

GUIDE FOR PEER LEARNING FACILITATORS



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Acknowledgments

We are indebted to Dr. David Arendale for his scholarship in crafting the initial PAL facilitator training guide, the foundation for this version. Dr. Arendale developed the eight principles of PAL, which are fundamental to this guide. The current version would not be in your hands without the extensive research in his original document.

Much appreciation goes to almost 100 PAL facilitators at the University of Minnesota who contributed narratives of their experiences and shared the insights they gained into themselves, other students, and in the art of learning. Snippets of these insights, which came from interviews conducted separately by David Arendale and Lana Walker, appear as “situations” throughout the guide. They are meant to spark conversation during training workshops. You can read the complete stories in: *Two (or more) heads are better than one: Adventures in leading group learning, a facilitator storybook*. In addition, specific activities that support the PAL principles and many of the recommendations in this guide can be found in the University of Minnesota PAL program’s book: *Tried and Tweaked: Activities to re-energize peer learning sessions*.

Finally, many thanks go to Jessica Sands, for contributing the much needed perspective and experience of a seasoned and outstanding PAL facilitator. I am grateful that she was willing to take on some of the organizing and formatting of the guide as well.

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Forms and Worksheets

The following documents may be reproduced and modified in any way that best works as you plan, conduct, and reflect on your sessions.

Session Planning Form	P.38
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Overview of Peer Learning Programs

Peer learning programs such as Peer-Assisted Learning (PAL), Peer-Assisted Study sessions (PASS), and Supplemental Instruction (SI) are all variations of academic support models running internationally in nearly 50 countries and over 2,000 institutions of higher education. These programs are meant to serve historically difficult college courses – especially gateway courses to other majors – that have a high rate (30% or more) of D or F final course grades or withdrawals. The PAL program at the University of Minnesota, the focus of this overview, targets difficult and challenging courses, not high-risk students.

To support students in achieving higher final course grades, the PAL program offers a regular schedule of out-of-class sessions facilitated by an undergraduate student. This student - called a PAL facilitator - has often previously taken the same course by the instructor and earned a high final course grade and is knowledgeable about the subject matter. PAL sessions are offered throughout the term, beginning with the second week of class, and are typically held in classrooms. Sessions are free and attendance is taken for internal purposes unless the instructor requests it.

Peer learning sessions are open to all students in the course – to avoid the perception that the program is remedial. The sessions are designed to attract students of all academic abilities to discover new skills and knowledge related to the subject material. National studies of peer learning programs show that participants earn higher final course grades and withdraw at a lower rate than non-participants. Data also suggests they show higher persistence rates towards graduation. Surveys of participants and facilitators both report personal and professional growth because of their involvement with the program.

Facilitators receive extensive training – before and during the academic term – on such topics as peer cooperative learning theory, study strategies, and managing groups. Facilitators and staff meet bi-weekly to discuss their sessions and focus on special topics related to issues facilitators are experiencing in their sessions. The primary functions of these two main roles are:

Facilitators:

- Attend at least one lecture per week and take notes
- Complete the readings and review homework problems/assignments
- Integrate “what to learn” with “how to learn”
- Manage the discussion but do not provide answers. They redirect questions to students to find answers in lecture notes, other course materials, and from classmates.

Professional staff:

- Identify courses to target and gain instructor approval and support
- Select and train facilitators
- Observe peer learning sessions
- Coach and supervise facilitators
- Evaluate the program

Table 1 shows how the role of the facilitator differs from the traditional role of a TA’s discussion section.

TABLE 1

Comparing Peer Learning Facilitators and TA's

Peer Learning Facilitator	Discussion/Recitation TA
Designs opportunities for students to practice the intellectual skills demanded by the course content.	Reviews, clarifies, and teaches course material. Practice often takes place out of class.
Acts as a model student: attends lecture, takes notes, reads text, and reviews homework assignments.	May or may not function as a model student.
Applies and demonstrates appropriate study skills to course content; provides practice in problem solving, taking notes, organizing content, and preparing for tests.	Study skills usually not addressed.
Models and develops the analytical skills needed for the course.	Often assumes students already have the analytical skills
Fosters independent learning through a variety of instructional techniques.	Students look to the TA as the sole source of knowledge.
Encourages students to think deeply by using probing and clarifying questions.	TA answers students' questions directly.
Monitors student concerns and comprehension. Uses this information to structure subsequent sessions.	Discussion format varies little throughout the semester.
Participates in training workshops; meets frequently with other facilitators and supervisor for additional coaching in facilitation techniques.	TA may or may not receive and participate in ongoing formal training.

Adapted in part from Sandra Zerger. "Ways in which supplemental instruction differs from review sessions", copyright, University of Missouri-Kansas City

Consider this:

- Which of the differences between these two roles will you highlight when introducing peer learning to students?

The Eight Peer Learning Principles

To create engaging sessions, the facilitator uses a variety of learning activities and grouping strategies that fit the subject content and profile of students attending the sessions. The eight principles of peer learning described below (originally developed by David Arendale) provide a solid foundation to create sessions that produce effective learning.

Peer Learning Principles	Principles in Action
1. Educational theory guides the selection of effective learning activities	• Educational theories guide the selection of activities best suited to master the content • The affective domain and social learning are as important as the cognitive domain • Metacognition is critical to becoming an expert learner
2. Multicultural competency is a learned and valued process that improves the learning environment	• Understand your own culture and know that culture exists as a set of overlapping and sometimes conflicting identities • Use active listening skills with sensitivity to the impact of culture on communication • Choose a wide variety of culturally sensitive activities for the sessions
3. Peer learning sessions are designed with specific learning objectives in mind	• Select activities based on the goals for the session, difficulty of the content, and the limited time of the session • Design plans that are flexible to the needs of students and use informal assessments to measure student learning • Reflect on previous sessions when planning the next one
4. Activities vary according to the learning tasks of the subject matter	• Sessions appear and operate differently depending on the subject matter (e.g. chemistry course vs. psychology) • Choose activities that reflect the cognitive demands of the course: problem solving, learning vocabulary, analyzing texts, memorizing, and applying concepts

Peer Learning Principles	Principles in Action
5. Sessions are opportunities to model, share, and practice productive learning behaviors	• Draw on personal experience to preplan a set of learning strategies useful to mastering the course content • Look for “teachable moments” to demonstrate and apply learning strategies to course material • Create opportunities for students to practice and share their strategies with each other
6. Participants are actively involved with the course material and with each other	• Use cooperative learning activities that require students to work with one another • Observe students actively participating, i.e. taking notes, reading material, discussing, and solving problems • Monitor progress within small groups, provide support, and gauge when to transition to the next activity
7. Students develop greater skill in monitoring their learning	• Ask students to reflect on their exams to discover error patterns and to prepare more effectively for the next exam • Demonstrate self-monitoring skills so students can select effective learning strategies for various tasks, such as self-quizzing course material
8. Authority and ownership of the session shifts from facilitator to participants as the academic term progresses.	• Use questions to prompt student learning and to decrease their dependency on you • Establish routines and procedures that direct students to each other for answers and explanations • Observe students sharing their knowledge without directions. By the end of the term, it should be difficult for outside observers to detect who is the facilitator.

Relationships of the Facilitator

Being a facilitator is a valuable opportunity for personal and professional growth. The responsibilities of the position and the relationships involved will dramatically improve planning, organization, and time management skills. Just as you will encourage students to ask for help from their peers during the session, you need to seek other resources for your own development. The model below is not representative of which relationships are more important, but it illustrates that you will have a network of relationships to manage. Understanding the needs of each relationship will help you set realistic expectations and establish appropriate boundaries in your facilitator role.

Consider these:

- What do you expect from each of these relationships?
- What boundaries will you set to balance your academic, work, and personal life?



You – The Facilitator

Create a realistic time schedule for your commitments – academic, social, job, and personal.

Practice asking for help from others (staff, peer facilitators) – the same behavior you hope to instill in students.

Like any student, you will sometimes get sick, have major projects and exams, and be short on time. Having good relationships with all program staff will reduce the stress of finding substitutes and asking for help.

Relating to Participants

Treat students with respect and dignity.

Be a peer – not an instructor or evaluator.

Share and model study strategies – show examples, don't just tell.

Encourage students to share strategies that work for them.

Look for opportunities to refer students to appropriate campus and community resources.

Reporting to the Program Administrator

The administrator is your ultimate supervisor who hires, promotes, and evaluates you. Discuss matters that affect the program and your performance.

When conflicts arise with the instructor or other staff, the administrator is the ultimate authority.

Let this person get to know you well; it will add to your job satisfaction and they can provide references and recommendations.

Working with Your Peers

Ask for advice on how they conduct their sessions and deal with students on specific issues.

Visit each other's sessions for new ideas to try and/or share feedback about the session if requested.

The Course Instructor:

Your interactions with course instructors can be complex but also hugely rewarding. Protocols governing these relationships will vary according to the structure of the peer learning program at an institution, and they are often a product of nuanced arrangements made between faculty and academic support services such as PAL. Regardless, the points below are fairly common and generally lead to positive experiences for facilitators, the program, and faculty.

- Sets the academic content for the course – the facilitator is expected to adhere to it when planning and leading sessions.
- Gives permission to access syllabus, course website, and course materials (*e.g., instructor's guide to textbook, test bank, study guides, etc.*).
- May meet with you periodically to discuss possible activities and to review handouts, worksheets, and mock exams. Involvement varies greatly among course instructors.
- Provides permission for facilitator to make class announcements.
- If the course instructor requests, the facilitator may provide anonymous feedback on how well students are understanding course material or their reactions to class lectures, but never about the instructor's teaching style or effectiveness.

Other Campus Resources:

Be familiar with other academic support resources, student groups, and organizations that could be relevant to students taking the course. Share your experiences and knowledge about them; as a fellow undergrad, you may be the link and inspiration a student is looking for to connect intellectually and socially to the larger campus community.

Stories from the Field

The following stories come from previous peer learning facilitators at the University of Minnesota and illustrate the value they found in the relationships they developed through their experiences. More stories can be found in *Two (or More) Heads are better than One: Adventures in leading group learning* (Walker, L. (2010).

“At the end of one semester, the professor that taught the course I facilitated had all of the teaching assistants over to her house for dinner and an end-of-the-semester debriefing. I went there with the TAs because the professor had invited me along as well. We had dinner and talked for about two hours about the course and the instruction. I think that kind of thing really stands out. When you form a relationship like that with a professor, it really incorporates the PAL program into the teaching of the course. They let you participate with the teaching team, it’s really rewarding for both you and the students.” ~Jeff

“I just wanted to share a quick story with you that shows how having been a PAL facilitator as an undergrad has benefited me immensely as a full-time employee at [large multi-national corporation]. Last week, I was invited to a leadership lunch with a group of 15 people – a senior manager, some senior engineers, senior scientists, and senior technicians. It was a collection of very important and influential people in the company. I was asked by the secretary of the Vice President of Research and Development to be the facilitator for the icebreaker portion of this lunch. I immediately said I would do it, thinking back to those first days of PAL sessions and the ice breakers I facilitated back then. Having been a PAL facilitator for 6 semesters definitely made me comfortable enough to take this on, and I knew I would be successful. I prepared the icebreaker and went through it with the group at lunch and facilitated the rest of the lunch by suggesting topics to discuss as a group to get to know one another even better. Everything went very smoothly.” ~Samara

“Being a PAL facilitator was one of the best experiences I had throughout my college career. The skills I developed help me on a daily basis in my current job, from being able to present material and help people to better understand topics, to simply being comfortable speaking in front of groups. It also provided me with some insight on how to tell when someone doesn’t understand what I am explaining, regardless of whether or not they admit it. I frequently encounter situations in which the people I am working with are not familiar with the technical topics that I am explaining to them. Being able to notice when this is occurring and to change the way I am explaining or presenting the topic is an extremely important part of my job and I believe that without the skills that I developed as a PAL facilitator I would have much greater difficulty in doing this.” ~Michelle

Roles and Responsibilities

Some programs draft formal agreements to clarify the relationship between the program and faculty. While formal, signed agreements are unusual, they help clarify and manage what can be a complex relationship between faculty and the student facilitator.

Facilitator agrees to:

- Attend class/lecture (frequency varies by program)
- Maintain a professional attitude regarding class standards, instructors, grades, and student complaints
- Use interactive learning strategies rather than reteach, lecture, or complete students' assignments
- Discourage students from using sessions as a substitute for class
- Prepare handouts, graphic organizers, learning aids, and informal quizzes for sessions
- Share materials with the instructor when requested, and provide feedback to the instructor if asked

Program Supervisor agrees to:

- Cooperate with faculty in selecting candidates to be facilitators
- Train facilitators according to established guidelines and standards
- Monitor the activities of facilitators for as long as necessary to help them plan sessions and evaluate their experiences
- Observe facilitators in their sessions and give feedback to improve their skills
- Provide supplies, training, and individual consultations with facilitators
- Provide instructors with reports about the program associated with their course

Expectations of Faculty:

- Recommend candidates as facilitators when asked
- Let students know about the sessions with announcements (by faculty or facilitator) that invite all students to participate
- Include information about sessions on the syllabus and/or course website
- Avoid suggesting that only those who are doing poorly will benefit from peer learning sessions
- Keep peer learning sessions as a recommended supplement, not a requirement

What Would You Do?

Situations involving Instructors and TAs

Many of the situations described below (the ones in quotes) actually happened to facilitators at the University of Minnesota. What would you do in these instances? Use your understanding of the peer learning model and the particular policies of your program to inform your answer. Refer to the peer learning principle(s) for guidance.

1. During your first meeting, the professor asks you to submit copies of handouts, worksheets, and other items to her prior to the session.	→ What are the pros and cons of doing this?
2. The instructor is still trying to understand the peer learning program and asks you if he can attend your session.	→ How might the instructor's presence affect the session? → What else can help the instructor understand the program better?
3. A major exam is coming up. Many students did poorly on the first exam. The professor wants to show you some of the test items on the upcoming exam so you can "help" them prepare.	→ How do you respond to the professor?
4. During the session, a student shares that the professor said they are just for people who are doing poorly and told other students to skip them if they are doing well.	→ Who do you talk with to confirm this information? → How would you respond to students in the session?
5. The professor asks you for the attendance sheets. He's concerned that students who scored low on the first exam aren't attending PAL and wants to know who to encourage to attend.	→ What is your reaction? What will you say? → Who else might you involve in this conversation?
6. "I was frustrated with the instructor because I would email him a question and, in two weeks, I still wouldn't have a response. When I went to his office hours, he was never there. It got really hard for me to listen and respond to my students' complaints when I knew they were correct in feeling that way."	→ How do you deal with students who are frustrated with the instructor? → Why is it important to remind students about the purpose of peer learning and its limits?

-
7. "It was always really awkward when students would talk about their Teaching Assistants. It would start with one student saying something offhand, and then a bunch of other students would agree with them, and then it would turn into a class discussion. What they complained about mostly was that their TAs couldn't understand their questions or they couldn't understand their TA. They had a big language barrier."
- How can facilitators avoid this kind of discussion all together?
 - How do you explain the difference between TA and PAL sessions?
-
8. "The first two semesters I worked with PAL, I had the same professor. He really liked PAL but was really controlling. He would email me every week and say, 'Do these problems. This is what to go over. I want these problems handed in.' I felt like a robot taking his orders. The role could've been filled by anyone, when really, I know a lot about math! I have skills I wasn't using because I was just doing what he told me to do. When I would do his problems, students would say, 'This one's weird' or 'This one is hard.'"
- Look back to scenario #1. How can the program administrator help with this situation?
 - How does the professor's request impact planning and conducting sessions by this facilitator?
-
9. "The TA came to my session on the first day and asked if I was an undergraduate TA?" He said it like he was a supervisor. I thought that was it, but he came the next three weeks! The second week, he handed back homework to the students who hadn't gone to his recitation that week – right while we were doing the activity, interrupting students working together. He didn't ask me, "Is it okay?" He just did it like it was his session, and that really bothered me. I think the students were bothered by it too. We usually divide into groups, and the students discuss the problems really well. The TA would arrive, call out a name, and hand out homework. One time, the TA asked a student, 'Why weren't you in my class? You come to this session and not mine.' The student didn't know how to respond."
- What issues need to be addressed in this scenario?
 - What are some positive ways to address them?
 - How can the program administrator help with this situation?
-

Situations with Students during the session

The situations described below actually happened to facilitators at the University of Minnesota. What would you do in these scenarios? Use your understanding of the peer-learning model and the particular policies of your program to inform your answer. Refer to the principles for guidance.

- | | |
|--|--|
| <p>1. “Giving them my phone number makes our relationship more of a peer relationship as well. Most students wouldn’t text their TA or their professor, so I think that brings me down to their level a little bit. Sending a text is less intimidating than, maybe, writing out a formal email or setting up office hours.”</p> | <p>→ What are the pros and cons of handing out personal information?</p> <p>→ What boundaries will you set as a “peer” How will you address cell phone use?</p> |
| <hr/> | |
| <p>2. “When you go into the session, it’s all about group work, and you’re not going to work well in a group if you have no idea who you’re working with. So when I want to make that connection on a personal level, I’ll say in my introduction to a session, “Hey guys, how’s it going? How was your weekend?”</p> | <p>→ How might participants react to questions about their personal lives?</p> <p>→ What are the boundaries for questions of this kind?</p> |
| <hr/> | |
| <p>3. “Since most of my students were my age, it made it really hard to always be professional because we had so many of the same interests and we did the same activities. It was hard to balance between making friends with the students and maintaining a teacher-student level. When talked about what they did over the weekend, they’d go into details and wouldn’t censor what they were saying. I wasn’t really seen as a teacher because I was so similar in age to them.The hardest thing with this job is making sure you separate friend and student.”</p> | <p>→ How could this conversation have been stopped before it even got started?</p> <p>→ How do you separate relating to session participants as a friend from relating to them as an instructional staff member?</p> |
| <hr/> | |
| <p>4. “My biggest problem with Jake* was that every discussion and question I brought up, he managed to relate to something completely off topic. He didn’t have a lot of awareness of social boundaries either; he would say very inappropriate things like, “I stole three bikes this weekend!” These are things that you should not tell people.”</p> | <p>→ What boundaries should be set on the first day?</p> <p>→ How would you involve students in this process?</p> <p>→ What are the risks if you take no action with Jake?</p> |
| <hr/> | |

Situations with Students outside the session

The situations described below actually happened to facilitators at the University of Minnesota. What would you do in these scenarios? Use your understanding of the peer-learning model and the particular policies of your program to inform your answer. Refer to the principles for guidance.

- | | |
|--|--|
| <p>1. “I remember one night I was sitting on the steps outside of my house with my roommates. Three girls came strolling by, obviously drunk, one yelling my name saying I was her teacher. Having her refer to me as her teacher was weird. Another time, I was at a bar, and one of my students was there using a fake I.D. How do you handle that situation? He came up to me and [called me] his teacher and told all of his friends. I wouldn’t care except I represent the University, it’s my job and I’m getting paid. I shouldn’t be in situations like that. It’s hard when you and your students are both undergrads.”</p> | <p>→ As asked in the story, how do you handle this situation?</p>
<p>→ What responsibilities come with being a “representative” of your institution?</p> |
| <p>2. “One semester I had two very different sessions. One group was focused and didn’t need a lot of help; they cruised through worksheets. With the other session, we never got through half the worksheets because the students didn’t know what was going on with the material. They didn’t know how to do a word problem or even how to start it. And so I got into the habit of staying after – I didn’t have class afterwards – and it was a mistake. I should have said I had class. Pretty soon it was half the group and it turned into a 90-minute session. They weren’t asking about homework; they just didn’t know how to do the worksheet.”</p> | <p>→ How could this situation have been avoided in the first place?</p>
<p>→ What other academic resources are available to students on your campus if PAL sessions are not sufficient?</p> |

3. “After the first exam, one of the students asked if I could stay after class. I had a commitment 20 minutes after my session, but I could tell she was upset – she hadn’t really been participating in the session that day. So I stayed after and she started talking, and then crying. She wasn’t hysterical, but she explained how she didn’t do well on the first test. She’d been attending all of the sessions, but she didn’t feel like she had time to do all the studying. At that point, it was nearly too late for her to drop the class, and if she did, she’d be behind for the fall semester. If she didn’t pass the class, then she’d have to take it again and she wouldn’t be able to afford the study abroad trip. All these things – her life story almost – poured out to me. She also wanted me to tutor her and said that her parents were willing to pay for a tutor.”

 - What guidelines does your program have about PAL facilitators also doing one-on-one tutoring?
 - What limits should facilitators observe when giving advice?
 - What impact does gender – of either person – have in this story? Imagine if one or the other person is of a different gender; how does your response change, if at all?

 4. “In my first PAL session ever, there was this guy who was SO cute. I had the biggest crush on him. He was in a fraternity and I ended up going to one of their date parties, being set up with my student! I tried to explain to my friend, “I can’t do that! I can’t go,” but my friend said, “It’ll be fine. He has other friends there; he just needs somebody for a date.” We were friendly by then – I had seen him a couple of times when I was hanging out at the fraternity. So it wasn’t uncomfortable that we had gone together, but then later in the night, he proceeded to get all pouty!”

 - What were the red flags in this story that indicated the facilitator might have troubles?
 - What boundaries – either by the program or individual – are called for to avoid this situation?
-

Attracting Attendance

Attracting enough students to make a vibrant session can be a challenge. Many factors influence attendance:

- Students' perceptions of course difficulty, often based on the percentage of students from previous terms who got D's, F's, or withdrew
- Overall class enrollment
- Student awareness of the peer learning program
- Student proximity to campus (commuting or resident)
- Alignment of session schedule with student course/work schedules
- Faculty awareness and support of your peer learning program

Before the Academic Term and First Session

The suggestions below come from a variety of peer learning programs. The program administrator will discuss these strategies with you, as well as take action with the course instructor ahead of time to get permission where needed.

What you the Facilitator can do:

- Contact the instructor to introduce yourself and to request a time to meet in person to explain your role and to schedule announcements about sessions.
- With the instructor's permission, make a brief (1-2 minutes) announcement during the first week's lectures.
- Meet the instructor in-person and ask what expectations s/he has of you. Some instructors want assurance that the sessions won't mean more work for them. Others might want to micro-manage you and make the session an extension of their classroom. If either of these issues arises, alert your program administrator.
- Prepare a slide (ppt or convert to image) for the instructor to include in lecture and on the course page. Work with the program administrator before sending to the instructor. *See Example 1.*
- Conduct a survey the first week (use an app or online tool), if the instructor allows, to find days/times that work for the most students (only offer choices that work for you).

Example 1

PAL Sessions ECON 1102
(Peer-Assisted Learning)

When and Where:

Tue 2:30-3:20	Location	begins Sept 10
Wed 4:00-4:50	Location	begins Sept 11

What: Review concepts, get extra practice problems, and prepare for tests

Benefits:

- Efficient way to find out what you still need to study
- Meet classmates in a relaxed environment; no pressure of grades
- Practice makes better

No need to register, just show up

What the Program Administrator can do:

- Make announcements about the program during new student orientation, parent orientation and include information in print/online communications. Parents may want to encourage their students to attend peer learning sessions.
- Gain support from academic tutors, lab instructors, recitation leaders, and teaching assistants to encourage students to attend sessions. Show them how sessions can complement and enhance their services.
- Maintain a current and inviting website, and use social media. Provide ways for facilitators to alert students about upcoming sessions and post information. Encourage faculty to do the same.
- Put notices next to textbooks in the bookstore (with permission) that let students know about the peer learning sessions, or put an informational bookmark about the program inside the textbook. *See Example 2.*
- Explain the program at academic department meetings – to answer questions, address concerns, and build more support from department faculty.
- Some programs preschedule session meeting times and list them next to the course registration. Students can schedule their other courses around the weekly meeting time.

Example 2



Labels placed by textbooks in bookstore

How the Course Instructor can help:

- List the sessions – times and locations – on the syllabus and course website. Include the prepared slide or image from the program administrator/facilitator.
- Depending on the level of involvement agreed upon, post one difficult problem or concept in class that will be discussed at the next peer learning session.
- Encourage all students to attend peer learning sessions. If students are told that sessions are only for those doing poorly, they will avoid them because of their remedial stigma.

What Happens at a Peer Learning Session?

In your first communication with the instructor, briefly describe how peer learning sessions work. The program at the U of MN offers this description:

- Students often work in pairs or small groups to solve problems/complete learning exercises selected by the facilitator
- The facilitator circulates around the room to make sure groups are on the right track
- The facilitator is more likely to ask probing questions than provide answers
- The facilitator models study strategies specific to the course content
- Students explain their thinking to others; PAL operates on the principle that once you can teach material to someone else, you really know it.

Attracting Students during the Term

Even once built, they don't always come. Many programs report that typically only one-third of students enrolled in a course attend peer learning sessions. However, more important is how often students attend. Research shows a positive relationship between increased session attendance and higher final course grades. Persistence is a virtue that can spill over to many areas of life and is a worthy outcome of having consistently participated in PAL.

During the first few weeks, remind students of how peer-learning sessions work, the role of the students, and the role of the facilitator. Continue to do this as new students join throughout the semester. Use data and testimonials carefully. Too much emphasis on the word "help" – as in "come to sessions to get help" – might sound like your sessions are remedial. At the U of MN, sessions are billed as "practice;" the word "help" is consciously avoided.

What you the facilitator can do:

- Sit in different locations in the classroom/lecture hall; personally invite students to attend your sessions and answer their questions about the program.
- At the end of each session, remind students of the next session time and location
- Email students a few days before with a preview of the upcoming session's objectives
- Announce that you will emphasize relevant study strategies at strategic times throughout the term
- With the instructor's permission, put a difficult problem or concept on the board and announce it will be discussed during the next PAL session
- Resurvey the class to see if the session needs to be changed to a better day time

Consider that students may be "voting with their feet" because of something the facilitator is or isn't doing. Program staff might want to observe sessions where attendance is weak. Students often make quick judgments regarding the value of the sessions and then will tell others. It's also worth meeting with the faculty member. As instructors better understand the peer learning model, it is easier for them to see that the program is worthy of their support.

After the Term Ends

The program administrator will review attendance, keeping in mind the original criteria for selecting the course. Low attendance might indicate that students don't see the course as difficult. If graduate TA's or lab assistants offer similar activities, with limited time in their schedules, students are less likely to add peer learning sessions to their plate.

Even when faculty, academic advisers, and department heads know the course is difficult, the most important perception is the one held by students in the course. Check final course grades of D, F, and withdrawals – a commonly used guideline is 30%. If most students receive passing grades (more than 70%), even academically under-prepared students may think they will survive the course since nearly everyone else is passing. Peer learning sessions can still be successful in courses that don't fit the 30% D/F/W guideline, especially if PAL is being offered for a subpopulation of students taking the course.

Summary

Being a facilitator is much more than being a group tutor. Your role is dynamic and often very challenging. The responsibilities are sometimes daunting – a room full of students staring at you, looking for your lead. Remember that your job is not to be perfect, but to share successful academic behaviors and a persistent positive attitude.

One of the cornerstones of academic support programs is that *practice* makes better. This applies not only to the students in your session but ALSO to you as a developing facilitator. Navigating these challenges will teach you more about yourself than you thought possible: everything from leadership and communication styles, to how you react under pressure. As a facilitator, you will have the opportunity to build relationships with diverse groups of people at your institution. Nurturing these relationships will give you personal and professional growth far beyond that of many of your classmates. In short, being a peer learning facilitator will be one of the most challenging and rewarding experiences of your college career! Enjoy!!

Educational Theory Guides Activities

Principle One

1. Educational theory guides the selection of effective learning activities.	Educational theories guide the selection of activities best suited to attain mastery of the content. The affective domain and social learning are as important as the cognitive domain. Metacognition is critical to becoming an expert learner.
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One of the many academic challenges students face is selecting appropriate study strategies for the task at hand. They have to think strategically about how best to study the material as well monitor if their study plan is working or if changes need to be made. This proactive approach is described as metacognition. That is, the “self-regulated learner” plans, monitors, and evaluates their learning.

Effective learning requires the right choice of activities. Knowing the basics of important educational theories will help the facilitator to choose the ones that best fit the type of learning required.

The Affective Domain

The affective domain is one of three domains of learning and is related to one’s feelings and emotions around one’s ability and desire to learn and master skills. Our values, motivation, attitudes and stereotypes influence our effort and persistence. Many students believe they are relatively helpless regarding academic performance. They see little relationship between the effort they expend in school and the grades they receive. Students show up for class, read the textbook once, take some lecture notes, study a few hours before the exam and hope for the best. Sometimes the strategy works and they get a passing grade, sometimes they lose; but they do not believe that spending a lot of time and effort really makes a difference.

Academic achievement is also impacted by what motivates students to earn higher grades. If they need to please others and meet their expectations, it is difficult to sustain high grade achievement. Academic success requires a personal commitment to an internal goal, not an attempt to satisfy the aspirations of others.

Metacognition & the Self-Regulated Learner

Researchers have identified some of the characteristics and main differences between expert and novice learners. They have also identified how learners can improve their ability to learn and awareness of when to make adjustments in how they learn. The most important take-away from recognizing that students have significant control over their academic outcomes.

Differences between expert learners and novice learners:

- Experts know more
- Knowledge held by experts is better organized and more integrated
- Experts have more effective and efficient strategies for accessing and using knowledge
- Experts seem to have different motivations for acquiring and using their knowledge
- Experts display more self-regulation in acquiring and applying their expertise

To become expert learners, students need to know:

- Their cognitive characteristics – how they learn
- The cognitive demands of the academic tasks
- A variety of learning strategies and study skills
- Prior knowledge of the content material

Steps to establish executive control in studying:

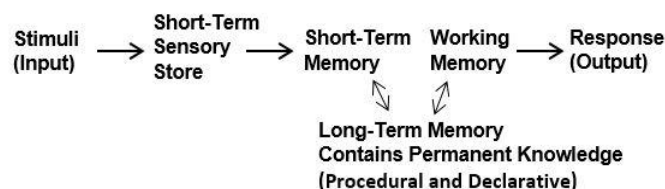
- Create a study plan and revise it based on personal feedback and grades received throughout the academic term
- Select and use specific strategies to achieve one's goals
- Monitor and evaluate regularly. If students are not reaching their goals, they must modify what they are doing, and decide if this is the best way to meet similar goals in the future.

The Cognitive Domain

The cognitive domain, or the thinking domain, is the knowledge center. A classic model that shows the way most people effectively learn is the "*Information Processing Model*." It is based on the analogy the brain is like a computer: it first receives information, which is then analyzed as it enters short-term memory, next moves into long-term memory, and finally is recalled for a task (e.g., *answering exam questions*).

The following strategies are organized according to the processing tasks in the Information Processing Model and can be practiced during the peer learning session. Some strategies are best done individually, while others are more effective when performed with partners or in small groups. The key to student success is the metacognitive process of monitoring one's comprehension of the material. Each section below provides suggestions that support this process.

Information Processing Model



Improving Memory

The ultimate test as to whether you really know something – that it's solid in your memory – is when you can teach it correctly to someone else. Peer learning sessions give students the opportunity to do just this provided you make it happen using skillful facilitation techniques; that's the purpose of this guide. But first, a brief review of the connection between learning and memory.

Short-Term Sensory Store

Using the sensory modes – visual, auditory, or tactile – will improve attention to new information. Often we hear that one's preferred learning style is one of these three senses. A student might say about listening to lectures, "Oh, I don't learn that way, I'm a visual learner." The fact is, activating all three modes will improve attention and retention. The goal is to become adept at learning in a variety of ways. Some ideas on how to expand attention are:

- Watch instructor for verbal/ visual cues that important information is at hand
- Sit near the front of the room to hear better and to see charts, graphs, and board work.
- Important information typically is given at the beginning and end of class. Arrive early and pay attention to instructor's comments during the first minutes and during the final minutes, when many students have stopped taking notes and are preparing to depart.
- Pre-read the textbook/assigned readings and study new vocabulary words to make new information feel more familiar
- Review the syllabus to identify major concepts and the schedule of upcoming topics
- Experiment with new ways to take lecture notes (*e.g., mind maps, Cornell method*)

Short-Term Memory

Ways to reinforce content material through repetition:

- Read lecture notes aloud in small groups/pairs (ask others to contribute missing information and discover better methods for taking notes)
- Review material frequently. Make note cards for information you need to memorize.
- Use mnemonic devices to improve memorization
- Keep a list of new words and concepts
- Recopy lecture notes using your own words and inserting examples
- Explain concepts and problem-solving methods to others

Long-Term Memory

Strategies to promote long-term retention:

- Practice retrieving material often and in many forms
 - Recall facts and concepts. Retrieval strengthens memory.
 - Self-quiz often; make and use flashcards
 - Space out retrieval practice over a long period. Study other course work in between.
 - Elaborate on new material by paraphrasing and applying it
 - Create connections between new information and material already learned
- Organize new material into meaningful ways
 - Create visual images to reorganize material into logical categories with logical relationships between concepts.
 - Draw concept maps or diagrams, matrices to show relationships between concepts
 - Create time lines to display sequences of events
 - Identify steps and formulas for solving problems

Social Learning Theory

Social Learning Theory, developed by Albert Bandura in 1977, combines traditional cognitive learning theory (information processing model) with theories of the Behaviorists (learning is a result of responses to environmental stimuli, such as conditioning, reinforcements/rewards and punishment) – in other words, a cognitive process that occurs in a social setting.

Bandura believed that learning comes through observation. In many ways, this is the essence of a peer learning session: students are brought together in an informal (no grading, no tests) and social setting to develop and practice both cognitive and metacognitive skills around specific course content. One of the models for observational learning (Bandura identified three) is a live model – someone who demonstrates or acts out a behavior. You the facilitator may start out as that live model in your session, but through well-crafted activities, all the students in the session serve as models of effective ways to learn.

Lev Vygotsky, a Russian psychologist, argued that all learning happens in a social context and that language is the main tool to make this happen. This too is the essence of a good session. As facilitator, you create activities where students interact with others and verbalize their thinking among their peers.

Summary

The eight principles of peer learning build upon theories of cognitive, affective, and social learning. Peer learning programs have historically served two fundamental goals: improving academic performance (cognitive domain) AND increasing persistence towards graduation (affective domain).

The program at the University of Minnesota has three criteria that make a session successful: it is informal, it is social, and it is productive. The rest of this guide provides many resources, processes, and advice (from experience) to make the session a welcoming environment that offers students the practice and support to gain control of their own learning.

Multicultural Competency is a Learned Process

Principle Two

2. Multicultural competency is a learned process and is valued for the way it improves the learning environment	Understand your own culture and know that culture exists as a set of overlapping and sometimes conflicting identities. Use active listening skills with sensitivity to the impact of culture on communication. Choose a wide variety of culturally sensitive activities in peer learning sessions.
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As a peer facilitator, you begin the process of becoming culturally competent through awareness of your personal assumptions, biases, and (mis)understandings of your own culture. A broad definition is, “Cultural competence is having an awareness of one’s own cultural identity and views about difference, and the ability to learn and build on the varying cultural and community norms of students...” nea.org – Why cultural Competence?

Understanding Multicultural Competency

“In the classroom, being culturally competent involves an understanding of how cultures differ under the surface and how cultures respond differently to similar situations. Acquiring cultural competence is a gradual process. It is achieved only after many observations, experiences, and interactions...” (Pratt-Johnson, 2006).

Peer learning programs value this process as a way to communicate comfortably and effectively with others, which will ultimately improve the learning environment for all students.

Consider these Questions and Discuss:

- Briefly describe your culture?
- How do your cultural traditions impact your verbal and non-verbal communication?
- How does your cultural heritage fit in with your personal identity? If you have more than one identity, do these identities overlap or conflict with one another?
- Recall a time when someone made an assumption about you based on their perception of your culture. What assumption was made and how did it affect you?
- What powers and privileges has your cultural background given you? How can recognition of these improve your competence when interacting with people of other cultures?
- What parts of your personal identity are most important to you? How do you express these aspects of your identity?

Culture in the Classroom

Resources that address cultural competence are plentiful. Two that are particularly accessible and provide specific examples of how multicultural competence might look in the peer learning session include *Communicating Cross-Culturally: What Teachers Should Know*, by Yvonne Pratt-Johnson; and *Communication Tools for Understanding Cultural Differences*, by Michelle LeBaron (see “For Further Investigation”).

Michelle LeBaron describes human communication patterns as moving along a continuum of low to high context, referring to the many factors that influence the message that one communicates to another. These factors can be both specific to an individual alone, as well as to cultural groups. To understand the distinction, she poses these questions:

- Do I tend to “let my words speak for themselves?” (low-context communication)
- Do I prefer indirect messages from others, and [use] a whole range of verbal and nonverbal cues to help me understand the meaning of what is said? (high-context communication)

Impact of Stereotypes

Stereotypes of culture, and the ways they communicate can have tremendous negative impacts on groups of people. Dr. Claude Steele at Stanford University coined a term to describe this impact as stereotype threat...“The threat that others’ judgments or their own actions will negatively stereotype them in the domain [subpopulations of students at a school]. His research showed that this threat dramatically depressed the standardized test performance of women and African Americans (the subjects of his research) even though they were high performers in their groups.

Implications for Peer Learning Programs

What does the research mean?

- If a group of students with a common demographic such as race, gender, or immigration status, is told they are at risk for dropping out, the research by Dr. Steele and others indicates they will be more likely to do so, even if they have shown themselves to be academically high achievers.
- The strategic positioning of a program within the institution is important. Students need to see it as academic enhancement, not remedial. Most students do not want to stigmatize themselves by self-identifying with a program designed for students likely to fail a class or an entire field of study.
- The peer learning program at UMN purposely avoids promoting its services as “help.” Most students don’t think they need help, at least not at first, and often not until it’s too late. The sessions are promoted as “practice” right from the beginning; it is the consistent attendance, week after week, that solidifies retention and leads to a deeper understanding of the material.

Non-traditional Students

More and more college classrooms have “nontraditional” students – adults, age 25 and older. These students might have children, be single parents, and work full time while attending school part time. Juggling these multiple roles takes a toll on their persistence in completing their degrees, making adult learners somewhat their own cultural group. Research shows they prefer active learning strategies where they can apply their knowledge immediately. While adult learners need and desire flexibility, they also value structure. They want to know what is expected of them academically. However, they may also lack self-confidence – in their study habits and their social skills in a classroom of traditional students. Most likely, they already have a well-defined social structure outside of school. As illustrated in the following story, meeting classmates and playing learning games don’t fit their expectations.

Adult students

During my first semester facilitating, I had an adult student in one of my sessions. I was a little nervous about this older student. For this session, I had planned a jeopardy-style review game. Although she did a great job of working together with her group of younger peers, I could tell immediately that this “fun” style of reviewing was definitely not what she had in mind when deciding to attend the session. This experience taught me the importance of planning activities that are culturally neutral. ~Jess

As the facilitator, recognize that these students have different expectations and motivations. Show interest in them simply as people and make conversation with them about non-collegiate topics. Compliment their efforts and encourage them to participate, but be respectful if they decline to do so. You may need to set up arrangements ahead of time to provide worksheets when they have issues with child care or job demands.

Students with Disabilities

Cultural identity can also be defined by physical and mental disabilities. Group learning activities may be challenging for these students. When the situation arises, ask the student directly how you can make the sessions useful for them. The activities may need to be delivered in more than one mode – visually and orally. Even though you will periodically ask all students for feedback, check in with these particular students early to establish ways they can best communicate their needs and requests to you. Check with your supervisor for additional resources.

The University of Minnesota’s Office of Equity and Diversity website has information on how to include students with disabilities <https://diversity.umn.edu/disability/achievingaccessinyourclass>. It advocates using Universal Design for Instruction (UDI), a teaching practice that addresses the potential needs of a variety of learners.

Learning Preferences Related to Culture

Cultural identity can greatly influence how a person learns, i.e. their cognitive processing style. In the past, researchers thought that students were fairly rigid in the ways they could best learn. Contemporary educational researchers believe that students are more flexible, thus focusing on the word “preference” when examining how they learn. Some argue that students should intentionally develop competency with a wide range of learning styles to give them maximum flexibility as a life-long learner.

The following table was developed by Dr. James Anderson. His research explores how culture impacts cognitive processes. It lays out some of the cultural dimensions (according to Anderson) of two distinct groupings: western (primarily males of European ancestry) and non-western – which includes many females and most ethnic/race-specific Americans, and immigrants. It is included here to show how one’s cultural history might influence one’s cognitive style. More in-depth discussions of specific characteristics of non-western groups can be found in the work of James Anderson and Joan Timm (see bibliography – for further investigation).

Non-Western vs. Western World View

Non-Western view	Western view
Emphasizes group cooperation	Emphasizes individual competition
Achievement is for the group	Achievement is for the individual
Time is relative	Rigid time schedule
Extended family	Nuclear family
Holistic thinking	Dualistic thinking
Religion permeates culture	Religion distinct from other parts of culture
Socially oriented	Task oriented
Accepts world views of other cultures	Feels their world view is superior

Consider and discuss:

- What is your reaction to this dichotomy? Do you accept it?
- How can your understanding of it help you plan activities for your sessions?

Culturally Effective Communication

Bear in mind that you are communicating with individuals, and beware of assumptions based on the cultural identity that you see. People are composed of a variety of identities that sometimes overlap and conflict with one another. Your goal is to communicate in a way that respects and accepts differences. While the following suggestions are helpful with any group of individuals, they are especially important to inter-cultural communications.

Create a Welcoming Learning Environment:

- Arrange furniture so students can see one another
- Greet students as they enter the room
- Get to know, at some level, each student who attends the session
- Invite all students to participate at opportune times during the session

Increase your Awareness of Communication:

- Be aware of non-verbal communication, especially your own. Depending upon where your audience lands on the low-high context continuum, the same facial expressions, gestures, posture, tone of voice, eye contact (or avoidance), expressions of agreement, and use of silence can mean different things.
- Notice your own patterns – which students do you tend to respond? Whom do you select for comments and ideas? Are they frequently the same gender or ethnicity? Create a coding system to remember who participates or on whom you call.
- Develop a formal but friendly way of interacting with students. Using colloquial language, jokes, or too many cultural references may leave out students who are unfamiliar with the references and style of communication.
- Never make assumptions about resources and skills that people possess. For students from some cultures, it is difficult to admit what they don't know or admit that what the facilitator said doesn't make sense to them. They may nod their head in agreement or express a positive comment when they actually would feel shame admitting otherwise. Instead, ask the student to summarize their understanding so far.

Improve Listening Skills:

One of Steven Covey's *Seven Habits of Highly Effective People* is "first seek to understand, then to be understood." Dr. Covey believes communication mistakes happen because "most people listen with the intent to reply, not to understand." People tend to filter whatever they hear through their own life experiences by responding, "I know just how you feel, the same thing happened to me." He believes the first step in effective communication is to display empathy and understanding for the other person.

Listening with empathy entails focusing on the other person and reflecting back, in your own words, what s/he is probably feeling; it's not about you having the correct response. Often the temptation is to give advice, or probe for more information as to why and how. Sometimes we evaluate their situation, which can lead to passing judgment. Covey suggests becoming comfortable with silence and just listening. Make eye contact and show an inviting expression.

Consider these situations (and role play):

- A student is despondent that s/he failed last week's exam
- Someone voices frustration with HW assignments during the session

Select Appropriate Materials and Activities:

- Not everyone likes competition. Use a variety of activities and notice how students react to competitive games. You don't have to eliminate them; just use them occasionally.
- Intellectual engagement does not always require a student to speak aloud. Some students will be less vocal than others.
- Use a variety of grouping strategies to provide less threatening learning spaces. An activity such as "Think-Pair-Share" gives individuals time to think privately before publicly speaking.
- Create activities that require individual action and written responses

Increase Your Own Cultural Competence:

- Learn how people from other cultures differ in their communication patterns and face-to-face interactions.
- Attend campus events sponsored by student cultural groups.

Equality in the Classroom

Margo Adair, a diversity trainer and social justice activist, co-founder of Tools for Change, and coauthor Sharon Howell write about creating an atmosphere where everyone participates – a facilitator’s primary objective if there is to be true peer learning. They advise that, “...the same voices should not be allowed to dominate, even if the people who are quiet say they are in agreement with what is being said... The less people contribute, the less ownership they feel of the group’s process... Some people need support in reigning themselves in, while others need encouragement to express themselves. Facilitators can take specific steps to open up more room in the discussion.” (Adair, 2001).

Adair and Howell offer specific ideas to promote equal air time that facilitators can practice in their sessions:

- Encourage those who usually speak first to wait so others can offer their perspectives
- Alternate between men and women
- Ask those from marginalized groups to speak first
- Everyone speaks once before anyone speaks again on an issue
- Allow ten seconds of silence between each speaker
- Give everyone a certain number of tokens. Each time a person speaks they must give up a token; when their tokens are used up, they cannot speak again until a new set is distributed.
- Start with quiet time for people to write down their thoughts on the topic, with a separate note card for each idea – three apiece is a good start. Put them in a basket, and have everyone draw a card and read it aloud.
-

One of the Asian American students didn't speak up at all. Whenever I walked around the classroom, students would get my attention and ask me their questions, but this student rarely looked up from her worksheets.

As someone with a similar background as her--where we've learned to not make trouble for others, such as asking a teacher a question when there are other students who may need his/her help--I decided to initiate conversations with her. I've been in her shoes before, and this is what I wanted from my teachers. Thankfully, it worked; we were able to clear up the concepts she had been struggling with.

~Duabci – Calc I

Summary

The first step towards cultural competency is to understand one’s own culture and all of its assumptions and biases. Racism or other “isms” are a part of who we are and the environment in which we were raised. The key is recognizing, dealing with, and moving beyond them. We all have multiple identities that sometimes reinforce and other times conflict with those of others. Our identities are sometimes invisible to the people with whom we interact. Multicultural competency teaches us to move beyond stereotypes and assumptions. We sensitively treat others as individuals with a complex set of identities.

What Would You Do?

Situations that Call for Multicultural Competency

- | | |
|---|--|
| <p>1. You notice in your sessions that students segregate themselves into groups based on ethnicity and cultural background.</p> | <p>→ How will you respond to this the first time?</p> <p>→ What will you do going forward?</p> |
| <p>2. You are planning your upcoming session and thinking about the kinds of questions to ask and what to include on the handouts.</p> | <p>→ How can you make the materials reflect and respond to the diversity among your participants?</p> |
| <p>3. You are leading a session for a course composed mostly of STEM majors. Everyone is male except for one female.</p> | <p>→ What challenges does this situation pose?</p> <p>→ How do you handle each challenge?</p> |
| <p>4. Before each session formally begins, students talk about the weekend. One student starts to share a joke that begins: "A priest, a homosexual, and a Muslim walk into a bar..."</p> | <p>→ What do you do as the facilitator?</p> <p>→ What could you have done earlier in the term to avoid this situation?</p> |
| <p>5. A student confides that she needs help with an issue that is causing a lot of frustration. English is not her first language and she is having difficulties following the class lectures.</p> | <p>→ What suggestions do you offer?</p> <p>→ How do you turn this situation into a learning opportunity for the group?</p> |

Sessions Address Specific Learning Objectives

Principle Three

3. Peer learning sessions are designed with specific learning objectives in mind.	Select activities based on learning objectives, difficulty of the content, and limited time of the session. Design plans that are flexible and responsive to the needs of students. Use informal assessments to measure student learning. Reflect on previous sessions when planning the next one.
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Sessions are more effective when the facilitator carefully considers the needs of the students. The wide variety of learning preferences is reason enough to vary the types of activities and yet it is easy to repeat popular activities. However, having a variety will more likely address skills needed to complete homework and prepare for exams.

As the experienced student, you are more likely to know what needs to be accomplished in your sessions. Still, it is important to involve students when setting the agenda so that it meets their needs. Balancing both sets of needs is difficult since time is limited.

The Planning Process

As noted in the Overview, the first day requires extra planning. Your introduction of what happens during the session sets the tone. You want students to understand early on how peer learning works so that the group interactions will maximize their learning. Students should expect you to be prepared, organized, and knowledgeable. They should also expect you to be supportive, which isn't the same as you giving out answers (although they will tempt you). Communicating your expectations clearly will make the session run more smoothly. At the University of Minnesota, the standard for a good peer learning session is one that is social, informal, and productive. The following will guide you to accomplish just that.

1. Prepare the Content

- Ask the course instructor for access to the course website, a copy of the textbook and other support materials
- Read the textbook and assigned readings before lecture/class. Work through homework problems and assignments.
- Develop your session agenda and activities
- Prepare handouts and worksheets as appropriate
- Meet with course instructor and program staff for help when needed

2. Prepare the Room

- Arrange chairs in a circle, semi-circle, or small groups
- Have supplies – white board markers that work, index cards, computer cables, camera to take pictures of board work.
- Choose where to sit during the session. Avoid sitting behind the podium or desk; it creates the impression of you as a teacher, not a facilitator.
- Put a brief “agenda” of goals or topics on the board. Ask students to comment on or add to the list.

PRO TIP: Since you are already familiar with the material, it’s easy to gloss over the required homework or reading. BUT the problems or topics you choose for your session need to reflect the rigor of the assignments. Consider also that the course instructor may be different from the one you had.

3. Introduce your Program

- Create a welcoming atmosphere: greet students as they arrive, make friendly conversation, and learn names.
- Review the purpose of peer learning and your role as facilitator. Prepare something that can easily be repeated in future weeks when new students come.
- Do this more extensively on the first day and continue to provide a quick (30-60 second) summary at the beginning of every session. *See ahead in this section for specific points to cover.*

4. Facilitate the Session

- Integrate “*what to learn*” with “*how to learn*” by modeling study skills. *See Principle 5*
- Redirect questions back to the group. Establish that knowledge rests with group members – in their lecture notes, textbooks, and other reference materials – rather than solely with you. *See questions in Principle 8.*
- Correctly use the academic language of the course
- Choose activities that depend on students working together for part of the session
- Use “*wait time*” (as much as 15 seconds) during group discussions to give students time to think and to encourage them to answer questions (rather than you)
- Refer students to the syllabus, textbook, and readings during the session
- Support the instructor when students complain (minimize it and refocus the group)
- Monitor your own behaviors to avoid those that inhibit discussion (e.g. talking too much, answering questions, or sitting behind a desk)

5. Modify the Agenda if Needed

- Watch for “teachable moments” to share and model learning strategies, especially ones you have used to perform better. *See examples in Principle 5.*
- Allow portions of your plan to go longer if needed. Have extra challenging activities/problem sets if activities go too quickly.
- Always, always, always have a back-up plan. Shift to other activities if planned ones are not appropriate or don’t seem to work (e.g. instructor hasn’t covered material on the syllabus for that week).

6. Close the Session

- Prepare a wrap-up activity. Use classroom assessment techniques such as informal quiz, list key terms, or a one-minute paper. *See Principle 7 of this guide and Classroom assessment techniques; Angelo, T. A., & Cross, K. P. in For Further Investigation.*
- Have students predict exam questions based on textbook and reading assignments
- Refer to syllabus as a group to view upcoming assignments and tests
- Preview what will be covered at the next session

Introducing Peer Learning

A good introduction makes a good impression. Students want to see on the very first day that attending your session is truly worth their time and it is about academics. One approach is to keep the introduction short (five minutes), ask for questions, and then get right into the day's session plan with the course material.

Rehearse your introduction. Create a one-page handout or a short video and include testimonials from previous students. Some facilitators create a PowerPoint slide or use notecards to ensure they cover the major points (you might be nervous in the first session).

What Happens in a Peer Learning Session?

The program at the U of MN offers this description:

- Students often work in pairs or small groups to solve problems/complete learning exercises selected by the facilitator.
- The facilitator circulates around the room to make sure groups are on the right track
- The facilitator is more likely to ask probing questions than provide answers
- Study strategies and problem-solving strategies are modeled and practiced.
- Students explain their thinking to others; PAL operates on the principle that once you can teach the material to someone else, you really know it.

The First Session

Refer to the overview at the beginning of this guide or other materials provided by your program administrator. Use the following questions as a guide. Rehearse your introduction with at least two other facilitators. Make time for students to introduce themselves as a way to create a friendly, social atmosphere so that students become comfortable working together each week.

Main Points to Cover:

- What peer learning is
- Why it is offered for the course
- What happens during sessions
- Results students can expect – include research on academic performance associated with attendance*
- What the program can and cannot do
- Your role and your credentials
- Your expectations of students (include rules)
- How often students should attend. If they only come for exam reviews, they will miss the consistent practice that is fundamental to academic success.

PRO TIP: Learn students' names early, along with their learning preferences, communication styles, etc. This will help you choose good grouping strategies and activities for the rest of the semester.

** If campus data is unavailable, the University of Missouri-Kansas City maintains a national database of data from Supplemental Instruction programs.*

Planning and Reflecting

U of MN facilitators use the following session planning tool. The facilitator completes a session plan each week and submits it to the program supervisor and the team leader to review and provide feedback.

Be prepared to justify why you chose certain activities or problems. Meeting with the course instructor periodically, and keeping up with homework assignments will make this easier. Always work through the problems you select for your handouts.

Session Plan

Name: _____

Week # _____ Course: _____

Save the file as _____ in your Google Drive folder

Ideas from last week's reflection?	
Challenging Concepts (list at least 2 for this week) Think back to when you took the course. What was confusing?	
Learning Objectives (LO) What will students be able to do by the end of the session that is specific and measurable ? List two, preferably three. Use action verbs.	
Grouping - how will you group students (pairs, 3's)	
Warm up Activity Time:	
Main Activity Time:	
Presenting/Sharing - how will they share their knowledge/solutions? Small groups, at board, class discussion, etc... Time:	
Wrap-up/recap/summary - can be done at any point in the session Time:	

Notes to self:

Equally important and useful when planning the next week's session is the session reflection form. Reflecting on and evaluating one's progress is a metacognitive process that is invaluable to all kinds of learning – in school, in careers, and in more personal pursuits.

Session Reflection

of students attending: ____

What worked well?	How do I know?
Were LO's met? (yes/no) All of them? (yes/no) Some?	What did I see students do that showed me the LO's were met?
Any unanticipated challenges?	How did I adapt my session?
What I want to improve or change:	Ideas for next week:

I give my session ____ # stars: ★★★★★

Peer Observations

A valued professional development activity used in the UMN Peer learning program is having facilitators observe each other conducting their sessions. New facilitators typically observe the more experienced ones during the first four weeks of the term. Just as important is having experienced facilitators observe new ones – to coach them, not to evaluate them. Either way, a valuable component of this activity is the conversation between the observer and the observed – that day or soon after. Having the observer follow a guide similar to the one in this section will help recall the session and make the conversation more meaningful. Expect to spend 15-20 minutes debriefing the observation.

Role of the Observer:

- Ask for a copy of the session plan and handouts before the session starts
- Decide if you be involved as a fellow student or just quietly observe
- Make a time to debrief the session so you can ask questions and understand why the facilitator made certain choices about grouping, content, type of activity, reactions to various behaviors or surprises.
- Make notes on paper and write down questions while you observe.
- When debriefing, ask the facilitator first about what they thought went well and what they might do differently.
- Offer specific feedback, including positive comments and suggestions to consider in the future.

Consider These:

- Which behaviors/interactions do you think are important to observe in a session?
- How would you want the person observing you to provide their feedback?

Summary

Effective peer learning sessions focus on specific learning objectives and use a variety of activities. Some activities are icebreakers that develop relationships between participants, get them comfortable interacting with each other, and build trust. Others are competitions and might involve rewards. Sometimes the activities that work with one group may not with another. Be willing to experiment to learn which ones work best for each group. Students like a diversity of learning experiences in the sessions just as they do in the classroom with the instructor. Go into the session with a prepared plan and adapt it as needed. Solicit input from students for future sessions so they feel included in creating their learning experience.

Peer Observation by New Facilitator

Observer: _____ Session observed: _____

Use this as a guide (feel free to add any other notes)

How were the goals and agenda for the session communicated to students?

What were the group sizes, i.e. pairs, threes? Were they the right size for the activity? Explain.

How did facilitator create the groups, i.e. counting off, proximity, assigned?

Describe overall conversation/interactions in the room

Who did most of the talking?

What kinds of questions did the facilitator ask? How often?

How well was time allocated between work (individual/ group) and sharing solutions?

How were other resources (textbook, notes, internet, etc.) used during the session?

Warm up activity? Describe briefly.

Wrap up activity? How did facilitator create a sense of closure?

How engaged did students seem? Describe what you noticed.

What else did you observe beyond these questions?

What two takeaways from this observation will be valuable in your future sessions?

Peer Observations – Peer Coaching

I am observing your session as a peer coach, to share what I notice on the topics below. Consider me as support for your growth, not an evaluator. This is an opportunity to ask me how I might have handled something you did or suggest alternatives to use in future sessions.

To have a social, informal, and productive session:

- Manage the session time efficiently
- Engage students in purposeful learning activities
- Encourage students to interact and verbalize their thinking
- Ask probing questions and redirect them back to students
- Monitor understanding by checking in on groups
- Encourage students to refer to their notes, texts, and other course materials
- Include students in summarizing information at the end of the session

We will do a short one-on-one debriefing at a time convenient for both of us in the next couple of days.

	Topics to Discuss	Comments
☐	Agenda or plan for the day is visible/audible to students	
☐	Students grouped with a specific plan in mind	
☐	Directions given clearly and audibly	
☐	Worksheet/board work is organized and understandable	
☐	Facilitator has variety of activities – warm-up,	
☐	Facilitator models problem-solving/study skill strategies	
☐	Students on task – explaining, asking, interacting, solving, helping	
☐	Students are referring to notes and textbook	
☐	Facilitator addresses students' needs and questions	
☐	Questions redirected (in a new way) back to the group	
☐	Adequate time for students to share solutions/thinking with class	
☐	Allows wait time after a question is asked	
☐	Uses visual aids (pictures, graphs), technology, handouts, etc.	
☐	Closure – i.e. 1 minute summaries, quiz, predict test questions	
☐	Stage set for next lecture, next session, or upcoming exam	
☐	Tone of session is comfortable and supportive	

Additional comments (Describe the interactions between facilitator and students):

Debriefing Session: points to discuss

What did you think of your session? Did it go as planned? Who did most of the talking, the board work? Did you facilitate peer learning, or function more as a TA? What constraints are you dealing with (i.e. classroom, size of group, course material, student behaviors)?

Strengths:

Areas to improve:

Activities Vary by Learning Tasks

Principle Four

4. Session activities vary according to the learning tasks of the subject matter.	Sessions appear and operate differently depending on the subject matter (e.g. chemistry course vs. psychology course). Choose activities that reflect the cognitive demands of the course: problem solving, learning vocabulary, analyzing texts, memorizing, and applying concepts.
--	--

The unique demands of each academic discipline often require different approaches to learning. Some learning strategies previously described in this guide appear again in this section. The difference is that they have been customized for different academic disciplines. No matter the subject, there are general guidelines that apply when conducting a peer learning session.

General Session Guidelines

- Ask students to articulate what they need to learn. Having their own organized view of how the course is going will guide what study strategies they should use.
- Use a warm-up activity at the beginning to review key vocabulary terms, scientific notation, and symbols. Model the use of note cards to memorize key material and to outline problem-solving steps.
- Discuss note-taking strategies for the course and for the instructor's teaching style.
- Be clear that you won't work on assigned homework that is graded.
- Create opportunities for students to self-test on the material and ask questions of the group to clarify and understand.
- Use the many questions described in Principle 8.
- Let students present in pairs; having a buddy can reduce nerves and provide support.

Major Academic Areas:

- Mathematics and other Problem-Solving Courses
- Humanities Courses
- Writing Intensive Courses
- Social Science Courses

Mathematics and Problem-Solving

Problem-solving courses such as chemistry, physics, or mathematics share several common traits that pose challenges for students, especially those who are not pursuing an academic major in the area. Often there is a well-defined process to solve for only one “correct” answer. Many students never completely understand the logic of the process for problem solving since they are preoccupied only with discovering the correct answer through any means.

“The success of empirically-based courses seems to relate to the situation when one student understands the material – the light bulb turns on – and then they help their peers with it. They’ll help their peers because they want to almost show off that they know the material. One particular student, who was normally very quiet, understood standard deviation and how to compute it right away. She got it and explained it to one other student for probably 20 minutes or so. You could see that second student start to understand and help others as well. That was one of the sessions that I didn’t have to do very much, and the students took care of it themselves. It’s nice to know that you can design a worksheet that helps students learn and it’s works for them. That’s really cool.”

~ Jeff

Issues to Consider when Designing Activities:

Students in math and sciences learn how to reduce rather than elaborate on information. They are typically asked to calculate relationships between values and variables that are governed by scientific law; answers usually can’t be debated. This can be difficult for students majoring in the humanities, where the goal is to elaborate on the available information and to probe for more complexity and multiple answers.

Guidelines for Math/Science Sessions:

- Pre-select a set of problems to work on during the session. Work through and solve all problems directly on the worksheet ahead of time so you can facilitate others in the process and avoid potential errors.
- Select problems that emphasize different components of the problem-solving process
- Create a safe environment for students to experiment with the problem-solving process and be vocal with what they know and do not know.
- Decide if students will work individually and/or in groups to solve problems
- Have students present their solutions (or direct a scribe) at the board
- If space allows, send all students to the board to work on problems. Students tend to interact more when they are standing at the board instead of sitting at desks/tables.
- Very early in the term, model how you want solutions to be presented – in terms of detail and verbal explanation; it will greatly improve the quality of how students share their work. If you decide it’s better for you to be at the board, tell students you will only write what they tell you to.
- Choose problems for the worksheets that students don’t have access to or haven’t been assigned – sessions should be a place to practice fresh, unfamiliar problems.

- Establish a pattern for solving problems. The protocol that follows was developed by math faculty at the University of Minnesota who wanted to be sure that the approach to solving problems in peer sessions was similar to the way they were solved in math class. Common steps in the problem-solving process are:
 - Identify what the problem is asking.
 - Decide what information is needed to solve the problem.
 - Correctly apply the information to solve the problem.
 - Go over the answer to verify that it is reasonable.
 - Compare the answer with the correct one.

"We were doing Lewis structures in my chemistry session and there was one girl who had been really struggling the entire session. I just gave her a couple of pointers and walked away to the next group. All of a sudden, I heard her say, "OH! I get it!!" It was perfect. Your students leave week after week and you don't know if they've been learning anything. Then they have days when they say, "I get it!" and you're like, "Really? Good, that's amazing! Thank you for making this worthwhile" ~ Abby

Problem-Solving Protocol

Problem # _____

1. Read the problem on your own first
2. Answer the following questions in your group:
 - a. What concept(s) is the problem based upon?
 - b. What information are you given, and what new information are you asked to produce?
 - c. What mathematical relationships exist between the information you know and the information you want to learn?
3. Restate the information in your own words.
4. Solve the problem on your own.
5. Check your answer with your group members. If there is disagreement, find out where you made different choices. Agree on the correct answer and method of problem solving.
6. Once you agree, answer the following questions as a group:
 - a. Revisit your answers to question in step two, would you make any changes in these answers? If you would, specify the changes.
 - b. Think of a use for the information contained in this problem.
 - c. Look at the list of "Comprehensive Problems" at the end of the chapter. Which of these problems are related to this problem?

Humanities

In humanities courses, students are often asked to elaborate on, rather than reduce, the available information. They are to probe for more complexity and alternative, multiple answers. Students of the humanities must learn to deal with ambiguity and uncertainty, and are expected to use intuition, insight, and self-knowledge to find “the answers.” This perspective can be difficult for students who are not majoring in the humanities.

Issues to Consider when Designing Activities:

The lack of visuals: many humanities courses and assigned readings have few illustrations and organizers. Class discussions about the content are more frequent; students are expected to verbally share their interpretations of readings or reactions to an author and defend their position. Writing assessments are frequently the major basis for course grades and demonstrating content competence (see next section).

Guidelines for Sessions in the Humanities:

- Model and provide practice using visual organizers such as mind maps and matrix boxes to show the relationships between concepts.
- Create discussion activities that explore multiple interpretations of the material and multiple solutions. This can be challenging for dualistic thinkers who look for the “right” and “wrong” answers. Grouping students in pairs or triads may generate more discussion than one large group discussion.
- Require students to use the vocabulary specific to the course during discussions. Alternatively, ask them to paraphrase difficult concepts and vocabulary to check for accurate understanding.
- Provide practice in expressing original thinking and supporting controversial or opposing ideas to the material.
- Allow time to practice timed exam-type essay questions; ask students to predict questions. Draw from your previous experience taking tests in the course.

Writing Intensive

In courses with a heavy emphasis on writing assignments, writers are expected to develop ideas fully and deeply and use more complex sentence structures and more advanced vocabulary when arguing an opinion or analysis.

Issues to Consider when Designing the Session:

Papers tend to get started and finished close to the due date – very close. As a result, that final proofing never happens and ideas are often unorganized, weakly developed, and repeated; the structure falls apart and so does the writer's thinking. Getting started can be the most difficult; figuring out how to conclude a multipage argument can be daunting.

Guidelines for Sessions around Writing Assignments:

The peer learning session can be a good place to do peer reviews of papers. Instead of conducting one large discussion, which can be intimidating, have students work in pairs or triads to exchange papers and provide verbal feedback; students are more likely to speak about their writing and be open to constructive comments from just one or two others. Invite students to read aloud portions of their drafts to their partner or small group. It will help them to detect errors that might be missed if they only silently read their writing.

If exams in the course include essay questions, spend time practicing this form of assessment. Create timed writing activities for potential essay questions (five to ten minutes each) to simulate the time pressure and the need to budget time. Remind students to visit the campus writing center for more technical questions and writing expertise.

- Use small groups to brainstorm potential writing topics
- Model an example of a strong thesis statement for a sample topic
- Have students create visual organizers for their topics
- Create a time line for each phase of the paper (e.g., topic identification, thesis, first draft, revision, etc.)
- Review reference formats e.g. APA or MLA, in-text citations, or a bibliography at the end of the paper
- Discuss issues regarding plagiarism
- Use 5 x 8 index cards to practice being concise and organized when answering essay test questions. Examples might be: summarize an argument or topic, explain how to solve a problem, write a short essay based on a list of statements related to the topic.
- Vocabulary development activities can expand technical vocabulary of the students when answering essay questions

Social Sciences

Social science courses tend to emphasize the sequences of events and ideas, and the cause and effect relationships that occur between them. Students are expected to recognize patterns such as:

- Sequence
- Categorization
- Compare/contrast
- Cause/effect

Guidelines for Sessions in the Social Sciences:

Strategies like the following organize information into these patterns; they also highlight connections as well as enhance retention.

- Organize information into categories using charts and tables. Remembering individual facts is easier when categorized into parts, types, or lists based on certain criteria.
- Create visual organizers such as matrix boxes and time lines to fully grasp the sequence of events/ideas and cause/effect relationships. This is an example of spatial relationships that have been demonstrated by educational research to significantly increase memory retention.
- Use discussions to help students sort information in assigned readings and lecture notes. Students often report problems identifying “what’s important,” so making the implicit explicit through guided discussions is especially valuable.

Example: History texts are typically organized into these categories: political, economic, religious, social, intellectual, and artistic. The first letter of each category creates “PERSIA.” Creating templates like this help students to organize the new information that they read in assigned readings or hear in the class. Refer to the categories frequently in review sessions to remind students and encourage its use as an organizer.

Summary

Students are more receptive to learning new study strategies if they can practice using them during a session connected to a specific course. A key success factor is using the learning strategies successfully in your own courses before using it in your session. This may require some additional effort to experiment with these strategies in your courses. You are most effective when you have planned these activities ahead of time and are prepared. Facilitators report that doing so results in students being more willing to participate during the session and to use these strategies on their own.

Sessions Model Productive Learning Behaviors

Principle Five

5. Sessions are opportunities to model, share, and practice productive learning behaviors.	Draw on personal experience to preplan a set of learning strategies useful to mastering the course content. Look for “teachable moments” to demonstrate and apply learning strategies to course material. Provide opportunities for participants to practice and share their strategies with each other.
--	--

Successful college students usually have well-developed, reliable, and versatile study habits. Despite their importance, developing these habits is something that many students struggle with. The peer learning facilitator can make a valuable impact on this development by exposing students to a wide variety of study strategies and techniques that will help them integrate *what* to learn with *how* to learn it.

Ultimately, **quality** far outweighs **quantity** when it comes to the time students spend studying. The goal of developing productive study habits is to study *smarter*, not necessarily *harder*. A student who studies *harder* may spend **hours** poring over notes and handouts while making little-to-no progress towards learning the material; students who studies *smarter* are able to recognize class material they are unfamiliar with and take active steps towards understanding it.

Many facilitators have found that students are more likely to experiment with a study strategy if they share how it has personally helped them be successful. That is the essence of modeling – showing, not telling. When introducing a skill, provide examples to show how you used it, discuss when to use it, and ask students to comment on its advantages and disadvantages. Be sure to test any suggested study technique on your own coursework before introducing it in your session. That way you can better customize it to the course material and give it more credibility. Include time to ask the students to share their own learning strategies that have helped them be successful in the past. Part of peer learning is getting students to see each other – not just you – as resources for their own learning.

Study Strategies

The Study Skills Survey shown below organizes study strategies into three general categories:

- Class preparation
- Self-study
- Exam preparation

If given early in the term, you can discover what study habits students are currently practicing. A follow-up of the same survey can be given later in the term for students to reflect on what habits they have incorporated into their study routine.

When to introduce a particular study strategy depends on how the class is structured. If students are learning new material, then emphasize the importance of preparation prior to attending lectures. If students are working on a concept, emphasize study skills to help them study *smarter*. Finally, if students are actively preparing for a test or exam, choose strategies that provide feedback on their progress.

Peer learning sessions are excellent opportunities to practice and your role is to give students that practice, even when you meet resistance. Talk with your fellow facilitators to affirm that the study strategy you plan to model is one they would endorse as well. That will boost your resolve to carry out your plan. Remind students that one of your expectations is that they at least “try.”

Study Skills Survey

Place an **X** in the box that best describes how often you have used the following study strategies in this course

I. Class Preparation	Almost Always	Some times	Rarely	Never
I read assigned material BEFORE each lecture				
I prepare questions for discussion sections				
II. Self-Study Skills	Almost Always	Some times	Rarely	Never
I make margin notes in textbooks and handouts				
I take notes in lecture and discussions				
I rewrite notes in my own words				
I create study aids such as flashcards/mnemonics				
I make graphic organizers like charts, tables, mind maps, matrices				
I work with other students in the class				
I organize or attend study groups for the class				
I seek help from the professor or a tutor				
III. Exam Preparation Skills	Almost Always	Some times	Rarely	Never
I predict test questions				
I reread notes and text before exams				
I practice taking past exams				
I create study guides				
I review quizzes/tests to identify difficult concepts for future studying				

Modeling Study Skills

Once you review the survey results, begin to emphasize study strategies students marked as “Rarely” or “Never” used. Give them time to practice the skill during the session. Not every strategy has to be completed during the session – e.g. mind maps, charts, flashcards; just exposing students can be sufficient. If they find it useful, they can complete the activity on their own. The following table offers possible activities you can use to address each study strategy outlined on the survey. Additional activities around study skills are in the PAL activity book *“Tried and Tweaked.”*

I. Class Preparation	Possible Activities
I read assigned material BEFORE each lecture	→ Write questions on post-it notes to put in margins of textbook; have students mark answers directly in text. → Split assigned reading and assign different parts to small groups; each group presents a summary to the class. → Create study guides with questions from the book that are not easy to find unless the reading has been completed. → Jigsaw reading activity – partners make notes in an outline (can be an online document). Email/share outline to students.
I prepare questions for discussion sections	→ Ask difficult questions already asked in lecture or lab. → Ask at least one challenging question in the session; encourage students to visit office hours. → To close the session, students write down a question they still have and list 3 topics they think will be on the test.

II. Self-Study Skills	Possible Activities
I make margin notes in textbooks and handouts	→ Hand out a copy of the PowerPoint from lecture with lines next to each slide for notes; students summarize slide content in a sentence or two using their own words. → Hand out a page of your notes – with margin notes – as a model.
I take notes in lecture and discussions	→ Note share during first 5 min. so students can discover gaps and ask others if they missed something. → Make skeleton outline of lecture notes for students to complete. → Create a packet to guide students through the chapter notes using only leading bullet points.
I rewrite notes in my own words	→ Students summarize difficult terms in words they can understand. → Discuss lecture notes from the day using informal language. → Brainstorm ideas on how to take notes (e.g. focus on spoken ideas from lecture instead of copying slides that will be posted anyway).
I create study aids such as flashcards/ mnemonics	→ Make flash cards to learn unfamiliar terms. → Use cards to learn subtle differences between terms. → Time (1 minute) use of flash cards at the beginning of the session to get students to learn vocab. → Create vocab competitions to get through flash cards fastest. → Make Post-It notes of terms to put on forehead and guess.

I make graphic organizers like charts, tables, mind maps, matrices	→ Design matrix to summarize differences between theories. → Create concept-map/web activity where students take turns writing on the board to fill in the web. → Provide students with a chart that serves as both a timeline and a way to compile notes. → Character web to help students remember key points about the novel and relationships among characters. → Organize ideas/themes in ways to connect course concepts.
I work with other students in the course	→ Use a variety of group activities of different sizes – pairs, threesomes, or four; use large-group discussions. → Get students used to answering others' questions without relying on the facilitator.
I organize or attend study groups for the course	→ Have students exchange phone numbers and email addresses. → Explicitly state that the session is an already built-in study group. → Do an activity that requires collaboration that is too long to finish in the session.
I practice solving extra problems beyond homework	→ Give students practice problems similar to their homework. → Provide an extra practice hand-out at end of session for students to take home.
I seek help from the teacher or a tutor	→ Encourage students to use office hours. Coach students on how to approach TAs/professors and to formulate good questions. → Collaborate with professor/TA to determine focus for activities. → Cite the professor's view that your activities are important so that students see the relevance.
I revise my draft several times (<i>if applicable</i>)	→ Create a workshop where students bring essays and do a peer editing exercise using a handout with the steps to the process → Have students create outlines for their papers, then do peer editing during the session.
I read papers/essays aloud (<i>if applicable</i>)	→ Allow time for students to practice public speaking (for speeches) in front of the students.

III. Exam Preparation	Possible Activities
I predict test questions	→ Practice exam questions where students vote to determine which questions would most likely be on the exam. → Students make lists of themes and concepts they think will be on the test. → Students develop questions for review sheet/guide.
I reread notes and text before exams	→ Have students use notes to find answers to questions during exam review session.
I practice taking past exams	→ Look at past exams to find topics that haven't been covered; have they been discussed in different terms? → Discuss questions on practice exams in sessions. → Use old test questions as basis for review sessions.
I create study guides	→ Create a Jeopardy-style review game or a skeleton study guide.
I review quizzes/tests to identify difficult concepts for future studying	→ Select difficult test questions that are likely to reappear on future exams; review those questions in the session.
I prepare outlines for possible essay questions	→ Have small groups create outlines to answer potential essay questions.

The list below covers a broad range of effective study strategies. University of Minnesota PAL facilitators have designed dozens of activities around many of these learning strategies that can be found in their publication *"Tried and Tweaked: Activities to re-energize peer learning sessions"* (see Bibliography in back).

- Lecture review: oral reading of lecture notes, note swaps
- Textbooks: Preview, read, review; SQ3R, annotating
- Note-taking: Cornell method, outline, mind map, charts
- Visual organizers: Mind map, matrix, charts, table, time line, Venn Diagram
- Note cards/flash cards
- Mnemonic devices
- Test prep: Timed quizzes, IF-ATs*, review guides, imaginary cheat sheets

CUES WRITTEN SOON AFTER CLASS ANTICIPATED EXAM QUESTIONS MAIN IDEAS OR PEOPLE VOCABULARY WORDS USED FOR REVIEW & STUDY	NAME, DATE, TOPIC, CLASS NOTES TAKEN DURING CLASS • MAIN POINTS • BULLET POINTS • DIAGRAMS / CHARTS • ABBREVIATE • PARAPHRASE • OUTLINES • LEAVE SPACE BETWEEN TOPICS CORNELL NOTE-TAKING METHOD
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← 2 1/2" →

↑ 2" ↓

← 6" →

SUMMARY

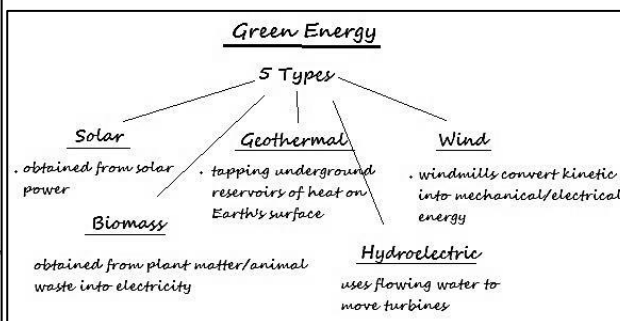
WRITTEN AFTER CLASS. BRIEF SUMMARY HIGHLIGHTING THE MAIN POINTS IN THE NOTES ON THIS PAGE. USED TO FIND INFO LATER.

L: Cornell note taking

<http://site.shopwritersbloc.com/blog/wp-content/uploads/2013/10/Cornell-Notes-Web.jpg>

R: Graphic organizer

<http://blogs.luc.edu/hubbub/files/2014/06/Mapping-Method-Example2.jpg>



Summary

Modeling study strategies rather than lecturing about them is a key feature of the PAL program. Many students have already taken study skill or college orientation courses where they have received handouts of how to do various learning strategies. Those courses help some, but the key to success is having the students practice those skills with actual homework in their courses. When the facilitator shares and models these learning strategies, and when other participants share their experiences using them, students are more likely to experiment with them.

*IF-AT – Immediate Feedback Assessment Technique – www.epsteineducation.com

What Would You Do?

One of the goals of modeling productive learning behaviors is supporting students to become independent learners. Your natural desire is to be helpful to students in your role as facilitator. The following are situations that test the boundaries of helping.

- | | |
|--|---|
| 1. A student shares that they did not attend the last class lecture due to a family emergency. There is another exam next week; he would appreciate it if you would share your copy of the lecture notes with him (if you have been attending class lectures). | → What are the pros and cons of doing this?
→ If you share a copy, how do you do it?
→ What other options are there? |
| 2. A student misses a session and asks you to provide a copy of any handouts and worksheets that were used at that time. She also asks for the answer keys to the worksheets. | → What are other ways to make the information available to her?
→ What limits will you have on providing materials when students don't attend? |
| 3. In reviewing the class lecture notes, you notice that the way you would approach the problem or the content material is different from the way the instructor demonstrated it during class. | → Do you present a "better" method for solving the problem or thinking about the content material than presented by the class instructor and/or the textbook? Why or why not? |
| 4. Students want help with graded homework problems during the session. They are stumped on how to solve several of them. | → What boundaries on this issue have been established by the program and the course professor?
→ How might you "help" them? |

Participants are Actively Engaged in Learning

Principle Six

6. Participants actively work with the course material and with each other.

Use cooperative learning activities that require students to work with one another.

Observe students actively participating by taking notes, reading material, discussing, and solving problems.

Monitor progress within small groups, provide support, and gauge when to transition to the next activity.

There are different ways to engage students in active learning using intentionally structured small learning groups. It is important to vary the types of cooperative learning activities and to have students work with a variety of partners.

"At the beginning of the year, you see students who are shy or just prefer to work by themselves. I used to work like that too, so I know where they are coming from. Sometimes you don't want to be bothered; you just want to do your work. So in order to have them work together on activities, at first, you have to force them. "Could you join this group?" or "What's your contribution to the group so far?" You have to nudge them along until they get to a point where they don't have to be nudged anymore. You start to see that they're actively joining groups and they're suggesting answers in the larger group – something that they've never done before. That's when I realized, "Okay, this is working!" The students are going to use those skills later on in upper level courses and life in general, That's something I tend to stress in my sessions. And it's not bad to ask for help in doing that." ~ Soo

Overview to Group Dynamics and Engagement

Experience shows that small group discussions by themselves are not always effective. The term "group dynamics" means that the behaviors of groups of people follow predictable patterns, which can also be redirected. As the situations in this guide have illustrated, unusual things can occur in small groups. When designing and conducting activities, adhere to the peer cooperative learning group principles and instructions on the following pages to increase the likelihood of a successful learning experience for everyone.

The activities described in this section encourage active learning and are used widely in education. Whatever activity you choose, you will consistently need to do the following:

- Explain the task
- Determine the time for the task
- Assign small groups
- Monitor progress of groups by rotating around the room
- Reconvene the large group
- Design ways for students to share their work with the whole group

Principles of Peer Cooperative Learning Groups

The following descriptions come from the work of David and Roger Johnson and Edythe Johnson Houbec, *Cooperation in the Classroom* (1991).

Positive Interdependence. Students perceive that they need each other in order to complete the group's task ("*sink or swim together*"). As the facilitator, structure positive interdependence by establishing:

- mutual goals (each member learns and makes sure all other group members learn);
- joint rewards (if all group members achieve above the criteria, each will receive bonus points);
- shared resources (give one handout per group or give each member only part of the required information); and
- assigned roles (summarizer, encourager of participation, elaborator).

Face-to-Face Promotive Interaction. Students promote each other's learning by helping, sharing, and encouraging efforts to learn. Students explain, discuss, and teach what they know to classmates. The facilitator structures the small groups so that students sit close to one another, talk through each aspect of the assignment, and look at each other throughout the session.

Individual Accountability. Each student's performance is frequently assessed and the results are given to the group and the individual. Facilitators may structure individual accountability by giving an individual test to each student or randomly selecting one group member to give the answer.

Interpersonal and Small Group Skills. Groups cannot function effectively if students do not have and use the needed social skills. It may be appropriate for facilitators to identify a particular social skill for the students to practice along with the academic skills. Collaborative social skills include leadership, decision-making, trust-building, communication, and conflict-management.

Group Processing. Groups need time at the end of the learning activity to discuss how well they are achieving their goals and maintaining effective working relationships among members. More commonly among college-level study groups, group processing is used to affirm that all the students achieved the learning objective and no one leaves the room with incorrect information.

Small Group Roles. For some small group activities, you will need to assign or ask the group to divide up specific tasks such as note taker, spokesperson, timekeeper, and others. Even when participants have specific roles, everyone is expected to be an active member in the discussion or problem-solving activity.

The roles described below are sorted into three broad categories with examples of how a group member might contribute to the group in that specific role.

- **Task Roles:** The main focus of this role is getting the group to complete the task
 - Coordinator: Relates statements made by one group member to another
 - Energizer: Stimulates group to take action
 - Elaborator: Expands upon another's ideas
 - Evaluator-critic: Assesses the group's work by higher standards
 - Information-giver: Provides helpful information
 - Information-seeker: Asks for clarification
 - Recorder: Keeps notes (minutes) about meeting
- **Group-Building/Maintenance Roles:** Participants in this role contribute to building interpersonal relationships and maintaining harmony
 - Encourager: Provides positive feedback
 - Follower: Accepts ideas of others in group
 - Compromiser: Attempts to reach a solution everyone finds acceptable
 - Gatekeeper: Facilitates participation from everyone in group
 - Harmonizer: Reduces conflict and tension (often through humor)
 - Observer: Evaluates group progress
- **Self-centered roles:** Participants in this role often prevent group from reaching goals
 - Aggressor: Acts antagonistic towards group members and their ideas
 - Dominator: Monopolizes group speaking time and interrupts
 - Blocker: Refuses to cooperate with other's ideas
 - Help-Seeker: Acts helpless to avoid work
 - Loafer: Avoids work
 - Special Interest Advocate: Presents own viewpoint and needs

PRO TIP: Putting the "best" students with students who tend to be disruptive or not engaged usually backfires. These students are often SO different that they can easily become frustrated with themselves and each other.

Grouping Options

Large Group Discussion

While this appears to be easy and simple, it can be difficult to facilitate, and it's easier for students to avoid talking and be less engaged with the material. A few students can more easily dominate discussion. It works best later in the academic term when students are more comfortable with one another and with talking in general.

Small Group Discussion

Small groups can be structured formally (facilitator assigns groups) or loosely (students choose their own or are grouped by proximity). Students are more likely to participate since they can't hide in the shadows. Facilitators in the University of Minnesota PAL program have found that groups of three, and no more than four, seem to be the most productive.

Pairs-Compare

Pairs are useful in getting students to interact, especially when there are multiple answers to a question or ways to solve a problem; pairs increase the chance that several solutions will emerge. When pairs explain a concept or a process to each other, they are more likely to solidify and retain the knowledge.

Think/Pair/Share Discussion

This small group discussion procedure mixes activities that require silent work by each person and paired discussions. Individuals are given time to think on their own before sharing their comments with another person. Multiple pairs can join together to further share their thinking.

Jigsaw Discussion

A jigsaw discussion is useful when dealing with a large amount or complex section of academic material during the limited time of the session. A complicated topic or task is broken down into parts and each part is assigned to a small group (like a piece of the jigsaw puzzle). Jigsaw also models how to break down complex material into its natural component parts. Students become interdependent upon one another to complete tasks that would be difficult for an individual to complete alone.

Each small group has a specific question or problem assigned to them. Groups are kept small (3-4 students) so each member can participate and be actively engaged in the process.

The facilitator circulates around the room to ensure groups are making progress and each member is participating. After the small groups have completed their discussion, the large group is reformed; each small group shares their portion of the task with the larger group.

Academic Controversy Discussion

This is used to explore multiple conflicting perspectives on the same issue, which may be reconciled after discussion. Students get a better understanding of the issue by taking both defending and opposing positions with it.

Groups of four are divided into two pairs. One pair represents the PRO side of the controversy and the other pair represents the CON side. Each pair prepares their arguments and writes a statement, or completes a template prepared by the facilitator. Pairs then advocate their position on the issue to the other pair. At some point the facilitator can instruct all pairs to reverse their roles.

Summary

Working in small groups to accomplish a learning task gives students an opportunity to develop multiple skills that will be essential in their personal and professional lives. Understanding how groups operate will help you to direct group activities more successfully – with more effective learning and better relationships among the participants.

Persistence is so much of success; a comfortable, supportive, and productive learning environment can be just the place that nurtures the willingness to keep at it.

Participants Develop Self-Monitoring Skills

Principle Seven

7. Participants develop greater skill in self-monitoring their comprehension of course material.	Ask students to reflect on their exams to discover error patterns and to prepare more effectively for the next exam. Provide students with practice using metacognitive strategies to self-test their comprehension of course material. Model self-monitoring skills so students can select effective learning strategies for various tasks.
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Self-monitoring skills are vital to academic success. Yet many students (especially younger ones) expect to succeed using the same study habits that worked in high school. Many incoming college freshmen earned high grades in high school without spending a lot of time studying. These students are often SHOCKED when they receive a much lower grade on their first college exam than they had expected. They think the solution is to simply spend more time studying. While this may be true to a degree, the bigger obstacle for these students is developing study skills that allow them to study *smarter* not necessarily *harder*. It is important for students start to develop ways to monitor their learning.

The Role of Metacognition

The first step towards developing smarter learning strategies is to incorporate metacognition into the study regime. Metacognition is the ability to self-monitor understanding of a topic or material; students come to “know what they don't know.” While this may seem like a strange statement, if a student is able to recognize the material that they have not mastered, they can adjust their study habits focus in on it. Students who do not use metacognitive skills seldom recognize the gaps in their study techniques until it is too late and then suddenly face high-stakes assessments such as mid-term or final exams. On the other hand, students who “know what they don't know” can modify their approach to learn this material and perform better.

Perhaps the biggest error that students make is mistaking familiarity with the text with mastery of the material. They often choose to reread their notes/textbooks as their primary method of studying. This passive study behavior lulls students into a false sense of security, thinking that because they can anticipate the wording of the material – from having read it before, they now know it. In reality, they only know how to reiterate the information in the same way as it was originally presented.

College courses are more rigorous. Students have to explain concepts in their own words or under a new set of circumstances. Simply being able to recite the information provided via textbooks/notes is not enough; the student must have a deep enough understanding of these concepts to apply them in novel situations. Rather than passively reading the text, the student actively studying might rewrite class notes in the language they would use to explain a concept to a classmate.

Students who achieve the most success during their college careers use active, metacognitive study techniques while preparing for and immediately after exams. Facilitators can model these behaviors effectively with the use of three self-monitoring strategies: the post exam review, the informal quiz, and CATs (classroom assessment techniques).

Self-Monitoring Strategies

A good way for students to recognize gaps in their own learning is by self-testing. Just thinking about an upcoming exam often causes stress and anxiety, so the idea of creating and completing self-imposed tests is not a welcomed one. However, by doing so, students can actually reap the benefits three-fold. For an excellent discussion of this topic, see Peter C. Brown's book *Make it Stick* (2014) (in bibliography)

- Self-testing provides hands-on practice with questions that may be similar to ones on future exams. Practice in a relaxed, no-stakes environment can reduce the anxiety that students tend to experience during the exam.
- By correcting self-tests, students gain valuable insight into "knowing what they don't know". Recognizing what they don't know NOW, is much better than realizing gaps in knowledge in the middle of a graded exam.
- "Forced recall" is proven to help individuals solidify material they are attempting to learn. Self-testing is a form of active studying. Even if students feel that they don't need the practice, encourage them to explain or write their answers. They are often surprised by how difficult it can be to articulate their understanding of the material.

Review Exam Performance

Once the exam is over, students just want to forget about it and put it behind them. They do not realize the value of reviewing and reflecting on the answers they gave. However, taking a close look at the returned exam can reveal a pattern to the questions they missed and they can decide how to adjust their study habits before the next exam. A short reflection, such as the one following, can guide students as they think back on their performance.

Post Exam Reflection

Overall, thinking about how I did on the exam, I feel:

When I studied for this exam, I:

often/ sometimes/ rarely read lecture slides
 often/ sometimes/ rarely took notes on slides
 often/ sometimes/ rarely recopied notes into my notebook
 often/ sometimes/ rarely read the textbook
 often/ sometimes/ rarely did end-of-chapter textbook questions
 often/ sometimes/ rarely wrote my own sample questions
 often/ sometimes/ rarely used flashcards
 often/ sometimes/ rarely verbally described ideas
 often/ sometimes/ rarely watched posted podcasts
 often/ sometimes/ rarely other (be specific): _____
 often/ sometimes/ rarely other (be specific): _____

Thinking about my exam preparation and my exam score, I feel:

ex: frustrated, okay, pleased, guilty, confused, sad, ecstatic, neutral

When I think about my study habits, attention span, and motivation in this course, I will make the following changes in preparation for future exams:

The post-exam self-evaluation (next page) works if students get their exams back. Done individually, they have an opportunity to see patterns as to why they got wrong answers. Advise students NOT to dwell on their score, especially if they aren't happy with it. The purpose of reflecting on the incorrect answers is not to feel bad about how they did, but to discover ways to improve in the future.

Encourage students to keep the evaluations for the entire semester so they have a personalized final study guide for themselves; odds are, if they missed the question on the midterm, it's likely they should review it for the final exam. Professors tend to use the most commonly missed questions from midterms as they begin to write their final exams. It's so important not to give up once the exam is over!

Post-Exam Self-Evaluation

Class: _____ Test: _____ Chapters: _____

This worksheet is to help you organize the questions you did not get correct on your past exam. Use it to identify what area/chapter to brush up on before the final. **Keep this and use it as a resource when you study!**

Question Number	Chosen Answer	Correct Answer	Topic/Chapter
Why did you get this question wrong? a. Guessed/ Did not know how to do the problem b. Made a computation mistake c. Did not understand the question d. Mixed up vocabulary (not “guessed”) e. Changed from the correct answer f. Left this question blank Other: _____			
Where could you find review material for this topic? (Textbook page #, Section of notebook, etc.)			
Why did you get this question wrong? a. Guessed/ Did not know how to do the problem b. Made a computation mistake c. Did not understand the question d. Mixed up vocabulary (not “guessed”) e. Changed from the correct answer f. Left this question blank Other: _____			
Where could you find review material for this topic? (Textbook page #, Section of notebook, etc.)			
Why did you get this question wrong? a. Guessed/ Did not know how to do the problem b. Made a computation mistake c. Did not understand the question d. Mixed up vocabulary (not “guessed”) e. Changed from the correct answer f. Left this question blank Other: _____			
Where could you find review material for this topic? (Textbook page #, Section of notebook, etc.)			

Use Classroom Assessment Techniques

Monitoring one's comprehension of course material is an essential metacognitive skill practiced by successful students. Peer learning sessions provide opportunities for students to make changes in their academic behaviors based on feedback from a variety of classroom assessment techniques (CATS). When used at the beginning of a session, the CAT can help the facilitator adjust the agenda; if used at the end of the session, a CAT provides useful feedback on what students learned. The strategies described below come from Angelo and Cross's book, *Classroom Assessment Techniques*, and are organized (and modified) according to how PAL facilitators have typically used them. These are quick activities: 1-5 minutes.

Summarize Information:

Minute Paper: Students respond to the following questions: "What was the most important thing you learned during this review session?" and "What important question remains unanswered?" Use these to help guide the upcoming review session and to see what students most valued from the session. Use the comments at the next session as an opening activity or discussion item.

Muddiest Point: Students respond to what was the "muddiest" or most unclear point in the review session, the assigned reading, or the last class lecture. This gives feedback on what points need additional time or another approach to understand them.

One Sentence Summary: Students synthesize an entire lecture into three or four key points. Any grouping strategy will work.

Organize Information:

Concept Maps: Students draw or diagram the mental connections between a new concept and ones they already know. They also provide feedback to the facilitator on how well students are connecting with the information.

Empty Outlines: The facilitator provides a skeleton outline of the lecture. Participants use their lecture notes and textbook to complete the outline. This helps them recall and organize the main points of a lesson, making retention more likely. It also provides a model of a schema for organizing other lecture material.

Memory Matrix: This is a chart to organize information and illustrate relationships. The facilitator might provide the row and column headings ahead of time or it may be a group activity to create the matrix box and name the headings as a group.

Analyze Information:

Pro and Con Grid: Students analyze course material in an objective manner. Students must search for at least two sides.

Problem Recognition: Students only need to identify the type of problem and write the first step – often the biggest hurdles to finding the solution. Students are not expected to solve the problem (the short time limit discourages that).

What's the Principle: Students practice associating specific problems with the general principles used to solve them. The focus is on the general principle and not the individual steps to solve the problem.

Documented Problem Solutions: Students identify the specific steps taken to solve the problem and apply them to similar problems when studying on their own.

Test Preparation

Application Cards: Students write (on index cards) a real-world application for what they just learned. This connects new knowledge with what they already know and highlights the relevance of the newly learned concepts.

Student-Generated Test Questions: Students generate possible exam questions. This will reveal what students consider the most important content, what they understand as fair and useful test questions, and how well they can answer the questions they have posed. It also empowers students to believe that they can predict and study for exams in a proactive manner rather than believing that exams are chance events and that what to study is unpredictable.

Informal Quiz: Use an informal quiz frequently to check for understanding. Include different levels of difficulty so that all students will be able to answer at least some correctly – which can be more motivating and can promote persistence. Use a pair-share or large group discussion to process answers. The informal quiz works well as a preview or warm-up to the session. Although longer than the CATS described above, limit the activity to 5-10 minutes.

Summary

Learning to self-monitor what you know and don't know, and to then make adjustments, is a life-long skill and supports development of metacognition. Students have not generally been asked to "think about their thinking" in high school. Often they do not change their study behaviors when they get to college. Some think school is like the lottery – there is not a relationship between effort and the grades received. If you can help students be more realistic about what they comprehend, and show them new learning tools, you will have made an enormous difference. The bottom line is that they have to make those choices to change. Your role is to model how they can make changes and earn higher grades for their efforts.

Ownership of the Session Transitions to Students

Principle Eight

8. Authority and ownership of the session shifts from the facilitator to participants as the academic term progresses.

Use questions to prompt student learning and to decrease dependency on you.

Establish routines and procedures that direct students to each other for answers and explanations.

Observe students sharing their knowledge without directions. By the end of the term, it will be difficult for outside observers to detect who is the facilitator.

Students attending peer learning sessions often have a hard time understanding the role of the facilitator. At the beginning of the term, the facilitator provides most of the structure and leadership, and makes most of the learning activity decisions. The natural belief is that participants ask questions and PAL facilitators provide answers. Changing this dynamic is one of the most challenging tasks you will undertake.

"Students know that my role is sort-of a teacher; that's why they come – I see that. Every time a student goes over a problem or a group presents a problem, the class looks at me. I have to train them to learn from each other. I will ask the person who's presenting to ask the class, 'Do you have any questions?' You have to shift the power gradually to students over the semester, so they can see that they can learn from each other. Other people in the session are just as smart as the facilitator. It's a progressive change throughout the semester." ~Alex

One of your goals is to eventually transfer the ownership of the session from you to the students. It goes without saying, that at the beginning of the semester, the facilitator holds most of the control within the session: planning activities, establishing ground rules, giving specific directions, etc. Many students attending sessions for the first time expect the facilitator to simply answer any questions they may have. Changing this belief and encouraging students to learn from each other is one of the most challenging aspects of facilitating. This transition takes time and occurs through carefully thought-out actions by the facilitator.

Decrease Dependency

Use a Variety of Resources

Students are used to having important information spoon-fed to them by instructors. They may expect the same of the facilitator – to answer their questions the instant they begin to struggle. Not directly answering questions can be frustrating to students at first, but in the interest of creating independent learners, ask them to find the answers using other resources such as:

- Textbooks
- Assigned supplemental readings
- Lecture notes from other students
- Class websites
- Other references (Internet, previous worksheets, etc.)

By providing practice in using these resources – in a supportive environment – students are more likely to use them during their own independent study time.

Promote Discussion through Questions

Asking the right questions can be a great way to promote discussion during your session. If phrased correctly, questions can motivate students to find solutions without explicitly giving them the answer.

- “Walk me through what you have so far”
- “Summarize what we know so far”
- “give more examples”

Questions you ask can be based on study strategies you yourself may have used to complete the problem. Examples could include:

- What information do we know?
- What information are we trying to find out?
- What information are we assuming?
- Does this answer make sense?

While getting the correct answer is important, having students discuss the process of reaching the answer is equally valuable for their study time beyond the session, when they attempt homework and test questions on their own.

Solicit Feedback

During the first part of the semester, the facilitator makes the majority of the decisions as to how the session will run. An easy way to transition this responsibility to students is to engage them in the planning of the sessions.

- Ask students to write their own problems
- Vote on the next session’s activity. (This can also help boost attendance in voluntary sessions! Students are more likely to come back if they know there will be an activity they value.)
- Have students respond to: “what I know” and “what I struggle with” anonymously, on note cards. Collect the cards to help you design a super-helpful activity for the next session!

PRO TIP: If you have students choose a problem that includes a concept they struggle with, they get the extra practice PLUS the chance to explain the problem to their peers.

Handing off responsibility for what happens in the session is a tricky task. It may be hard to recognize a difference from one week to the next, but the change in dynamic should be obvious when comparing the first and last session. The facilitator will play a VERY active role during the first few sessions. By the end of the term, when students have been “trained” on how peer learning works, the session should run with little-to-no facilitator “interference”. Basically, if you have done your job right, you should put yourself out of a job by the end of the semester. Remember, the goal is to help students become efficient, independent learners. Learning to see their peers as resources is a critical mind shift necessary to succeed in the team work required in most jobs and professions.

At the end of the session, one of the students, Garrett, said, “I have a comment that I’d like to add...” Then, he looked straight at the two other students and told them how he remembers and thinks about the concept of secondary circular reaction. I was so glad that he took the initiative to explain this to his peers, simply because he wanted to. ~ Danielle

Use Questions

To Redirect

Students tend to seek affirmation that they are doing the problem correctly or that they have the right answer; they are focused more on the end product than the process. Redirecting questions back to a group puts the students in charge of their learning and promotes building self-confidence. Without pretending to be ignorant, the facilitator becomes part of the team that answers questions and solves problems. Below are ways to redirect questions back to the group:

- “Does anyone think that they know the answer to that question?” (The PAL facilitator observes the nonverbal behavior of participants to see if anyone has a clue to the question or wishes to participate.)
- Invite other students to react to each other’s ideas directly (especially when you aren’t sure what to say without revealing the answer!). This can reduce the tendency to look to you for the “right” solution.
- “Let’s look in our lecture notes (*or textbook*) to see if there is information that can help answer that question.”
- “How can we find the answer?”
- “Tell me more of what you are trying to find out by your question.”
- “What part/step are you unsure of?”
- “Walk me through what you’ve done so far.”
- “Let’s see what we need to know or do next to solve the problem?”
- “Convince your partner/group that you are right.”
- If a similar problem has already been answered, ask, “How did you solve it before?”
- “Let’s define some of the key words and phrases in that question to see if that will help us to answer the question or solve the problem.”
- “Who could volunteer to ask the instructor this question during office hours or at the beginning of the next class?” (*Use if you are unsure of the answer.*)

Consider This:

→ In what situations might you vary from the principle of redirecting?

To Probe

In addition to redirecting questions back to students, another option is to ask “probing” questions. These questions ask them to clarify their initial statements and think more deeply. Set a standard to use the content material vocabulary. There will be times when you have to answer your own question. When you do, give reasons and explanations for your own conclusions to provide a model for students’ thinking. Be willing to show the messy process you may have gone through to solve the problem.

Clarification Probes: Use when a student’s answer is vague, unclear, or needs elaboration. The facilitator asks the student for meaning or more information.

- What do you mean by ____?
- Say more about that idea.
- What made you think of that?

Critical Thinking Probes: Use when you suspect a student does not fully understand or when you want the student to reflect more deeply on an answer.

- What are you assuming?
- Why would that be so?
- What information is missing?
- What do we need to know in order to solve the problem?

If students are generally confused, you could step in by saying, “I don’t remember the author stating an answer to that”; then model your own thinking: “From what I know ... and ... I would say that ... would be the case because...”

Refocusing Probes: Use to encourage students to see a concept from another perspective or to get back on track.

- How is that related to _____?
- Can you summarize the discussion up to this point?
- If that is true, then what would happen if _____?
- How is your answer (or point of view) different from _____?

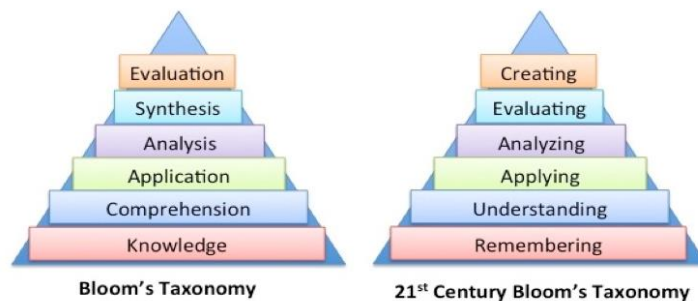
Prompting Probes: When a student will not or cannot answer, give a hint or rephrase the question. The goal of these questions is to promote persistence and the willingness to try. At times, you may just have to admit that your question was unclear.

- Could you say that in a different way?
- Can you say it in more familiar language?
- What can I clarify for you?

Promote Higher Order Thinking

Higher order thinking requires doing something with knowledge, i.e. connect it to something else, categorize it, manipulate it, or apply it to new problems/situations. In the 1950’s Benjamin Bloom developed a classification of six thinking skills that he said comprised the cognitive domain. They were shown in order as a pyramid from lowest level of thinking to the highest. It was revised in 2001 to reflect a more dynamic view of the cognitive processes that thinkers perform (see image of pyramids).

Your goal as the facilitator is to push students toward a higher level of thinking, just as they need to do on exams and other assessments. You can do this with the types of questions you ask. The key is to make them simple enough that beginner learners aren't frustrated but can also be expanded upon for students who are ready for higher-level thinking. As you get to know the students in your session, you will be able to vary which kinds of questions you ask as you circulate the room. When designing worksheets and activities, the goal is to make them relevant to ALL students, whether they are beginner or higher-level learners.



<https://journals.uair.arizona.edu/index.php/itet/article/viewFile/16506/17351/25724>

21 st Century Bloom's Taxonomy	Learning Objectives
Level One: <u>Remember</u> (define, restate, record, list, recall, name, find)	<u>Math/Science:</u> - Write the equation and define the variables - Explain why it is the right equation for the problem <u>Humanities:</u> - Identify two educational theories that support the value of peer learning
Level two: <u>Understand</u> (translate, summarize, discuss, describe, retell, explain, identify, report, estimate)	
Level Three: <u>Apply</u> (interpret, apply, employ, use, demonstrate, dramatize, practice, illustrate, operate, show)	<u>Math/Science:</u> - Use the formula to find the volume of a... - Demonstrate the relationships between variables <u>Humanities:</u> - Compare the old and new Bloom's taxonomy. What changes have been made? - How is the culture you grew up in different from one that you sometimes have to navigate?
Level four: <u>Analyze</u> (distinguish, analyze, differentiate, calculate, test, compare, debate, solve, categorize)	
Level five: <u>Evaluate</u> (judge, appraise, evaluate, rate, compare, predict, revise, assess, estimate, argue)	<u>Math/Science:</u> - Predict what will happen to the substance if the temperature increases? - Design a model that prevents erosion caused by... <u>Humanities:</u> - Evaluate the significance of the changes made in the new version of Bloom's Taxonomy. - Create an advertisement that promotes the value of attending peer learning sessions.
Level six: <u>Create</u> (arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose)	

Once a student responds to a higher order question, ask the rest of the group for their input: "Is that what you had in mind?"; "What else can be added?"; "Did someone think of a different response, or solve the problem differently?"

Foster Independence

Back to study skills! The “Fostering Independence: Activities” handout below comes from the University of Texas- Austin. It provides a time line as to when and how to modify various learning strategies as the semester progresses.



FOSTERING INDEPENDENCE: ACTIVITIES

Point of the Semester

Skill	early	middle	late
Note Taking	model a page of edited notes; identify lecture theme and supporting evidence	students practice without a model	students identify theme--critique evidence presented and anticipate possible test questions
Reading	model chapter outline	provide partial outline	provide skeleton outline
	preview a textbook chapter, monograph, or article and provide study questions	students preview; SI Leader provides study questions	students preview then generate their own study questions
Writing	provide model with TA's analysis/grade	provide model, students analyze or grade	students write, analyze, and grade
Test Preparation	develop matrix, discuss product and process; students fill in cells	present partial matrix; students develop missing categories and fill in cells	students develop matrix, fill in cells, and explain product and process
	provide sample test question(s); students generate answer(s)	provide evidence; students generate test question(s)	students generate test questions at a variety of cognitive levels
Problem Solving	verbalize the thought process when explaining problems	prompt students by asking Socratic questions; students work problems in groups	students generate a list of steps to solve problems of a certain type

Summary

One of the best things a peer learning facilitator can do is become almost invisible by the end of the academic term. We want participants to be stronger students with more content knowledge and more confidence as learners. They should have a broad set of learning strategies for studying and know how to set up their own productive study groups.

In the words of a past facilitator, “I know I’ve done my job right if I put myself out of a job by the end of the semester.” At the beginning of the term students will most likely rely on you to guide them in learning the class material. By the end of the term, after practicing a variety of learning strategies, students should be able to work together to actively learn the material with very little facilitator input. You should feel proud if the students in your session reach this point, as they have truly taken ownership of their own learning and are more likely to succeed as they proceed throughout their academic career!

The following story is a wonderful example of what to strive for in your sessions. Note how the facilitator describes the dynamics of the session, the ownership taken by participants, and her satisfaction that she had achieved what she wanted to happen for the students.

My Best Session

“The best session I ever had was towards the end of the semester. Everyone was talking, interacting, readily going to the board, and explaining answers to their peers. If there was a certain issue that we had – for instance, some people didn’t understand conditional probability – we went over how to do those more in-depth and looked for key words. We had a good time, a good time actually interacting. It definitely made me realize what a good session is supposed to look like. I’d had a few good sessions with that group and was very happy, but by the end of it, it became THE PAL session – the way it should be run. I don’t necessarily compare that session to the ones I have now, but it’s definitely something to strive for – to get students to interact and be that social in a math-directed way.” ~Niketa

From the Editors

As eager as we are every year for our pre-semester training, we also become a bit anxious – so much to say, to demonstrate, to discuss, practice and debrief. To digest all that this guide offers in a few days just isn't possible. So we will invoke what Nike says: "*Just do it*" - with determination and passion. The peer-to-peer relationship between you and students at the session is what makes the peer learning model unique. When you combine that with your content knowledge and a few of the tools in this guidebook, you will provide a learning environment that no one else can. How powerful is that! Each session is a new opportunity; so shake off what didn't work, pull out another tool, and "*be calm and carry on.*" The training director of another program similar to PAL closed his training with a simple but very appropriate reminder: "*If the session isn't friendly and welcoming, it is nothing.*"



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