team members de-emphasize individual competitiveness when working together in a collaborative environment.
- Team members develop a desire to work well together, and to be mutually supportive as a result of identification with one another as a team.

The benefits of cooperative learning for the **instructor/facilitator** include:

- Facilitators can enjoy the teaching/learning process more.
- Facilitators are rewarded by students’ increased energy and focus on learning.
- Facilitators are free to share in the learning experience rather than controlling it.
- Facilitators experience a breakdown of the boundary between students and faculty.
- Facilitators have a better sense of how students are learning and where problems may originate.
- Facilitators are able to get a clear perspective and understanding of students’ learning styles and thinking processes.
- Facilitators *know* when something has been learned; decreasing the uncertainty in teaching outcomes.

**Perceived Drawbacks of Cooperative Learning**

Perceived drawbacks for the **student/learner** include:

- Individual team members don’t get to practice individual skills.
- The team prohibits individual experimentation.
- The cooperative learning environment is uncomfortable and threatening.
- Good traditional learners may be resistant.
- The team may leave out the slow student, forcing the group to pick up the slack.
- Shy team members may not get the same value from cooperative learning.
Group work requires a high energy expenditure – can students actually maintain their motivation and pace?

It is difficult to ensure that each team member is optimally engaged.

Students misinterpret faculty feedback and may not be able to cope effectively with the constructive criticism offered.

Some students are impatient with group learning.

If students become too conditioned to cooperative learning, they may not be able to process a lecture.

Perceived drawbacks for the **team** include:

- Team performance suffers when members lack cooperative learning skills.
- Team performance is dependent upon the quality of each individual’s performance in the various team roles; there’s variability in performance levels.
- Team performance suffers because members may have a difficult time coordinating their schedules out of class.
- Team performance suffers when performing certain team roles causes an individual to decrease his or her participation in the learning activity.
- Team performance suffers when team members have conflicts; hostility can develop between team members and between the teams themselves.
- Teams may get dominated by a strong individual whether intellectual, popular, or radical.
- Teams may become very dysfunctional and nonproductive; sometimes groups just don’t “gel.”
- Teams do not foster individual accountability.

Perceived drawbacks for the **instructor/facilitator** include:

- Instructors must be experienced facilitators in order to perform in this type of learning environment; instructors are usually inexperienced as facilitators.
- Instructors must give up some degree of control to empower the teams.
- Instructors may not be able to handle or deal with students who are not engaged.
- Instructors may lose control when student teams choose to define their own path (divergent from the instructor’s) based upon the team’s wishes.
- Instructors will need to invest more time and effort than before; it takes time for preparation, managing class time, and group activity time.
- Instructors may be perceived as not doing their jobs by students; that the instructor isn’t sharing his or her expertise or modeling the learning process.
- Instructors may feel that their content expertise is lost or not being fully utilized.
- Instructors may become bored with their role in this type of learning environment.
- Instructors may receive poor student evaluations.
Perceived drawbacks when it comes to **assessment and evaluation** include:

- Students and instructors find assessment a difficult process; especially the process of self-assessment.
- Students fear the sharing of group grades.
- Students don’t like the idea that others may get credit for free riding on others efforts.
- Students and instructors find it difficult to separate the assessment of group and individual performances.
- Instructors are concerned about students getting the wrong answer and correcting student misconceptions.
- Instructors feel that they must still “cover” the required material; that there are standardized test requirements and course prerequisites to meet and consider.

Perceived drawbacks for cooperative learning **in general** include:

- Cooperative learning takes more time (preparation and class time) than lecturing.
- Cooperative learning is not possible or very difficult with large classes.
- There is the fear of making mistakes and receiving criticism on the part of both students and faculty.
- Factors outside the instructor’s control can give rise to undesirable outcomes.
- Initially, cooperative learning may take longer to accomplish content goals; start-up for students is time consuming.

**Chapter One Endnotes**


Chapter 1 – Overview of Cooperative Learning


8 Johnson, David W and Roger T. Johnson. “What We Know About Cooperative Learning at the College Level.” Cooperative Learning, Vol. 13 No. 3 (1993) IASCE.


Chapter 2 – Preparing for Cooperative Learning

All learning has an emotional base. – *Plato*

**Designing Teams**

Cooperative learning teams or groups can be classified as:

- **informal and short-term** – e.g., small groups formed on-the-spot to complete a five-minute in-class exercise,

- **formal task-oriented** – groups which possess a structure, develop norms (group rules and standards), and stay together until the task is done, or

- **base groups** – groups that provide long-term emotional and academic support.

Teams should be designed taking into account the learning objectives for the activity, project, or task to be done. With the exception of informal teams, it is imperative that the instructor designs the teams because using random assignments or allowing students to self-select their team members most often will not yield a desirable level of diversity (see page 14 for more about diversity within teams).

**Team Size**

The learning objectives for an activity along with the type of activity itself are key factors that help determine the optimal size of a team or group.

**Skill Exercises** *(teams of two)*

Skill exercises refer to activities in which students demonstrate their comprehension of new material. Homework problems or the questions at the end of a chapter are examples of skill exercises. While students must perform some degree of transfer (of knowledge), the contexts are not completely new to students; in other words, a “near transfer” as opposed to a completely new context or “far transfer.”

When the focus of an activity is to strengthen the understanding of previously introduced concepts, working in pairs is desirable. Student pairs can assess each other’s understanding of material as they work to apply their knowledge in slightly new or different contexts. In these situations, the instructor should pair students so that they help each other – teaching, sharing, and challenging the other to perform at a high level. With the exception of tutoring situations, it’s best to avoid pairing students who are at extremes in terms of academic abilities.
**Guided-Discovery Learning** (teams of three)

Guided discovery refers to activities which are designed so that students learn new content through the use of models and a set of guided-inquiry questions. Students learn through discovery rather than be told information directly. However, the mode of discovery is not completely open (as in research) but rather the instructor provides a resource base and guides learners through the process.

When students are in the process of learning a new concept, they typically need a greater variety or diversity of resources to gain understanding and build new knowledge. Compared to pairs, having a third person on the team increases the quality of team exploration and the quality of answers to critical thinking questions. In general, teams of three work well when learning content is the primary goal. In these situations, the team roles commonly used are: captain, recorder, and spokesperson or technology specialist.

**Note:** In guided-discovery situations, when the learning objectives include developing certain learning skills, then a fourth person should be added. This person becomes the team’s “reflector” whose role is to observe and assess the team’s performance. The reflector provides feedback to the team that identifies strengths (and why), areas for improvement (and how), and insights. See page 17 for more information about the reflector role.

**In-class problem solving** (teams of four)

In-class problem solving allows the instructor to observe and assess students’ problem solving skills. Students are able practice problem solving in the presence of peers and an instructor who offer feedback to improve future performance. When choosing a problem for students, consider the time limitations of the class and make a reasonable choice (i.e., the scope of the problem should be appropriate).

In the case of in-class problem solving, with less complex problems, teams of four are optimal. If the team size is too large for the task at hand, certain team members will be less engaged and contribute less. A team size of four in this situation allows for each team member to make a significant contribution to the process. Within the team, the four main roles should be: captain, recorder, reflector, and spokesperson. If additional roles are needed (such as technology specialist, planner, or time keeper), some team members will have to assume more than one role.

**Long-term problem solving project** (teams of five)

This type of activity is typically more of a semester- or term-project in which a team will collectively put in 60 to 100 hours of work. This type of project requires planning at the beginning, incorporation of many concepts from the course, and on-going assessment of performance by the team. The final work product most often includes a written report as well as an oral presentation. Teams of five are optimal in this situation. Even with more complex problems, teams greater than five tend to “lose” members and find a higher degree of disengagement. Also, the team process breaks down more easily with larger teams.
### Activity Table

<table>
<thead>
<tr>
<th>Activity</th>
<th>Optimal Team Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill exercise</td>
<td>2 people</td>
</tr>
<tr>
<td>Guided-discovery, guided inquiry</td>
<td>3 people</td>
</tr>
<tr>
<td>Guided-discovery with assessment</td>
<td>4 people</td>
</tr>
<tr>
<td>In-class problem solving</td>
<td>4 people</td>
</tr>
<tr>
<td>Out-of-class problem solving project</td>
<td>5 people</td>
</tr>
</tbody>
</table>

*Note that the optimal team size increases with the difficulty of the activity and the corresponding higher level of knowledge which is developed.*

### Diversity within Teams

The more interpersonal variety you can build into the design of teams, the richer will be the experience for each team member. The first consideration when designing should be diversity in terms of distribution of academic performance levels. Collect data at the beginning of a course and within the first couple of weeks. Do your best to rank students according to their performance as learners. Then begin designing teams so that there is a diversity of performance levels. The next diversity consideration is gender. Try and split men and women equally. Next look at diversity in terms of minority composition. This could include age, race, cultural background, discipline, etc. Finally, look at personality and learning style preferences. An understanding of Meyers-Briggs personality types can be helpful but is not essential to team building. Information about Meyers-Briggs personality indicators and the Kolb Learning Styles inventory is presented later in this chapter.

Another important consideration when designing teams is to avoid putting students from a particular “power-base” on the same team. This includes splitting up athletes from the same sports team, people from the same fraternity or sorority, and students who are related, especially spouses.

### Forming Base Groups

Since base groups stay together for longer periods of time, it is especially important that careful consideration be given to the design and make-up of the groups. Therefore, rather than forming teams immediately, randomize teams on a regular basis during the first 2-3 weeks. This helps to build class harmony, allows students to become more familiar with each other, and most importantly, allows an instructor time to evaluate students’ performance capabilities. It is best if an instructor has some data or observations before starting to design base groups. Academic performance on a quiz or exam and observations from a challenging activity can provide the most useful data. Another consideration, is to wait until after the add-drop period (when the class roster is nearly set) before assigning students to base groups.

*Note: If an instructor’s main goal is to develop team-building skills, then consideration should be given to rotating team members on a regular basis. However, most teams, after they have been formed, typically want to stay together.*
Team Roles

The use of roles greatly influences the effectiveness and efficiency of teams. Without roles, much of a team’s performance is left to chance. Roles provide a framework or structure within which each team member is accountable and his or her individual efforts contribute in an organized manner to accomplishing the overall learning objectives. A division of labor occurs which ensures group processing and emphasizes the underlying philosophy of cooperation.

Roles provide a great opportunity for personal growth by emphasizing the recognition and practice of skills from different domains in the Classification of Learning Skills. The table below identifies some of the key processes and team roles which are suited to performance using that process.

Four common roles for groups are team captain, recorder, spokesperson, and reflector. If computers or some form of technology is used, a person becomes the technology specialist. Other roles include: optimist, skeptic, spy, time keeper, conflict resolver, planner, problem solver, artist, and translator.

<table>
<thead>
<tr>
<th>Processes and Corresponding Team Roles</th>
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<tbody>
<tr>
<td><strong>Cognitive Domain</strong></td>
</tr>
<tr>
<td>Information Processing</td>
</tr>
<tr>
<td>Thinking</td>
</tr>
<tr>
<td>Problem Solving</td>
</tr>
<tr>
<td><strong>Social Domain</strong></td>
</tr>
<tr>
<td>Communication</td>
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<tr>
<td>Teamwork</td>
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<tr>
<td>Management</td>
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<tr>
<td><strong>Other Processes</strong></td>
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<tr>
<td>Assessment</td>
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<tr>
<td>Language Development</td>
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<tr>
<td>Tool Usage</td>
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<tr>
<td>Aesthetic Development</td>
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</tbody>
</table>

It is important that roles be rotated within teams on a regular basis (after each activity is preferable). Everyone should have the opportunity to perform each role. While team members are able to appreciate a person who performs in his or her “power” role. There is also the opportunity to work on skills and performance.
associated with roles that are more challenging and/or uncomfortable.
Team Roles and their Performance Criteria

Even though there may be strong personalities on a team with highly-developed, specialized skills, the overall successes of a team result from the collective efforts and group consensus of all team members. When there is mutual support, collaboration, and clear and open communications within a team, success is optimized. The use of roles works to improve the collective efforts of the team as well as enhance individual development. Performance criteria for roles provide essential guidelines which help a team achieve current goals and develop as a strong interactive group (supporting the growth of each member). Real-time assessment and constructive feedback from the instructor and peers help improve student performance in learning and with team roles.

In smaller groups, roles are consolidated among team members while in larger groups, the team roles are spread amongst the members. However, it is important that every team member have a role. With complex tasks, additional roles can be identified and assigned. In some cases, evaluation of the task beforehand will help to delineate the reassignment of roles.

Regardless of group size, there are two common behaviors that must be practiced by all team members. First and most important, each team member should be actively learning and contributing toward the common goal. Second, each team member should practice good communication skills, including listening. Specific performance criteria (for roles) include behaviors that are exclusive to a particular role so duplicity of effort is avoided. This is especially important when time limitations are imposed.

Team Captain

The team captain or team leader is responsible for the overall performance of the team, ensuring the timely achievement of the goals. As part of time management, it is the captain’s responsibility to set up an agenda or meetings and ensure task completion. The captain should work to make the process enjoyable and rewarding while keeping team members focused, performing within their roles, and involved in the learning or problem-solving process. The team captain should provide positive reinforcement, manage the stress level of the group and when necessary, slow the process by supporting the most challenged individual. In the event that a conflict arises within the group, the captain has the essential role of acting as mediator to resolve the situation. Above all, it is the team captain’s responsibility to make sure that every team member can articulate what has been learned.
Recorder
The recorder is involved with the flow of information. The performance criteria for the recorder involve the effective documenting and dissemination of information and knowledge (including discoveries made by group consensus). The recorder listens, writes or records, and articulates ideas. This includes comprehension of instructions, integration and synthesis of complex and multiple ideas, control of information flow, diagramming, and algorithm construction.

In order to convey understanding of important findings to all group members, the recorder should be able to verbalize concepts in alternative forms. The recorder constantly and objectively assesses the information acquired in the process of task completion, directing attention to those areas which are falling short of the group’s objective, and recognizing significant group discoveries. Written communication skills are required to legibly record the team’s achievements in a learning journal which permanently documents the process as well as the group’s decisions. If an external mediation becomes necessary in conflict resolution, the recorder prepares a report of the needed background information. In addition to the requirements outlined above, the recorder never neglects the primary role as an active learner and contributor in the learning process.

Reflector
The role that is most critical to the long-term development of learning skills of both the team and its individual members is the reflector. A team’s success in these areas will be dependent upon the listening, observation and communications skills of this member whose tactful feedback serves as a quality control mechanism. The reflector makes “real-time” observations of the group’s processes interactions (as compared to content-based information collected by the recorder) and prepares constructive information for behavioral change. In fulfillment of this task, the reflector may have to remind the team captain of the duties for which individual members are responsible. Every 15-30 minutes, group confidence is built through an assessment report which identifies a strength of the team’s performance (and why it is a strength), an area for improvement (and how the improvement can be made), and an insight for the team. The permanent recording of this report occurs in a learning assessment journal.

In addition, the reflector should provide appropriate interventions which initiate strategies for improving team growth, especially suggestions to improve the team’s time efficiency. When a conflict arises, the reflector’s task is to compile the documentation which provides sufficient evidence from which fair judgments can be made. As with the other roles, the reflector never retreats from his or her primary role as an active learner and contributor in the learning process.
Spokesperson

The spokesperson is the “voice” of the team. He or she speaks on behalf of the team in appropriate situations which include formal situations such as class presentations as well as informal class discussions or the inventorying of discoveries after an activity. The spokesperson should speak clearly and loud enough for all to hear. During a discussion among teams, the spokesperson may ask a question for his or her team or request clarification and further explanation.

The spokesperson should collaborate with the recorder and make use of the recorder’s learning journal when speaking for the team. As with all the roles, the spokesperson should be an active learner, participating and contributing in the learning process.

Technology Specialist

The effective use and management of tools during an activity is the exclusive role of the technology specialist. The computer, a calculator, and laboratory equipment are examples of common tools used by the technology specialist.

Performance criteria for this role include collaborating, listening, executing directions and procedures as indicated by team members, communicating what is being done (procedurally) with the technology and the results of each effort. Modeling, critical thinking, and a willingness to take risks are other performance criteria. As with all roles, the technology specialist should be an active learner, participating and contributing in the learning process.

Role Cards

“Role cards” are folded pieces of paper or cardboard which display the name of a person’s role on one side (the side facing team members) and a list of the main performance criteria on the other side (facing the person so he or she can always be reminded of his or her responsibilities in that role).

Role cards also make it easier for the facilitator to know the roles of each person in the team without having to interrupt or disturb the team during an activity. The team captain also is able to quickly tell who is responsible for what role on the team.
A Summary of Performance Criteria for Team Roles

**Captain**

1. Keep the process enjoyable and rewarding for team members.
2. Make sure each member has a role and is performing within that role.
3. Ensure that all team members can articulate what has been learned.
4. Manage time, stress, and conflict.
5. Control the process and the pacing; keep members focused.
6. Contribute to the group and actively learn.
7. Maintain accountability for the overall performance of the team.

**Reflector**

1. Observe performance, interactions, and the dynamics among team members.
2. Be a good listener and observer.
3. Analyze and record strengths, improvements, and insights into a “reflector’s journal.”
4. Maintain accountability for the overall quality of the reflector’s journal.
5. Report from the reflector’s journal, rephrasing assessments positively and constructively.
6. Intervene with observations about the process and suggest strategies for change.
7. Remind the team captain of his or her duties.
8. Contribute to the group and actively learn.

Criteria for a **Written** Reflector’s Report

The reflector’s written report should be:

- concise,
- clear,
- accurate,
- cites specific examples to convey understanding,
- refers to key skills used by the team,
- provides supporting documentation in the Learning Assessment Journal.

Criteria for an **Oral** Reflector’s Report

- Speaks loud enough for all others to hear.
- Presented within **30 seconds** (unless specified otherwise).
- Identifies one **strength** of the team’s performance and explains why it is a strength.
- Identifies one **area for improvement** that the team can focus on and explains how the team can improve.
- Provides one **insight** gained about the learning process and explains the significance of the insight.
Recorder

1. Record group roles and instructions at the beginning of a task or activity.
2. Document legibly and accurately group decisions and discoveries in a recorder’s journal or “learning journal.”
3. Maintain accountability for the overall quality of the recorder’s journal.
4. Control information flow; articulate concepts in alternative forms if necessary.
5. Prepare a report that can be used for discussion purposes. Integrate and synthesize when several ideas are presented.
6. Contribute to the group and actively learn.

Criteria for a Written Recorder’s Report

- Records accurate information.
- Identifies the team’s most important discoveries.
- Summarizes the processes used by the team and identifies the context.
- Identifies the concepts, processes, tools, and contexts used by the team.

Spokesperson

1. Speak for the team when called upon to do so.
2. Ask questions posed by the team, or request clarification.
3. Make oral presentations to the class for the team.
4. Use the recorder’s journal to share the team’s discoveries and insights.
5. Collaborate periodically with the recorder.
6. Contribute to the group and actively learn.

Optimist

1. Focus on why things will work.
2. Keep the team in a positive frame of mind.
3. Look for ways in which team discoveries can be applied or used to the team’s advantage.
4. Contribute to the group and actively learn.

Skeptic

1. Question and check the assumptions that are being made.
2. Determine the issues or reasons why quality is not being met at the expected level.
3. Be constructive in helping the team improve performance.
4. Contribute to the group and actively learn.
Pre-assessment of Students’ Cooperative Learning Skills

There are a number of assessments that can and should be made before you begin group learning activities. These will assist you in designing the groups and the activities that you will use.

Personality Styles

The Myers-Briggs Indicator is a convenient, non-threatening way to focus on learning styles and interpersonal differences. A person’s preferences will influence how well he or she responds to the cooperative learning environment, and the manner in which he or she prefers to contribute to the overall learning experience. There are many “unofficial” versions of the inventory, but getting qualified to use the authorized version is highly recommended for three reasons: (1) the instrument is fully validated, (2) the process that is used in identifying type incorporates a verification stage that ensures that the respondent understands, and agrees with the results, and (3) the training provides substantial insight into the richness of the underlying psychological theory and its application to teamwork, problem-solving, and career choice.*

The typology is based on Jung’s theory of types. Briefly, it is hypothesized that there are two orientations (extroversion and introversion) and four cognitive functions, two perceiving functions (taking in information) and two judging functions (making decisions about information).

Each of us tends to prefer one orientation. An extrovert is energized by the environment and often tends to prefer and enjoy many varied activities that involve many people. Introverted types are energized by solitude and reflection and tend to prefer activities that can be performed alone, or with one or two close friends.

Each of us tends also to prefer using one of the four cognitive functions more than others, and this is also another bias for interpersonal differences. The two perceiving functions are sensing and intuition. Sensing types prefer to take in information through their senses (seeing, touch, hearing, etc.). They focus on facts and details. Intuitive types prefer a broader focus, so that often the source of information cannot be pinpointed – it seems to “come out of the blue.” Intuitives prefer possibilities to facts.

The two judging functions are thinking and feeling. The thinker makes decisions based on logic, whereas the feeling type prefers making judgments based on values. The former is comfortable with concepts such as “justice,” whereas the latter is more comfortable with concepts such as “mercy.”

*For further details, contact APT, Association for Psychological Type, 4700 W. Lake Avenue, Glenview, IL 60025-1485. (847) 375-4717 <www.aptcentral.org>
It must be emphasized that every individual must use both orientations and all four cognitive functions to thrive in our complex environment. Furthermore, a strong preference does not infer a strong skill. A person who prefers thinking may be a great thinker but could think illogically equally as well. A person who prefers feeling may find it difficult to be logical, or he or she may have become excellent thinkers as a result of the pressures of jobs, friends, family, etc.

In terms of teams, those that consist of people of the same or similar types will get along quite well; the members will “see eye-to-eye.” However, these teams will also suffer from tunnel vision and their solutions to problems may not be the best. Therefore it is highly recommended that groups possess a variety of types.

With these caveats in mind, the following is a brief discussion of the strengths and areas of difficulty for the eight primary types – each being divided into two subtypes.

**Thinking Types**

**Introverted thinking types (INTP, ISTF)**

These individuals are objective, approaching people and events as dispassionate observers. They love analysis, and do not care much about the outcome. They tend not to take criticism personally. They are often seen as detached and arrogant. They see the feelings of others as histrionic, and when triggered by being around too many emotions, they may begin to feel the unfamiliar emotions themselves, and in their discomfort emphasize the importance of logic to its extreme. “In the grip” of their inferior function, they may feel totally isolated and unlovable. The unfamiliar feeling emotion can come out as raw, unbridled emotion, be it angry, maudlin, or whatever. Withdrawal, engagement in light problem-solving or reality checking can help them emerge.

**Extroverted thinkers (ENTJ, ESTJ)**

These individuals enjoy making decisions, leadership, focusing on truth, accuracy, and productivity. They tend to confuse rational decisions based on feelings and values with emotionalism (this is a projection of their own relatively immature feeling function that tends to be emotional). Because they tend to use their feeling function so rarely, they tend to react emotionally if one of their values is not held in high regard. When the emotion erupts, they tend to lose the power of their dominant function and feel that they can’t think. They seem to recover best by being left alone.
Sensing Types

Introverted sensing types (ISFJ, ISTJ)

These individuals are careful and orderly in their attention to facts and details and they are thorough and conscientious when attending to their responsibilities. They base their judgments on a careful accumulation of past and present facts. They often appear calm and unruffled in a crisis, although they may not feel that way. Inferior extroverted intuition seems to color their everyday lives so they appear to be worriers. Anything new is likely to trigger negative possibilities. They can be overprotective parents. Dealing with people whose approach appears to ignore facts and realities can push their buttons, causing them to lose control of details and facts, causing them to be impulsive catastrophizers. They can return to normal by engaging in physical activity with others or changing scenes, but most agree that they have to struggle through it first.

Extroverted sensing types (ESTP, ESEP)

These individuals like to be out in the world, experiencing it first hand. They take things at face value, and tend to be optimistic. Liking all the things they take in through their sensing functions, they tend to be sensual and aesthetic, and tend not to organize things into preexisting categories as they take them in. They are impatient with theories and can be admired for their carefree attitude and despised for their perceived shallowness. In the grip, they can project their inferior intuition and attribute meaning to random occurrences. When they spend too much time on plans, or are too long with people who are obsessed with the future and commitments, their extroverted energy drains and they can become lost in fantastic speculations, internal confusion, and grandiose predictions. These episodes tend to be frequent but brief. Return to equilibrium is assisted by solitude and their natural tendency not to dwell on things.

Feeling Types

Introverted feeling types (INFP, ISFF)

These individuals are open, tolerant, sensitive, and forgiving. They tend to downplay others’ faults and are reluctant to support an issue about which they don’t feel strongly. They are curious and seek a wide variety of experiences, so that others may see them as indecisive and lacking in conviction. Sensitive to their own sense of inferiority in the thinking arena, they tend to be hypersensitive to phoniness and hyperbole. Their discomfort with the “thinking” issues of truth and justice make them focus on evil and wrongdoing and the mistakes of others. An atmosphere of criticism and negativity causes them to “lose it.” They may stave off biting criticism at first by engaging in destructive fantasies, but eventually can become cold, nit-picking critics, and may act precipitously. They are brought back to equilibrium by living through the pain.

Depending on the context, **sensing** can be used for:

- finding facts,
- finding out what the situation is exactly,
- and impartiality.

Depending on the context, **feeling** can be used for:

- weighing values,
- considering the effect on people,
- and making sure that the temporary doesn't outweigh the permanent effects.
**Extroverted feeling types (ESFJ, ENFJ)**

These individuals radiate goodwill and enthusiasm. They value harmonious human relations and so ignore the negative and pessimistic. Their extroverted feeling may seem to others to be excessively caring or even codependent but to them, it is a genuine expression of their preferred function. They are particularly sensitive about others’ assessment of their intellectual capabilities and may feel that they cannot articulate their thoughts well. They may project this by being critical of others mistakes and their failure to tell the truth. They can be particularly critical of others lack of logic. They tend to “lose it” when others do not take them seriously. Their energy drains and they become involved in excessive criticism, especially of themselves, leading to depression. They resort to convoluted logic and become involved in a compulsive search for the truth (self-help books). A change of scene helps them get back into equilibrium.

**Intuitive Types**

**Introverted intuitive types (INFJ, INTJ)**

These individuals are intellectually independent and can create a theory to explain anything, enjoy new perspectives, and are often considered to be visionary. Because they tend to express their opinions directly and forcefully, they can be viewed as rigid and intractable by others. Whereas they are usually quite ready to change incorrect opinions, being wedded to information rather than judgments. They can be mysterious and mystical. Often glossing over facts and details in their personal lives, they can compensate by becoming expert in a narrow field. There is a readiness to distrust the outer world which may lead to acquiring a detailed knowledge about the environment and may result in an over-concern with keeping track of things. They project their lack of trust of the environment onto others, criticizing them for not paying attention to details. Dealing with details can cause the eruption of the inferior function. They obsess about controlling the environment, organizing, overindulging in sensual pursuits. They become adversarial – all fault is outside them and are extremely resistant to outside suggestions. They return to equilibrium through sleep and gentle sensory diversions and exercise.
Extroverted Intuitives (ENFP, ENTP)

These individuals enjoy new ideas and possibilities. Preferring what might be rather than what is, they find their environment welcoming and exciting. They often ignore dangers as a result and may be risk-takers. They are bored by facts and details unless they are pertinent to the issue being addressed, where the facts may lead to new possibilities. Enthusiasm for a current project may cause them to ignore everything else, even hunger, fatigue, etc., which may lead them into their inferior side. Another trigger is having to deal with detail and precision. They may become instant experts in an area that fascinates them. Fearful about their inattention to details, they may obsess about facts associated with things that are important to them. These may be discounted by others, which then leads them to doubt their perceptions. The obsession with details leads them to be picky about details they would normally find irrelevant such as typos, etc. When they get “in the grip,” they tend to withdraw and become depressed, possessed by tunnel vision and may focus on the body. Headaches, etc., can become uncontrolled. Withdrawal and calm contemplation, especially meditation, are useful to help return them to normal.

Team Skills

Many students have never learned cooperatively because their past experiences in educational systems discouraged it – even to the point of calling cooperation “cheating.” Therefore, it is useful to first orient students to the team process using non-graded, “fun” activities, in which they can become familiar with the team roles and active learning environments (e.g., using guided-discovery activities). During activities, it is useful to monitor the groups. Look for, and note, both positive and negative group behaviors in the following categories. Get students to do the same.

<table>
<thead>
<tr>
<th>Participation</th>
<th>Who participates? Who doesn’t? Why or why not?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence</td>
<td>Who has influence and who lacks it?</td>
</tr>
<tr>
<td></td>
<td>What factors seem to be involved?</td>
</tr>
<tr>
<td>Decision-Making</td>
<td>Who or what groups makes decisions? How are they made?</td>
</tr>
<tr>
<td>Task-Orientation</td>
<td>Who is on task? Who digresses? Procrastinates?</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Who keeps the group together?</td>
</tr>
<tr>
<td></td>
<td>Whose negative behaviors are divisive?</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>Is the atmosphere relaxed? Is it tense?</td>
</tr>
<tr>
<td></td>
<td>From what does the mood stem?</td>
</tr>
<tr>
<td>Feelings</td>
<td>How are feelings handled? Are they tackled or ignored? Are they handled in a mature, supportive, constructive way?</td>
</tr>
<tr>
<td>Norms</td>
<td>How are group rules or norms set up? Are they negotiated or understood? Does everyone comply?</td>
</tr>
</tbody>
</table>
Your personal notes, and the reflections of students can be used as you put learning groups together and as you debrief them in preparation for learning activities that will take place in the near future. Depending upon the group skills observed, you may choose to focus on more or fewer team-building exercises to start.

**Critical Thinking Disposition and Critical Thinking Skills**

Two inventories† called the California Critical Thinking Skills Test (CCTST) and California Critical Thinking Dispositions Inventory (CCTDI) can be used by an instructor for a number of purposes. They are easy to administer and score and take approximately 45 minutes and 20 minutes, respectively, to complete.

The CCTST is the more difficult test to complete, since it actually measures critical thinking skills in three dimensions: analysis, inference, and evaluation. It can be used as a pretest, to assess students’ critical thinking skills and assist the instructor in constructing groups, and it can be used as a post-test, to assess learning outcomes. The scores can be given to students so they can be cognizant of their strengths and areas for improvement.

The CCTDI is not difficult to complete since it asks for preferences rather than demanding that critical thinking problems be completed. The CCTDI is intended to measure a disposition toward critical thinking. It has seven sub-scales: (1) analyticity (the propensity to be analytical), (2) systematicity, (3) open-mindedness, (4) truth-seeking, (5) maturity, (6) confidence, and (7) inquisitiveness. Its score is highly correlated with the CCTST score, but tends to increase as a function of maturity. It is more useful for the assessment of adolescents and young adults, and less discriminatory for mature students. As with the CCTST, the CCTDI is useful for pre-assessment.

**Learning Styles**

The Kolb Learning Style Inventory‡ also is easy to complete, and focuses on interpersonal differences in preferred learning methods. Kolb⁶ hypothesized that there are four primary learning modalities: concrete experience, reflective observation, abstract conceptualization, and active experimentation.

Kolb also hypothesized that active experimentation and reflective observation represent a pair of opposites in one dimension, as do concrete experimentation and abstract conceptualization. An individual’s basic learning style results from the combination of the preferences on each dimension.

†The CCTST and CCTDI are available from: California Academic Press, 217 La Cruz Avenue, Millbrae, CA 94030, (650) 697-5628 <www.calpress.com>

‡The LSI can be obtained from: McBer & Co., Training Resources Group, 116 Huntington Ave., Boston, MA 02116, (617) 437-7080
Characteristics of each of the four modalities are presented next.

**Concrete Experience**

*A person with an orientation toward learning from concrete experiences:*
- focuses on being involved in experiences;
- deals with immediate human situations in a personal way;
- emphasizes feelings (as opposed to thinking);
- prefers an artistic approach (as opposed to scientific);
- enjoys and is good at relating to others;
- functions well in unstructured situations;
- has an open-minded approach to life; and
- values relating to people and being involved in real situations.

**Reflective Observation**

*A person with an orientation toward reflective observation:*
- focuses on the understanding of meaning of ideas and situations by carefully observing and describing impartially;
- emphasizes understanding (as opposed to practical application);
- focuses on what is true, or how something happened (as opposed to whether something will work);
- is good at seeing implications;
- prefers reflection (as opposed to action);
- appreciates differing perspectives and points of view;
- is self-reliant in forming thoughts and opinions; and
- values patience, impartiality, thoughtful judgment.

**Abstract Conceptualization**

*A person with an orientation toward abstract conceptualization:*
- focuses on using logic, ideas, and concepts;
- emphasizes thinking (as opposed to feeling);
- is concerned with building general theories (as opposed to understanding unique, specific areas);
- prefers a scientific approach to problems (as opposed to artistic);
- is good at systematic planning, quantitative analysis, symbol manipulation; and
- values precision, rigor, the aesthetic quality of a neat conceptual system.

**Active Experimentation**

*A person with an orientation toward active experimentation:*
- focuses on actively influencing people and changing situations;
- prefers practical applications (as opposed to reflective understanding);
- is pragmatic and concerned with what works (as opposed to truth);
- emphasizes doing;
- enjoys getting things done;
- is a risk-taker; and
- values having influence and seeing results.
An individual’s basic learning style results from the combination of the preferences on each dimension. Thus:

**Convergent Learning Style**

combines Active Experimentation and Abstract Conceptualization

Characteristics of a convergent learning style include:
- an orientation toward problem-solving and decision-making;
- prefers practical application of ideas;
- does best in conventional intelligence tests;
- organizes knowledge so that it can be applied to problems using hypothetical-deductive reasoning;
- controls expression of emotion; and
- prefers dealing with technical tasks and problems rather than people.

**Divergent Learning Style**

combines Concrete Experimentation and Reflective Observation

Characteristics of a divergent learning style include:
- has imaginative ability;
- is aware of meanings and values;
- looks at situations from many angles and organizes them into a meaningful gestalt;
- adapts by observation rather than action;
- is good at brainstorming; and
- is interested in people and is feeling-oriented.

**Assimilation Learning Style**

combines Abstract Conceptualization and Reflective Observation

Characteristics of an assimilation learning style include:
- uses inductive reasoning;
- is good at creating theoretical models;
- assimilates disparate observations into an integrated explanation;
- is more concerned with ideas and concepts; and
- practicality isn’t as important as logical soundness and precision.

**Accommodative Learning Style**

combines Concrete Experience and Active Experimentation

Characteristics of an accommodative learning style include:
- gets involved in new experiences, carries out plans;
- is opportunity-seeking, risk-taking, action-oriented;
- adapts to immediate circumstances;
- if a theory or plan does not work or fit, it is discarded in favor of one that does; and
- is intuitive, using trial-and-error when problem-solving.
Kolb compared his learning styles with Jung’s typologies (measured by the Myers-Briggs Type Inventory). Thus introversion/extroversion (Jung) corresponds with the scale of reflective observation/active experimentation. Sensing corresponds with accommodation. Feeling corresponds with divergence. Thinking corresponds with convergence, and intuition corresponds with abstract conceptualization.

Cognitive Development

The attitudes that students bring into the learning environment will affect their satisfaction with it, and may also influence their performance. Perry\textsuperscript{7} developed a nine-level scale that can be used to evaluate these attitudes. At level one, the individual sees life as black or white and right vs. wrong. Whereas, at level nine, life is viewed as a spectrum of “grays” and a symphony of complexity. Levels 2-5 from Perry’s scale are summarized below. It is hypothesized that most college or university students are at level 2 or 3, whereas comfort with problem-based approaches to learning may require a cognitive level of 4 or 5. Cooperative learning and problem solving tend to be correlated with increases in cognitive maturity according to this scale. However, the movement to higher levels is always associated with “disequilibrium,” and it is the facilitator’s responsibility to manage the affective response by students.

<table>
<thead>
<tr>
<th>View toward</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>all known</td>
<td>most known, some fuzzy</td>
<td>anything goes</td>
<td>function of context</td>
</tr>
<tr>
<td>Answers to Problems</td>
<td>right or wrong</td>
<td>several right answers</td>
<td>my answer is as good as yours</td>
<td>no absolute truth</td>
</tr>
<tr>
<td>Instructor</td>
<td>knows truth</td>
<td>tell us how to learn</td>
<td>models, but can be discounted</td>
<td>guide, source</td>
</tr>
<tr>
<td>Student's Role</td>
<td>to receive</td>
<td>work hard</td>
<td>independent thought</td>
<td>learning to learn better</td>
</tr>
<tr>
<td>Evaluation</td>
<td>What am I responsible for?</td>
<td>hard work = good mark</td>
<td>independent ideas = good mark</td>
<td>seeks constructive feedback</td>
</tr>
<tr>
<td>Preferred Task</td>
<td>memorization</td>
<td>compare / contrast</td>
<td>analysis</td>
<td>synthesis</td>
</tr>
<tr>
<td>Difficult Task</td>
<td>Which is correct?</td>
<td>process focus</td>
<td>providing evidence for claims</td>
<td>deciding conditions pertaining</td>
</tr>
</tbody>
</table>

Perry’s Scale
Learning Style Preference Inventory
Questionnaire to Estimate Perry’s Cognitive Level

Instructions:

Distribute 10 check marks between the following thirty-two questions.

Score by taking the average of the sum of the second digits of each code number.

Then compare with Perry’s Scale on page 29.

82  I like classes in which I learn facts, concepts, and skills using standard procedures.
73  I like classes where I can share and clarify my ideas and opinions.
64  I prefer a class in which the theories or issues are fully explained.
55  A class that focuses on evaluating theories and issues is my preference.
72  A good course follows a standard curriculum using one textbook.
83  I like a class that is based on a collection of topics that are chosen by the instructor.
54  I like a class that is based on a collection of topics that are agreed on by students and instructor.
65  A great course would allow me to select topics to study according to my interest and needs.
62  It’s the teachers responsibility to choose the most appropriate instruction method for the course.
52  I’d like to have a few different instruction methodology options from which to choose.
44  I’d like to be able to choose from a variety of instructional methods to suit my learning preferences.
35  I’d like to choose my own learning methods, although the professor would supervise.
52  A good course covers a single, unified subject.
43  My ideal course would cover two or three themes or perspectives on a topic.
34  My ideal course would cover two or three themes or perspectives on a topic, with some differing points of view to make it interesting.
25  A good course would dramatically contrast ideas, topics, and themes, to provide a rich, realistic picture.
12  I prefer my instructor to stick to the most widely held opinions on a subject, regardless of whether he or she agrees.
An instructor should give equal weight to different opinions and perspectives realizing that all of them are valid.

An instructor should compare theories and perspectives systematically to highlight their relative strengths and weaknesses.

A course should show you how to analyze material so that you can form your own informed opinion about the topic or issue.

The best teaching method incorporates lectures, detailed handouts, and front-of-the-class use of the blackboard or overhead projector.

I like a mix of lecture and discussion, with some time to express my own opinions.

I like discussions that allow me to explore the relationships between concepts and their implications.

I like a course that allows me to solve problems with the course material.

A fair test of my learning is either a multiple-choice examination or short answers.

My learning is evaluated fairly when there is a mixture of multiple-choice examinations, short answers, and some assignments.

A fair course would examine me by allowing me to discuss, rationally, some topics and ideas in depth.

A fair examination allows me to synthesize the material I’ve learned in a course.

If the course is fair, then I know I’ll do OK; if I learn all the facts, skills, an procedures.

I’ll succeed in a course if it’s most important to grasp the theories that serve as the foundation for the material.

I know I’d get good grades in my preferred course if I can relate several theories or methodologies, or if I can apply the knowledge to solve problems.

In my favorite course, the successful student would design, create, and develop new ideas, systems or things, and be able to defend it rationally.
Chapter Two Endnotes


Chapter 3 – Facilitating Cooperative Learning

Creating a Quality Learning Environment

Before addressing the topic of facilitating cooperative learning environments, let’s look at the larger issue of creating a quality learning environment (in a course or a program) in which cooperative learning can take place.

Consider for a moment the impact and influence of environment upon a person’s growth, development, and performance. In context after context, an engaging, stimulating and challenging environment can significantly enhance performance and growth; whether it be an infant learning to speak, a worker on the job, or a student in the classroom.

As an educator, it is important that you create an environment that will support the outcomes you desire for students. In general, every educator is looking for those magic moments in teaching when “the lights go on.” A conducive learning environment definitely increases the occurrence of these events.

For “process” educators, a main priority is to help students develop a comprehensive set of learning skills in addition to mastering course content. In order to improve students’ performance as learners, an environment must be created which allows for greater ownership, responsibility, and control of the learning process by students. Some characteristics of a quality learning environment include:

- a high degree of trust and mutual respect between students and the instructor,
- both instructor and students share a commitment for success of the learner/student,
- judgmental statements and language are avoided,
- students are challenged and risk-taking is promoted,
- criteria for performance are clearly stated,
- assessments are provided on a consistent and timely basis, and
- progress and growth are documented.

Refer to Appendix B on page 69 for the Methodology for Creating a Quality Learning Environment.
Facilitating Active-Learning

When implementing cooperative learning, the instructor automatically becomes a facilitator of active-learning. If cooperative learning is used in the context of the philosophy of Process Education, then the instructor is not only a facilitator but also a mentor whose concern is to help with students grow and develop as learners (toward the development of self-growers).

Many educators have students work in cooperative teams in the context of guided-discovery activities. When facilitating in this type of active-learning environment, the instructor should present the initial challenge to students by orienting them to the activity, providing the learning objectives and performance criteria, and noting the required resources (including time to complete the activity). Having set up the activity, the facilitator can then direct his/her efforts toward activity management which includes pacing the activity, assessing student performance against the stated criteria, challenging students to think critically, providing feedback to improve current and future performance, bringing closure, and allowing time for student self-assessment from both a content and process perspective.

Below is a methodology that can be applied to facilitation in any active-learning context.

Facilitation Methodology

1. Define the outcomes of an activity.
2. Design, review, and prepare for an activity.
3. Decide which teaching/learning processes and tools are appropriate for each activity including the roles for the learners.
4. Pre-assess before an activity. Assess the level of students' preparation.
5. Set up the activity. Make sure students have the why, learning objectives, performance criteria, resources, and general tasks for an activity. Performance criteria should be set in terms of both process and content.
6. Release the teams to pursue the activity.
7. Assess team and individual performances.
8. Provide constructive interventions based on process not content.
9. Bring all the teams back together at conclusion of the activity.
10. Provide closure with inter-group sharing of performance. Share quality performances that others can benefit from and areas where performance needs improvement.
11. Use various forms of assessment to provide feedback to students. Make regular use of oral reflector's reports.
12. Follow-up after class.

Interventions

As a facilitator of cooperative learning and Process Education, interventions should be chosen to match the learning objectives and the present need. The selection of an intervention to be made (if any) is important and deserves careful thought because the rate of growth in learner performance is related to the facilitator’s ability to constructively intervene.

The facilitator must collect information from written as well as verbal and nonverbal cues, making strong use of observation (see page 36) and listening skills. Based on this information, an intervention strategy can be made. Successful interventions provide student teams with new direction and/or understanding as well as a sense of new motivation. The focus of an intervention should not solely be based on content but should also attempt to address the deficient learning skill(s) that is causing the problem. On the other hand, poor interventions leave student teams confused and/or annoyed, feeling that the facilitator’s intervention was an unwelcomed interruption.

Types of intervention techniques include:

- **control techniques**: inventorying, redirecting, and rephrasing.
- **declaratives**: providing an answer, providing a directive, and giving a lecture or mini-lecture.
- **support techniques**: empathy, listening, and “being there.”
- **asking critical questions**: using directed, convergent, and divergent questions.
- **providing an assessment**: providing strengths, areas for improvement, and insights.
- **providing resources**: e.g., syllabus, activities, software, written materials.

Examples of possible interventions by a facilitator include:

- clarifying group roles,
- getting the team leader to keep team members in their roles,
- getting the team leader to manage time effectively,
- asking questions that stimulate critical and creative thought,
- asking questions that require students to reflect on their own performances,
- challenging conclusions and making decisions to maximize quality,
- varying the challenge to change the level of stress and emotion,
- providing appropriate emotional support,
- relieving frustration, and
- empowering each student, each team, and the class as a whole.
Observing teams

Observing teams and the interactions that take place between members allows the facilitator to collect the information from which intervention decisions can be made. The following are various indicators and questions that should be asked during observation of cooperative learning activities.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Atmosphere of the group</strong></td>
<td>Is it friendly, congenial, tense, or angry?</td>
</tr>
<tr>
<td><strong>Degree of participation</strong></td>
<td>Are all members engaged? Is someone disengaged?</td>
</tr>
<tr>
<td><strong>Interpersonal influence</strong></td>
<td>Who seems to have it? Who doesn’t? Is there a rivalry?</td>
</tr>
<tr>
<td><strong>Team roles</strong></td>
<td>Are team members staying in their roles or not?</td>
</tr>
<tr>
<td><strong>Being on task</strong></td>
<td>Is the team on task, taking a tangent, or way off track?</td>
</tr>
<tr>
<td><strong>Feelings of team members</strong></td>
<td>Are they being expressed or suppressed?</td>
</tr>
<tr>
<td><strong>Decision-making method</strong></td>
<td>Is there consensus, dictatorship, or majority vote?</td>
</tr>
<tr>
<td><strong>Styles of influence</strong></td>
<td>Is it democratic, autocratic, peacemaker, or laissez-faire?</td>
</tr>
<tr>
<td><strong>Group norms</strong></td>
<td>Are they explicit or implicit?</td>
</tr>
</tbody>
</table>

An important observation for a facilitator to note is the occurrence of a dramatic group meeting which seems to occur for all groups almost exactly at the projected mid-life point after which the group activity patterns and course of action change substantially.\(^5\,^6\) Regardless of how much progress toward the project goal in the first half of its group life, the consequence of this “mid-life crisis” is a focused and directed effort and execution of tasks toward completion of the project.

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**A reminder about rotating team roles**

It is important that all members be treated as equals both by the instructor as well as by co-members. Thus, group roles should NOT be assigned permanently, but equally rotated so that each member has the opportunity to develop all roles, including those in which proficiency and comfort are lacking. This should be part of the personal development goals set for each individual. Rotating role assignments also decreases the tendency for power struggles to occur.
Use of Questions by the Facilitator

Questions which elicit information

- establishing rules – *e.g.*, “Can we manage without raising hands?”
- establishing procedure (to encourage productivity in work, organization, engagement, and to stimulate research) – *e.g.* “How much time do you need?” “What do we need to know now?” “Where could we get that information?”
- establishing control procedures – *e.g.* “Leader, has the recorder written down who has which roles?”
- creating unity – *e.g.* “Does everyone agree?”
- focusing on facts – *e.g.* “What is the formula?”
- revealing implications – *e.g.* “What do you think will happen tomorrow?”
- revealing experience – *e.g.* “What are your personal feelings on the subject?”

Questions which shape understanding

- focusing on making connections – *e.g.* “How did this happen?” “What are the connections between this and that?”
- focusing on rethinking or restating by being more accurate or specific – *e.g.* “What do you mean by...?” “Can you put that in a way that a lay person could understand?”
- promoting expression of attitudes, biases, or points of view – *e.g.* “Where do you stand on this?”
- demanding inference and interpretation – *e.g.* “How would you explain...?” “What are the implications of...?”
- focusing on meaning – *e.g.* “What does he mean when he says...?”

Questions which press for reflection

- developing supposition or hypothesis – *e.g.* “What do you think caused...?”
- focus on personal feelings – *e.g.* “Why do you think you reacted in this way?”
- focus on future action, projection – *e.g.* “What do you think will happen next?”
- developing critical judgment – *e.g.* “Would it really matter if whales were extinct?”

See Appendix C on page 70 for a glossary of the types of questions a facilitator may ask.
Criteria for a Quality Facilitator

A quality facilitator:

- has strong assessment skills (including pre-assessment, and self-assessment),
- empowers teams and individuals,
- has respect for students,
- challenges students’ performance,
- is a mentor for student growth and improvement of learning skills,
- possesses sensitivity and caring toward students,
- has strong affective skills and is able to handle frustration,
- is organized and prepared for class,
- is flexible and able to adapt to new situations,
- has time management skills,
- is able to make timely constructive interventions,
- provides positive reinforcement and areas for improvement, and
- builds students assessment and self-assessment skills.

As a facilitator and mentor, it is the instructor’s responsibility to monitor all the activities taking place. Depending upon the particular activity, an instructor will be observing processes such as discovery learning, critical thinking, creative thinking (brainstorming), decision-making, problem-solving, and group behavior.

Note that group behavior will be influenced by the “maturity” of the group. Therefore, it is useful to be familiar with a model for group development in order to (1) come to more accurate conclusions about what is observed, (2) make better decisions about whether or not an intervention is actually required, and (3) make more helpful interventions. This leads us to the next topic which is a model for group development.

Model of Group Development

When team development is considered as a process, it is by definition, measurable with respect to time. It is important for the facilitator to be able to monitor and influence the development process of groups. In order to do this effectively, one first must understand the distinct functions performed to various degrees, on various levels of consciousness, by all groups, successful or not in achieving a given outcome.
The origin of the team’s existence is the production function, without which it would not exist. Two other functions operate in parallel with the production function – the member-support function and the well-being function (the group’s contribution to its own viability). The costs of all three functions are measured in time, energy, and other resources all of which are borne to varying extents by the external system, the group, and the individual members as contributors to the outcome. The degree to which each function is developed in any one group is dependent upon many factors, but none so dramatic as time.

Group activity is defined in hierarchical terms. There are projects, tasks, and steps. A project is a mission involving a set of activities which lead toward the achievement of a goal, or a set of actions whose purpose is a given outcome. A project consists of tasks, the results of which have little or no independent value, but when combined as the project results, have considerable value.

Tasks consist of subsets of actions, or steps, which when performed in proper sequence with appropriate timing, result in completion of the task. The steps are defined by what actions are to be taken, while tasks are defined by the contribution they make to the completed project.

The “life cycle” of a group may be considered as paralleling the developmental stages of a biological system, a systematic sequence of structural-functional states for the group. Each of the three functional areas potentially goes through some or all of four defined developmental stages in parallel fashion, usually but not always driven by the production function.

A four-stage model may be used by the facilitator and group members to determine the stage of development the group is experiencing, and the options for growth that are available at any given stage. The following model provides a useful framework for diagnosing problems, and assessing the output of the group.

The four stages of group development in the model are:

1. Inception (forming),
2. Conflict Resolution (storming),
3. Problem Solving (norming), and
4. Execution (performing).

The three group functions (production, member-support, and well-being) and their four associated stages of development are summarized on the next page.
The following discussion presents each stage of group development in more detail.

**Inception**

Inception is that part of the development process in which goal choices are made, performance strategizing begins, and the project becomes one of the group’s goals, priorities or purposes. A project may be acquired from within (self-assignment), externally (from a superior or instructor), or may be indigenous to the group and the reason for its’ existence. Characteristics of inception or forming include:

- excitement and confusion,
- dependency on a facilitator,
- strong need for approval,
- member-offered inclusion in return for participation, loyalty, and commitment to the group,
- reliance on stereotypes for assistance in interpersonal communications,
- no conflict, or avoidance of such situations,
- active participation due to need for agreement,
- acceptable, non-controversial things are said,
- there is minimum feedback, non-disclosure,
- a strong orientation to task,
- questioning such as why are we here? what are we supposed to do?
- politeness due to unease and not knowing team members, and
- non-verbal exercises often accelerate this stage; avoids the need to sort out conflicting verbal versus non-verbal signals.
Conflict Resolution

Conflict Resolution involves adjudication of conflicting interests and resolution of conflicts in perspective, value-orientation, goals, and outcome criteria.

Characteristics of conflict resolution or storming include:

- conflict in interpersonal relations (even if suppressed) resulting from authority, dependency, rules, agenda, responsibility, rewards, and power,
- denial of the need for change,
- regression and resistance,
- polarity between thinking and feeling (see Meyers-Briggs on page 21),
- possible hostility,
- growing awareness of others’ hidden agendas and reactions to them,
- organization into task-functions or roles,
- demands for written group agendas,
- the potential of progress being blocked by one individual or a clique, and
- variable amount of time necessary to traverse this stage.

In order to increase student awareness of potential areas of conflict and force the inevitable conflict issues, some experienced instructors require their students to draw up and sign “legally-binding” contracts which identify the norms for the expected task behaviors (production function – performance), grade allocation (member-support function – participation), and group behavioral norms (group well-being function – interaction). This often is seen as unnecessary by students since they tend to deny the possibilities of difficulty with fellow group members, and the contracts often tend to be somewhat “toothless.”

When conflicts do arise and there is the need to re-negotiate contracts, mediation by the instructor is strongly suggested. We are aware of one instructor who has his class perform as a “group-divorce court” jury. Some groups find it helpful to have a contract in place at some point in the year. Also, this forcing of the conflict resolution stage accelerates the team development. The contract limits the power struggle and status-driven “payoffs” in this stage as well as in the problem-solving stage.

The length of time for the Conflict Resolution stage depends upon many things, but is influenced by the clarity of the task and the degree to which objectives are fixed externally and can be accelerated by focusing attention on group roles and activities such as harmonizing, compromising, and gatekeeping.
Problem Solving

The Problem Solving stage involves a choice that must be made as how to approach the problem, as group-related or task-related.

Characteristics of problem solving or norming include:

- cohesion among team members,
- awareness of possibilities for change,
- letting go of polarities,
- an “and/or both” attitude replaces an “either/or” attitude,
- strong flow of data,
- sharing of ideas, feelings, feedback, and
- occasional abandonment of task to enjoy the group.

Execution

Execution is “doing” in real time and space those behaviors necessary and sufficient to attain the project goal(s) articulated in the inception stage.

Characteristics of execution or performing include:

- roles and tasks become well-defined,
- a high degree of interdependency,
- the creation of an identity symbol, e.g., team name, mascot, etc.,
- meaningful silences interspersed with playful, intent interactions,
- movement toward closure,
- an awareness of possibilities for new beginnings,
- a sense of loyalty and empathy,
- a feeling that “we don’t always agree on everything, but we respect each other and agree to disagree,”
- a closed environment; it’s very difficult to introduce another team member in the group,
- a high degree of collaboration and functional competition, and
- a stage in group development that is difficult to achieve by many groups without good facilitation.
Possible Project Evolution Pathways for a Team’s Production Function

In most team development situations, there are three alternative pathways to project completion. The diagram below illustrates.

Well-being and Member-support Functions operate concurrently and in parallel with the Production function stages.

A the default route utilized on a familiar or routine project, Inception is followed directly by Execution.

B when the solution is not obvious, some degree of problem solving may be required and the Problem Solving stage is induced. It requires the identification or construction of a logically-correct or best solution, or an agreement regarding the procedures.

C if in the process of moving to the Execution stage some “misalignment” is discovered concerning aspects of one or more of the group contribution functions, these need to be addressed and resolved in one or more Conflict Resolution stages followed either by Execution or additional Problem Solving stages.

Often a team’s activities in support of functions other than production are looked upon as wasteful, “process losses,” or process inefficiencies by outside observers; particularly those whose goals are product-oriented or measurable in quantitative means. It is in reference to teams with “more than enough time to complete the job” that Parkinson’s law often is applied.

Parkinson’s Law
Work expands so as to fill the time available for its’ completion.

--C. Northcote Parkinson
Because the process of building a team from a group of individuals is a complex socio-psychological one, the use of linear, additive models to quantitative progress is ill-chosen. The “losses” often, although not always, can be accounted for in effort spent in the functions of group well-being and member support, or in the solution of political or technical problems within the production function itself.

It is important to note that teams that do not spend time on the well-being and member-support functions are likely to produce “low-quality” products and to socially self-destruct. Conversely, teams who spend time on these two “non-productive” functions may produce top-quality products and the attention given to group well-being and member support result in group membership being attractive and beneficial, and consequently, they are more effective and possess long-term viability.

**Trust and Safety**

According to Maslow, humans have two sets of needs that are inherent, basic needs and growth needs. These are arranged in a hierarchy with the basic needs being more important. From the most to the least important, human needs are as follows:

- **Basic Needs** – physiological, safety, belonging, and esteem (other and self).
- **Growth Needs** – self-actualization which is motivated by curiosity, the need to understand, realization of full self-potential.

When students are asked to solve problems in groups and to be self-motivated for discovery learning, it is often assumed that they are motivated in the same way instructors are. Academics who dedicate their lives to scholarship are usually motivated to learn by the highest level in Maslow’s hierarchy – self-actualization, while this is not the case with most students.

It is important to remember that students differ from instructors in several important ways. First, as discussed earlier, their cognitive maturity is not as great. Second, many students still struggle in attempts to satisfy the lowest levels of Maslow’s needs – physiological and safety needs. Over the former, there is less opportunity to help, except perhaps referring students to counseling and financial services.

---Martin Luther King, Jr.
Instructors can have a great deal of influence over safety needs. Unfortunately, the educational system often creates an atmosphere of danger that must be considered if students are to respond to cooperative learning with positive personal growth and eventually, self-actualization.

What are some of the issues pertaining to safety, belonging, and esteem that could block the way to self-actualization behavior? Consider the following:

- when a professor puts trick questions on an exam;
- when making a mistake on a critical examination could lead to failure of the course;
- when inter-student competition in traditional courses fosters theft, lying, and cheating on examinations;
- when answering a question incorrectly or naively can lead to ridicule by the instructor and perhaps by other students (also an issue of esteem);
- when not guessing the “correct” answer or approach (in the instructor’s opinion) can lead to a low grade, even if several authorities disagree with the instructor;
- when large universities isolate individuals with separate programs, impersonal administrative systems, jaded counselors, and irritated professors (who feel that students get in the way of their research);
- when some professors regularly demean students in overt and covert ways; and
- when creative approaches are punished or discouraged rather than encouraged.

After years in this kind of environment, would you feel safe? Would you take risks? Would you see the positive side of making mistakes? Would you trust the rest of your team? Would you trust the instructor to be looking out for your best interests?

We are fooling ourselves if we think we can change students’ perceptions and attitudes immediately, simply by changing our own. It will take time, commitment, and consistent behavior to win students over to a completely new, albeit rewarding and empowering, approach.

Remember that cooperative learning involves changing the rules of the game – a game that students have learned to survive, if not enjoy. Be prepared for anger, distrust, hostility, and appeasement behavior in students. Be prepared to cope with it calmly. Be prepared to maintain your stance, even when students’ behaviors say “change back.” This is expected. Many people still prefer old, familiar discomforts to novelty. Note that a facilitator’s job, in part, is to raise students’ level of esteem (which is developed as cooperative learning skills are mastered).
Handling Frustration

Beyond the problems inherent in change, there are problems of frustration that are inherent in discovery and cooperative learning. Learning within the cooperative model takes place in a cyclic fashion. The cycle begins with a motivator or stressor – a dissonance between expectation and reality which is perceived as a problem. As a result of stress associated with the unknown and an immediate perception of incompetence, the level of anxiety in a classroom may be quite high, depending upon the abilities and maturity of students.

When students are put into challenging learning environments where they must “work” to learn new concepts, there is bound to be some degree of struggle or frustration. Note that there are four levels of emotion that students pass through as they perform in challenging situations. First, there is anxiety, followed by frustration, then anger, and finally disengagement. A facilitator should be careful to guard against disengagement and anger while controlling the amount of time spent in frustration.

Note that it is a student’s affect skill set that determines how quickly he or she passes through the range of emotions from anxiety to disengagement. Students lacking in affective skills move quickly from anxiety to disengagement, while students with strong affective skills, in the same situations, will take much longer to become anxious and finally reach disengagement.

It is also important to note that facilitators should be aware that their own affective skill sets influence and limit the amount of anxiety and frustration they allow their students to experience. For many, it is difficult to see others struggle, but a facilitator must resist the temptation to jump in and give the answer (to give immediate relief to frustration) and let students work through their frustrations to achieve success in learning (which will be of much greater benefit in the long term).

Ideas for Handling Frustration when Facilitating

- Prepare students ahead of time. Tell them to expect frustration, stress, and failure as inherent parts of the learning process. When frustration occurs, help students to define the source of the problems that give rise to frustration.

- Provide time for reflection, brainstorming, and discovery of strategies for managing frustration. Also, teach relaxation techniques.

- Use time as a means to control frustration levels. Allow more time to complete a task or activity to decrease the challenge and frustration levels. Reduce the amount of time to complete an activity to increase the challenge and reduce complacency and boredom.
➢ Use free writing and journaling as a means to help students express their emotions and the reasons behind them.

➢ Be aware of and address student frustration at critical times throughout a course. Tools such as a survey serve as a good way to process issues associated with learner frustration.

➢ Monitor students’ body language to help you choose the appropriate interventions. If the level of anxiety is low (minimal chaos, anger, withdrawal, people staying in their roles, no signs of panic) a *divergent* critical thinking question can be asked. On the other hand, if it looks like a group is about to explode with panic, or just give up, or if anger and frustration show forth in the form of clenching fists and jaws and tight shoulders, it is better to ask a *directed* question that quickly leads the group to an answer or small success.

➢ Intersperse success with failure. Allow students many little failures. This will build their tolerance level for failure. Realize that by being too easy on students, they may become overconfident which can lead to sloppy thinking and lack of attention. However, if they experience too much frustration and failure, realize that they will eventually disengage.

➢ Monitor the relative progress of groups. This is a quick way to check if a group is ahead or behind. Focus more on the troubled groups. Reward the successful groups with more challenging tasks or with opportunities to consult with and assist other groups, thereby enriching the experience.

**Time**

From a student perspective, cooperative learning involves both preparation time (in order to be highly engaged during an activity) and processing time (after an activity in order to apply the growth to subsequent activities).

From a faculty perspective, cooperative learning also involves time. This is especially true for faculty who are new to using cooperative learning. It takes time to prepare activities, learn and plan facilitation strategies, facilitate the learning process, develop curriculum, and process one’s emotions.

The evolution of group behavior patterns with time is a complex subject, especially with the advent of technology which permits the spanning of time and distance. In collective situations, there are three generic time problems which can be causes of stress and frustration. These are (1) time definition, (2) conflicting timing, and (3) time shortage.
Organizations respond to these problems by scheduling, synchronization (such as instituting required “core” hours for employees), and allocation. Individuals deal with the same problems by making time commitments, setting times for work and non-work activities, and prioritization. When there is misfit between the individual and organizational criteria for time use, then additional problems arise at the interface, i.e., the group level. These problems are seen as the signal to improve the fit between the two. This includes (1) the need to set and meet deadlines, (2) the need for dynamic teamwork, and (3) the need to assure adequate demand/capability match.

When time limitations are imposed on the group in the form of deadlines, there are effects on the rate and quality of group task performance and group interaction patterns. If a tight deadline is imposed early in the group lifetime, the group will continue to perform at a fast rate on later assignments, although with low product quality and in a highly task-focused manner, even if on those later projects the deadline is removed. Groups which begin with less stringent deadlines will continue to work at the same slow rate on later projects having tighter deadlines, although with higher quality and a more interpersonally-focused interaction pattern.

Facilitators can observe the amount of time spent by groups in each of the functional areas described above, noting the expenditure in proposed task idea evaluation (agreement, modifications, disagreement) and that spent in interpersonal content communication (support, respect, feelings).

If too little time is allowed for completion of early tasks, the group will tend to perform later tasks with the same performance characteristics of early ones, regardless of how much time is allotted for those tasks.

Socio-psychological entrainment theory proposes that members of a group who interact with one another become temporally synchronized, demonstrating a phenomenon similar to circadian rhythms induced in organisms by the alternating light/dark, warm/cool cycles resulting from planetary motion. In this case, the synchrony develops because of the regular, close interaction between individual members. Induction of the temporal synchronization induces an initial stress on the individual which can be alleviated by group support mechanisms.

The critical point is that with insufficient time, the group focuses mainly on the production function and not the group well-being and member-support functions, and consequently task quality is affected by the continuance of the initial behavior and the lack of development of beneficial habits and norms.
From the perspective of the final product, when the task performance of a group is evaluated in terms of either quality or quantity, predictions can be made about future task performance.\textsuperscript{18, 19}

- Groups with early experience of product qualitative deficiencies tend to slow the work rate on subsequent trials; given sufficient time, product quality is likely to increase.

- Groups having early product quantitative difficulties (insufficient time with respect to task volume) tend to speed up the work rate on subsequent efforts regardless of available time, generally reducing the subsequent work quality.

Since our directives in cooperative learning include continuous quality improvement (CQI), facilitators must be wary of students’ tendency to permit a decrease in product quality as loads increase. Sufficient time must be allotted in early projects with stringent quality guidelines imposed with which compliance is “demanded.” The next project is not started until the current one meets the specified evaluative criteria and ALL group members are capable of meeting the same knowledge criteria, specified in advance in the learning outcomes.

This is an essential requirement thus ensuring adherence to the same high quality standards in subsequent trials where there is a tighter fit between project volume and project time. As stated above, the behaviors that are in place early in a group’s lifespan are likely to continue. Since cooperative learning is concerned in part with making quality improvements in the learning process itself, careful planning beforehand and real-time assessment are necessary commitments by the facilitator to achieving desired outcomes.

**Technology**

Technology plays the following roles in cooperative learning:

- serving as a focal point for group discussion,
- providing an interactive environment,
- providing problem-solving opportunities,
- promoting visualization of abstract concepts,
- encouraging ongoing self-assessment, and
- maintaining a record of students’ thought processes.

The following are terms used by communications theorists in the context of technology.
Teams that choose to employ time- or distance-spanning technologies will display altered group behaviors, with both positive and negative consequences. The technology aids included in this category can consist of any device ranging from a telephone answering machine to synchronous computer conferencing, although these should not be considered in any respects as the limits of such devices. It is not intended here to describe fully the aspects of change in group interactive behavior induced by technology. They are very complex and neither fully understood, nor the extent of the alterations fully realized.

It is important however, that the facilitator, upon observing difficulties in group interactions, be cognizant of the potential problems originating from the introduction of technology in normal group socio-psychological behavior. In attempting to find the causes for stress within a group, the facilitator should direct some questions to discernment of the modes of communication being used between group members.

The use of technological communication aids in groups\(^\text{20}\) has been theorized to relax the time and space constraints which usually restrict group interactions. For example, having access to electronic mail removes some of the scheduling constraints on the members of a group to find a mutually acceptable time for meeting.

Each individual can contribute input to the group effort at a time convenient to him or her which can be retrieved by the recipients at a respectively convenient time. The disadvantages of this system include the reduced immediacy of feedback to the input (in fact, feedback is not guaranteed). Also, the medium does not transmit faithfully (if at all) all the sensory signals (verbal, nonverbal, para-verbal, olfactory, visual, etc.) which are provided in face-to-face communication. This reduction in the number of sensory modes is termed “modality restriction.” The reduced availability of signals results in elimination of signal redundancy which normally ensure the orderly flow of face-to-face communication.

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**signal** – an indication, either verbal (auditory), nonverbal (visual), or para-verbal (pitch or volume), which is used by the speaker to inform the audience of some additional message not necessarily spoken in the content of the intended message, sometimes of a maintenance purpose, like “I’m done speaking, who’s next”, that is, a communications flow indicator.

**modality** – how communication signals are received by which sensing organs of the body, (i.e., visual, auditory, olfactory, etc.).

**noise** – any extraneous signals which cause confusion in the understanding of the message content.

**time-spanning device** – a tool which eliminates the need for simultaneous activity of participants (e.g., video recording).

**distance-spanning device** – a tool which eliminates the need for participants to be in the same place at the same time (e.g., telephone conferencing).
Chapter Three Endnotes


Chapter 3 – Facilitating Cooperative Learning


17 Ibid.


Chapter 4 – Assessment and Evaluation of Cooperative Learning

What is Assessment?
Within the context of higher education, assessment is an often misunderstood and maligned process; viewed by many as an external accountability exercise with vague intentions, assessment is often confused with evaluation. While both assessment and evaluation involve measurement, the primary focus of assessment is to improve future performance while evaluation is used to make a judgment or determination against a standard. Measurement, assessment, and evaluation are defined as follows:

**Measurement**
The determination of the quality of a performance, work product, or use of a skill using a set of standards.

**Assessment**
Giving feedback (after measurement of a performance, a work product, or a learning skill) that documents progress (strengths) and provides ways to improve future performance (areas for improvement).

**Evaluation**
The process of measuring a performance, a work product, or a learning skill(s) and to make a judgment or determination against a standard (or set of standards).

Jean MacGregor writes about assessment in the paper “Going Public: How Collaborative Learning and Learning Communities Invite New Assessment Approaches.”¹

“...it has become two coexistent and related agendas: those of both proving and improving: proving in the sense of documenting and describing the results of programs or curricula to institutional or external audiences, and improving in the sense of gathering data for more internal purposes of identifying needs or gaps, solving problems, or developing and strengthening programs. Ideally, assessment efforts act like camera lenses, to focus and clarify understanding of both what we are doing as teachers and what students are doing as learners.”

“...a long-term internal improvement effort: an opportunity to improve learning and teaching by clarifying outcomes for student learning, asking questions, gathering information to answer questions, and then taking action.”
Characteristics of Assessment

The following are some characteristics of assessment.

- The assessor (doing the assessment) can be a single person, a group, or oneself.
- The assessee (being assessed) can be a single person, a group, or oneself. As a result, an assessment can be made by many people for a single person, by a single person for many people, one-on-one, or by oneself (self-assessment).
- The focus of an assessment can be on a process, the resulting product or outcome from a process, or a specific skill or set of skills related to a process. For example, in an educational context, students can be assessed with respect to the quality of learning they produce (their content knowledge at a certain level), the quality of their use of a learning process, or with regard to the strength of specific skills which support a learning process.
- The timing of an assessment can vary with respect to the focus of the assessment. An assessment can be made in “real-time,” at discreet intervals (formative assessment), or at the end of a process (summative assessment).

The following characteristics influence the quality of the assessment process:

- The assessment skills of the assessor. The knowledge and skill level of an assessor with regard to the assessment process itself can vary dramatically.
- The content knowledge level or expertise of the assessor with respect to what is being assessed. An assessment can be performed by an expert in a specific field or done by a novice.
- The preparation time to design an assessment. An assessment may have an elaborate design or be carried out with little or no preparation.
- The quality of instruments used to gather, collect, and store information during the assessment. An assessment can use elaborate instruments or just the memory of the assessor.
- The level of trust between the assessee and assessor. The assessment process is enhanced as the degree of trust between the assessee and assessor increases.
- The support cost for an assessment. An assessment can be such that it requires a great deal of cost or be done at minimal expense.
Overview of Assessment

There are four main components to the assessment process:

- Setting up the assessment – obtaining shared purpose from assessee and assessor,
- Designing the assessment – establishing important criteria,
- Performing the assessment – collecting and analyzing quality data,
- Reporting the assessment – providing feedback in a constructive manner.

The following are important components in the design of an assessment:

**Criterion** – a focus area of quality; a characteristic or standard by which something (product) or someone (performance) can be measured.

**Factor** – a characteristic of a criterion that can be measured using a single scale.

**Scale** – a standard against which measurements are made.

Assessment and Cooperative Learning

If the instructor considers the development of cooperative learning skills to be an important learning goal for a course, then assessment of these skills must be incorporated into the course. Cooperative learning environments provide many opportunities for assessment – including different types and levels of assessment. Individuals and groups can be assessed. Both the instructor and students can use assessment feedback to improve future performance. Formative, summative, and real-time assessment techniques can and should be used along with self-assessment and peer assessment.

Learning in cooperative groups allows for assessment procedures that cannot be used when students are in traditional lecture settings. The fact that learning is made public (in full view of peers and the instructor) makes it possible to observe and provide feedback to students as it pertains to their performance (in learning). Instructors are immediately able to see what students know and don’t know, gain insights into how students go about the process of learning, and observe performance with respect to key processes and skills (such as communication, problem solving, critical thinking, and teamwork).

In addition to assessments initiated by the instructor, students should engage in other types of assessment in various contexts. Peer assessments within teams should be made during every activity in the form of reflector’s reports. Teams may also assess other team’s work products based on criteria they help to determine. Students should regularly self-assess their performance looking for strengths and areas for improvement. Also, students should be given an opportunity to periodically provide assessment feedback to the instructor regarding the course and its policies and procedures.
Types of Assessment

An assessment is most useful if it is structured with planned observations of the behaviors that are hypothesized to reflect the underlying processes. A free-style observation approach is not so useful because there are no a priori criteria, so that the assessment becomes haphazard, and unequal among groups. Checklists, graphic scales (descriptors placed in sequence along a line that represents a continuum of a bipolar behavior), and rating scales (digital versions of the graphic scale) are useful observation aids that, in addition to facilitating planned interventions, also help to decrease bias.

Real-time Assessment

Real-time assessment is an assessment which takes place as an event or performance is happening. Real-time assessment of students’ work requires an approach which resembles the observational assessments performed in anthropology, behavioral, and educational psychology—the trick is to determine what behaviors reveal the underlying cognitive, social, affective, and/or psychomotor processes. A major application of such techniques can be found in any program that aims to modify behavior, e.g. child-care centers, hospitals, and schools.

By definition, a process takes place in the time domain. The logical consequence is that you must be able to assess a process in real-time to teach the process. Because of the speed with which such assessments must take place, in general, faculty facilitators and assessors have great difficulty. They must learn to identify students’ strengths and weaknesses in key processes including learning, thinking, problem solving, communicating, teamwork, and self-management skills.

The difficulties of making valid and reliable observations derive from the following pitfalls:

- false pre-observation assumptions of the observer (lack of knowledge),
- non-critical acceptance of data,
- failure to pre-specify objectives,
- jumping to conclusions and drawing inferences from insufficient data,
- failure to distinguish behaviors,
- failure to recognize one’s own expectations and biases,
- poor observation practices,
- emotional thinking—giving disproportionate weight to incidents that are disturbing,
- failure to see isolated bits of behavior in context of the entire situation, and
- confusion of description and interpretation.
**Formative Assessment**

Formative assessment is a type of assessment which is performed at specific points within a process (as compared to summative assessment performed at the end of a process) to determine what should be done to improve future performance. Typically instructors are strong in their abilities to assess the mastery of information and conceptual understanding. However, many find it difficult to assess students’ performance in the learning process which is necessary to facilitate learning or the integration of a new concept or skill into an existing knowledge base.

When doing formative assessment, the following are some criteria which you can look for in your students:

- categorizes and logs knowledge,
- transfers knowledge,
- synthesizes the information base into knowledge,
- exhibits abstract thinking,
- exhibits intuitive thinking,
- processes information quickly,
- analyzes, synthesizes and applies knowledge to a system, and
- thinks independently and contributes to group concurrently (i.e., parallel processes).

**Summative Assessment**

Summative assessment is a type of assessment which takes place at the end of a process or a set period of time. Midterm and end-of-term assessments are examples of summative assessments (see page 58 for example student assessment questions).

When doing summative assessment, the following are some criteria which you can look for in your students:

- understands and carries out team roles including ability to shift roles,
- demonstrates critical thinking,
- demonstrates good critical reading and listening skills,
- actively collaborates and contributes to the learning process,
- transfers knowledge correctly,
- effectively uses time (time management),
- successfully completes tasks,
- able to verbalize and teach concepts, and
- transforms failures into successes.

For individual accountability, be sure that a portion of the assessment is done for each individual team member. To promote interdependence, a group score can also be assigned.
Student Assessment Questions

The following are example questions which can be used to obtain student feedback for a course taught in a process-oriented manner. Feedback of this type should be obtained at least once, if not more, during a semester or term.

General
1. What are three strengths of this class so far? Why?
2. What are three positive things that you have contributed to help others learn?
3. What are the top three things you have learned?
4. What are three improvements that can be made to help you learn better?
5. How can these improvements be made?
6. What action plans can be put in place to help you learn more this semester/term?
7. What have you learned about your own learning process this semester/term?
8. Is there anything else you would like me to know about yourself or the class?

Facilitator Development of Student Growth
1. How has the instructor assisted you with improving your critical thinking skills during this course?
2. Have you been challenged to perform high level thinking, increase your thinking skills, and self-learn? If so, how? If not, why not?
3. In what ways has the instructor encouraged you to develop your self-assessment skills?
4. Has the quality of your work improved over the semester/term? How?
5. Do you feel you have been challenged appropriately to increase the quality of your learning and self learning? Explain.
6. Have you been challenged to learn and meet the course objectives? Explain.

Fair Environment
1. Has the instructor been fair in his/her approach to dealing with everyone in the class?
2. Has the class been kept positive and productive?
3. Has the instructor provided a fair method of evaluating and grading?

Learner Contribution
1. To what extent do you feel the instructor lets you contribute to the learning/teaching process?
2. Has the instructor allowed for feedback from students and responded to it?

Curriculum
1. Have you been challenged by the course’s content to achieve the objectives of the course?
2. Has the instructor provided the resources, tools, and context to help you increase problem solving skills with the course content?
3. Assess the quality of the curriculum materials used in this course using the SII Method.

Assessment
1. What would you recommend be changed to improve the format of this class?
2. To what extent have you met or accomplished the performance criteria of this course?
Assessment Tools/Techniques & Associated Learning Skills

<table>
<thead>
<tr>
<th>Tool or technique</th>
<th>Associated learning skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>self-assessment</td>
<td>observing, planning, respecting diversity</td>
</tr>
<tr>
<td>real-time assessment</td>
<td>analyzing, problem solving, managing organization</td>
</tr>
<tr>
<td>recorder’s report</td>
<td>listening, recording, summarizing</td>
</tr>
<tr>
<td>SII reports</td>
<td>making connections, observing, understanding values</td>
</tr>
<tr>
<td>peer assessment</td>
<td>risk taking, evaluating performance, assessing impact</td>
</tr>
<tr>
<td>portfolios</td>
<td>goal setting, organizing data, present data</td>
</tr>
<tr>
<td>focus on three learning skills</td>
<td>identifying the problem, understanding concepts, setting priorities</td>
</tr>
<tr>
<td>writing products</td>
<td>presenting information, identifying characteristics of the audience</td>
</tr>
<tr>
<td>listen and judge</td>
<td>communicating, organizing, teamwork</td>
</tr>
<tr>
<td>muddiest point</td>
<td>information processing, critical thinking, information presentation, understanding emotions</td>
</tr>
<tr>
<td>one-minute paper</td>
<td>identifying problems, focusing, articulating</td>
</tr>
<tr>
<td>quizzes</td>
<td>all skills within the cognitive domain</td>
</tr>
</tbody>
</table>

Tips for In–class Assessment

Where to focus

- Focus on performance skills within the context of the activity.
- Focus on the “tails” of performance – the strongest aspect of the performance and the area for greatest improvement. Maximize the quality of the feedback you give.
- Focus on how far students have grown (their “delta” growth) and introduce challenges.
- Identify specific areas of improvement.
Timing

- Make frequent spot assessments. Offer high quality feedback in the least amount of time.
- Make timely assessments. Take advantage of the growable/teachable moments.
- Over the course of the semester, gradually raise the criteria and expectations for performance.

Use various forms of assessment

- Provide opportunities for students to do self-assessments.
- Make use of peer assessments.
- Have a colleague peer coach your performance and provide feedback to improve your assessments.

Techniques

- Use positive (assessing) language rather than judgmental (evaluative) language.
- Model the assessment process for students.
- Collect data and track the growth of teams and individuals.
- Provide opportunities for follow-up; ways to make improvement with linkages to future performance.

Evaluation

Instructors who plan to use cooperative learning on more than just an occasional basis should be certain that the course grade includes some team-related (cooperative learning) components. Without this grade incentive, students will quickly lose motivation and desire to put forth a strong effort.

As a general guideline, group work should comprise between 20% and 35% of the total grade. Group work consists of both in-class and out-of-class work. The percentage (of the final grade) needs to be high enough to motivate students to perform but not so much that it dramatically affects the grade. In practice, the vast majority of grades received by students are not affected by the group work component (i.e., students would have received the same grade without the group component factored in). A sample grading strategy with various components is presented on page 61.
Grades can be assigned equally for all members or proportionally to the degree of contribution by the member. Some instructors have each member of a team evaluate the efforts of other team members. These evaluations usually reveal situations where a student may put in minimal effort hoping to “hitchhike” a ride (and grade) on the efforts of his or her team members.

During in-class activities, a technique to ensure active involvement by all team members is to randomly call on individual students to present the results of the team’s efforts (e.g., problem solutions, discoveries, or final work product). Everyone in the group then receives the same grade based on the response of the selected student. This technique provides an incentive for better students who understand the material to teach their peers; working to ensure that all team members master the content.

One way to quickly evaluate individual learning before the end of a class is to provide a couple of minutes and solicit individual responses to the following questions, “What are the top three insights you have discovered from this exercise?” and “What questions remain?” These two questions are variations of the famous “Minute Paper” introduced by Charles Schwarts, a professor of physics at University of California – Berkeley.14

<table>
<thead>
<tr>
<th>Sample Grading Strategy15</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>% of total grade</th>
<th>During Class (50% to 70%)</th>
<th>Out of Class (30% to 50%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group work</strong></td>
<td>➢ portfolios (10 - 20%)</td>
<td>➢ projects (5%-10%)</td>
</tr>
<tr>
<td>(20%- 35%)</td>
<td>➢ quizzes</td>
<td>➢ take-home exam (5%)</td>
</tr>
<tr>
<td></td>
<td>➢ learning activities</td>
<td>➢ homework (put in a portfolio)</td>
</tr>
<tr>
<td></td>
<td>➢ simple problem solving</td>
<td>➢ problem solving exercises (5%)</td>
</tr>
<tr>
<td></td>
<td>➢ Recorder’s reports</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Reflector’s reports</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Weekly Recorder’s reports</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Weekly Reflector’s reports</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ peer assessments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ presentations (5%)</td>
<td></td>
</tr>
<tr>
<td><strong>Individual work</strong></td>
<td>➢ exams (20% - 30%)</td>
<td>➢ Learning Journal (10%)</td>
</tr>
<tr>
<td>(65% to 80%)</td>
<td>➢ portfolio (10%)</td>
<td>➢ Learning Assessment Journal (10%)</td>
</tr>
<tr>
<td></td>
<td>➢ quizzes (10%)</td>
<td>➢ papers (10 - 20%)</td>
</tr>
<tr>
<td></td>
<td>➢ essays (5%)</td>
<td>➢ problem solving activities (10%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ Self-growth paper (5% - 10%)</td>
</tr>
</tbody>
</table>
Additional Assessment Resources

Consult the following resources for more information about assessment and evaluation.


Contact:
Jossey-Bass, 350 Sansome Street, San Francisco, CA 94104
(415) 433-1740, webperson@jbp.com <www.josseybass.com>


Contact:
Pacific Crest, 875 NW Grant Avenue, Corvallis OR 97330
(541) 754-1067, inquiries@pcrest.com <www.pcrest.com>


Contact:
The Washington Center, The Evergreen State College, Olympia, WA 98505
(360) 866-6000 ext. 6611 <www.evergreen.edu/user/washentr/index.asp>
Chapter Four Endnotes


3 Ibid. p. 24.


13 Ibid.


Appendix A – Additional Ideas and Suggestions for Effective Use of Cooperative Learning

**Group Interaction Skills**

- Give every group member an opportunity to be heard; even though for some, this may be difficult at first. Each person should have a chance or turn to speak, without interruption, until he or she is finished. Note that it may be practical to set a time limit with one team member being the time-keeper. Remember that participation is everyone’s responsibility.

- Practice empathetic listening. Give the speaker your full attention while trying to see things from his or her point of view, and be respectful at all times.

- Seek first to understand, then to be understood.

- Attend to the little things; be kind, supportive, prepared, *etc.*

- Keep commitments.

- Clarify expectations. Ask the other person what *his or her* understanding of the situation or issue is.

- Build trust by being loyal to those not present. Don’t talk behind someone else’s back.

- When you are wrong – apologize sincerely.

- Identify the group behavior of others (e.g. punctuality, preparedness, leading, information seeking, reinforcing, evaluating, interfering, withdrawing, monopolizing, etc.).

- Provide criticism and praise in a balanced, non-threatening, and constructive way.

- Identify your own group behavior without prompting from others and take steps to modify it when necessary.

- It is useful at the beginning to set norms for group behavior. What do you expect of yourself and others? Make it explicit in a contract. Ensure that everyone understands the contract and its implications. Include:
  
  a. guidelines – principles and policies to be followed;
  b. resources – human, financial, technical, and organizational support that are available;
  c. accountability – standards of performance and the time of evaluation; and
  d. consequences – what, good and bad, will happen as a result of the performance evaluation.
When writing a contract, set aside ample time in a pleasant place, so that the atmosphere is optimal for negotiation. Make sure that everyone understands every nuance. A way to do this is for each person to go through and say, in his or her own words, what he or she thought was said or agreed upon. Later, have an objective, outside person read over the contract to make sure that it is clear. Finally, set a time in the near future, when the contract may be reviewed in light of what has happened in the interim, and renegotiate if necessary. Identify sources of conflict and attempt to resolve them. Document progress, especially where conflicts arise.

**Barriers to Cooperation**

At the start of a group process, members may feel committed to joint problem-solving but a variety of factors such as differing expectations, personality and learning styles, experiences, and values may draw the group into a confrontation. The five common examples are:

- **Your personal reaction** – when someone disagrees with you, or says “NO!” It is common to react in a fighting or fleeing mode. Both tend to perpetuate the problem. Everyone loses because of a lack of self-control.

- **The other person’s emotion** – anger and hostility often underlie an attack; fear and distrust often give rise to a rigid stance. Everyone gets stuck when in a “black or white” or “right or wrong” mode.

- **The other person’s position** – If you take a position (against another person), rather than attacking the problem as a team, it then becomes a competition.

- **The other person’s dissatisfaction** – who wants to accept an answer or agreement that has “nothing in it for me!”

- **The other person’s power** – if he or she can see that they can “win” while your outcome is negotiable, then you’re in a very weak position indeed!

The popular book “Getting Past No” by William Ury (see reference on page 68) offers strategies you can use to help overcome the above-mentioned barriers. These include being proactive, controlling your anger, using empathy to really see the other person’s point of view, reframing, and not pushing in order to help the other person save face. The following sections are based on this book.

**Be proactive**

The easiest way to avoid confrontation is to make everything clear from the very beginning; especially when negotiating your team contract. It is much easier to say “NO DEAL!” at the start, than to renegotiate terms when everyone is angry.
If a confrontation occurs during the initial negotiation, or happens in spite of your best planning, then before you go head-to-head, do some proactive planning first:

- figure out both your interests and those of the other person (empathetic listening helps a lot here!),
- figure out your options (maybe a creative approach can satisfy everybody),
- figure out standards for the solution (e.g., fairness, equal share, market value, the law, tradition),
- figure out alternatives – the best alternative to a negotiated agreement (such as if I can’t negotiate this raise, I’ll find another job),
- develop alternative proposals, and
- rehearse, this will help you keep on track if emotions get high.

**Control your anger**

When you are in a confrontation, three common reactions are to strike back, give in, and/or break off. But what do you achieve by doing these? Consider holding your breath or taking a time out. In other words, buy time by saying ABSOLUTELY NOTHING. Step back and take a good look at the situation. Knowing the other person’s tactic is the biggest step toward defusing it. Ask yourself:

- What game is the other person playing?
- Is he or she refusing to budge?
- Is the other person attacking in order to intimidate you?
- Is he or she trying to trick you by “fuzzying the facts,” pretending to have no authority, or adding on more and more demands?
- Is he or she lying?

**Use empathy**

Using empathy allows you to see things from the other person’s point of view. Consider the following:

- Make sure you understand. Reiterate the other person’s ideas and acknowledge his or her point of view.
- Apologize if you have done something wrong.
- Acknowledge the other person’s worth and competence.
- Agree as much as you can (without conceding).
- Accumulate “yes’s.” Do not disagree or say “But...”, say “Yes and ....”
- Make “I” statements rather than “You” statements. For example, compare: “You are the most inconsiderate person I have ever know!” with “When the deadline wasn’t met I felt that my needs were not considered.”

*Speak when you are angry and you will make the best speech you will ever regret.*

—Ambrose Bierce
Reframe

Reframing involves taking the stance of the other person and putting it into a mutual problem-solving mode. This is essential when dealing with people of different personality types. Reframing involves asking for other’s advice and asking questions such as Why? Why not? What if? and What makes that fair? The TV detective Columbo used reframing when he exposed lies and tricks. Rather than exposing the lies at once and risking the emotion (and perhaps being wrong), he played a little dumb – asking questions, clarifying, and making reasonable requests.

Consider the example of a “thinker” who deals with an issue in a completely logical way as compared to a “feeling” person who tends to make value-based decisions, logical or not. John (feeling) says “I won’t hurt Kathy’s feelings!” rather than saying “Stop being so soft! She earned this punishment.” Mary, the thinker, might reframe it by asking “How can we handle the issue of justice and keep Kathy’s self-esteem intact?”

If all else fails, negotiate about the rules of the negotiation. Let the other person know that you see his or her tactics.

Don’t push – help save face

This is where knowing the other person’s interests is very important. What’s in it for them? Consider if it is important to the other person that:

- it is his or her idea,
- certain personal needs are met,
- he or she can save face,
- things are done at a comfortable pace so that he or she doesn’t feel overwhelmed.

Be your own mediator. Step back. How would you handle this if you were mediating this negotiation for someone else? Some hints are:

- ask for constructive criticism of your ideas,
- offer choices,
- ask for and build on the other person’s ideas, and
- ask if he or she knows the consequences of not coming to an agreement.

Appendix A resources


Appendix B – Producing a Quality Learning Environment

Introduction

Consider for a moment the impact and influence of environment upon a person’s growth, development, and performance. In context after context, an engaging, stimulating, and challenging environment can significantly enhance performance and growth; whether it be an infant learning to speak, a worker on the job, or a student in the classroom.

As an educator, it is important that you create an environment that will support the outcomes you desire for students. In general, every educator is looking for those magic moments in teaching when “the lights go on.” A conducive learning environment definitely increases the occurrence of these events.

For “process” educators, they want students to grow and to develop a set of learning skills (from the Classification of Learning Skills) in addition to mastering course content. In order to improve students’ performance as learners, an environment must be created which allows for greater ownership, responsibility, and control of the learning process by students. Some characteristics of a quality learning environment include:

- a high degree of trust and mutual respect between students and the instructor,
- both instructor and students share a commitment for success of the learner/student,
- judgmental statements and language are avoided,
- students are challenged and risk-taking is promoted,
- criteria for performance are clearly stated,
- assessments are provided on a consistent and timely basis, and
- progress and growth are documented.

Methodology to Create a Quality Learning Environment

1. Establish initial respect.
2. Start with no prejudging.
3. Obtain shared commitment.
4. Foster and support risk-taking.
5. Permit the learner to fail.
6. Set high expectations.
7. Establish clear performance criteria.
8. Implement a quality assessment system; utilize peer and self-assessment.

Note: as performance increases at higher levels, respect increases; as respect increases so does the degree of trust; as trust builds, this reduces the amount of judgment.
Appendix C – Glossary of Types of Facilitator Questions

ambiguous leaves students wondering how the question should be answered. Stimulates independent thought and priority setting.

analytical “What are the components of this passage?”

branching gives more than one option, e.g. “Shall we do.... or ....?”

clarifying invites elaboration or clarification.

closed (c.f. open) requires only a short answer or a yes or no.

covert (c.f. overt) elicits feelings, but is less threatening, e.g. “What is on your mind?”

confronting often seen as tough, challenges validity, clarity, etc.

convergent see deductive.

creative see discovery.

critical open up the issue in the most productive way.

deductive (c.f. inductive) confines the area of inquiry – it is reductive, convergent, e.g. “Cinderella is a fairytale. What are the characteristics of fairytales?”

discovery a question that guides the student into discovering the answer for him or herself using all his or her resources (knowledge, experience, imagination, feelings, research, etc.).

divergent see inductive.

evaluating soliciting evaluation, e.g. “What was the level of quality in our work today?” see mirroring and discovery.

following see mirroring.

heuristic see discovery.

higher-order (c.f. lower-order) requiring analysis, synthesis or evaluation (referring to Bloom’s Taxonomy*):

analysis: “Why is it important for different groups in our society to maintain their cultural heritage?”

synthesis: “What theme would represent the greatest cross-section of our school culture?”

evaluation: “What is the significance of...?”
inductive (c.f, deductive) widens the area of inquiry, it is divergent – opens things up, e.g. “What are the characteristics of fairytales?”

leading one that strongly suggests the right answer, e.g. “Do you think that showing up an hour late had something to do with your grade?”

lower-order (c.f. higher-order) asking for information, comprehension, and application (referring again to Bloom’s Taxonomy*):
  information: “What is the color of...?”
  comprehension: “What does blanc mean in French?”
  application: “What other examples of discrimination are there in this book?”

mirroring one that reflects the statement made; it is designed to elicit clarification or to indicate empathy and solicit expansion.

open (c.f. closed) one that suggests that the facilitator doesn't have a particular answer in mind, but invites students to advance possibilities, e.g. “What kinds of things can we do for the homeless?”

overt (c.f. covert) elicits feelings, can be threatening, e.g. “How did John make you feel when...?”

process gets students to reflect on process, e.g. “How did we get here?” “What steps should we take now?”

prompt “This is a...?”; “When we drive we travel in a...?” This type of question is dangerous because it can mislead.

reflective a question that does not require an immediate answer, where one can go away and think, or think on one’s feet to find the answer.

rhetorical one designed to affect the emotions and which does not require an answer, e.g. “Who cares?”

synopsis designed to crystallize thinking, e.g., “Where was I?”

synthetic “How do these facts fit together?”


Appendix D – Assessment Methodology


1. **Develop guidelines for the assessor to follow when assessing a performance.**
   *Both the assessee and assessor should:*
   
   a. Define the purpose of the performance.
   b. Define the purpose of the assessment.
   c. Determine what is appropriate for evaluation and the assessment report.
   d. Agree on what should be reported and how it should be reported.

2. **Design the methods used for the assessment.**
   *Both the assessee and assessor should:*
   
   a. Inventory a list of possible criteria to be used as part of the assessment.
   b. Choose the criteria from the list (Step 2a) which best meet the previously established guidelines (Step 1).
   c. Determine an appropriate factor for each of the chosen criterion (Step 2b) which will be used to evaluate the assessee’s performance.
   d. Determine the appropriate scale for each factor (Step 2c) which will be used to determine or measure the quality of the assessee’s performance.

3. **Collect information during the performance.**
   *The assessor should:*
   
   a. Set up a system to compile and collect information pertaining to the factors.
   b. Evaluate the collected information against the established factors using the determined scales.
   c. Document the assessee’s strengths, areas for improvement, and insights which will be shared with the assessee.
   d. Offer feedback during the performance, if appropriate and agreed upon prior, with the assessee.

4. **Report the findings to the assessee**
   *The assessor should:*
   
   a. Share (with the assessee) the assessment report with the assessee. This includes information gathered during the performance and how it relates to the criteria, along with feedback for improving future performance.
   b. Analyzes perceived poor performance and attributes what portion is due to the information collected, the criteria chosen, and/or the performance itself.
Appendix E – Cooperative Learning Resources

Publications and Papers


Appendices


Videos


Thinking Together: Collaborative Learning in the Sciences. Derek Bok. Center for Teaching and Learning, Harvard University, Cambridge, MA.

Journal

Cooperative Learning Magazine
International Association for the Study of Cooperation in Education,
Box 1582, Santa Cruz, CA, 95061  Phone: (831) 426-7926

Internet Resources

International Association for the Study of Cooperation in Education (IASCE)
<http://www.muohio.edu/iasce>

IASCE is an international nonprofit educational association dedicated to the study and practice of cooperation in education, a field that includes the increasingly popular cooperative classroom methods by which students work together in learning teams to master academic content and collaborative skills.

Cooperative Learning Network
<http://www.sheridanc.on.ca/coop_learn/cooplrn.htm>

The Cooperative Learning (CL) Network is an association of colleagues at Sheridan College who model, share, support, and advocate the use of cooperative learning.

The Cooperative Learning Center at the University of Minnesota
<http://www.clcrc.com>

Co-directed by Roger T. Johnson and David W. Johnson, the center staff develop and refine theory and research related to cooperative, competitive, and individualistic approaches to teaching and learning.

Collaborative Learning Web site
<http://www.wcer.wisc.edu/nise/cl1/CL/clhome.asp>

The NISE College Level One Team, based at the University of Wisconsin-Madison, is a nationwide community of post-secondary science, mathematics, engineering, and technology (SMET) faculty, education researchers, faculty developers, and students. Their main mission is to improve students' learning experiences and critical thinking skills by fostering innovation in introductory SMET education at the college level.

Teaching Strategies: Cooperative/Collaborative Learning
<http:// ublib.buffalo.edu/libraries/projects/trl/coop.html>

Part of the on-line teaching and learning resources at the State University of New York at Buffalo. Includes bibliographies, articles, newsletters, and Internet references.

Appendices