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CHAPTER 3

Creating Effective Assignments A Key Component of Team-Based Learning

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The single biggest challenge for teachers wanting to use team-based learning is that of creating effective group assignments. The challenge is to find an important question or problem and then learn how to create an assignment around that problem that will simultaneously foster group cohesiveness and promote higher-order learning. In this chapter Michaelson and Knight analyze the processes that detract from group cohesiveness (in the form of social loafing) and then identify the variables and procedures that must be managed to create an effective assignment. They conclude by providing a checklist of key characteristics that will allow teachers to assess the effectiveness of their group assignments.

As more and more teachers use small groups in their courses, some find that the results are as exhilarating as they had hoped. Others, however, are seriously disappointed. It has been our experience that instructors are almost always unhappy the related to problems that are a natural consequence of using poorly designed group assignments.

Probably the most common problem affecting the use of small groups involves individuals who dominate the discussions to the point that quieter members' ideas are either unexpressed or largely ignored. A second common problem arises when individuals within the group believe they are forced to do the work for their less able or less willing counterparts. And the third problem occurs when groups are reporting the results of their work to the total class. Even when there has been a high level of engagement in the small groups, subsequent whole-class discussions sometimes "fall flat."

Based on our experience, these "problems" are actually symptoms that are the natural consequences of the real problem: poorly conceived group assignments. In fact, we strongly believe that almost all failed efforts to successfully use learning groups can be traced back to inappropriate group assignments.

Because the nurturing of group cohesiveness is critical to the success of team-based learning and to student learning, we begin by outlining the forces that lead to the uneven and low levels of member participation that inherently limit the learning that occurs in noncohesive groups. We then identify five key variables that must be managed to create a level of group cohesiveness that is conducive for broad-based member participation and learning and why some commonly used assignments inhibit both members participation and learning. Next, we discuss how member interaction affects how we process information and the related implications for the design and selection of effective group assignments. Finally, we present a list of principles that are essential for designing effective group assignments along with a checklist for evaluating the effectiveness of group assignments in a wide variety of instructional settings and subject areas.

CAUSES AND CONSEQUENCES OF UNEVEN MEMBER PARTICIPATION

In noncohesive groups, a high percentage of group members simply prefer to sit back and let someone else work on their behalf. This phenomenon, which has come to be known as social loafing (Latane, Williams, & Harkins, 1979) is a serious problem because it significantly constrains the interaction necessary for a productive learning environment. Further, if left unchecked, the conditions that produce social loafing will also prevent the development of the social fabric that is necessary for effectively functioning learning groups. For example, when quieter members decline to contribute to the group, more assertive members inevitably take charge. By doing so, assertive members not only reduce the need for additional input from their fellow group members, but also create a kind of caste system in which quieter members often feel that their ideas will not be welcomed.

Forces that Promote Social Loafing (Uneven Member Participation)

We have identified six forces which, unless recognized and dealt with by the instructor, will produce a level of social loafing that can seriously affect the development of group cohesion (see Table 3.1). Three of these forces have to do with the characteristics of group members. For example, some group members are resistant to participation because they are just naturally shy. Second, members with more assertive personalities naturally prefer to dominate a discussion, and third, some group members

TABLE 3.1
Forces that Promote Social Loafing

(Uneven Contributions in Group Discussions)

- Some individuals naturally resist participation (shyness).
- Some individuals prefer to dominate discussions.
- Members may believe they lack the content knowledge required for making a meaningful contribution.
- Members may not be committed to the success of the group.*
- Members may be concerned about appearing to be disagreeable or overly aggressive.*
- The task may be inappropriate for groups because it:
 - ◆ can be completed by one or two members working alone.
 - ◆ does not require members to reach an agreement.

* These are especially important problems with new groups.

individuals are reluctant to speak because they are concerned about being viewed as incompetent.

Of the remaining forces that can produce social loafing, two are especially problematic in temporary and newly formed groups. For example, members of these kinds of groups are typically so concerned about creating a positive impression that they will nearly always gloss over differences of opinion in order to avoid being perceived as being disagreeable or overly assertive. The fact that some members start out by being more concerned with politeness than rightness is especially troublesome because it inhibits the kind of give-and-take discussion that produces both learning and group development. (See summary of research on the impact of group maturity in chapter 4, pp. 81–85.) Along with concerns about politeness, an additional problem arises when there are group members who see themselves as having little to lose if the group fails to perform effectively—so they do not make the effort to contribute.

The last force that must be examined is probably the most problematic cause of social loafing in learning groups and, as a result, is one of the greatest barriers to the development of group cohesion. This problem is the use of assignments that can be completed by independent, individual work. When members of a group have no need to work together to complete a task, they will miss the opportunity to bond as a group. For example, when the rational way to complete a task is to parcel out the work to individual members, that is exactly what will happen. And it has been our experience that dividing up the work commonly occurs in two situations: when the as-

situation, the groups quickly realize that group interaction is not needed; therefore, one member will simply act on behalf of the group to complete the assignment. When the assignment involves writing, which is inherently an individual activity, the only real group aspect of completing the assignment is deciding how to divide up the overall task. The real work is completed by individual members working alone. (See summary of research on group tasks in chapter 4, pp. 86–88.)

Negative Impact of Uneven Member Participation

Whatever the cause, uneven member participation defeats two of the key purposes for using learning groups. One effect is that students learn very little about the content. The other is that, because the groups are seldom very effective, students are often left with a negative impression regarding the value of group work.

Both problems are particularly serious when the uneven participation results from assignments that require a great deal of written work and students resort to a divide-and-conquer approach. Because the work-allocation decisions are the first step in completing the assignment, content learning is limited. That is, students are likely to volunteer to work on the aspect of the project that will require the least amount of effort. In other words, they gravitate away from the aspects of the assignment that will expose them to new concepts and ideas.

The divide-and-conquer approach also inhibits the development of students' team interaction skills in three significant but very different ways. First, because the work is being done by individuals working on their own, there is little opportunity for members to practice the listening and persuasion skills that will be so important to their success in future jobs. Second, it robs them of the opportunity to experience one of the primary benefits of group work that of honing their thinking during the give-and-take discussions. As a result, instead of viewing peers as resources for tackling intellectually challenging tasks, students are predisposed to think of team members simply as bodies among whom work can be divided. Third, when individual students think they have done more than their fair share of the work, the divide-and-conquer approach can leave them with a bitter taste about group work. Although the complaints of individuals who believe they did an inordinate amount of the work may be valid, other students (often minorities) sometimes see the same situation in a very different light. For example, these students believe that the complainer(s) did the most work because they dominated the group, thereby denying them the opportunity to contribute. As a result, these students (the ones being criticized) are usually very angry if they receive low peer evaluations (even though they did not do equal work) because they feel the situation was unfair.

CREATING BROAD-BASED MEMBER PARTICIPATION WITH EFFECTIVE ASSIGNMENTS

The single most effective strategy for eliminating uneven member participation, or social loafing, is to make sure that group assignments foster the development of cohe-

sive learning teams. As groups become more cohesive, so does the level of trust and understanding among group members. With well-designed assignments, most groups become cohesive to the extent that even naturally quiet members become willing to engage in intense give-and-take interactions without worrying about being offensive or misunderstood (Michaelsen, Black, & Fink, 1996; Michaelsen, Watson, & Black, 1989; Watson, Kumar, & Michaelsen, 1993; Watson, Michaelsen, & Sharp, 1991). In addition, a primary characteristic of a truly cohesive team is that members see their own well-being as integrally tied to the success of their group. As a result, members of cohesive groups are often highly motivated to invest personal energy doing group work (Michaelsen, Jones & Watson, 1993; Shaw, 1981).

Assignments that Promote Group Cohesiveness

We have identified five key variables that determine whether or not a particular assignment will effectively build group cohesiveness:

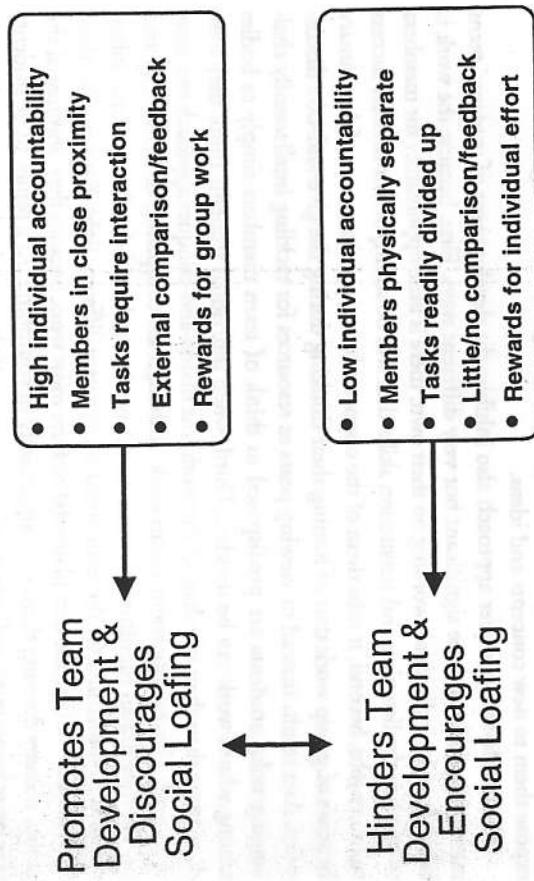
1. Does it promote a high level of individual accountability for team members?
2. Does it bring members into close physical proximity?
3. Does it motivate a great deal of discussion among team members?
4. Does it ensure that members receive immediate, unambiguous, and meaningful feedback (preferably involving direct comparisons with the performance outputs from other teams)?
5. Does it provide explicit rewards for team performance?

Variable # 1: Ensuring Individual Accountability

Ensuring that assignments promote individual accountability is especially critical for the initial group assignments. That is, initial assignments set the stage for the rest of the course. In new groups, the innate forces against broad-based participation are so powerful that they must be offset early on (see Figure 3.1). If a group is even modestly successful with input from only one or two members in an initial assignment, it is very easy for that group to develop a norm for future activities that says some members will contribute a lot and others will contribute very little (Feldman, 1984).

On the other hand, using an initial group task that explicitly requires pre-work and input from all group members produces a set of dynamics that largely prevents social loafing from occurring in the first place. In part, this results from the fact that using tasks that hold members accountable for pre-work tends to have a positive effect on members at both ends of the assertiveness continuum. For example, quieter members tend to speak up and more assertive members tend to tone down. Quieter members tend to contribute more because they are likely to actually have something of substance to say. And they intuitively realize that they are likely to be seen in a negative light if they do not contribute.

FIGURE 3.1
Impact of Assignment Characteristics of Team Development and Social Loafing



By contrast, these same dynamics have the opposite effect on members at the other end of the assertiveness spectrum. Members whose natural tendencies often cause them to dominate discussions tend to tone down for just the opposite reasons. When every member is required to contribute, the more assertive members have greater confidence that others may have something of value to say. As a result, they intuitively realize that they are likely to be seen in a negative light if they do not give the quieter members the opportunity to speak. Finally, with tasks that really do require broad-based input, groups are more likely to succeed and be rewarded when they get input from all members. Thus, their initial success reinforces a norm in which everyone is expected to provide input to the group on a regular basis (Feldman, 1984).

The Readiness Assurance-Process (RAP), described in detail in Chapter 2, illustrates both how and why assignments that promote individual accountability have such a powerful impact on both learning and team-building (Michaelsen & Black, 1994; Michaelsen, Black & Fink, 1996). Since members have individually answered each of the questions on the Readiness Assessment Test (RAT)—and part of their grade depends on how well they do—when it comes time for the group RAT, the group naturally proceeds in a way that sets a desirable pattern for future discussions. A typical scenario is one member (usually a more vocal one) initiating the process by polling his or her peers to determine how they answered each question. Then, unless

everyone selected the same answer, the natural next step is to explore the members' reasons for their choices. Almost without exception, the ensuing discussion enables members to learn from each other and also to discover important principles for doing well on subsequent assignments. For example, they learn that it is wise to ask each person to provide reasons for their answers every time differences occur within the group. As a result, each individual learns that it is wise to be well prepared. In addition, quieter members tend to be rewarded for talking and assertive members tend to be rewarded for listening.

Variable # 2: Promoting Close Physical Proximity

The degree to which a group becomes cohesive is directly related to the extent to which members do things together. Unless members interact, groups simply will not become cohesive. Being in close physical proximity virtually ensures that group members will at least begin the team development process by acquiring a set of common experiences. As a result, we strongly recommend using in-class group work and avoiding assignments that allow students to complete the assigned task outside of class, working individually.

Our experience strongly suggests that requiring groups to do their work outside of class creates an overwhelmingly powerful barrier to the development of group cohesiveness. In most cases, the "cost" of meeting outside of class is so great that students will meet only long enough to divide up the work so that they can independently complete the components of the assignment. As a result, they produce a group product in name only, and whatever cohesiveness was developed during the initial meeting is usually offset by the worry about whether or not other members will actually do their part.

Variable # 3: Promoting Discussion Among Team Members

A high level of interaction and discussion within a group greatly enhances group cohesiveness. Although a number of different types of tasks can produce such interaction, a highly reliable rule-of-thumb is that assignments increase group cohesiveness (and, over time, eliminate social loafing) when they require members to *make a concrete decision that is based on the analysis of a complex issue*. A common example of this kind of assignment is asking students to apply a rule or solve a truly challenging problem. These types of tasks typically require students to use a broad range of intellectual skills that include recognizing and defining concepts, making discriminations, and applying principles or procedural rules (Gagné, 1970). Further, everyone typically has both opportunity and incentive to actively participate in completing the task because of the genuine need for broad-based member input. The net result is that problem-based tasks almost universally immerse students in information-rich, give-and-take discussions through which their content learning increases. Further, if the assignment is thoughtfully crafted, students are also likely to reinforce two important lessons about group interaction: (1) other members' input is a valuable

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resource, and (2) we can accomplish things by working together that none of us could have accomplished on our own.

Variable # 4: Providing Teams with Meaningful Feedback

Another very powerful force for the development of group cohesiveness is providing team members with immediate, unambiguous, and meaningful feedback. The feedback is particularly powerful when it involves being compared with other teams who have been faced with solving the same problem. The knowledge that any other team has the potential to outperform "your" team is extremely motivating to students. In fact, Shaw (1981) writes that the presence of an outside influence that is perceived to be threatening to individual member goals or the well-being of the group has a significant impact on the outcome of the group. In this situation, the potentially threatening outside influence becomes the other teams in the class. In the scheme of things, this type of influence is quite valuable because differences among individual group members become less important as they pull together to protect themselves and their public image from the outside force, that is, challenges from the other teams. As a result, providing performance data that allow comparisons between groups is a very powerful tool for increasing group cohesiveness.

Some assignments are clearly better than others at providing such comparisons. In general, the more that assignments provide unambiguous performance feedback, the better they are at promoting team development. Further, the more immediate the feedback, the greater its value to both learning and group cohesiveness.

By contrast, assignments are likely to limit the development of group cohesiveness (and encourage social loafing) if they force groups to do the majority of their work in the absence of feedback. When groups have no way of knowing how they are doing (e.g. when groups are asked to produce some sort of a complex "product" such as a group paper), members are likely to experience a great deal of stress when trying to work with one another. In addition, differences in members' work styles can also produce a great deal of tension in the group. For example, members who have a strong preference for a systematic and orderly approach grow increasingly anxious as deadlines approach and often find themselves in conflict with peers who put off their work until the last minute because they feel they work best under pressure.

Variable # 5: Rewarding Group Success

It would be wonderful if students completed group assignments simply for the love of learning. However, most students feel so many pressures on their time that they are prone to be distracted from working on even the most interesting of assignments. Thus, if we fail to create conditions in which doing good work as a group pays off in some meaningful way, we are, in effect, asking our students to behave irrationally. As a result, teachers have to take on the responsibility for creating a situation in which it actually makes sense for students to work hard to complete an

The most obvious way to create incentives for members to devote time and energy to group work is to include *group performance* in our grading system. If group work "counts," then cohesiveness increases because group members have a clear and concrete reason to work together. On the other hand, if students are graded only on their individual work, group cohesiveness will be blocked by the fact that they will correctly see themselves as competing with other members of their own group.

Rewarding group performance also helps meet the basic human need for social validation. Typically, everyone wants to feel they can offer something of value to others. Thus, by creating a situation in which the output from the group will be assessed, rewarded, and challenged by peers from other groups, we are creating an environment that promotes both group cohesiveness and learning.

Assignments that Reduce Group Cohesiveness

To fully understand the characteristics of a well-designed team assignment, it can be enlightening to take a look at the kinds of assignments that typically result in low levels of energy and learning and, in fact, can even lead to open warfare within the groups. It is our experience that the worst assignment when trying to build group cohesiveness is to ask students to write a term paper as a group. Group papers seldom provide any support for building group cohesiveness and almost universally result in social loafing, or at least what is perceived by other students as social loafing. Writing is inherently an individual activity; therefore, the rational way to accomplish the overall task is to divide up the work so that each member independently completes part of the assignment (usually the part that he or she already knows the most about). As a result, there is seldom any significant discussion after the initial division of labor, and feedback is generally unavailable until after the project is handed in. At that time, it is too late to create either individual accountability or meaningful comparisons with other groups.

Further, under these conditions, having part of the student's grade based on group work is a much more negative experience than it is a positive one. Members are well aware that the failure of any member of the group to do well on his or her share of the writing can force the rest of the group members to accept a low grade or engage in a last-minute attempt to salvage a disaster. In fact, high-achieving students often express the feeling that getting an acceptable grade on a group term paper feels like having crossed a freeway during rush hour without being run over. That is an experience that none of us wishes to impose on our students.

INCREASING HIGHER-LEVEL LEARNING WITH EFFECTIVE ASSIGNMENTS

The characteristics of group assignments profoundly affect learning and retention

information because of their impact on group interaction as mentioned previously. The other to be discussed has to do with the fact that changes in character and substance of peer interactions have a powerful impact on the cognitive processes through which learning occurs.

How We Learn

On the surface, when we make reference to what we know, we appear to be referring to the sum total of the information to which we have been exposed. Taking information in, however, is only part of the learning process (Bruning, Schraw, & Ronning, 1994). Information that is taken in and stored in short-term memory decays very rapidly. Thus, from a practical standpoint, what we "know" is more a function of our ability to retrieve and use information than it is the sum total of the information that we have taken in.

Impact of What We Know

Our ability to learn is profoundly affected by both information to which we have previously been exposed and the way this information is stored in our long-term memory. Most important, our capability to learn depends on the extent to which the related components of our memory are clustered into well-organized structures (i.e., sometimes referred to as schemata—see Anderson, 1993; Bruning, Schraw, & Ronning, 1994; Mandler, 1984). These information structures are important because they provide "hooks" that help establish links between new information that is related to what we already know and the individual components of our existing structures. In addition, these structures provide a backdrop that helps us recognize what we do not know (i.e., information that does not fit).

Information Structures and Learning

What we "know," then, is largely a function of the number, complexity, and interconnectedness of the information structures in our long-term memory and, for practical purposes, the information that we are able to retrieve and use. In other words, significant learning has taken place when we increase the amount of information we are able to retrieve and use. This ability to retrieve information usually occurs when new information motivates us to: (1) add information to existing structures, (2) establish new structures, or (3) establish new links within or between existing structures.

Elaborative Rehearsal

If a learning activity exposes us to new information that neatly connects to a "hook" in one of our information structures, then it is simply attached to the appro-

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appropriate link. If new information appears to conflict with existing grouping, the learning process takes a very different, but even more beneficial, course. Initially, we will search through our long-term memory to review the linkages upon which the apparent conflict is based. If this review confirms the existence of a conflict, we will be in a state of discomfort until we find a harmonious accommodation. If none is found and the information's credibility is sustained, we are motivated to eliminate the conflict by modifying or adding to existing structures. This memory retrieval and examination process, called "elaborative-rehearsal" (Craik & Lockhart, 1986), facilitates learning because each stage has a positive impact on our long-term memory. Consequently, the greater the extent to which an assignment exposes students to credible information that conflicts with their existing information structures, the greater its impact on their long-term memory.

Increasing Higher-Level Learning

The importance of providing opportunities for elaborative rehearsal is dramatically illustrated by a series of studies involving learning groups (summarized by Slavin, 1995). In all of the studies, students were divided into four-member groups as part of a "jigsaw" activity. Each member was assigned to become a subject-matter expert with respect to one of four areas and then given the opportunity to teach the material to the other members of his or her jigsaw team. In most instances, students in jigsaw groups scored higher on an overall summative test than students from a control group who had been taught with a more traditional method. The positive benefits of the jigsaw activity, however, were primarily due to students' mastery of the material they had taught to their peers. Hearing someone else explain a set of concepts (i.e., listening to a lecture) had a minimal positive effect on learning as compared to the impact of having to synthesize the information, organize a presentation, and present the information to a group of peers.

In two other studies, Lazarowitz (1991) and Lazarowitz and Karsenty (1990) added an additional learning task for the jigsaw groups. After the jigsaw peer instruction, each of the groups was given a discovery-oriented problem to solve that required students to actively use information presented by each of the four subject-matter experts. The most significant finding from these studies was that requiring students to engage in higher-level thinking increased students' ability to recall and use the information that was originally presented by the other subject-matter experts.

Based on the overall results of the jigsaw studies, it appears that just listening to another peer in a learning group, even when combined with the opportunity to ask clarifying questions, produces only modest gains in long-term memory. On the other hand, learning activities that require higher-level thinking skills, such as those involved in teaching others or using concepts to solve a discovery-oriented problem, produce substantial long-term gains in students' ability to recall and use course concepts.

Other types of learning activities that focus on using higher-level thinking skills have also been shown to produce similar gains when compared to simple cognitive

tasks such as listening to lectures or going over one's notes. These include taking tests (Nungester & Duchastel, 1982), writing "minute papers" (Wilson, 1986), and being exposed to opposing views on a subject and then having to resolve the conflict in the process of making a decision (Smith, Johnson, & Johnson, 1981).

In combination, the findings from these studies convincingly argue that the long-term educational impact of group work will be much greater if group assignments go beyond simply exposing learners to new information to requiring active engagement in higher-level cognitive skills. As a result, the key to designing assignments that promote both greater depth of understanding and retention is to use assignments that require higher-level thinking and problem solving.

PRINCIPLES FOR DESIGNING EFFECTIVE TEAM ASSIGNMENTS

In combination, the preceding sections of this chapter have pointed out the need for assignments and procedures that promote high levels of individual accountability and group discussion (both within and between groups). When students are accountable for preparing for group work, they are motivated to work with the ideas and concepts enough to enter the discussions with a personal schemata within which the set of related ideas have been organized. The discussion—both within and between teams—increases learning and retention by exposing them to new information that is often inconsistent with their current schemata.

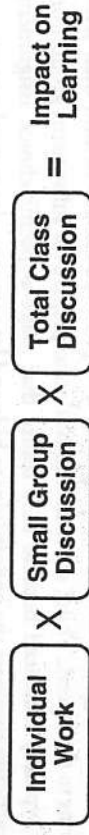
The Three Ss

The question for the teacher then is how does one create assignments that both create accountability and foster discussion? We have found that three procedures, fondly referred to as the "3 Ss," are very effective in creating assignments with the necessary characteristics. These are: (1) all of the students in the class should be working on the *same problem* or assignment, (2) students should be required to make a *specific choice*, and (3) groups should *simultaneously report* their choices (Figure 3.2). Further, these procedures apply to all three stages of effective group assignments—individual work prior to group discussions, discussions within groups, and total class discussions.

Procedure #1: Same Problem

One of the essential characteristics of an effective group assignment is the necessity for discussion both within and between groups. It is through such discussions that students receive immediate feedback regarding the quality of their own thinking. In order to facilitate such an exchange, groups must have a common frame of reference. That commonality is derived from working on the same problem, that is, the same assignment or learning activity. Having a common task allows for comparison,

FIGURE 3.2
Essential Principles for Designing and Implementing Effective Group Assignments



To obtain the maximum impact on learning, assignments at each stage should be characterized by "3 Ss":

- **Same problem**—Individuals/groups should work on the same problem, case, or question.
- **Specific choice**—Individuals/groups should be required to use course concepts to make a specific choice.
- **Simultaneously report**—If possible, individuals/groups should report their choices simultaneously.

first between group members, and then between groups, and provides students with important feedback on their own thinking and their performance as a learning team.

Procedure #2: Specific Choice

As previously discussed, cognitive research shows that learning is greatly enhanced when students are required to engage in higher-level thinking. To challenge students to process information at higher levels of cognitive complexity, we must provide them with assignments that create those challenges.

After many years of experience, we have discovered that the best activity to accomplish this goal is to word the assignment in such a way that students are required to make a specific choice. While the terminology may sound vague at this point, in the following paragraphs, we will provide both several examples of "make-a-specific-choice" assignments and a rationale for why they work so well in promoting both student learning and team development.

Procedure #3: Simultaneous Reports

When teachers have the groups work on a problem, they then have the choice of having the groups share the result of their thinking with the rest of the class in one of two ways, sequentially or simultaneously. The big problem with having groups report sequentially is that later groups are tempted to change their mind by simply endorsing what seems to be emerging as the most popular. Unfortunately, the natural tendency to avoid "rocking the boat" often eliminates the disagreements that provide the basis

for potentially valuable give-and-take discussions. Having the groups report simultaneously solves this problem, since all of the groups are required to report the results of their thinking and decision making before they know what the pattern is among the other groups. Hence they have to commit to and be ready to defend their answer, regardless of whether the other groups agree or disagree with them.

The opposite scenario, however, is usually quite grim. For example, if the teacher gives each group a different problem to work on and has the groups give an oral report sequentially, the result is almost invariably a long, drawn-out, and very low-energy event. On the other hand, if the teacher has students work on the same problem and has the groups report simultaneously, the natural result is a very high energy, give-and-take total class discussion.

Impact of Make-a-Specific-Choice Assignments

The degree to which assignments stimulate higher-level cognitive skills (elaborative rehearsal) is largely a function of what we ask students to produce. For example, suppose an English composition instructor wanted to ensure that his or her students were able to recognize the effective use of active versus passive voice in written communication. Three alternative versions of the English composition assignment are shown in Table 3.2 (see also Michaelsen, Black, & Fink, 1996). In these examples, the order of the tasks reflects the degree to which each of them would require the use of higher-level cognitive skills. For example, alternative #1 simply asks students to make a list. It is unlikely that this kind of assignment would stimulate higher-level thinking because students could make a list by simply going to a reference source that cites examples of typical mistakes, copying the list and, turning it in. With this obvious bit of information in hand, one would readily concede that assignment #1 is not particularly challenging. Assignment #2, having to "make-a-choice," is a considerably better assignment. This assignment requires students to critically examine the sentences in the sample passage and then use the criteria that define active versus passive voice to identify examples of the same.

Although assignment #2 does require more thinking, assignment #3, "make-a-specific-choice," provides the students with even more practice in using higher-level cognitive skills. Assignment #3 is better, in part, because students will not be able to complete task #3 unless they can also complete tasks #1 and #2. As is typical with make-a-specific-choice assignments, picking a single best example of the correct use of passive voice will require students to develop and use a number of higher-level cognitive skills. At a minimum, these higher-level skills include making multiple comparisons and discriminations, analyzing content information, and verifying rule application (see Gagné, 1970).

Granting that make-a-specific-choice assignments are beneficial for individual students working alone, these assignments also produce great gains in learning groups. In part, learning increases because make-a-specific-choice assignments provide an additional reason for students to take their work seriously. For example, group interac-

TABLE 3.2
Wording Assignments to Promote Higher-Level Cognitive Skills and Team Development

"Make-a-list"

1. "List the 'mistakes' that writers frequently make that detract from their efforts to write in active 'voice'."

"Make-a-choice"

2. "Read the following passage and identify a sentence that is a clear example of: a) active, and b) passive 'voice.'"

"Make-a-specific-choice"

3. "Read the following passage and identify the sentence in which passive 'voice' is used most appropriately."

tion provides two additional opportunities to stimulate active learning: the discussion within groups and the discussion between groups. When used in a group context, make-a-specific-choice assignments increase learning in each step of the process as students prepare individually, as they interact within their group, and as they become engaged in the discussion between groups (Figure 3.3).

Impact on Individual Preparation for Group Work

Using a series of assignments that requires students to make a specific choice enhances individual preparation for group work in three quite different ways. One is that learners have to use higher-level thinking skills to actually make a choice. As a result, most will enter the group discussion having made a serious attempt to think through the issues. Second, unless the group is in complete agreement, members gain additional self-insight when they are preparing to explain the reasons behind their selections to their peers. Third, students' motivation to prepare for subsequent group work is typically enhanced because they realize that make-a-specific-choice assignments practically eliminate the opportunity to hide and let someone else carry the group.

Impact on Discussions Within Groups

The difference between make-a-list and make-a-specific-choice assignments is even more evident in intra-team discussions. For example, listing choices that are possibilities tends to be a low-energy team task. One reason for the low energy is that a search for what should be on a list focuses on quantity rather than quality. Another

licity of the output. We have discovered that assignments that compel groups to make a specific choice invariably promote group accountability because any differences between groups are absolutely clear. For example, an assignment that asks groups to select the single best example of an appropriate use of passive voice will produce a much more productive between-group discussion than an assignment that asks groups to merely identify examples of appropriate use of active and passive voice. Comparing "best examples" (i.e., specific choices) is likely to produce a more intense and informative discussion than just listing examples because groups have a vested interest in defending their position to the other groups. In addition, the discussion will focus on the reasons one choice is superior to another.

By contrast, group assignments that result in either lists or nonspecific choices often result in two problems: low-energy class discussion and poor group analyses going unchallenged. The lack of energy results from the fact that groups tend to be far more interested in their own work than that of other groups. Poor analysis often goes unchallenged because: (1) having students either make a list or a nonspecific choice is likely to produce so much data that the task of finding something to challenge can be quite difficult, and (2) the absence of clear comparisons allows groups to overlook inconsistencies in both their own and other groups' analyses.

Impact of Simultaneous Reporting

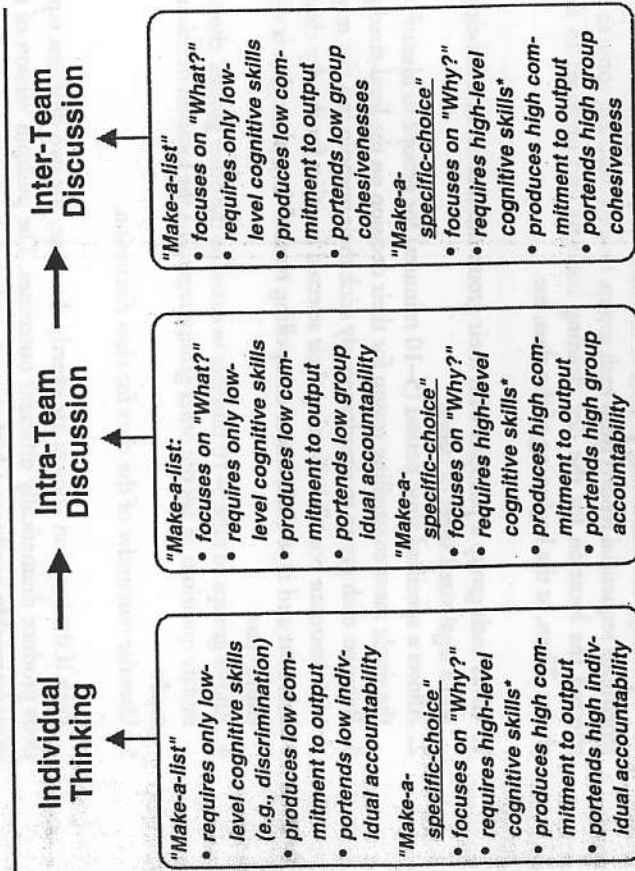
Although make-a-specific-choice assignments produce substantial benefits at each of the three stages shown in Figures 3.2 and 3.3, their value is often much greater when the choices are reported simultaneously. This is particularly evident in making the transition from group to total class discussions. Even if students are required to make the same specific decision, having them report sequentially is far less effective than having them report simultaneously. An excellent example of the disparity between the two methods is described below:

After using the RAP, a colleague who teaches marketing uses a make-a-specific-choice group assignment to ensure that students can "coherently weigh the factors involved in evaluating alternative sites for locating different types of businesses" (Michaelsen, Black, & Fink, 1996). He asks his students to: "Select what you think would be the ideal site for a new dry cleaning business in the city of _____ (a specific city about which students can gain access to relevant data), identify the single most compelling reason for your decision, and be prepared to explain the rationale for your selection" (Michaelsen et al., 1996:233). Although the assignment clearly requires students to use course concepts to make a specific choice, its impact is greatly enhanced by how he has his groups report their choices.

Effect of Sequential Reporting

For several years, this professor gave RATs, allowed students to use class time to

FIGURE 3.3
Impact of Assignment Wording on Learning and Team Development



* At a minimum, specific choices require: Multiple comparisons and discriminations, exchange and analysis of content information, and verification of rule applications.

reason is that once several items go on the list, it is easy for quieter or less self-assured participants to get "off the hook" by saying that their ideas are already listed. The last reason is that making a list seldom leads to a feeling of pride in the group output because the majority of the items are likely to be in common with other groups.

By contrast, when groups are asked to select a single best choice based on specific criteria and are aware that other groups have been given the same assignment, members are likely to engage in an intense give-and-take discussion regarding why any given choice is better than another. No one wants to be the only group to have made a particular choice and not be able to present a clear and cogent rationale for their position. As a result, most groups will engage in make-a-specific-choice tasks with a great deal of energy. They are also likely to be able and very willing to defend their choices.

Impact on Discussions Between Groups

Group assignments phrased in make-a-specific-choice terms produce their great-

which students revealed their choices and the reasons for making them. After the final presentation, he then opened up the floor for questions and class discussion. With very few exceptions, however, he was disappointed by his students' low energy and shallow analysis of the issues. In part, the problem was that the repetitive nature of the presentations tended to put everyone to sleep, including the teacher. However, the problems did not end there. Differences in the groups' choices—the key to stimulating intergroup discussions—were obscured by several factors. First, the sheer volume of data in five, ten-minute presentations made it difficult for students to keep track of all the information. Second, the relevant facts were presented over a fifty-minute time span. As a result, the key points tended to get lost in a maze of less relevant commentary. Third, since the groups were likely to use different approaches for representing their analyses, establishing links between key ideas was likely to seem like comparing apples and oranges.

Effect of Simultaneous Reporting with Pushpins

After modifying the assignment by replacing sequential reporting with simultaneous reporting, the marketing professor has had tremendous success. Instead of the repetitious sequential reports from each group, he now has them come to class having selected the location for the dry cleaning business and prepared to defend their choice. Then, at the beginning of the class, he:

1. Gives each group a pushpin with their group number on it, a felt-tipped marker and a legal-sized sheet of paper.
2. Allows a specified time period (5–10 minutes) for groups to identify and record the single most compelling reason for their decision on the legal-sized paper.
3. Requires each group to simultaneously stick their pushpin in a city map (attached to a classroom board) indicating their selected location for the dry cleaning establishment and tape their "most compelling reason" in a place that is visible to the entire class.
4. Allows groups to take 5–10 minutes to examine the other groups' choices and formulate questions to ask the other groups regarding the location decisions that were made.
5. Uses the remainder of the class for class discussion.

Even if the location choices are exactly the same, the two different reporting options produce dramatically different outcomes. The pushpin version of the assignment invariably produces a high-energy exchange between groups that focuses on why one reason is more compelling than another. In contrast to students being overwhelmed with data from fifty minutes of reports, the pushpin approach ensures that students are exposed to a simultaneous, common, permanent, and highly visual representation of only the essential data, which are the proposed locations and each group's rationale for their choice. Further, the students have a designated time to carefully process and digest the information in an integrated way.

In summary, properly designed make-a-specific-choice group assignments, with simultaneous reporting, virtually ensure a high level of energy in the classroom because of their profound and positive impact on cohesiveness. Reaching consensus on a difficult choice requires a great deal of thought and effort. Students, therefore, intuitively realize that differences between teams represent an important source of feedback. Thus, because differences between team choices are so clear, they represent a significant external threat.

By contrast, make-a-list assignments seldom promote group cohesiveness because the output is poorly suited for intergroup comparisons. The contrast becomes most apparent when groups share the results of their discussions. Even though groups generally do a pretty good job of making lists, the energy level in the class almost always takes a nose dive when the groups report to the class. In fact, simply getting students to pay attention to each other as representatives go over each item in their list can be a serious problem. Differences that groups might otherwise take pride in and be motivated to defend are both obscured and diminished in significance by the sheer volume of data.

How Good Are Your Assignments?

Probably the single best indicator of the effectiveness of group assignments is the presence of *task-focused energy* when groups share the results of their work with the other groups in the class. In fact, the energy level continues to rise when groups share the results of their discussions with the other groups in the class; it will also promote both group cohesiveness and learning. When the energy level is high during discussions between teams you can be confident that team members have individually prepared in advance for the team work, taken their team work seriously, and increased their ability to tackle even more difficult learning tasks. Good assignments create a high energy level in the classroom. And the energy level rises because students are interested in and willing to spontaneously challenge each other's thinking as well as defend their own.

We have observed time and again that the "3 Ss" (*Same assignment, Specific choice, and Simultaneous reporting*) have a powerful impact on both group cohesiveness and energy in the classroom. Table 3.3 provides a checklist that you can use to preassess the extent to which your assignments incorporate these three procedures.

Making Good Group Assignments into Great Ones

Every group assignment affects students' learning in two very different ways: directly (by actively engaging them with the issues and concepts) and indirectly (by actively engaging them with each other). As a result, teachers have two options for improving the learning value of their assignments. One is to modify the substance of the assignment to increase students' interaction with the material (e.g., using cases or

TABLE 3.3

A Checklist for Effective Group Activities

PRIOR TO Group Discussions

- Are group members working on the same assignment and required to make a specific choice, individually and in writing? (Note: This individual accountability is especially important in newly formed groups.)

During Discussions WITHIN Groups

- Are groups required to share members' individual choices and agree (i.e., reach a group consensus) on a specific choice?
- Will the discussion focus on "Why?" (and/or "How?")
- Will the groups' choice(s) be represented in a form that enables immediate and direct comparisons with other groups?*

During Discussions BETWEEN Groups

- Are group decisions reported simultaneously?*
- Do group "reports" focus attention on absolutely key issues?*
- Are groups given the opportunity to digest and reflect on the entire set of "reports" before total class discussion begins?
- Will the discussion focus on "Why?" (and/or "How?")

The more "Yes" answers, the better. If the answer to all eight questions is "Yes", the assignment will effectively promote both learning and group development.

*The form in which individual and group choices are represented largely determines the dynamics of the discussions that follow. Both individual reports to groups and group reports to the class should be as absolutely succinct as possible. One-word reports are the very best (e.g., yes/no, best/worst, up/down/no change, etc.) because they invariably stimulate a discussion of why one choice is better than another.

problems that students see as relevant). The other is to increase students' interaction with their peers—either within a group or between groups—by changing the assignment so that it does a better job of increasing group cohesiveness.

Surprisingly, the indirect approach for increasing the effectiveness of group assignments, that is, having students interact with one another in ways that increase group cohesiveness, is often the most effective. For example, an agronomy professor who was using team-based learning used an "increase-cohesiveness" approach to improve a group assignment aimed at developing his students' ability to recognize the weed va-

rieties that commonly infest turf grass lawns in the local region. Initially, he used an assignment that required groups to "identify and appropriately tag an example of each weed variety growing in plot #1 [which he had laid out] on the lawn behind this building." The assignment worked reasonably well, but he decided to modify the activity to increase its value for building team cohesiveness. The revised assignment now uses five plots (one for each group in the class) and requires an additional twenty minutes to complete.

During the first ten minutes of the assignment, the group members work individually within their team's plot to first find and then temporarily tag an example of each weed variety. During the next twenty minutes, each of the groups: (1) agrees on (and permanently tags) a sample of each weed variety in their plot (and receive ten points for each correctly tagged weed variety), and (2) prepares for a "weed finders challenge" (WFC).

During the WFC, groups have five minutes to examine each of the plots of other teams and challenge incorrectly tagged weeds. If their challenge is valid, they receive ten bonus points, but if their challenge is incorrect, they lose ten points to the group whom they challenged.

With the new version of the assignment, groups typically use approximately the first half of their time to make sure they have correctly tagged a sample of each weed variety in their own plot. Then they turn their attention to preparing for the WFC by training members to scout for potential challenges (because they do not have time to go to each of the other plots as a group), and shifting their tags to *atypical* examples of the weed varieties in an attempt to elicit bogus challenges from other groups.

Although the changes in the original assignment are relatively modest in nature, the new assignment produces positive changes in all five of the factors that affect group cohesiveness (Figure 3.1). The assignment now promotes individual accountability on both ends: individual tagging prior to group work and individuals serving as scouts during the WFC. It requires members to work in close proximity with each other (and away from other teams). The assignment produces high levels of intra-group interaction by necessitating reaching consensus on your own samples and preparing members to scout other plots. It provides rewards for group work: the opportunity to earn points for correctly tagging weeds and extra points by successfully challenging other groups. The assignment provides external comparison and feedback by giving groups the opportunity to challenge each other. As a result, the revised assignment is much more effective in building group cohesiveness.

Even though the problem on which the assignment is based is exactly the same (recognizing and tagging weeds), modifying the assignment so that it increases group cohesiveness has had a profound and positive impact on its value for learning for a variety of reasons. First, the realization that they will have to work on their own causes individual group members to be more serious about their advance preparation and peer teaching and learning. Members start out with a reasonably high level of understanding that is further enhanced during the group discussions in preparation for the weed finders' challenge. Second, the WFC generates learning that is particularly long-lasting because it involves actually finding and identifying weeds, even

under less than optimal conditions. As a result, many of the students who participated in the weed finders' challenge have reported that they are unable to have a picnic any more without thinking about what kinds of weeds are going to be covered by their picnic blanket!

Conclusion

The primary theme of this chapter is to emphasize our belief that good group assignments are absolutely critical for the effective use of team-based learning as a teaching strategy. In addition, we have offered four specific conclusions about the characteristics of good group assignments.

First, the vast majority of dysfunctional student behaviors (e.g., social loafing, one or two members dominating the discussion, etc.) and complaints (e.g., having to carry the dead wood, the instructor isn't teaching, etc.) are the result of bad assignments, not bad groups. Second, good group assignments can be very effective in promoting students' mastery of basic conceptual material and enhancing higher-level thinking and problem-solving skills. Third, the single best way to gauge the effectiveness of group assignments is to observe the level of energy that is present during the total class discussion stage of the assignment. And finally, the surest approach for creating effective group assignments is to maximize the extent to which the learning tasks promote the development of cohesive learning groups. When each of these characteristics is incorporated, student learning can soar.

NOTE

1. To clarify terminology, the "Readiness Assurance Process" refers to the whole set of activities used at the beginning of a unit that makes sure students are ready to start learning how to use the content. These activities include: individual study before class, the individual test on the readings, the group test, feedback on test performance, appeals, and so forth. The "Readiness Assurance Test" refers specifically to the test used in the Readiness Assurance Process.

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