

4 What is small group, problem-based learning?

Professor Case asks groups of five students;

"Here's a toaster that isn't working. fix it! or better still, improve it."

On the other hand, Professor Single asks this question of individuals in his course.

Both use problem-based learning. However, Professor Case asks students to work cooperatively and together; Professor Single expects students to study on their own,

In this Chapter we explore some of the advantages and disadvantages of working as individuals as opposed to working in groups.

4.1 What is Small Group, PBL?

A small group is between 3 and 9 students working cooperatively Together. Although my preference is about 5 to 6 students. opinions vary. Resource limitations encourage slightly larger-sized groups. Membership in the group may be assigned, or *you* might have the option to select your group. For the greatest personal growth, it is best if you are assigned to the group.

The more variety in the group (variety of background, experiences, preferred style of processing information) the richer and better the result. However, that very variety will also breed conflict. Conflict that will tear the group apart if you do not learn how to handle the group dynamics effectively.

All groups must have a chairperson. Research has shown that a group with the weakest person acting as chairperson will outperform groups trying to function without a chairperson. Johnson, Johnson and Smith (1991) suggest that, in addition, group members be assigned such roles as recorder, checker, encourager and elaborator (p. 3-4). My preference is that one person be identified as chairperson and that the group decides whether the group members will have identified roles.

So far, the focus has been on a small group: 3 to 9 people assigned to work together. For each meeting, one person will be chairperson. What about small group PBL? Little more needs to be said other than the small group is brought together to work cooperatively to learn using a problem to drive the learning.

4.2 Advantages and Disadvantages of Group Work

The advantages and disadvantages are as

follows. 4.2-1 Advantages of Using Small Groups

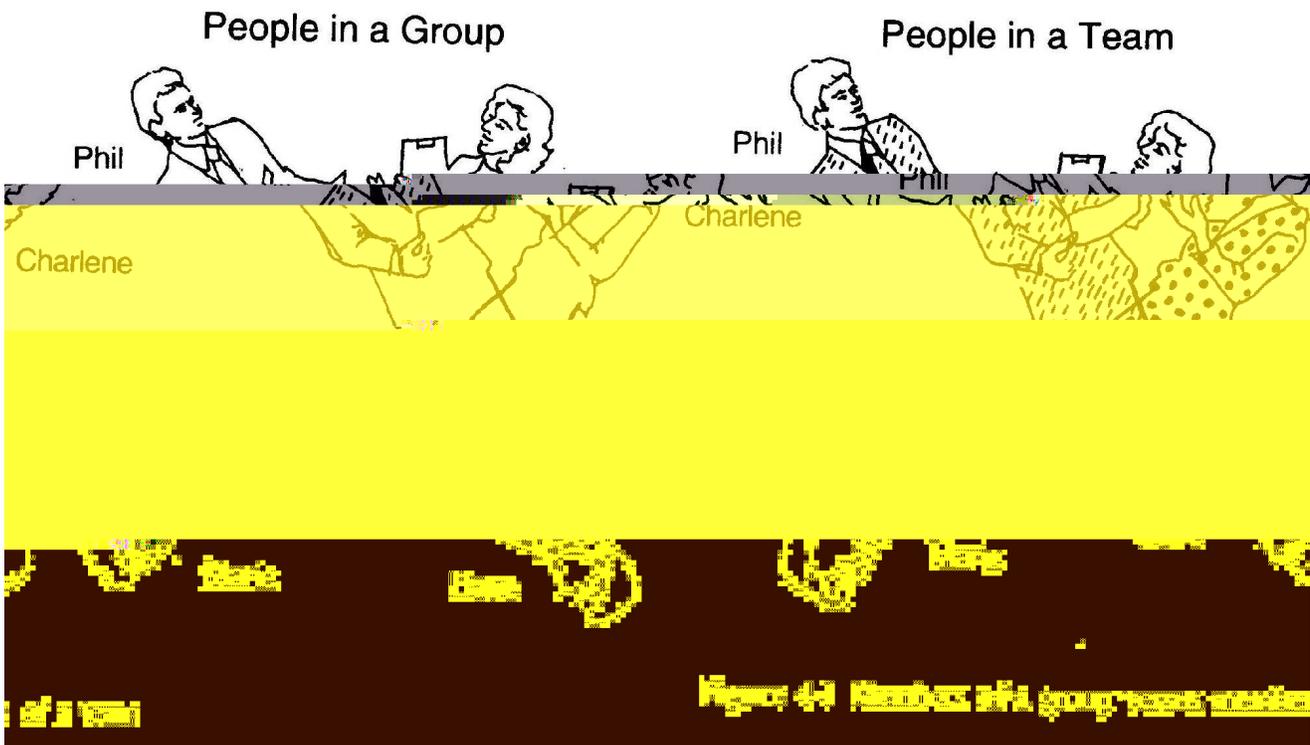
Research has shown that the following conditions foster learning (Chickering and Gamson, 1987; Gibbs, undated and Novak, 1989);

1. Get learners **actively** involved; don't have them listen passively to one speaker.
2. Have learners work cooperatively; make success depend on teamwork and helping each other.
3. Respect diverse talents and ways of learning. Individuals have preferred styles and ways of learning. Not everyone learns things following the same process. For example, some prefer to learn the theory first; then work problems. Others prefer the reverse. Some prefer explanations using pictures, diagrams and charts; some prefer tables, equations, symbols and matrices; some prefer to think in terms of words. Foster learning by allowing and accounting for the individual preferences
4. Emphasize time on task. Enough time must be available to complete the task: but learners must use the time productively and effectively. Learners should know where they are going, how they will know when they get there and where They are now.

There should be clear goals/expectations with measurable criteria to tell when the goal is reached. Both goals and criteria must be achievable with the resources available. Furthermore, students must be motivated to use their time productively.

5. Provide prompt feedback on performance.
6. Empower the learners to have a role in the assessment. Gibbs (undated) says, "Whoever owns the assessment, owns the learning." Novak (1989) identifies assessment as being one of the key ingredients to facilitating learning.
7. Work in an environment that **expects** success.

8. Have frequent and rich tutor-student interaction
9. Problem solving, group skills and other *processing skills* are not developed by observing others nor by providing "an unstructured opportunity" to do the skill on one's own. Rather, to develop awareness, skill and confidence we need to break the skill into parts, provide an opportunity to try the skill and provide feedback about that effort. Then, target skills should be described, and we should be given feedback and practice until we master the skill.



So why work in groups? In brief, you learn better (Johnson, Johnson and Smith, 1991). Groups provide a super opportunity to have active, cooperative learning with prompt informal feedback. Indeed, with care they can provide, through group activities, most of the above components that facilitate learning.

In addition, working in groups will develop your personal skill in working in Teams and groups, in coping with conflict, in being a chairperson, in improving your social skills, in developing your interdependence and accountability and in developing your sense of sense worth.

Group work, in school, prepares you well for life-after-graduation.

4.2-2 Disadvantages to Working in Groups

So, if group work is so great, why don't we do it for all courses?

Because it's hard work. Because it often appears to be "unfair"; two people do all the work but the slackers get all the credit. Third, to gain advantage of the group learning listed above, we really are talking team work and not just group work.

Developing effective teams is hard work, demands skill and dedication from all team members and takes time. Perhaps, we lack the interpersonal and group skills to make it work. Perhaps, members are afraid to risk letting their skills and talents be known.

Figure 4-1 shows four people in a group. However, they will not risk possible conflict. Each puts on a smiley face and never risks venturing beyond the central area of common agreement, The net result is, in terms of productivity, $2 + 2 = 3$. The individual performance would have been better than the team performance. Members of a team, on the other hand, risk bringing their special skills, experiences, knowledge, background, preferred style and hangups to the group. They have found ways to cope positively with the conflict the differences bring. The team welcomes and draws on the diversity. The net result is $2 + 2 = 7$ The output from the team far surpasses what could have been achieved if the task had been done individually.

4.3 Making the Most of the Small Group PBL Formal

From a learning viewpoint, all research points to The advantage of the small group, PBL formal. We learn more, we learn better. We learn interpersonal, team and team building skills that are needed for a lifetime. However, to make the most of this approach, we need to be skilled at interpersonal relations, communication, groups, team and team building and coping positively with conflict.

4.4 Summary

We learn more effectively and efficiently if we work actively and cooperatively to learn knowledge. Yet, working in groups is hard work. For groups to be effective we need to be skilled in interpersonal relations and in group process.

4.5 References

Chickering, A W., and Z.F. Gamson (1987) "Seven Principles for good practice in undergraduate education," AAHE Bulletin, March, 3-7.

Gibbs, Graham (undated) "A-Z of Student focused Teaching Strategies," Educational Methods Unit, Oxford Polytechnic, Headington, UK.

Johnson, D.W. R.T. Johnson and K.A. Smith (1991) ("Active Learning: cooperation in the college classroom." Interaction Book, Edina, MN.

Novak, J. (1989) "Helping students learn how to learn; a view from a teacher-researcher," Third Congress of Research and Teaching in Science and Mathematics. Santiago de Compostela, Spain. Sept, reviewed in PS News 69.

4.6 Exercises

4.1 List 25 things that you don't like about group work, Then brainstorm ways to overcome each. You might use Kurt Lewin's Force-field diagram approach to display your results. (Lewin's force-field approach is illustrated in University Associates Annual '73, p

111 or Structured Experiences, II, p 79. published by University Associates, San Diego, CA.)

4.2 With your group, brainstorm the things that might make working together frustrating. Agree on policies to handle each.