Guide for
Peer Assisted Learning (PAL) Group Facilitators

Image courtesy from renith kroshnan through DigitalPhotos.net

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Acknowledgments

Image courtesy from renith kroshnan through DigitalPhotos.net

The following individuals and organizations are important sources of information directly or indirectly for the development of these training materials. You are encouraged to consult these sources for more information on peer assisted learning programs.

Of special note are the case studies from interviews with the PAL facilitators at the University of Minnesota that appear throughout this workbook. They are abridged to conceal how they solved the situations. Their stories are meant to spark conversation and problem-solving during the training workshops for new PAL facilitators. Read the complete stories in their storybook, Walker, L. (Ed.). (2010). *Two (or more) heads are better than one: Adventures in leading group learning, a facilitator storybook*. Minneapolis, MN: Peer-Assisted Learning Program, SMART Learning Commons, University of Minnesota-Twin Cities. A copy can be requested through the following website, https://www.lib.umn.edu/smart/facilitator-storybook

College Readings and Learning Association (*The International Tutor Training Certification Program*) http://crla.net/tutorcert.htm

H&H Publishing Company (*NADE self-evaluation guides: Models for assessing learning assistance/ developmental education programs. See section on PAL like activities called Course-based Learning Assistance*) http://www.hhpublishing.com

National Association for Developmental Education (*Course-based Learning Assistance and Tutor Program Certification*) http://www.nade.net/certification.html

PAL Groups (Blog page with links to additional peer learning resources and interviews with student PAL facilitators on their experiences and suggestions) http://palgroups.org

Peer Cooperative Learning Program Bibliography (*Annotated Bibliography of major postsecondary peer learning programs.* http://z.umn.edu/peerbib

Peer-Led Team Learning (PLTL) (*Articles, Web Links to Other PLTL Programs, Training Programs*) http://www.pltl.org

Structured Learning Assistance (SLA) (*Articles*) http://www.ferris.edu/sla/

Supplemental Instruction (*Articles, Web Links to Other SI Programs, Training Programs*) http://www.umkc.edu/ASM/si/index.shtml

Image courtesy from the digital archives at the University of Minnesota

Table of Contents

Directory of Forms and Worksheets to Reproduce

The following are documents you may want to photocopy for use as you plan, conduct, and reflect on your PAL sessions.

Image courtesy from the PAL Program at the University of Minnesota

Overview of the Peer Assisted Learning (PAL) Program

Image courtesy from renith kroshnan through DigitalPhotos.net

Underline the key words or concepts in this summary of PAL programs.

PAL programs focus on serving historically difficult college courses. These courses have a high rate of D or F final course grades or withdrawals. PAL does not focus on high-risk students, but rather on very difficult and challenging courses. These same courses are commonly listed across the U.S. by other PAL programs.

To meet this need of students to achieve higher final course grades in these courses, the PAL program offers a regular schedule of out-of-class sessions that are facilitated by a fellow student. This student - called a facilitator - has often previously taken the same class by the instructor and earned a high final course grade and IS competent in the subject matter. The PAL sessions are offered throughout the academic term, beginning with the first or second week of class. The sessions occur in classrooms in the same area as where students attend the class. These sessions are free. While an attendance roster is gathered of those who participate, the course instructor does not necessarily know who attends and who does not.

Since the PAL program is open to anyone in the course, there is not a general perception that the program is remedial. PAL sessions attract students of various academic abilities. Regardless of their ability level, students discover new skills and knowledge.

The PAL facilitators receive extensive training both before and during the academic term. Topics for training include peer cooperative learning strategies, study strategies, and group management. Professional staff and team leaders from the PAL program periodically observe the PAL sessions and provide helpful feedback to the facilitators. Bi-weekly team meetings are held with the PAL facilitators and staff.

PAL facilitators attend at least one lecture per week, take notes, and read all assigned readings. They prepare for their sessions and conduct one or more each week.

PAL sessions integrate "what to learn" with "how to learn it." Students who attend the sessions discover new learning strategies, connect ideas in the class, review key concepts from lecture and text, and increase their confidence. These sessions are highly interactive with the PAL facilitator managing the discussion and not providing answers. Instead, the questions are redirected back to the group and answers are sought in each other's lecture notes along with review of the textbook and assigned readings.

The PAL professional staff is responsible for the administration of the program. These individuals identify the targeted courses, gain instructor approval, select and train PAL facilitators, observe PAL sessions, coach and supervise the PAL facilitators, and evaluate the program.

In a review of national studies of PAL programs, 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 PAL participants and facilitators report both personal and professional growth because of their involvement.

Questions:

1. *What are the key features of PAL programs?*

2. *What is the difference between being a facilitator and an instructor?*

3. *What happens during PAL sessions?*

4. *Why would students be interested in participating in PAL sessions?*

ROLE OF THE PAL FACILITATOR vs. TRADITIONAL DISCUSSION SESSIONS

PAL	DISCUSSION SESSIONS
Reviews, reinforces, and clarifies course content	Reviews, reinforces, and clarifies course content
Attends class; reads text assignments; reviews or completes all homework assignments; is a model student	May or may not function as a model student
Integrates relevant learning skills with content including information on note taking, text reading, test preparation, problem solving, and other discipline-specific study skills.	Study skills are not addressed
Models and develops the thinking and analytical skills for the discipline	Analytical skills are often left implicit
Promotes student's ability to ask and answer higher cognitive questions including application, synthesis, and evaluation.	TA asks most of the questions
Fosters independent learning through a variety of instructional techniques	Students look to the TA as the sole source of information
Designs opportunities for students to practice the intellectual skills required by the course	Most practice takes place outside of class
Monitors student concerns and comprehension and uses this information to structure subsequent PAL sessions	Discussion sections vary little as the semester progresses
Participates in training workshops; meets weekly with other facilitators and a supervisor	TA often receives little or no formal training

Adapted in part from Sandra Zerger, "Ways in Which Supplemental Instruction Differs from Review Sessions", copyright, University of Missouri--Kansas City

Peer Assisted Learning (PAL) Session Principles

While there are a wide variety of activities that occur during PAL sessions, it is critical to focus on the basic principles that guide the decisions made by the PAL facilitator before, during, and after the PAL sessions. These provide the schema upon which dozens of individual PAL session activities are arranged and make sense.

Individual Principles	Examples of what the principles looks like in action:
1. Educational theory guides effective PAL learning activities.	A. Affective domain issues impact student learning as much as those in the cognitive domain. B. Self-regulated learning behaviors are critical for students so they adapt their learning activities to meet the specific requirements of the academic task. C. Educational theories make sense and organize the wide variety of PAL learning activities necessary to attain academic achievement and mastery learning.
2. Express multicultural competency by the PAL facilitator in PAL activities.	A. PAL facilitator understands his/her own culture. B. Understands culture as a set of overlapping and sometimes conflicting sets of identities. C. Improves active listening skills and is sensitive to the impact of culture on the communication process. D. Employs a wide variety of culturally-sensitive activities within the PAL sessions.
3. A blend of session activities are employed by PAL facilitator and requested by participants during the session.	A. Understand the PAL session activity cycle and uses it as a framework for creating a positive learning environment. B. PAL facilitators develop a flexible session plan ahead of time, with room for participant input so they are part of setting the agenda. C. Be open to coaching and mentoring by the PAL program administrator and fellow PAL facilitators. D. At the beginning of the academic term, the PAL facilitator employs ice-breaker activities to help participants develop relationships and learn about each other. E. To vary the learning format of the PAL sessions, appropriately use educational competitions, games, and rewards.
4. While the PAL facilitator remains a visible authority and guide, throughout the academic term authority and ownership shifts to the PAL participants.	A. More authority and ownership is shifted to participants throughout the term for operation of the PAL session. B. PAL participants expand their sources of knowledge beyond the PAL facilitator. C. The PAL facilitators skillfully use different categories of questions to prompt student learning. D. Participants take more initiative to talk during small group cooperative learning activities and large group discussions. E. Students increasingly take ownership of solving problems and completing learning tasks. F. Bu the end of the term, high engagement by PAL participants makes it difficult for outside observers to detect who is the PAL facilitator.

5. PAL facilitator and participating students model productive learning behaviors that students adopt and adapt.	A. Both PAL facilitator and session participants share learning strategies that are personally helpful. B. Apply learning strategy directly to course content. C. Identify the most important information and concepts in the course. D. PAL facilitator looks for "*teachable moments*" within the session to use a learning strategy in connection with course material. E. PAL facilitator preplans use of a rotating set of learning strategies during PAL sessions.
6. PAL sessions in academic content areas vary according to academic and learning requirements unique to them.	A. PAL sessions often appear and operate differently in various academic content areas. B. Carefully review PAL strategies and customize them for use in a particular course. C. Factors requiring different approaches for various academic disciplines include: problem-solving, vocabulary, reading requirements, memorization, concept learning, and synthesis among concepts.
7. PAL students develop higher skill in self-monitoring their comprehension of course material and adapting to each learning task.	A. Students reflect on major exams, discover error patterns, and prepare more effectively next time. B. Informal classroom assessment techniques are used to measure student understanding, help guide PAL session activities, and assess student learning. C. Students acquire metacognitive strategies to self-test their own comprehension level with course material. D. Through development of their self-monitoring skills, they increasingly select the most effective learning strategies for the particular learning task.
8. Students actively engage with the course material and with each other through intentionally planned large and small group activities.	A. Students work with one another through cooperative learning activities intentionally designed by the PAL facilitator. B. Roles and responsibilities for members of the peer group are clearly stated by the PAL facilitator. C. Students indicate involvement by taking notes, reading material, and solving problems. D. PAL facilitator circulates around the room to monitor the small group sessions, provide help when needed, and monitor when to reassemble the large group. E. Individual accountability for active engagement in the group activity is monitored by the PAL facilitator. F. PAL facilitator debriefs the peer group learning activity and checks for correct information and skill development by leading a discussion of what was learned as a result of the activity.

Relationships of the PAL Facilitator
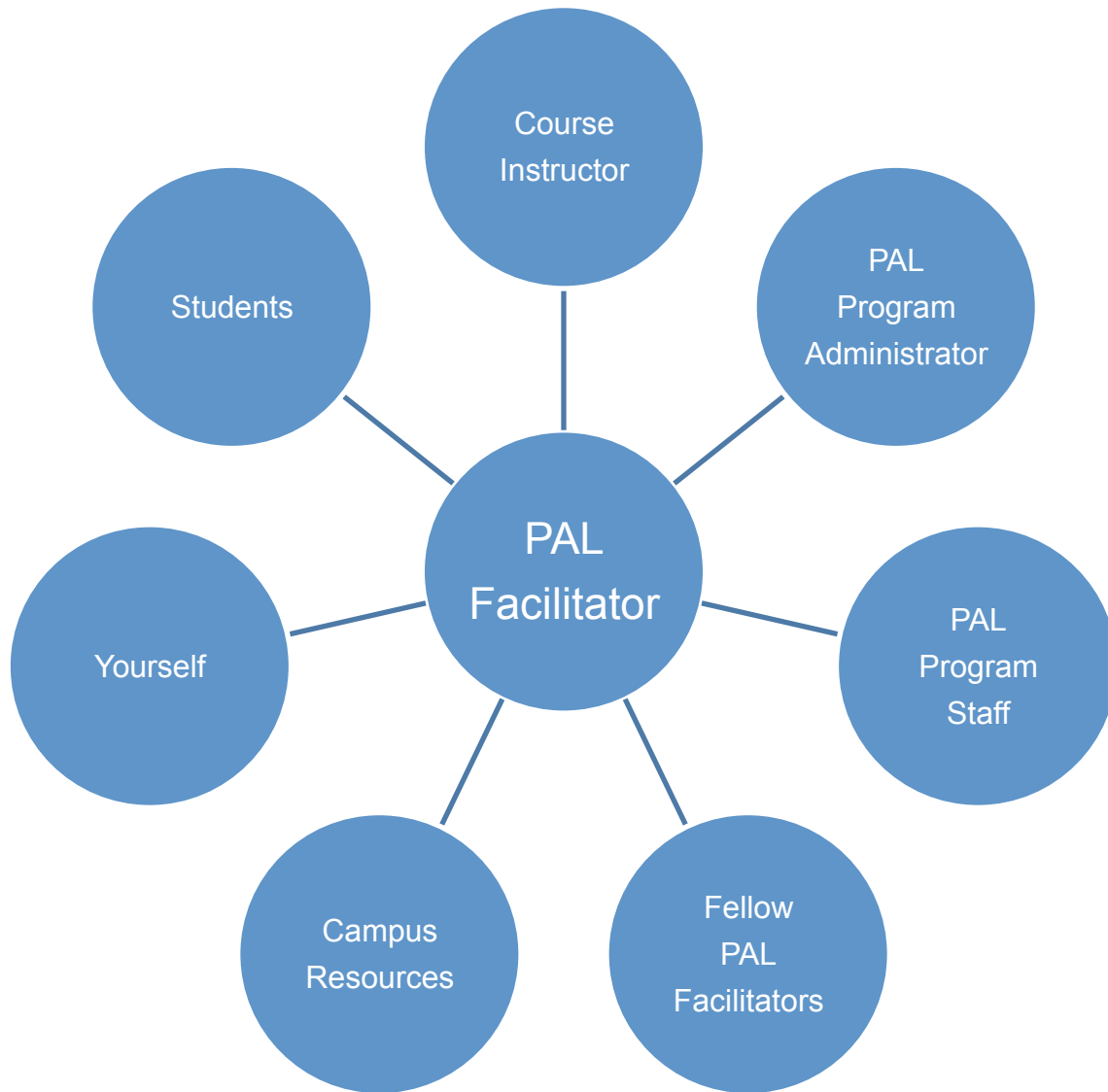
Relationships of the PAL Facilitator

Perhaps when you applied to become a PAL facilitator you were thinking primarily of the position as another way to finance your college education. While it does provide a part-time salary, serving as a PAL facilitator is an amazing journey for personal and professional development. Due to the wide variety of people that you interact with, your awareness and skills in working with others will dramatically increase. Following is one story from previous PAL facilitators here at the University of Minnesota that illustrates the rich experiences you will enjoy.

> (Jeff, PAL Facilitator). *"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"* (Walker, 2010, pp. 24-25).

As a PAL facilitator, you have a network of relationships and resources to manage. Balancing the needs of each and observing boundaries for choices you make help you as you serve as the facilitator and also results in a personally-rewarding professional development opportunity for you.

1. Course instructor

- Serves as your academic mentor.

- Responsible for recommending candidates for the PAL facilitator position. Additional candidates are gathered by the PAL administrator through open advertisements and other means to have a diverse group for interviews.

- Meet with course instructor periodically to discuss PAL activities and allow them to review handouts, worksheets, and mock exams.

- Some PAL programs have heavy involvement of the course instructor with designing PAL session worksheets and recommending session activities.

- Provides permission for access to ancillary instructor materials (*e.g., teacher's guide to textbook, test bank, study guides, and other materials*).

- Always supported during PAL sessions when students complain.

- Provides permission for facilitator to make class announcements.

- Be helpful for course instructor with minor class activities such as helping with distributing handouts, but do not become involved with grading or delivering lectures when instructor is absent.

- Course instructors are welcome to drop by for a short visit to a PAL session. However, they do not attend on a regular basis since it inhibits the dynamic of PAL sessions, which differ from traditional activities that occur during class.

- Facilitator avoids being placed into the role of instructor by delivering class lectures, grading examinations, or helping with examination preparation.

- Upon request by the course instructor, the facilitator provides anonymous feedback concerning student comprehension of course material and reaction to class lectures.

2. PAL program administrator

- The administrator is your ultimate supervisor.

- When experiencing potential conflicts between the instructor and the PAL program staff, this person is the ultimate authority.

3. PAL program staff

- These individuals are your coach, mentor, supervisor, and trainer.

4. Fellow PAL facilitators

- Seek out their advice on how they are conducting their PAL sessions.

- Visit one another's PAL sessions occasionally throughout the academic term to gain ideas to adopt and share feedback about the session upon request.

5. PAL student participants

- Seek to be a mentor and not an instructor or evaluator.

- Seek to share and model rather than lecturing.

- Treat all with respect and dignity.

- Encourage student participation and sharing of strategies that worked for them.

- Look for opportunities to make referrals to other campus and community resources based on student needs. With confidential matters, this communication should be made privately. Follow protocols regarding your supervisor in case of detecting significant student issues (*i.e., student in crisis*).

6. Campus and community resources

- Be familiar with resources from the campus and community that might be of use for students.

- Watch for opportunities to refer students to appropriate campus and community resources. Meet with the student privately if the issue is confidential.

- Keep PAL staff informed of students in crisis. Consult with them concerning referrals and interventions of a serious nature.

7. Taking care of yourself

- Establish a realistic time schedule for all activities.

- Ask for help from the PAL staff and fellow facilitators.

Sample Agreement Regarding Roles and Responsibilities

The following agreement was developed at Northwest Missouri State University (Maryville) to clarify roles of the PAL Program personnel and the faculty member. It was negotiated between the faculty member and the supervisor of the PAL program. While such formal signed agreements are unusual, this might be a handout developed by the PAL program administrator to help with the sometimes complex relationships of the PAL facilitator.

1. **Faculty member hosting PAL Program in the classroom agrees to:**
   a. Cooperate with PAL supervisors to select candidates as PAL facilitators.
   b. Provide a copy of the official attendance roster to the PAL supervisor.
   c. Provide a copy of the grades after the first exam to the PAL supervisor.
   d. Make (or allow to be made) periodic announcements about PAL sessions, inviting all students to participate.
   e. Avoid suggesting that only those who do poorly on the exams will benefit.
   f. Maintain PAL as a recommended, encouraged activity rather than a requirement.

2. **PAL facilitator agrees to:**
   a. Attend all class sessions.
   b. Help others develop and use note-taking skills.
   c. Maintain a professional attitude about matters such as class standards, grades, and student complaints.
   d. Use interactive learning strategies rather than reteach, lecture, or complete students' assignments for them.
   e. Discourage students from attending PAL as a substitute for class.
   f. Prepare handouts, matrices, learning aids, and informal quizzes for PAL sessions.
   g. Share PAL materials with the hosting faculty member before use, if possible, and provide feedback to the hosting faculty member if requested to do so.

3. **PAL supervisor agrees to:**
   a. Cooperate with faculty in selecting candidates for PAL facilitators and place facilitators only with the approval of the hosting faculty member.
   b. Train all PAL facilitators according to established guidelines and standards.
   c. Monitor the activities and presentations of PAL facilitators for as long as necessary by attending class with them, helping plan sessions, and supervising their performance.
   d. Provide supplies, training, in-service experiences, and individual consultations with PAL facilitators.
   e. Complete and provide hosting faculty with reports about the program that operated in their class.

Scenarios of Possible Interactions
Instructors and Teaching Assistants
What is your choice and what principle(s) guide your decision?

The following possible interactions are with PAL facilitators and the people they work with. What would you do in these situations? The goal is to not only identify the better choice, but also identify a principle that can help guide other possibilities. If the first name of the PAL facilitator is provided with scenario, they come from the actual events that occurred with the peer learning program at the University of Minnesota. First names of the PAL participants mentioned in the scenarios are noted with an asterisk (*) and are a pseudonym to protect their identity.

1. While meeting with the professor during office hours to discuss the upcoming PAL session, you are asked to do something the PAL supervisor has asked you not to do (example: lecture for him or her during a time they will be absent, tell them what students are saying about them during the PAL sessions, etc.)

    a. *How do you react at that moment when talking with the professor?*

    b. *Do you report the conversation with your PAL administrator?*

2. A major exam is coming up in the next two weeks. Many of students did poorly on the first exam. The professor wants to help the students prepare better so she offers to show you some of the test items from an upcoming exam to "help" you prepare the students.

    a. *How do you react at that moment when talking with the professor?*

    b. *Do you use the information to prepare a mock exam using those test items?*

3. The course that PAL is offered with has a new professor teaching it. The professor is still trying to understand the PAL program and asks you to provide the times and locations of the sessions so he can attend one of them.

    a. *What might happen if the professor attended the PAL session?*

    b. *What other ways could the information wanted by the professor be provided?*

4. During the PAL session, one of the students shares that the professor said PAL sessions are just for people who will flunk out if they do not go. The faculty member tells other students to avoid PAL if they are doing well in class.

> a. *Who do you talk with to confirm this information?*
>
> b. *What should you say in response to the student who repeated the professor's statement?*

5. You are attending some or all the class sessions to take lecture notes. The professor sees you in the class and asks you to help pass out handouts, collect quizzes, and other activities that perhaps a teaching assistant might do.

> a. *Which of these activities might be acceptable for a PAL facilitator to do?*
>
> b. *What if the professor provides the answer key and asks you to grade the multiple-choice questions?*

6. After several weeks into the academic term not very many students are attending the voluntary PAL sessions. You attend the class session with the intent to make a short announcement about the upcoming PAL sessions times and location. You ask the professor for permission just before the lecture is to begin. She responds that these announcements cannot be made during class since there is not enough time.

> a. *What can you do as an alternative for promoting attendance at the PAL sessions?*
>
> b. *How could have this conversation with the professor turned out differently?*

7. While meeting with the professor to discuss upcoming PAL sessions, the professor asks for the attendance sheets for students attending the voluntary PAL sessions. He is concerned that the students was scored low on the first exam are not showing up for the PAL sessions and wants to check if they need to be contacted by him to encourage their attendance.

> a. *Why might this not be a good thing to do for the PAL program?*
>
> b. *How could have this conversation with the professor turned out differently?*

8. During your first meeting with the professor for the course she asks that copies of handouts, worksheets, and other items are shared with them prior to use.

     a. How could you provide the materials to the professor through an alternative method?

9. The results of the second exam suggest that students do not understand some of the major concepts presented during the class lectures. The professor asks for feedback about academic content related difficulties the students are experiencing during the PAL sessions.

     a. How would you provide this information to the professor?

     b. How would you share this without providing a critique or judgment about the professor and their teaching style?

     c. How might you involve the PAL administrator with thinking about this request?

10. (Lauren, PAL Facilitator). "There were also times that I was frustrated with the teacher 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" (Walker, 2010, pp. 4-5).

     a. How do you deal with the students who are frustrated with the style of the course instructor?

     b. Why would it be important to remind the students about the purpose of the PAL program and its limits?

11. Dorothy, PAL Facilitator). "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" (Walker, 2010, pg. 6).

     a. What decision(s) could have the PAL facilitator made to avoid the TA discussion all together?

     b. How would you describe for the PAL participants the difference between TA and PAL sessions?

12. (Michelle, PAL Facilitator).   "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! There are things that I can bring forward. I have skills that I felt like 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 because of _____" or "This one is hard." All I could say was that he told me to do it. It wasn't like I could say, "Well, I wanted you to learn this concept from this problem." There wasn't anything I felt strongly about" (Walker, 2010, pg. 24).

   a. *How could the PAL administrator help with this situation?*

   b. *How does the professor's request change the PAL program format?*

13. (Ahn, PAL Facilitator). In one of my PAL sessions, the TA came on the first day. I wrote some problems on the board, and he came up to me and asked, "Are you an undergraduate TA?" He said it like he was in a supervisor role, but I didn't react to that. 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 session that week – right while we were doing the activity, interrupting the time that the students work together. He should've come to me first – 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. "How did you do that?" and "Oh, I get that." Then the TA would come and call a name or just walk through and hand out homework. Students would look up and not pay attention to their work. One time, the TA asked a student in my session, "Why weren't you in my class? You come to this session and not mine." He implied something like that, and the student didn't know how to respond" (Walker, 2010, pg. 113).

   a. *How could the PAL administrator help with this situation?*

   b. *Where is the best place for the PAL facilitator and the teaching assistant to have conversations?*

   c. *How could a periodic meeting between the PAL facilitator and the teaching assistant help both with their work with the students?*

Image courtesy from the PAL Program at the University of Minnesota

Scenarios of Possible Interactions
Communications and Relationships of the PAL Facilitator Inside PAL Sessions
What is your choice and what principle(s) guide your decision?

The following possible interactions are with PAL facilitators and the people they work with. What would you do in these situations? The goal is to not only identify the better choice, but also identify a principle that can help guide other possibilities. If the first name of the PAL facilitator is provided with scenario, they come from the actual events that occurred with the peer learning program at the University of Minnesota. First names of the PAL participants mentioned in the scenarios are noted with an asterisk (*) and are a pseudonym to protect their identity.

1. (Jeanna, PAL Facilitator). "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" (Walker, 3020, pg. 13).

    a. *What are the positives and negatives about handing out this personal information?*

    b. *Why would making the PAL facilitator more of a "peer" be better? Or worse?*

2. (Melissa, PAL Facilitator). "When you go into the PAL 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 always say in my introduction to a PAL session, "Hey guys, how's it going? How was your weekend? " (Walker, 2010, pg. 18).

    a. *How do you think the PAL participants will react with questions about their personal lives?*

    b. *What is the positive outcome of starting the PAL session with these kinds of questions?*

    c. *How do professors handle asking these kinds of questions of students?*

    d. *What are the boundaries for questions of this kind?*

3. (Mandy, PAL Facilitator). "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. Whenever they'd get talking about what they did over the weekend, they'd go into details and wouldn't censor what they were saying like they would have if a "teacher" was around. 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" (Walker, 2010, pg. 21).

a. *How could have this conversation been stopped before it even got started?*

b. *How do you separate being the PAL participants from relating to as a friend rather than an instructional staff member?*

4. (Amanda, PAL Facilitator). "My biggest problem with Steven* 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. I mean, he would snort Pixy Stix while in the session, and I couldn't quite believe he was a real person" (Walker, 2010, pg. 44).

a. *How could boundaries been set on the first day of the PAL session for class discussions?*

b. *How could the students in the PAL session help to establish the rules along with the PAL facilitator?*

c. *Would a one-page PAL session "syllabus" that contained the class guidelines and boundaries be helpful to hand out after establishing rules on the first day?*

d. *Do you think Steven's comments will eventually become more on topic throughout the academic term?*

e. *How will others students in the student react if no action is taken with Steven?*

Image courtesy from the digital archives at the University of Minnesota

Scenarios of Possible Interactions
Communications and Relationships of PAL Facilitator Outside of PAL Sessions
What is your choice and what principle(s) guide your decision?

The following possible interactions are with PAL facilitators and the people they work with. What would you do in these situations? The goal is to not only identify the better choice, but also identify a principle that can help guide other possibilities. If the first name of the PAL facilitator is provided with scenario, they come from the actual events that occurred with the peer learning program at the University of Minnesota. First names of the PAL participants mentioned in the scenarios are noted with an asterisk (*) and are a pseudonym to protect their identity.

> (Mandy, PAL Facilitator). *"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; students who are drunk should never run into their teachers because it takes away from the professional level. 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 addressed that I'm his teacher and told all of his friends. Whether it's me sitting on the step or me being at the bar, both situations are uncomfortable. If nobody was paying me to do this, I wouldn't care at all. I'd be fine with it. But the fact that I represent the U of M, that it's my job and I'm getting paid, I shouldn't be in situations like that. I should do whatever it takes to avoid them. That's hard when you and your students are both undergrads. If I were to see my students at the gym or out playing a sport, that would be awesome. I would feel like we're on the same peer level; it'd be what PAL strives for. But the situation was inappropriate"* (Walker, 2010, pg. 17).

1. (Erin, PAL Facilitator). "After about three or four weeks and after the first exam, Susan* 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 almost immediately. It wasn't hysterically, but she explained how she didn't do well on the first test. She'd been attending all of the PAL sessions, but with another class that summer, she didn't feel like she had time to do all the studying that it required. At that point, it was nearly too late for her to drop the class or 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, and I was in a rush. She was in this quandary of, "Do I drop the class now, or do I keep trying and risk the chance of failing it and having to take it over again?" She also wanted me to tutor her and said that her parents were willing to pay for a tutor. I'd seen her at all the sessions so far, and I told her that I thought if she was conscious of her situation now and knew what kind of work she had to put in, she should keep going with the class. Even if she didn't get an A – if the goal was to

just pass the class – I thought she could do that since we still had two-thirds of it left" (Walker, 2010, pg. 16).

    a. Does your answer change if the student is the same or different gender than you?

    b. Do you have boundaries on where the tutoring would occur?

    c. Do you think you need to check-in with your PAL administrator about the tutoring? Especially if supplemental pay is involved?

    d. What other campus resources could have you referred Susan to take advantage, whether or not you decided to work with her after class?

2. (Kelley, PAL Facilitator). "One semester I had two very different PAL sessions. One was, I'm not going to say smarter, but very 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. I got in the habit of helping students who stayed, and pretty soon, it was half the group. It turned into a 90-minute session instead of a 50-minute one. They weren't asking about homework; they just didn't know how to do the worksheet, so we were staying longer to do that" (Walker, 2010, pg. 116).

    a. How could have this situation been avoided before it began?

    b. What other campus resources could have the students been directed to if the PAL sessions were not sufficient for their academic needs?

3. (Shannon, PAL Facilitator). "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 where I had a lot of friends. I ended up going to one of their date parties for whatever reason, and somehow, I ended up being set up to go with my student! I tried to explain to my friend, saying, "I can't do that! I can't go," but my friend was like, "It'll be fine. He has other friends there; he just needs somebody for a date." We were friendly by then – I had seen my student a couple of times when I was hanging out at the fraternity with my friends. So it wasn't uncomfortable that we had gone together, but then later in the night, he proceeded to get all pouty. I said to him, "What is your deal? You're supposed to be having fun here." He told me he was so confused because he really liked me, but he loved his girlfriend, on and on and on!" (Walker, 2010, pg. 110).

    a. What was the first stop sign the PAL facilitator ran through in this story?

    b. How could boundaries established by the PAL program have helped this situation?

Attracting Attendance at Voluntary PAL Sessions

For PAL courses where attendance is voluntary, the issue of session attendance will be a continuing issue. A variety of factors can influence the participation rates: academic difficulty perception by enrolled students, percent of students from previous academic terms receiving D and F final course grades and withdrawals, class size, knowledge-level of the PAL program by other students, percent of students living on or near the campus, percent of full-time/part-time students.

While the historic participation rate at many colleges that have implemented a voluntary PAL program has been around one-third of students within the class, there could be wide variances within individual courses. Also, another issue is the number of times that students choose to attend the PAL program. It is important not only to have high total participation rates -- students attending at least one session -- but also that they come regularly. Research suggests that there is a positive relationship between increased PAL program session attendance and higher final course grades.

An exception to this finding is for students who attend 20 or more times per academic term. Research suggests that these students generally would have dropped the course, but persist to the end of the academic term and earn grades of C. With non-math/science majors taking college algebra, occasionally these students may be satisfied with a grade of D since this may be a passing grade for these majors. It appears that these students work hard enough to get the grade they need in this course and then devote their energies to other courses.

Getting off to a good start on the first day. The PAL facilitator delivers a well-planned and rehearsed first day announcement to the students in the course. While the presentation may be short -- ten minutes -- it will establish the credibility of the PAL facilitator and the program in the minds of the enrolled students. Using data from previous academic terms, it is helpful to report the positive difference in grades for PAL program participants compared with the non-participants. If this is the first time that PAL will be offered in connection with this course, use data from other courses. If this is the first time that PAL has ever been offered on campus, use data from the data base maintained national PAL programs such as Supplemental Instruction at the University of Missouri-Kansas City (http://www.umkc.edu/ASM/si/index.shtml). It is critical that the first-day presentation goes very well. The PAL facilitator ought to have an outline of the speech on large note cards that they hold as they deliver their short talk. Many SI programs report that also having a one-page overview handout that contains many points made during the presentation is very helpful. A few programs have even developed a short three to five minute video tape with former PAL participant testimonials to help make this first-day presentation even more effective. It might be possible to do a mock PAL session that lasts five minutes or so in the class with the instructor's permission.

Suggested topics for the PAL overview talk with the students during class include: what is PAL, why this class has PAL, how PAL works, why PAL works, research on outcomes of C:A attendance (using data from the campus as well as the national PAL data studies), who should attend PAL sessions, what PAL can and cannot do, how often students should attend PAL sessions, what happens during PAL sessions, among other possible topics and issues.

Suggestions from other PAL programs. The following suggestions have been contributed by staff from the PAL network from across the globe. The PAL administrator should discuss these strategies with the course instructor ahead of time. Sometimes the course instructor will need to spend additional time or give permission for the activities to occur. The UMKC program uses many of these strategies. Feel free to contribute successful strategies that you develop at your institution. Please send so they can be included with future editions of this workbook. (suggestions to David Arendale, arendale@umn.edu.)

Activities before the beginning of the academic term by the PAL administrator:

1.   Give announcements about the PAL program during new student orientation programs. Include information in orientation print literature. This develops an awareness of PAL and they will be more receptive to the first-day announcement given in courses that have PAL.

2.   Give announcements about the PAL program during parent orientation programs. They can advocate students to attend PAL sessions during telephone calls during the academic term, especially if students mention challenges with the academic course material.

3.   Be sure that all academic advisors are aware of the PAL courses so they can encourage students to enroll in their courses. Provide a schedule of courses that will have PAL support for the academic term.

4.   Provide information in the course listing registration booklet concerning the PAL-supported courses and basic information about the program.

5.   Some PAL programs report that they preschedule one PAL session meeting time for these courses and list this information in the registration booklet. This gives students an opportunity to schedule their other courses around the PAL meeting time. Often the prescheduled PAL session time is just before or after the course lectures. These times are historically popular with students. The rest of the PAL session times would be scheduled after enrolled students completed the PAL survey on the first day of class.

6.   Gain the support of academic tutors, student lab assistants, lab instructors, recitation leaders, graduate teaching assistants, and others to encourage students to attend PAL sessions. Work with them to differentiate the service available through PAL sessions and how it complements and enhances the services provided by the others.

7.   Establish an Internet web page that provides information about the PAL program. This can provide times and places for PAL sessions, a forum for on-line chat room PAL sessions, descriptive material about PAL, and a location for interested PAL facilitators to post information about the course (e.g., handouts, test questions predicted).

Activities by the course instructor during the academic term:

1.   To encourage attendance, ask the course instructor to prepare mock examination questions and announce to the students that these worksheets -- while available to everyone in the course -- will only be discussed during the PAL

sessions. Make copies of the mock examination available in the back of the classroom.

2. The course instructor could post one difficult problem or concept on the blackboard in class and state that this will be discussed during PAL this week.

3. The course instructor regularly gives verbal encouragement for all students in the course to attend PAL. It is critical that the instructor not just invites students who are receiving poor grades. If the reputation for PAL develops that it is only for poor students, students will not come to avoid the remedial stigma.

4. Let it be known that the mock examinations developed by the PAL facilitator have been reviewed by the course instructor and reflect the types of questions to be expected on the upcoming examination.

5. The instructor could attach a small handout or bookmark to all exam papers to encourage everyone to attend PAL sessions. The PAL Administrator should work with the instructor to design and copy the materials.

6. The instructor could select one or more of the quality examination questions predicted during PAL sessions by the participants to be used on the upcoming examination.

Activities by the PAL facilitator during the academic term:

1. The first day PAL handout should include a comparison of final course grades for PAL and non-PAL participants from previous academic terms for this or similar courses. This handout could be updated throughout the academic term with comparisons of the groups on unit exams.

2. During the second week of class, distribute a quarter page handout that summarizes PAL. This can help inform the students who have recently added the course.

3. In PAL sessions, especially during the first two weeks, the PAL facilitator should reiterate how PAL sessions work, the role of the students, and role of the PAL facilitator. As the number of returnees increase, the announcements may be briefer. If new PAL participants attend, the PAL Facilitator should share this information briefly again. This helps to reduce unrealistic expectations about PAL sessions that might lead to some discontinuing attendance at further sessions.

4. PAL facilitators frequently create a worksheet for PAL sessions. It could be an empty matrix box, sample problems, etc. The students in the PAL sessions create the information to put in the worksheet. This is especially helpful in problem-solving courses (e.g., math, science). PAL participants report that they like to have a tangible "take-away" from the PAL sessions. This helps to fulfill that perceived need.

5. Throughout the academic term the PAL facilitator could distribute reminder handouts to encourage attendance and remind students of the meeting times/locations. These could also give the differences in mean test scores for the PAL and non-PAL participants.

6. Report the number/percent of examination questions (objective or essay) covered during the PAL sessions to the entire class.

7. Include quotations from past PAL participants on how PAL helped them in promotion handouts.

8. Write the PAL schedule on a corner of the black board before every class session.

9. At the end of each PAL session, remind participants of the next PAL session time and location.

10. As PAL facilitators sit in different locations throughout the room over the academic term, they could take the initiative to invite personally students to attend the PAL sessions.

11. PAL facilitators could announce in class that relevant study strategies will be emphasized at strategic times during the academic term, for example, test taking skills before a major examination.

12. When permissible, use old unit tests in PAL sessions to help students formulate possible test questions for upcoming exams.

13. Provide book marks for the students in the class throughout the academic term. The book marks should include the PAL schedule.

14. PAL facilitators should sit in different places in the classroom to meet new students and be more accessible for questions about the PAL program. This also allows the PAL facilitator to model good lecture note taking strategies for more students in the class who may observe him or her during the class.

15. With the instructor's permission, the PAL facilitator could place a difficult problem or concept on the blackboard and announce to the class that it will be discussed during the next PAL session.

16. Copies of handouts and mock exams could be made available during class. The PAL facilitator could explain that these are samples of the types of activities that are accomplished during PAL sessions.

17. Create large posters to put on bulletin boards in the classroom and place some in the hallways outside the classroom to remind students of PAL benefits, PAL session times, and PAL session locations.

Activities by the PAL administrator during the academic term:

1. After the first major examination, the PAL administrator gathers test scores and prepares a one-page report concerning PAL vs. non-PAL test differences to include: test score mean, A and B percent rate, and the D, F or course withdrawal rate. The PAL facilitator distributes this handout to the students.

2. If attendance is very low, have the PAL administrator meet with the class for the last five minutes of a class session. During this time the course instructor leaves the room and the PAL administrator solicits comments from the students on reasons for low attendance. The PAL administrator informs the class that if attendance does not improve the PAL sessions will be canceled.

3. With permission from the bookstore director, place an informational bookmark about the PAL program inside the textbook.

4. Resurvey the class to see if the initial assignment of PAL sessions is still the best times for the class.

5. If the class has graduate teaching assistants, student lab assistants or the like, solicit their assistance in encouraging student attendance.

6. Create a PAL awareness video of three to five minutes to play during the first or second class period of the course. Include comments from former PAL participants.

7. If PAL is offered in several courses each academic term, place an advertisement in the student newspaper listing the PAL schedule. Also, include a short description of PAL or provide comments from PAL participants.

8. If the PAL sessions have not been viewed recently, observe several PAL sessions. While not a pleasant thought to consider, the students may be "voting with their feet" and are not attending the PAL sessions because of something that the PAL facilitator is doing. With the intense time pressures facing many students, they will make quick judgments regarding the value of the PAL sessions. These students will express their views to others enrolled in the course. Research with customer service reveals that when a person has a bad experience, they tell their friends about the incident. Then these people will tell others. Research suggests that each incident of bad service is shared with ninety-seven other people. This reinforces the need for clinical supervision of the PAL program. Is the PAL administrator attending the first six PAL sessions for the academic term? Is the PAL administrator spot checking every week or two throughout the rest of the term?

9. Meet with the faculty member once or twice during the academic term. The more clearly the instructor understand the PAL model, the easier it is for them to see it as something that is worthy of their time and support. They will be more likely to say positive things about the program in class.

10. Ask for a few minutes to share about the PAL program during an academic department meeting. This provides a public forum to answer questions, address concerns, and build more support from the academic department.

11. Post meeting times for the PAL program in the campus newspaper. This helps to build public awareness for the PAL program.

Activities after the academic term:

1. Review the original criteria for selecting this course. Sometimes the reason for low attendance is that students do not perceive this course as difficult. Check to see if about 30 percent or more of the students are receiving final course grades of D and F or are withdrawing from the course. If the general impression by enrolled students is that most students receive passing grades, even academically under prepared students may think that they may survive the course since nearly everyone else is passing. While the course may be perceived to be difficult by faculty members, academic advisers, or department

chair persons, the most important perception is the one held by the students enrolled in the course. Although the 30 percent D/F/W guideline is not mandatory for success in all courses where PAL is offered -- perhaps PAL is being offered for only a subpopulation of students in the course -- this guideline has often identified courses that enrolled students would also identify as historically difficult for any student who is in the course.

2.   If the class has graduate teaching assistants, student lab assistants or the like, see if students attended their sessions instead of attending PAL sessions. These individuals may be offering activities that look similar to PAL sessions. If they do -- which is a pleasant compliment -- you may need to discontinue PAL in this course due to duplication of service. When given a choice, students may go to graduate teaching assistants instead of PAL sessions -- especially if the GTAs also serve as graders for the course instructor.

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Summary
Overview of PAL Program

Being a PAL facilitator is so much more than being a group tutor. Remember the boundaries that have been established by the PAL program to help navigate the wide variety of people with whom you interact. These experiences lead to incredible opportunities for personal and professional growth. You are part of an international program that has been established in nearly 50 countries and 2,000 colleges.

Image courtesy from the digital archives at the University of Minnesota

Principle One	
Theory Guides Effective PAL Learning Activities	

1. Educational theory guides effective PAL learning activities.	A. Affective domain issues impact student learning as much as those in the cognitive domain.
	B. Self-regulated learning behaviors are critical for students so they adapt their learning activities to meet the specific requirements of the academic task.
	C. Educational theories make sense and organize the wide variety of PAL learning activities necessary to attain academic achievement and mastery learning.

One of the academic challenges students face is selecting the appropriate study strategy to fit the requirements of the learning situation. Each course and class instructor present different challenges for the student. This requires students to thinking strategically about the class and be able to self-monitor themselves whether their study plan is working and whether changes need to be made. A term used to describe this proactive approach is the "self-regulated learner" (Weinstein and Stone, 1993).

The PAL program offers hundreds of activities and choices for the PAL facilitator. Educational theories can help in the selection process as to which educational activity fits the needs of the students attending the PAL session. Remembering the principles of some of the most important educational theories can help guide us to make the right decisions.

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Affective Domain Issues Impact Student Learning

One of the difficulties with advocating that students take such a proactive approach is the students' view of themselves. Many students believe that they are relatively helpless regarding academic performance. A term associated with this issue is "*locus of control*" or "*attribution of efforts with results.*" Which makes the difference, the student's inner power or the external forces acting upon them? A more extreme attitude to this is viewing the academic world as a lottery. These students too often see little relationship between the effort they expend in school and the grades that they receive. Students buy their weekly lottery ticket (*e.g., show up for class, read the textbook once, take some modicum of lecture notes, study a few hours before the exam*) and hope for the best. Sometimes the strategy works and they win, receiving a passing grade. Sometimes they lose. But they do not believe that spending a lot of effort really makes a difference.

Another affective domain issue impacting student achievement is the type of motivation that drives them for higher grades. The more technical term for this is "*goal orientation*." Do they strive for higher achievement because they want to (internal) or are they trying to please others such as parents or other significant people in their lives (external). The research is clear that most college students are not able to sustain high grade achievement as they are externally oriented. Success in college requires a personal commitment to the goal and not attempting to satisfy the aspirations of others.

The Self-Regulated Learner

According to research from Weinstein and Stone (1993, pp. 1-2), there are major variables that separate expert and novice learners: experts know more; knowledge held by experts is better organized and more integrated; experts have more effective and more efficient strategies for accessing and using their knowledge; experts seems to have different motivations for acquiring and using their knowledge; experts evidence more self-regulation in both the acquisition and application of their expertise. They continue by stating that four kinds of knowledge are needed by expert learners: knowledge about themselves as learners *(e.g., their cognitive characteristics)*; knowledge about the cognitive demands of the academic tasks; knowledge of a wide variety of strategies and study skills; and prior knowledge of the content material (pp. 3-5). They conclude by sharing essential steps to establish executive control in studying: create a study plan and revise it on the basis of personal feedback and grades received throughout the academic term; select the specific strategies or methods they will use to achieve their goals; implement the methods they have selected to carry out their plan; monitor and evaluate their progress on both a formative and summative basis. If students are not reaching their goals, they must modify what they are doing; make an overall evaluation of what was done and decide if this is the best way to go about meeting similar goals in the future (pp. 10-11).

Information Processing Model of Learning

A classic model for explaining the way that many students effectively learn material is called the "*Information Processing Model*" (Dembo, 1998). It is based on making the analogy that most people learn as computers would: information is inputted, analyzed, and then can be used for a task. Information must first be received, then entered into short-term memory, moved into long-term memory, and finally recalled for use with a task (*e.g., completing examination questions*). While somewhat mechanical, it provides a basic framework to add newer theories of learning that are more sensitive to affective and cognitive learning preferences that attend to individual differences of gender and culture. These are powerful issues that have an important impact upon student achievement.

Information Processing Model
Dembo, ***Applying Education Psychology in the Classroom***

Stimuli (Input) ➔ **Short-Term Sensory Store** ➔ **Short-Term Memory   Working Memory** ➔ **Response (Output)**

↕   ↕

Long-Term Memory
Contains Permanent Knowledge
(Procedural and Declarative)
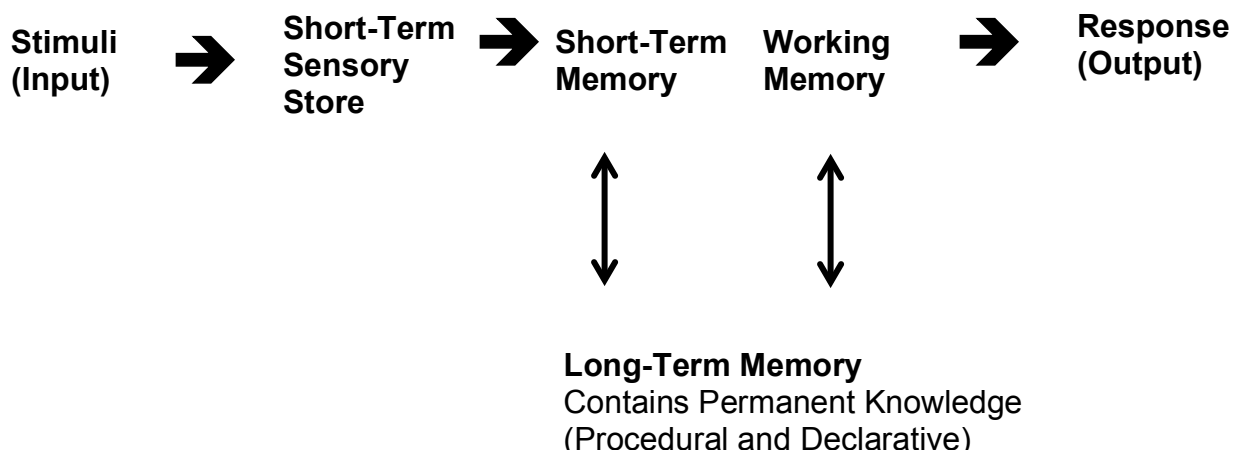
The following outline provides suggestions of study strategies that students can employ. Some of these strategies can be done alone, other work best in small groups. The strategies have been broken down into the categories defined by the Information Processing Model. The key to student success is the constant process of monitoring themselves regarding comprehension of the material. The final section provides some suggestions for this process.

I. Improve Short-Term Sensory Store or Sensory Register (*Activities to increase initial awareness of new information*.)

- Watch for verbal and visual cues from instructor regarding importance of different pieces of information presented during the lecture.
- Move to front of class to hear clearly and to see charts, graphs, and board work.
- Arrive early to class and pay attention to instructor's comments during the first minutes at beginning of class and during the final minute when many students have already stopped taking notes and preparing to depart the class.
- Preread textbook chapter and study new vocabulary words to increase receptivity to newly presented lecture information.

- Study the course syllabus to identify major concepts, schedule of upcoming topics, and other course-related information.
- Experiment with new ways to improve original lecture note taking (*e.g., mind maps, Cornell method*).

II. Methods to Improve Short-Term and Long-Term Memory by effective use of Learning Strategies

A. Improving Short-Term Memory of New Material

1). Recitation Strategies (*Reinforce content material just exposed to by repeating it*)
- In a group with other students take turns reading lecture notes aloud so that others can contribute missing material and to discover the need to improve their note taking approach since they are missing material.
- Throughout the day review new material from the class. Write material on note cards to more easily memorize information
- Use mnemonic devices to increase memorization of new material.
- Use abbreviations while taking lecture notes to save time and keep up with both the lecture and visual images on the board by the instructor.
- Employ specific strategies when reading textbook material the first time (*e.g., SQ3R, reading with purpose, integration of lecture notes with textbook*)
- Mark and underline key concepts in the textbook.
- Keep list of new words and concepts and look up in textbook glossary.
- Recopy lecture notes quickly after class is over to increase memorization of material.

B. Improving Long-Term Memory of New Material

1). Elaboration (*Taking new material and extending it*)
Create analogies with new information linking it with material already learned.
Review lecture and textbook material by paraphrasing, applying, and integrating it with other material.

2). Organization (*Take new material and reorganize it into meaningful ways*)
- Create visual matrix to reorganize material into logical categories.
- Draw concept maps or continuum lines to show relationships among concepts.
- Create time lines to display sequences of events.
- Identify steps for solving problems (*e.g., identifying needed formulas for solving problems, identifying the steps to solve*)

III. Comprehension-Monitoring Strategies
- Approach each class as a unique learning experience and carefully employ the specific learning strategies required for the academic task. This will probably require frequent changes and modifications throughout the academic term.
- Create a time management plan to guide studying for each course. Then monitor results from examinations to assess changes to the schedule.

- Create practice exams to simulate what they will experience in class. Many textbooks have study questions at the beginning or end of the chapter. Part of the SQ3R reading strategy and the Cornell note-taking method is self-testing the material built into them.
- Provide informal quizzes where students can test one another regarding content comprehension before major exams.
- Conduct a post-exam survey after each major examination where students can discover relationships between the assigned grade and behavior of the student (*e.g., amount of time studied, amount of text book reading, types of questions difficult to answer on exam*).
- Take advantage of counseling and testing services on campus to discover more about the student (*e.g., academic content testing, student motivation, learning preferences*). This can provide valuable information for the student to consider about their strengths and weaknesses.

Conclusion

The Information Processing Model provides a basic framework for a student to develop a more effective plan for achieving their academic goals in college. The articles listed below suggest other learning strategies that have found helpful. The most important concept that underlies this approach to learning is that students have significant control over their academic achievement.

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Summary of Principle One
Theory Guides Effective PAL Learning Activities

A basic understanding of educational theories help make sense out of the recommended learning activities within PAL sessions. While some of these activities may not have been used by you to earn high grades, other students not as academically experienced and skilled need to do them. We need for students to have a wide range of skills to be effective as study group partners and also be successful when working by themselves.

Image courtesy from the digital archives at the University of Minnesota

Principle Two
Express Multicultural Competency in PAL Activities

2. Express multicultural competency by the PAL facilitator in PAL activities.	A. PAL facilitator understands his/her own culture. B. Understands culture as a set of overlapping and sometimes conflicting sets of identities. C. Improves active listening skills and is sensitive for the impact of culture on the communication process. D. Employs a wide variety of culturally-sensitive activities within the PAL sessions.

Defining Multicultural Competency
Multicultural competency encompasses a wide skill set for an individual. It includes:
1. Self-awareness of the PAL facilitator's assumptions, biases, and (mis)understandings of their own and other peoples' cultural identities.
2. Skills in communicating effectively with others.
3. Proactive steps taken by the PAL facilitator to improve the learning environment for people of different cultural backgrounds.

Understanding Ourselves
The first step in effective communications with others is understanding ourselves first. Divide your fellow PAL facilitators group into pairs or dyads. Answer the following questions and then discuss them with your fellow PAL facilitators.

1. *How would you define the word culture?*

2. *What is your cultural heritage?*

3. *Is your cultural heritage similar to your personal identity? Can you have more than one identity? If we have more than one identify, how do we deal with them as they overlap or conflict with one another?*

4. *Pause for a minute and recall a time when you made a cultural assumption about someone else. What assumption was made? What effect did it have on the situation?*

5. *Now, recall a time when someone else made an assumption about you based on their perception of your culture. What assumption was made? What effect did it have on you and on the situation?*

6. *Think back to a time when someone misunderstood something you said perhaps because they were from a different cultural background. What led to the misunderstanding? What lesson(s) did you learn from that interaction?*

7. *Reversing the roles from the previous question, when did you make an assumption or mistake about another person's cultural background that led to miscommunication? What lesson(s) did you learn from that interaction?*

8. *What power and privilege has your cultural background given you? How can you avoid imposition of those values on others and assume everyone is like you?*

9. *What are your most effective interpersonal communication skills? What skills could you work on enhancing?*

Understanding Culture
The definition of culture has evolved significantly recently. Formerly it was considered to be a person's race, ethnicity, national origin, gender, religion, age, and socio-economic status. It has now been expanded to include disability status, political orientation, immigration status, education, geographic location within a country, location in relation to a city (rural, suburban, or urban), time, previous or context of oppression, and other identities (Warrier, n.d.)

A person's cultural identity is composed of a combination of the identity categories listed in the previous paragraph. It is a rich mixture that both provides unity with others and differentiates individuals within overlapping cultural categories. People experience multiple identities simultaneously and probably shift among some identities continuously throughout their lives (Warrier, n.d.).

Stereotypes of culture can have tremendous negative impacts on groups of people. Dr. Claude Steele at Stanford University coined a term to describe this issue called "stereotype threat" (Steele, 1997). This is the "… threat that others' judgments or their own actions will negatively stereotype them in the domain [subpopulations of students at a school]. Research shows that this threat dramatically depresses the standardized test performance of women and African Americans who are in the academic vanguard of their groups…that it causes disidentification with school, and that practices that reduce this threat can reduce these negative effects." (Steele, 1997, pg. 613). Steele's research validated the "…overprediction or underperformance phenomenon…students from one group wind up achieving less--getting lower college grades, for example--than other students with the same beginning [ACT or SAT college admission] scores." (Steele, 1997, pg. 615). This same negative consequence occurred for historically-underrepresented students from high socio-economic backgrounds and the social capital of being second- or third-generation from their families going to college.

At the University of California-Berkeley Dr. Uri Treisman developed a program that eventually to be commonly called the "Emerging Scholars Program" (Treisman, 1986). The program was designed to support African-Americans who were underrepresented among those achieving graduate degrees, especially doctorates, in mathematics. Through careful communications, the students perceived it was an honors program designed for their academic enhancement. A similar approach was taken by Dr. Steele and other colleagues at the University of Michigan. They described their approach as a "transitions program" for historically-underrepresented students with increasing their academic success in college. In both cases, stereotype threat was minimized, a positive learning environment provided, and graduation rates for the underrepresented students soared.

What are the implications of Dr. Steele's research for PAL programs?

1. If you inform a group of students with a common demographic such as an ethnic group (*African Americans enrolled in mathematics*), gender group (*women enrolled in STEM programs*), or recent immigrants (*Somalis enrolled in health science programs*) they are at risk for dropping out, the research by Dr. Steele and others indicates they will be more likely to do so. This is still true if they are as Dr. Steele describes them, "…the academic vanguard of their groups."

2. This is why the strategic positioning of the PAL program within the institution is so important. The public visibility of the program must be perceived as academic enhancement, not as a drop-out prevention program. For academic support programs with voluntary attendance, most students do not want to stigmatize themselves by self-identifying with a program designed for students likely to fail a class or even an entire program of study such as historically-rigorous programs in STEM or elsewhere within the institution.

3. Use of language by the PAL facilitator is critical to how they position the program with the participating students on a weekly basis. The manner in which PAL sessions are conducted, and the choices made by the PAL facilitator as to how they interact with PAL participants, can either enhance participating students' sense of agency and respect or have the opposite effects.

4. The good news is that a growing number of students already have developed cultural competency skills through their lifetime of interacting with others. The purpose of this training unit is to increase PAL facilitator skills and raise awareness of the issues.

First Seek to Understand: Improving 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 most communication mistakes occur because we fail to take into account the other person's culture, feelings, priorities, and needs. He believes the first step in effective communication, especially when there is high emotional energy by one or both of the people in the communication loop, is to display empathy and understanding for the other person.

The communication protocol Dr. Covey developed was initially used in the business world with people in highly emotional and difficult conversations such as contract negotiations and resolving interpersonal disputes. The same protocol can be appropriate within PAL sessions, especially when the people in the conversation are from different cultural backgrounds. In some cultures, public disagreements, even minor ones, are not expressed to avoid the possibility of shame for either the sender or receiver of the feedback. Therefore, the person who does not understand or disagrees may not ask follow-up questions or may nod their heads in agreement. Careful and gentle use of Covey's communication protocol can better ensure the PAL facilitator and participant understand one another.

Covey's Communication Cycle:
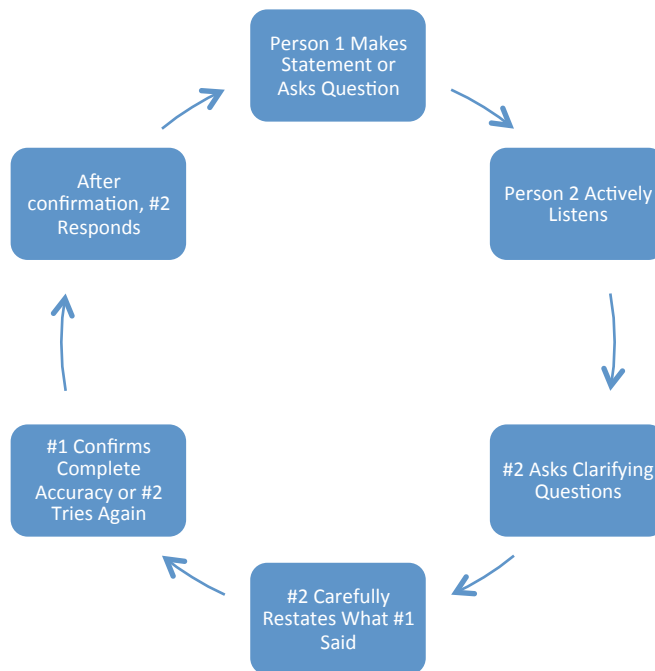
Practice Covey's Communication Cycle.

1. In advance, the PAL facilitator selects a paragraph of academic content for participants to read for this activity.

2. Break PAL facilitators into groups of two or three students.

3. Assign one of the group members as Person #1 and another as Person #2. If additional people in the small group, switch roles until each has participated. The extra people can observe the conversation.

4. Everyone in the group reads the assigned paragraph.

   a. Person #1 asks a question based on the assigned reading.

   b. Person #2 engages in active listening strategies with Person #1. This includes body language that indicates you are focusing on the other person -- such as direct eye contact, active posture, nodding of the head -- indicating listening to them without judging, and not saying anything until Person #1 is completely finished. Another behavior could include taking notes on a writing pad.

   c. After #1 has stopped, pause for a moment, and then #2 asks clarifying questions to be sure complete understanding #1's statement or question.

   d. #2 restates the statement or question in their own words as completely as possible.

   e. #2 asks #1 if their statement is accurately restated.

f. If #1 completely agrees with the completeness and accuracy, #2 proceeds with response. If not, #2 repeats previous steps until #1 is in complete agreement with #2's restatement of what #1 said.

5. At end of this simulation, all participants in either their current small group or in the larger group debrief the activity. Share what they just experienced and also other communication patterns they have observed with other students. While there may be some common communication patterns for students from different cultural backgrounds, be careful avoid stereotyping all members of the community.

6. Share stories of success or challenges in communicating with people from different cultural backgrounds.

Learning Preferences Related to Culture

Another aspect to culture are learning preferences. In the past, researchers thought that students were fairly rigid the ways they could best learn. Contemporary educational researchers now believe that students can be more flexible and can focus on the word "preference" when examining this issue. 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. Following is a table that seeks to categorize the continuum of learning preferences between "field-sensitive, relational/holistic and affective" and "field-independent, analytic, and nonaffective" (Anderson, 1988). In his article Dr. Anderson described the application of a deeper understanding of learning styles or preferences as related to effective education with a multicultural-diverse student population.

This continuum between field dependent and independent learners was developed by Dr. Herman Witkin and his colleagues. Research documented differences in how people perceived discrete items within a surrounding field. People at one end of the extreme, where perception was strongly dominated by the prevailing field, were designated "field-dependent." Field-dependent learners see the forest. Context, emotion, and relationships are important to these learners. At the other extreme, people were considered "field-independent" if they experienced items as more or less separate from the field. Whereas field-dependent people see the forest, field-independent learners see the tree within the forest. They are able to approach learning situations and only focus on the new material without the need to connect it with previous learning or see the bigger context and other information that relates to it and helps to connect emotionally the learner with it. Since scores on learning style tests form a continuous scale, the terms field-dependent and field-independent reflect a tendency, in varying degrees of strength, toward one end of the extreme (field-dependent) or the other (field-independent) (Witkin, Moore, Goodenough, & Cox, 1977).

Table 3
Cognitive Style Comparison

Field-Dependent Relational/Holistic Affective	Field-Independent Analytic Non-Affective
Characteristics	**Characteristics**
1. Perceive elements as a part of a total picture.	1. Perceive elements as discrete from their background.
2. Do best on verbal tasks.	2. Do best on analytic tasks.
3. Learn material which has a human social content and which is characterized by fantasy and humor.	3. Learn material that is inanimate and impersonal more easily.
4. Performance influenced by authorizing figure's expression of confidence or doubt.	4. Performance not greatly affected by the opinions of others.
5. Style conflicts with traditional school environment.	5. Style matches up with most school environments.

Discussion questions prompted by the previous information table:

1. What do you know about your own learning preferences?

2. Where do you see yourself on the continuum between the field-dependent and field-independent learners?

3. How does this model help to understand preferences and needs of students from different cultural groups and identities?

4. How could understanding this continuum impact the ways you organize the PAL sessions and the activities you use?

Culturally Effective Communication
Let's put the pieces together. We began this unit with understanding ourselves and how culture impact our interaction with others. Next we expanded our perception of culture as a mosaic of many different and overlapping identities. We then explored a basic communication model by Dr. Steven Covey to be sure we accurately understand what others are communicating with us and demonstrating that we understand them. Finally, we briefly explored learning preferences and impact on creating an effective learning environment.

You are communicating with individuals, not culture. Beware of assumptions. People are composed of a variety of identities that sometimes overlap and conflict with one another. One definition for 'culturally appropriate communication' is "finding a way to communicate effectively that also respects and accepts cultural differences. It's about discovering, recognizing, understanding, and working effectively within the influences of each other's culture" (Australian Government, n.d.).

Suggestions for Improving Communications within a Group
While the following are helpful with any group of individuals, they are especially important for ideal inter-cultural communications.

1. Create a welcoming learning environment for the PAL participants:

   a. Arrange furniture so that everyone can see one another.

   b. Greet students as they enter the session room.

   c. Develop relationships with each student who attends the session.

   d. Invite all students to be involved during the session.

2. Increase awareness of communication within the group:

   a. Be consistent between your spoken words and your nonverbal messages.

   b. Carefully note your choices of which students you respond to and which students you select for activities or praise (examples: gender, national origin, and ethnicity). When possible, keep a list of PAL participants available and develop a simple coding system to note those who participate, students you call upon, and other behaviors. Watch for patterns in your choices.

   c. Friendly formality may be needed when interacting. Use of colloquial language, jokes, and cultural references may be off putting to people who are unfamiliar with the references and style of communication.

   d. Be aware of non-verbal communication. Depending upon cultural traditions, the same facial expressions, gestures, posture, tone of voice, eye contact (or avoidance), expressions of agreement, and use of silence can mean different things.

   e. Never make assumptions on resources and skills that people possess. For students from some cultures, it is difficult to admit lack of knowledge or share that what the PAL facilitator said did not make sense to them. They may nod their head in agreement or express a positive comment when they actually would feel shame admitting otherwise.

3. Carefully select the materials and activities for the PAL sessions:

   a. Use examples and reading materials that reflect diversity.

   b. Competitive learning games are not preferred by all students. Vary the types of session activities and carefully note student reactions to competitive games. You do not have to eliminate them, but perhaps reserve them for periodic use.

   c. Intellectual engagement does not always require a student to speak aloud. Based on personal culture, some students will be less vocal than others.

   d. Carefully use peer cooperative learning activities to provide smaller learning spaces, which some students may find more comfortable and safer to interact. Some peer learning activities such as "Think-Pair-Share"

are especially helpful as they give individuals time to rehearse privately before publicly speaking.

    e. Create some session activities that require individual action and written responses.

4. Take steps to increase your own cultural competence:

    a. Learn about people from other cultures, formally and informally, regarding common cultural communication and interaction styles.

    b. Attend campus events sponsored by student cultural groups.

    c. If other PAL facilitators observe your sessions, ask them about these issues of cultural competence and if they noticed anything to comment.

5. Build capacity and resources for your PAL participants:

    a. Identify other resources that might be helpful on an individual basis (campus tutoring program, Writing Lab) that might be useful to them if they are less comfortable in group settings.

    b. Validate the student's strengths and help build upon them, regardless of the academic challenges they present.

Scenarios of Possible Interactions
Understanding PAL Participants from Diverse Backgrounds
What is your choice and what principle(s) guide your decision?

The following possible interactions are with PAL facilitators and the people they work with. What would you do in these situations? The goal is to not only identify the better choice, but also identify a principle that can help guide other possibilities. If the first name of the PAL facilitator is provided with the scenario, if comes from actual events that occurred in the peer learning program at the University of Minnesota. First names of the PAL participants mentioned in the scenarios are noted with an asterisk (*) and are a pseudonym to protect their identity.

1. You notice some students who appear to share a common nationality seldom speak in the PAL sessions. They tend to sit together as a small group. Most do not make eye contact with you or raise their hands to ask questions.

    a. *How could you modify the PAL sessions to be more inviting and safe for them to interact?*

    b. *How could you interpret their nonverbal behaviors from their cultural context?*

    c. *If they are quiet, what does their silence indicate to you about whether they are learning?*

d. *How would you approach one of the members of their group to ask if the PAL sessions are meeting their needs and what would encourage more vocal participation?*

2. You notice in the PAL sessions that students appear to be segregating themselves into different demographic groups based on ethnicity and cultural background.

   a. *Is it better to let students sit where they prefer or to reorganize frequently seating arrangements for students so they work in different small groups?*

   b. *If you decide to have students work in different small groups throughout the academic term, when would it be best for that behavior to begin?*

3. You are planning your upcoming PAL session. You are thinking about the questions you may ask during the session and the handouts and work sheets. When thinking about this scenario, consider different academic areas: STEM, humanities, social studies, and the like.

   a. *How do make sure that the materials reflect and respond to the diversity within the PAL session?*

   b. *Should it make any difference if there is not an apparent diversity of students in the session?*

4. You are leading a PAL session for biochemistry that is composed of mostly STEM majors. Everyone is male except for one female.

   a. *How might what you say (or don't say) impact the female?*

   b. *What do you do if one of the male PAL participants tease the female by asking her how it feels to be in a classroom mostly filled with men?*

5. Just before a PAL session in a global history course is set to begin, the students in the session are talking about current events. Someone mentions another suicide bombing attack against U.S. troops by what the media called a Muslim extremist. Another student in the room exclaims their disgust since they have a relative who has been deployed to the country where the incident occurred. He says he hates those Muslims and we ought to leave now. A small group of recent immigrant students who are Muslim are sitting in the session and are silent and they display no visible emotional reaction to the statements by the other students.

   a. *As the PAL facilitator, what do you do at this point?*

   b. *Is there something that could have been done earlier in the academic term that might have had an impact of this conversation?*

   c. *Could a "syllabus" for the PAL sessions have been helpful?*

6. During a PAL session for an ethics course, a discussion occurs about national debate about marriage amendments defining who can be married. Students exclaim their support or opposition to the amendment. One student says that homosexuals can either get with the program or leave the country.

   a. *How can you facilitate an intellectual discussion on a hot topic?*

   b. *What do you do when students take the discussion and turn it into a personal attack? (You do not know the sexual identities of most students in the room.)*

7. Before each PAL session formally begins, students talk about the weekend. One student starts to share a joke that begins with, "A priest, a homosexual, and a Muslim walk into a bar…"

   a. *What do you do as the PAL facilitator?*

   b. *How do you turn this incident into a learning opportunity for everyone in the room?*

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Image courtesy from the digital archives at the University of Minnesota

Summary to Principle Two

Express Multicultural Competency in PAL Activities

The first step of cultural competency is understanding one's own culture with its assumptions and biases. Racism or other "isms" are a part of who we are due to exposure to the surrounding environment. 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. Often these identifies are invisible to 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.

Image courtesy from the PAL Program at the University of Minnesota

Principle Three
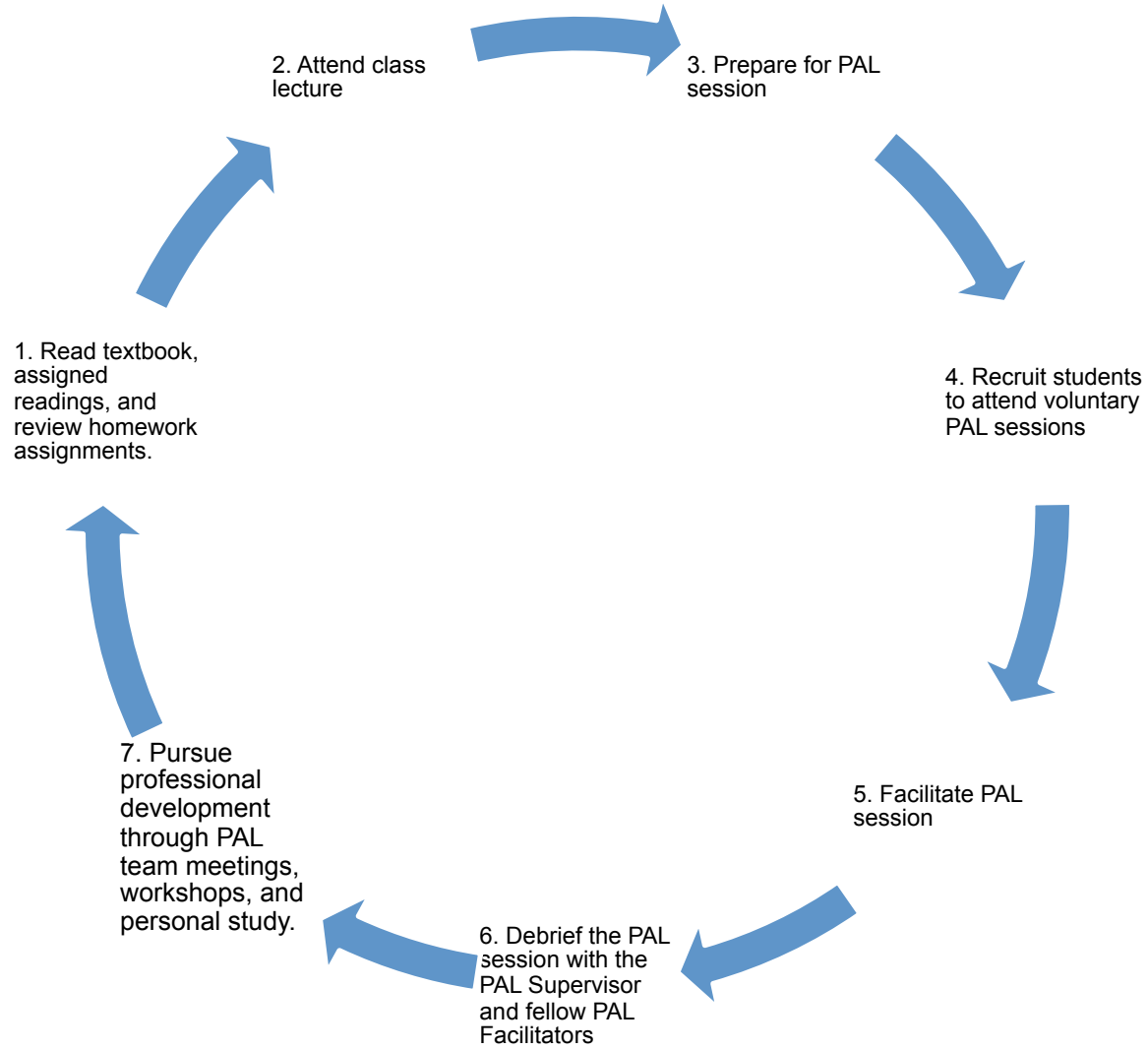## Facilitate a Blend of PAL Session Activities

3. A blend of session activities are employed by PAL facilitator and requested by participants during the session.	A. Understand the PAL session activity cycle and use it as a framework for creating a positive learning environment. B. PAL facilitators develop a flexible session plan ahead of time, with room for participant input so they are part of setting the agenda. C. Be open to coaching and mentoring by the PAL program administrator and fellow PAL facilitators. D. At the beginning of the academic term the PAL facilitator employs ice-breaker activities to help participants develop relationships and learn about each other. E. To vary the learning format of the PAL sessions, appropriately use educational competitions, games, and rewards.

PAL sessions are more effective when the PAL facilitator has carefully considered the needs of the PAL participants. Planning is essential for a higher chance of success when the PAL sessions begin. It helps the PAL facilitator to vary the types of activities that occur during the PAL sessions. It is easy to get into a routine of using activities that have been successful in the past. Having a variety of activities is more enjoyable and will more likely address skills needed for homework assignments and exam preparation.

Involving the PAL session participants in the agenda building is important. As the more experienced student you are more likely to what is necessary to accomplish during the PAL session. Involving the PAL participants in helping to set the agenda helps them to see they have some choice in the agenda, which may help meet their particular needs. Balancing what you know you need to do with participant input is difficult due to the limited time in the session.

Another reason to have a blend of PAL session activities is to model a wide variety of study strategies so students practice using them to prepare for exams. While you may a few favorite learning strategies, it is important to practice a wide array of them since participating students may find others more useful to them. Experiment with using these strategies in your own courses so you can share from practical experience rather than simply saying they ought to use them. If the PAL participants hear you report of success with their use, they are more likely to use them. Ask them to share their own stories of their favorite learning strategies that have been successful for them. This helps shift the responsibility for the PAL session from totally relying upon you to a learning environment where everyone shares and takes responsibility.

Tasks of the PAL Facilitator

2. Attend class lecture

3. Prepare for PAL session

1. Read textbook, assigned readings, and review homework assignments.

4. Recruit students to attend voluntary PAL sessions

7. Pursue professional development through PAL team meetings, workshops, and personal study.

5. Facilitate PAL session

6. Debrief the PAL session with the PAL Supervisor and fellow PAL Facilitators

Tasks of the PAL Facilitator

1. Read textbook, assigned readings, and homework assignments
- Read the textbook and assigned readings before the material is covered during class sessions.
- With the permission of the class instructor, obtain the teacher's guide for the textbook, test bank, and other ancillary support materials.
- Review assigned problems and other homework.

2. Attend all class sessions in the targeted course (*when possible*)
- Exhibit model student behaviors in class (*e.g., attend all class sessions, arrive early, and take new lecture notes*).
- Do not answer questions during class since this may encourage other students to remain silent and inactive.

3. Prepare for PAL session
- Develop preliminary PAL session agenda and plan of action.
- Prepare handouts and worksheets as appropriate.
- Meet with class instructor and PAL staff for help with preparations.

4. Recruit students for the PAL sessions if attendance is down
- Make formal announcement to the students in the first week of class-with instructor's permission.
- Work with the class instructor and the PAL program staff to promote the program (*see separate handout for detailed description of various activities*).
    - Include information on syllabus.

5. Facilitate the PAL session
- Note the difference between instructing and facilitating.
- See following page for detailed discussion of how to facilitate PAL sessions.

6. Debrief the PAL session
- Meet with PAL staff to discuss results of PAL sessions.
- Note difference between the preliminary agenda and action plan and what actually occurred during the PAL session.

7. Participate in professional developmental activities
- Participate in training workshop before beginning of the academic term.
- Attend periodic PAL team meetings and training updates during the academic term.
- Meet with the PAL staff frequently during the academic term.
- Visit other PAL facilitator sessions several times each academic term to gain ideas to implement and provide feedback upon request.

PAL Session Process

2. Prepare room for PAL session

3. Introduce PAL session

4. Facilitate PAL session

5. Modify PAL session agenda as needed

6. Close PAL session

7. Link session to future activities

1. Prepare for PAL session
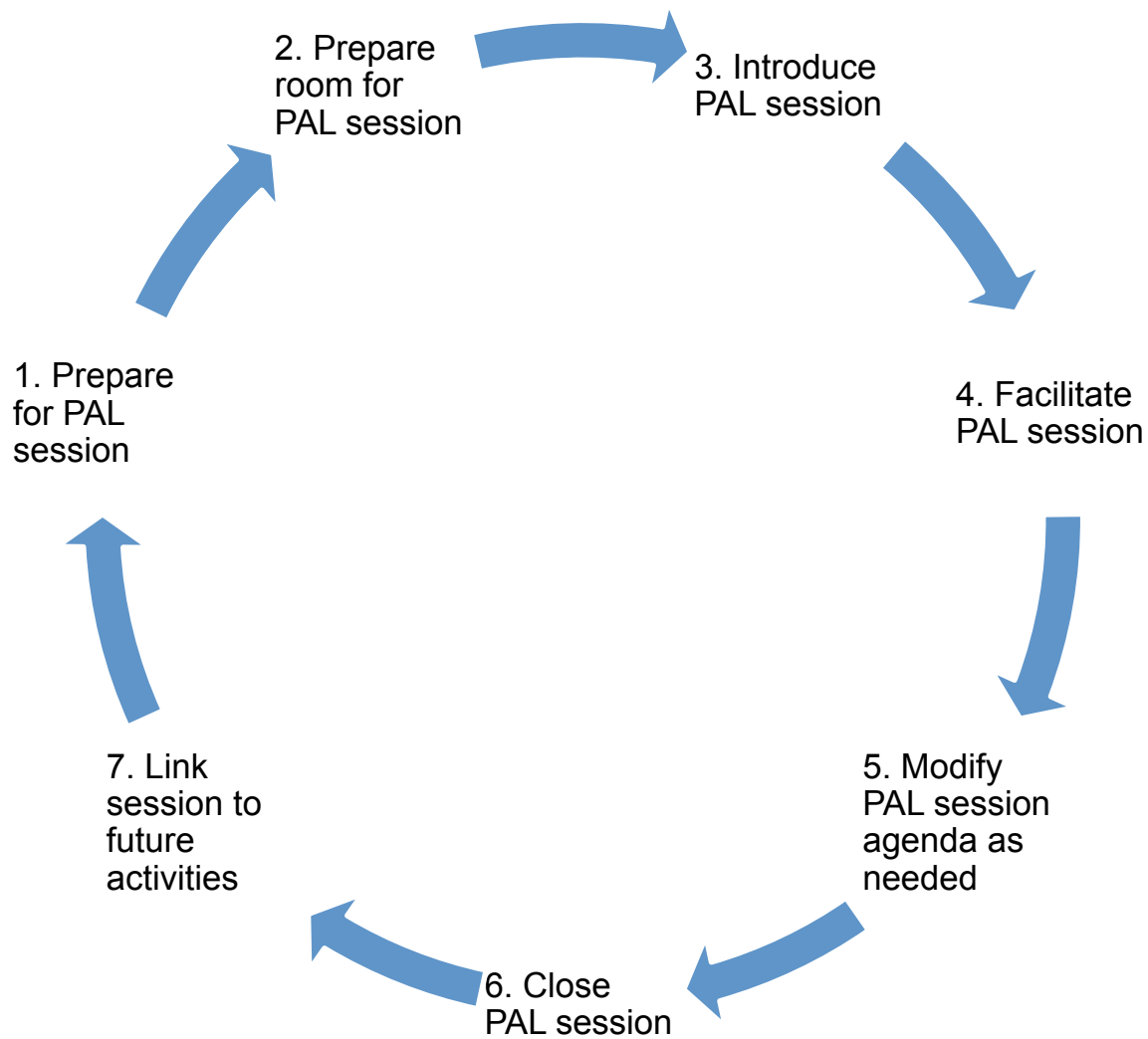
PAL Session Process

1. Prepare for PAL session
- Read the textbook and assigned readings before the material is covered during class sessions. Work through homework problems and assignments.
- With the permission of the class instructor, obtain the teacher's guide for the textbook, test bank, and other ancillary support materials.
- Develop preliminary PAL session agenda and plan of action (see pp. 56-58).
- Prepare handouts and worksheets as appropriate.
- Select most important concepts to review.
- Meet with class instructor and PAL staff for help with preparations.
- Customize PAL sessions for the type of academic content.

2. Prepare the room for the PAL session
- Arrange chairs in a circle, semi-circle, or small groups.
- Have supplies needed to record discussion, to do work on marker board, or to use computer.
- Choose where the facilitator will sit during the session.
    - Don't sit behind the teacher's desk as this creates an impression of you as a teacher and not a session facilitator.
    - Avoid standing in front of the room, especially at the front desk or podium. When possible, sit in the back of the room and circulate among the students.

3. Introduce the PAL session
- Develop a welcoming atmosphere during the session. Make an effort to learn names.
- Remind participants of the purpose of the PAL session and the role of the facilitator. Have a card with a list of key information to share with them.
    - Do this more extensively on the first day of mandatory PAL sessions and continue to provide a quick 30 to 60-second summary at the beginning of every PAL session.
    - For voluntary PAL sessions, provide the same summary for each session since the PAL participants will come and go.
- Develop session agenda in collaboration with students.
- Collect attendance in the session and remind participants that the roster is used by the PAL program staff and not revealed to the course instructor, unless they require it.

4. Facilitate the PAL session
- Facilitate and do not instruct.
- Develop a tentative plan for the upcoming PAL session and uses it as a flexible guide for activities.
- Integrate "*what to learn*" with "*how to learn it.*" Employ a wide variety of learning strategies and study skills during the PAL sessions.
- Redirect questions back to the group. Establish that knowledge authority rests with the group members, group member lecture notes, textbook, and other reference materials rather than solely with you as the facilitator.

- Make connections with what the students are learning (*e.g., previous and current PAL sessions, class sessions, textbook readings*).
- Correctly use the language of the academic discipline.
- Employ peer cooperative learning activities.
- Employ "*wait time*" during group discussions to encourage others to answer questions.
- Use the course syllabus, textbook, and assigned readings frequently during the session activities.
- Support the course instructor when students complain during sessions.
- Monitor facilitator behaviors to avoid those that inhibit group members (*e.g., talking too much, answering questions, standing and talking, sitting behind school desk*).

5. Modify the PAL session agenda as needed
- Watch for "teachable moments" to share and model learning strategies, especially those that you have used and found to help earn higher grades and understand the academic content more deeply.
- Shift to other activities if planned ones are not appropriate or do not work.

6. Close the PAL session
- Summarize what occurred during the PAL session (*e.g., informal quiz, list new key vocabulary words, new methods for solving problems*).
- Help prepare students for upcoming exams (*e.g., predict exam questions*).
- Focus students on the main ideas of the class, PAL session, and/or readings (*e.g., one minute paper on the main point*).
- Provide opportunities for the students to predict: next class lecture topic, exam questions, and important topics in upcoming textbook and reading assignments.
- Refer to syllabus to remind of upcoming academic events and assignments.
- Remind of upcoming schedule and location of PAL sessions.

Image courtesy from the PAL Program at the University of Minnesota

Importance of Developing a Preliminary Plan for the PAL Session

It is important to go into your PAL session with a draft plan you have developed ahead of time. While the participants may be confused about why you have chosen certain activities, you know better about the expectations for the class. This is one of the reasons you are encouraged to meet with the course instructor periodically, keep up with textbook assignments, and work through all problems on worksheets. Elsewhere in this workbook you are also encouraged to ask for input from the participants about things they want to cover as well. However, past experience tells us that students naturally think of you as a teacher who answers questions. Having a plan before you walk in helps to turn the PAL session into a collaboration rather than a solo performance by you. Several sample PAL session planning forms follow.

PAL SESSION PLAN
NAME:
COURSE:
DATE:
What were the main concepts this week?
1.
2.
3.
Which concepts were the most difficult?
1.
2.
3.
What prior knowledge is needed to understand/work with these concepts?
Learning Objectives: What will students be able to do at the end of today's session?
1.
2.
3.
"Warm-up" activity to begin the session?
Closing activity to end the session?
Grouping strategy this week:
Timing – minutes for each Use this if time management is your focus: **OR: jot down additional notes/special considerations for the week**
Warm-up:
Activity:
Presenting/sharing:
Closing:

PAL Session Planning Form

Course Name: _____ **Date of Session**: _____

PAL Facilitator Name: _____ **Course Instructor**: _____

What new skills and knowledge do you want to achieve during the PAL session?

_____

_____

What materials are needed for potential session activities?: _____

_____

Academic Content to be Reviewed	Learning and Study Strategies Employed to Process Content	Cooperative Learning Activity Used
1.		
2.		
3.		
4.		
5.		
6.		
7.		

What strategies will be used to assess student learning in the PAL session?

_____

_____

How will the PAL session be concluded? _____

_____

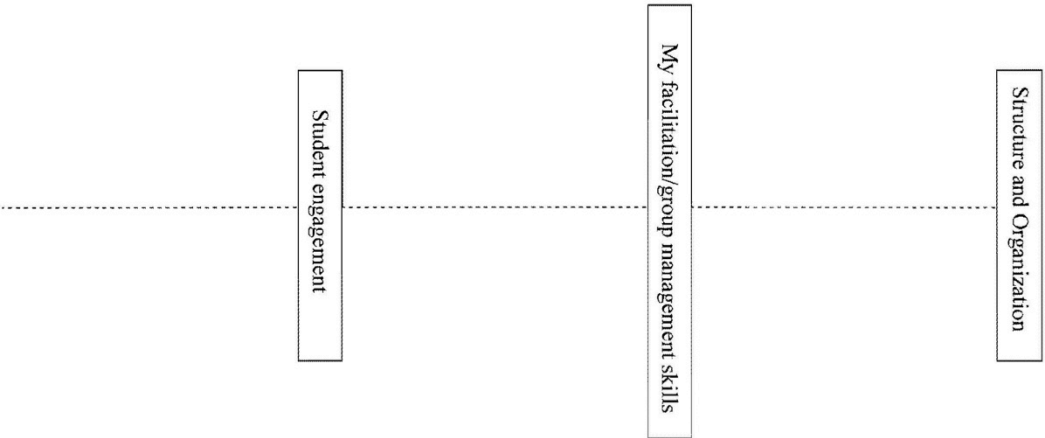# PAL Session Reflection:

Facilitator:

Date: Class /section:

# of participants:

Summary of session: description of the day

Course topics/concepts covered:

Additional factors impacting success of the session and my performance today:

I did this well

Structure and Organization

Needs improvement

My facilitation/group management skills

Student engagement

PAL Facilitator Observations

A good professional development activity is to observe other PAL facilitators during the academic term to learn successful session strategies from each other.

Agreements among the hosting and observing PAL facilitators:
1. The PAL facilitators reaffirm a trusting relationship by agreeing the conversation they have with each other is private and not disclosed to anyone, including the course instructor and the PAL supervisor.
2. The two PAL facilitators agree upon the timing of the observation.
3. The hosting PAL facilitator shares a copy of the PAL session plan and any handouts with the observing PAL facilitator at the beginning of the session.
4. The hosting PAL facilitator decides the role of observing PAL facilitator-whether that person is to be involved as a fellow student or quietly observe.
5. After the PAL session, the two PAL facilitators meet for a short conversation to share their observations.
    a. The hosting PAL facilitator talk first about what they thought went well and what they might do differently.
    b. The observing PAL facilitator provides specific feedback to the other PAL facilitator with at least two positive comments and one suggestion to consider in the future.

Areas for the observing PAL facilitator to note during the session might include the following. It is not intended to be an exhaustive list, but a starting point for the conversation after the session. Focus on a couple of these items during conversation.
1. Hosting PAL facilitator shares what was the best part of the session and what was the most difficult and how they might do things differently.
2. Body language and eye contact of the PAL facilitator and the students.
3. Activities to open the PAL session.
4. Amount of time the PAL facilitator talked vs. amount of time students talked.
5. Number of times questions asked of the PAL facilitator were redirected back to the group to answer?
6. How were students involved with using the marker board in the session?
7. How were study strategies modeled by the PAL facilitator for the students?
8. What strategies the PAL facilitator use to engage students during the session?
9. How are the textbook, additional resources, the syllabus, and other items used during the PAL session?

What do you think is an important behavior to observe in a PAL session?

Sample PAL Session Observation Form

Observer:	PAL Facilitator:
Date:	Course: Number Attending:
List PAL Session Activities Chronically As they Occurred (*opening, activities, feedback used (informal quiz, oral recall, closing the PAL session*)	**Observer's Comments about the PAL Session Activities** (*How could this activity be used in another PAL session? Additional questions about the activity. What were the choices made by the PAL facilitator regarding this particular activity?*)

PAL Observation Rubric

I plan to observe your PAL session as part of a performance assessment and to see what skills or aspects of PAL I should emphasize in future team meetings. A well-conducted PAL session should be social (interactive), informal, and productive; that is, students viewed the session to be useful. I realize that there are factors beyond your control that may affect the success of the session I observe, one of which is my mere presence at that session.

To achieve this goal, consider the following:
- Plan and conduct PAL sessions with goals, an agenda, and activities.
- Manage time efficiently throughout the session.
- Engage students in purposeful learning activities.
- Encourage participation through structured group activities.
- Encourage students to verbalize their thinking.
- Ask appropriate questions and redirect questions back to the group to stimulate deeper understanding of concepts.
- Monitor student understanding by checking in on groups.
- Encourage students to refer back to their notes, course materials, etc.
- Summarize information at the end of the session – or ask students to summarize.

I will be looking for some of the points listed below when I observe your session. We will do a short one-on-one debriefing at a time convenient to both of us. The debriefing will also include a discussion of your observation of another facilitator's PAL session and your self-reflection.

Satisfactory	Need for Discussion	
☐	☐	Agenda or plan for the day is readily apparent to students
☐	☐	Students grouped according to a specific plan
☐	☐	Directions given clearly and audibly
☐	☐	Worksheet/board work is organized and understandable
☐	☐	Facilitator uses one or more group activities
☐	☐	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 (framed in a new way) back to the group
☐	☐	Adequate time for students to share solutions and thinking with entire class
☐	☐	Closure – such as 1 minute summaries, quiz, predict test questions
☐	☐	Stage set for next lecture, next PAL session, or upcoming exam
☐	☐	Tone of session is comfortable and supportive

Additional comments:

7/21/14

Debriefing PAL Session:

What did you think of your session?

Points to consider: who did most of the talking, the board work? Did you facilitate peer –assisted learning, or function more as a TA? How did conversation flow?

     Strengths:

     Areas to improve:

Obstacles to doing PAL as you envision it:

Actions to remove obstacles or help you improve:

What did your observation of another PAL session provide you?

Would you have valued and enjoyed your own PAL session that day? Why

7/21/14

PAL Peer-to-Peer Observation Rubric

This rubric provides some things to focus on – mostly behaviors. It is *not* meant to be an evaluation of the session.   A session can be social, informal, and very productive without some of these attributes. Fill this out and bring it to the next team meeting.

Course:_____ Voluntary or Mandatory   Date: _____
(circle one)

Yes	Didn't see	Facilitator Action
		Agenda or plan for the day readily apparent to students
		Students grouped according to a specific plan
		Directions given clearly and audibly
		Worksheet/board work is organized and understandable
		Facilitator uses one or more group activities
		Facilitator models problem-solving/study skill strategies
		Uses visual aid (pictures, graphs, etc.)
		Uses students' names regularly
		Provides handouts and other learning tools
		Students on task – explaining, asking, interacting, solving, helping
		Students are referring to notes and textbook
		Facilitator addresses students' needs and questions
		Questions redirected (framed in a new way) back to the group
		Allows wait time to occur after a question is asked
		Adequate time for students to share solutions and thinking with entire class
		Closure – i.e.1 min. summaries, quick quiz, predicting test questions, clarification of important points
		Stage set for next lecture, next PAL session, or upcoming exam

Reflection questions: (do these AFTER completing the observation)
* What *observed* behaviors, ideas, concepts, and methods could I incorporate into my own session? How might I do that?

* "After doing this observation, I feel better able to…." **(complete the sentence and explain why)**

* Additional Comments

This rubric provides some things to focus on – mostly behaviors. It is *not* meant to be an evaluation of the session.   A session can be social, informal, and very productive without some of these attributes. Fill this out and bring it to the next team meeting.

Course: **Math 1031** Voluntary or (Mandatory) Date: _____
(circle one)

Yes	Didn't see	Facilitator Action
X	□	Agenda or plan for the day readily apparent to students
X	□	Students grouped according to a specific plan
X	□	Directions given clearly and audibly
X	□	Worksheet/board work is organized and understandable
X	□	Facilitator uses one or more group activities
X	□	Facilitator models problem-solving/study skill strategies
X	□	Uses visual aid (pictures, graphs, etc)
X	□	Uses students' names regularly
X	□	Provides handouts and other learning tools
X	□	Students on task – explaining, asking, interacting, solving, helping
X	□	Students are referring to notes and textbook
X	□	Facilitator addresses students' needs and questions
X	□	Questions redirected (framed in a new way) back to the group
X	□	Allows wait time to occur after a question is asked
X	□	Adequate time for students to share solutions and thinking with entire class
X	□	Closure – i.e.1 min. summaries, quick quiz, predicting test questions, clarification of important points
X	□	Stage set for next lecture, next PAL session, or upcoming exam

Reflection questions: (do these AFTER completing the observation)
* What *observed* behaviors, ideas, concepts, and methods could I incorporate into my own session? How might I do that?

Better grouping with authority- being bossy :)

* "After doing this observation, I feel better able to…." **(complete the sentence and explain why)**

I feel better able to ask redirecting questions and get students to work better in groups by setting guidelines where students need to work in groups.

* Additional Comments

2/14/2013

SEE BELOW.

Pop quiz- good level of difficulty
Students appear to enjoy the environment, right from the beginning (talking before class).

Super nice handwriting

Difficult because it's the week before a test- harder to avoid going into TA-role. Did a good job of asking questions, even when they were pushing for answers. Maybe arrange a way to see who has answers before you start discussing them so that the students are more in charge of the answers.

I heard a student say "I need to ask Michael something. Oh wait, I need to ask you guys before I ask him." THIS WAS A PERFECT PAL MOMENT. Awesome! That is a good guideline.

Also, great grouping and making sure they MOVE THEIR CHAIRS. I still have problems enforcing my grouping so it's good that you could do that.

Good dealing with late student.

If you don't feel comfortable answering a question about the exam or how the class works, don't. Direct them to their classmates or TA/instructor.

Go Wild!!!

Good job making sure you weren't sucked into one group asking questions all the time- you did a great job of making sure you were answering everyone's questions equally.

Do your solutions have explanations?

Good problem selection.

Students get so finnicky about our typing. I had no issues with how you wrote that squareroot problem. And you know what? Teachers write things on tests ALL THE TIME that don't make any sense so they should get used to it.

Nice try using names! At least you make an effort. :) And it made people laugh so kudos.

Good ending activity- make them think what they need to study and then direct them to resources they can use. Awesome advice too! I like that saying.

Your students seem nice and outgoing. I think this will be a good session for you to be trying things out, which is awesome!!!

Feel free to be more confident in your skills- you know your math. I still mess up too, but even when you do mess up, own it. It's hard because we think they judge us for all of our little mistakes, but really, they don't care that much. As long as we can fix it and explain how our mistake was wrong.

Ice-Breakers for PAL Sessions

It is important for the PAL facilitators and participants to develop productive relationships for the most effective learning environment. Meeting each other for the first time during a PAL session can be difficult. Ice-breakers are excellent ways for people to meet others and engage in some short communication or activities with one another.

Some factors to consider when selecting these activities:
> *Will you as the PAL facilitator participate or observe?*
> *When might you use an icebreaker other than at the very beginning of the academic term?*

1. PAL Program, University of Minnesota
PAL facilitators from the program at the University of Minnesota shared the following icebreakers in their book, *Two (or more) Heads are Better than One*. The book is available from https://www.lib.umn.edu/smart/facilitator-storybook The rest of the book is devoted to stories of the PAL student facilitators as they performed their role leading study review groups. The first name of the PAL student facilitator appears beside the name of the ice-breaker activity and is quoted directly from the *Two Heads* book.

High Jump – Amanda, PAL Facilitator
"It's a great activity to get the light bulbs to go on for students (I adapted this activity). I give each student two Post-it notes, they write their names on them, and they go to the wall. I say, "Reach as high as you can without jumping and put your Post-it note there." So they all do it and look around as if to say, What's going on? Then I say, "Now take your other Post-it note and put it even higher." They always find out that they can! Then I say to them, "Well, what does this have to do with goal-setting?" That's where the light bulb turns on, and we have a discussion about setting goals and going beyond them.

I have the students actually set goals for themselves – things they want to accomplish by the end of the semester, and it doesn't necessarily have to be about PAL. It's about what they want to do while they're in college. One of the goals was to visit the writing center and get an A on a big paper. Another was to do more of the readings for all of their courses, things like that. It's fun, it's interactive and they learn a lot from it. Plus, it really gets them talking with each other. The first semester that I did it, I had students add a step to demonstrate what PAL does to help you with your goals. I said, "Now, help one person get their Post-it note even higher." They would take the smallest person and pick them up. There's that little illustration of the mice standing on each other's shoulders, that's kind of like what PAL is. As a group, you can do even more to exceed your goals. I think that really resounds with them" (Walker, 2010, pp. 128-129).

Stomp Your Feet – Mandy, PAL Facilitator
"Everyone stands up in a circle. I would clap my hands, for instance, and then the person next to me would have to say, "Stomp your feet." As they say, "Stomp your feet," they really have to be clapping their hands; they have to copy my action while saying something else. The next person in line would have to stomp their feet, but say

something different. It was confusing because you were doing something that you weren't saying, but when you got it, it was really funny.

Afterwards, we went around and said names while doing the same kind of thing. Everyone saw an action with a face. It was goofy because so many people messed up and if you did, you had to scream something obnoxious like, "I FORGOT ONE!" It was good for an icebreaker because it was goofy and everyone wanted to do it. If you messed up, you weren't embarrassed because you got to yell something. People almost wanted to mess up!" (Walker, 2010, pp. 129-130).

Celebrity ID – Niketa, PAL Facilitator
"Create labels/nametags with famous celebrities or characters. Place the labels onto everyone's back and have them mingle with each other to find out which name is on their back. They can only ask yes or no questions to find out who they are. Once they have discovered who they are, they can continue to mingle until a present amount of time. I got to know their names and made a connection with everyone. Also, it helped the students get to know each other, which is important because they would be working in groups all semester. Plus, they were a little tense – they needed to loosen up a bit, and I'm still working on that. That game helped though" (Walker, 2010, pp. 130-131).

Name Bingo – Lauren, PAL Facilitator
"I'll make a worksheet that's a grid – four squares by four squares – and hand them out to the students. They look at it and they're very confused because it's a blank sheet. Then I explain to them that we're going to sit in a big circle – if the tables allow it – and go around the room and introduce ourselves. We say our name, major, year in school, and then either something fun we did over winter break or in the summer, depending on the semester.

When they are going around the room introducing themselves, students are responsible for writing down each person's name as they say it. For example, if I were to go first, they would right down my name when I'm saying, "I'm Lauren. I'm a junior …" By the time we get around the circle, all their squares should be filled in excluding their own name. I have a ball that we throw back and forth, and I start with it. Before I throw the ball to someone though, I have to say their name. I have to know their name. I throw it to them, and then they would have to say someone else's name. As soon as they touch the ball, you're allowed to cross them off of your Name Bingo sheet. The students like it because it's an icebreaker they don't expect. When you get three in a row and you need that fourth one, you have to really guess who it is, say the name and hope you're right" (Walker, 2010, pp. 131-132).

Animal Noises – Soo, PAL Facilitator
"I picked about three different barnyard animals with fairly distinct noises, like a cow, a cat and a frog. I wrote them out on notecards and had about three in each group. After we'd gone through the PAL introduction and the class introduction – names, where students are from, majors – I had them all get up and clear the desks away. We sat down in a circle, and I gave everyone a notecard. They weren't allowed to tell anyone

else what it said. I said, "Look at your card. Think about the animal and the sound it makes. Now, close your eyes and when I count to three, you need to start making the sound of your animal. You have to listen to sounds other people are making around you, and you're going to match yourselves with other people according to your animal."

They had to make the sound while listening for other people making a similar sound. When I first explained the icebreaker I just remember the LOOK that the students gave me. I think one even said, "Are you serious?" I'm like, "Yes, I'm dead serious! We're doing this." At first it was all awkward laughter, but they all knew that I meant it. They started the activity, and it was great to see these students who have had no contact with each other blindly wandering around the classroom trying to find each other. I thought it was a really good icebreaker activity because it made each person put themselves out there. It was good for bonding; I think them feeling humiliated together helped them bond in their group. I had them all introduce themselves further to each other and said, "Okay, these are the people you will be working with for the remainder of today's session" (Walker, 2010, pp. 132-133).

Bag of M&Ms – Jeanna, PAL Facilitator
"I've had students in PAL sessions who just don't want to say anything; they're very shy. So I figure bribing them with a little candy can go a long way. I start out with a bag of M&Ms, and I pass it around the room. I say, "Take as many as you want." There are always way too many M&Ms for the number of students, so students usually end up with a pile on their desk. Then I write on the board that the different colors correspond to different questions that students then have to answer about themselves. For instance, if you get a blue M&M, you have to name one place that you'd like to travel. If you get a red one, you have to name one movie that you really liked – things like that, different hobbies and such.

I feel like the eating aspect, combined with students laughing at themselves when they realize that they have 25 M&Ms, kind of makes things comfortable right from the start. You start off in a joking, friendly atmosphere. At first, students like the fact that there is candy, of course. But then, it becomes just a different way to find something out about your classmates – maybe something that you actually care about. I've had students figure out that they were on rival track teams in high school and competed against each other in the same event, at the same tournament. I also do it to remember some things about the students. I can remember, ,Oh, she's the person that has a fake front tooth. '"That's a real example too; you couldn't even tel." It's easier to remember names when there's some weird fact to go along with it" (Walker, 2010, pp. 133-134).

Would You Rather? – Shannon, PAL Facilitator
"I typically use "Would You Rather" as an icebreaker for the students to get more comfortable with each other and with me. Then we jump into what we're actually supposed to be doing, which is math. So, depending on how many students I have, I'll go on the Internet and search "Would You Rather" questions and get enough so each student can have their own. I'll use it as my attendance.

I'll call off somebody's name and ask them a 'Would You Rather' question. All the students get really engaged because they're funny questions – everybody wants to hear what the student would rather do. So they're listening both to the student's name and the answer; they get familiar with each other in the process. There's a lot of joking around with it too, because with some of the questions, you have NO idea which one you would rather do, like ‚Would you rather eat a bar of soap or drink a bottle of dishwashing liquid?' I mean, both of them are terrible! Which one would you rather do? So the students debate about it a little bit. It creates a more fun atmosphere than just jumping right into math" (Walker, 2010, pp. 134-135).

Partner Pull Up – Alex, PAL Facilitator
"In the middle of the semester, I played a very simple game with my students that took about 5 minutes. You pick a partner, lock up your arms with your back to another person's back, and you start sitting on the floor. Without any help and only using your legs, you have to stand up. After you're successful, you find another pair and do the same thing with four people, so it's like a square. Then you have to do it with eight people, and then finally in the whole group of 16 people.

One group of four and one group of eight had difficulty standing up. You know, people all have different physical abilities. As a facilitator, I had to recognize that, let them pass and keep moving because it's a game. When they did it as a class, I saw leaders emerge. I saw people organizing. Instead of people standing up one by one trying to drag other up, they stood up all together. They were happy that they'd been successful. I think from that week on, the session was very successful as a whole; they were much more interactive with each other" (Walker, 2010, pp. 137-138).

Remembering Chemistry – Melissa, PAL Facilitator
"I run a session for Chemistry 1021 which is Introduction to Chemistry here, but there's also a pre-introductory class which is 1015. Students either take that or just test right into 1021 on their placement exams. In the first few weeks of Chem 1021 then, the first couple chapters are all what you would call review chapters. Students should know the material going in, but some of them need extra help; others fly right through it.
In one of the first sessions, there was a mix of people who had taken Chem 1015 and had the information fresh in their head, and other people who hadn't taken a chemistry class since high school. They did well enough to pass the test, but that's never a good measure. When we were going through the worksheets, some students had no idea what a unit conversion problem looked like whereas other students would be like, "Oh yeah, I just did this last semester. No problem." It's hard to find that group cohesion when some people are flying through and some people are still stuck on problem one. It was pretty evident which students could do it and which ones couldn't, so I tried to pair them up. While we were doing introductions, one of my students asked if we could share everyone's background in chemistry and I thought, "That's a great idea!" I had everyone go around and talk about the last time they had a chemistry class and that really opened up discussion. Sometimes if you're in a group situation and someone is always dragging, it's easy to think, "Ugh, why don't you get it? Didn't you do the homework?" But if the students all realize it in context – "Oh, she hasn't had chemistry is so many years" – then it makes the group's work a little easier. I remembered being

in that session and thinking, "Ohhh, crap. What am I going to do?" In the end though, it ended up being okay. Good session, moving onto the next one" (Walker, 2010, pp. 139-140).

Balloon Castle – Alex, PAL Facilitator
"I used the Balloon Castle activity about the sixth week of the semester. My PAL session was a required session so I knew who to expect. I divided them into four or five groups of three or four people each. I gave the students about 75 large balloons and maybe two yards of scotch tape. I told them, "You have about 15 minutes to build a balloon castle. The group with the tallest castle will get candy as a prize." Because I left a lot of room in the instructions, there was a lot of creativity put into it. I saw people struggle, and through the struggling and competitiveness, I saw interactions bonding happening. The students eventually became friends out of that activity. I also saw different personalities emerge that I hadn't seen while doing a worksheet or going through problems. As I mentioned, some people were competitive, some people didn't care; some people just wanted to have fun.

At the end, people don't usually get the result they expect. People who think they will win might be over ambitious and cause their balloon castle to fall. It has to stand by itself. I ended up giving everybody candy and asked them the question: 'What did you learn from this activity?' I just wanted to get them to think about why they were doing this.   Why are they in this PAL program? It's not just for academics. People did form study groups outside of PAL from the session, and that's good. Some said it was fun. Some said it was frustrating that they didn't get where they wanted with it.

Then after going through half of the circle, I asked, "What did you notice about the people you work with and yourself?" Then they talked about personal characteristics, group dynamics and what they learned about themselves. Then, of course, at the end, I had them break all the balloons just for fun. It was a small room – it was really loud!
I was a new PAL Facilitator when I did this and I kind of planned things as we went along. I felt it was a good time in the semester to do the activity. People were in their comfort zones and not pushing themselves to interact with other people. Usually I plan sessions that are one hundred percent content; but if I feel something is needed for our session to take a break from the normal routine, then I'll do an activity. Like next week, I'm taking my students outside to do a PAL session. I came up with the idea during my session and someone suggested we use chalk on the sidewalk. That sounds like a good idea!" (Walker, 2010, pp. 141-143).

2. Auroosa Kazmi
Auroosa Kazmi from York University in Toronto, Ontario, Canada has used the following with their institution's Peer Assisting Student Success (PASS) sessions. She has granted permission for their use. http://www.yorku.ca/newcol/pass/

Two Truths and a Lie
Everyone takes a turn telling two truths about themselves and one lie. The other members of the group must try to determine which one is a lie. This game works best when you use extreme examples for your two truths and a simple one for your lie.

Spider Web
Have everyone make a circle. One person starts with the end of the ball of yarn and says something he or she learned from the session just completed with everyone else. If this is done after a part of the PAL facilitator training workshop, they could share something that they have learned about themselves. As each person shares, pass the ball of yarn to the next person who shares (other than the person next to them) while holding their end of the yarn. Proceed until everyone has had a chance to speak and a spider web has been formed. The web symbolizes unit and how everyone is connected. This has been a good way to close a session and build team community.

3. Icebreakers Web Site
The following icebreakers, fun games, and group activities were retrieved from http://www.icebreakers.ws/ Search the database for games by group size and type, i.e., active games, get-to-know-you, and team building. These are just few samples.

Did You Know? Bingo, http://www.icebreakers.ws/large-group/did-you-know-bingo.html
Did You Know? Bingo (also known as the Autograph Game) is an icebreaker that helps people learn interesting facts about each other.   People walk around the room and mingle until they find people that match the facts listed on a bingo-style sheet. This game is a get-to-know-you style icebreaker.   The recommended group size is: large or extra-large.   The game works best with a group of about 25 people.   It can be played indoors or outdoors.   Materials required are: printed bingo sheets and pens.

Setup for Did You Know? Bingo. The objective of this game is for people to wander around the room and to obtain the signatures of people who have the facts listed on the bingo sheet.   Once a person successfully obtains a full row (5 in a row), whether horizontally, vertically, or diagonally, he or she shouts "BINGO!" and wins. This game requires a little bit of setup.   Prepare a 5 by 5 table, with interesting facts written inside the boxes.   These facts can include funny or bizarre things.   For example: Likes anchovies, Has been to Hawaii, Speaks more than two languages, Has never been on a plane, Has more than four brothers, and Has gone without a shower for more than three days Be creative! You can mark the center square "FREE SPACE" like traditional bingo games.   After you have prepared the table, print out enough copies for the number of players you are expecting.

Instructions for How to Play Pass out a sheet to each person, along with a pen. Explain the objective of the game and the following rules: (1) each person you talk to may only sign your sheet once, and (2) to win, you must get signatures to form 5 in a row horizontally, vertically, or diagonally.   Say "Go!" and ask your participants to begin. Once someone shouts "Bingo!" everyone returns and the person must introduce the people who signed his or her sheet.   If desired, you can ask each person to explain their fact. This icebreaker game is fun way to get to know humorous or unique facts about people.

Fabulous Flags http://www.icebreakers.ws/small-group/fabulous-flags.html
Fabulous Flags (also known as the Personal Flags Activity) is a useful icebreaker activity to help people convey what represents them or what is important to them.   Each person draws a flag that contains some symbols or objects that symbolizes who they are or what they enjoy. This get-to-know-you activity is best done indoors.   Any number of people can participate.   The recommended age is 7 and up.   Materials required are: several sheets of paper, pens, and colored pencils/crayons/markers.

Instructions for Fabulous Flags Activity. Pass out a sheet of paper, pens, and colored pencils, crayons, and/or markers to each person.   Explain the activity: "We're now going to draw flags that represent or symbolize us.   Please design your own flag of you – include some symbols or objects that symbolize who you are or what you find enjoyable or important." You can show your own sample flag if you like.   For example, you could draw: a guitar (representing your passion for music), a tennis racket (someone who enjoys sports), a country like India (representing your affiliation with a country), and a cross and a heart (representing Jesus and His love for the world) Give everyone a set amount of time to draw (e.g. 15-20 minutes or so) and then reconvene. Ask for volunteers to share their flags and explain the meaning of what they drew.   If it is a large group, you can divide everyone into smaller groups and ask them to share their flags with each other, or you can just ask a small number of volunteers to share.

Variations: After everyone has finished sharing the individual flags, as a big group you can ask everyone to brainstorm ideas on what to draw for a large class-wide flag. Proceed to delegate individuals to draw certain parts of the class-wide flag. Alternatively, you can collect the individual flags and paste them onto a board to create a "quilt" of individual flags, representing unity.

4. First-Year Experience Email Listserv. The following were shared by the creators for others to use when training FYE personnel.

Toilet Roll Story Telling
Chris Wiens, Director of Career Services, McPherson College
My personal favorite for groups that have a lot of new people is to take a roll of toilet paper and send it around the group asking each person to take as much tissue as "they think they will need". After each person has taken their share, then tell them that for each square they took, they have to share something about themselves.

Turning Letters Into Words
Ana Dison, Women in Engineering Program, The University of Texas at Austin
Objective: For group members to work together to get to know each other.
Group Size: 6, with no more than one person from each major
Materials: Five 3x5 index cards per person, Markers

Divide the group into teams of four to ten and give each team the same number of 3x5 index cards. Ask them to divide the cards evenly among their group members. Give each person a making pen and instruct them to write down any five letters of the alphabet on the cards (one per card) and to NOT show these letters to the other

members of their team. After everyone has done this, have each team put all their cards into a pile. Set a time limit (5-10 minutes) and challenge the teams to use their cards to make as many words as possible, using each card only once. You may give points according to how many words they come up with, extra point for longer words, etc. The team with the most points at the end wins.

Discussion Prompts:
- *Did the letters you chose hurt of help the group? How did this make you feel?*
- *Did the helpfulness of the letters you chose depend on the letters others chose?*
- *Do you sometimes do a lot of work for a group and then find out later it wasn't needed? How do you feel when this happens?*

Variations:
- After each team has made as many words as they can with their letters, have them write the words down on a list. Send the list and cards to another group, who can get bonus points for any additional words they make.
- Tell the participants why they are writing down letters before starting and then surprise them by telling them they have to give their pile to a different group. Let people collectively choose which letters to use and then either allow them to keep the cards or make them trade with another group.
- Simply challenge the entire group to make as many words as they can, with the letters they've chosen. Once they have done this, challenge them to make more words than before, still using the same letters.

References and suggestions for more information:

Auroosa Kazmi, York University in Toronto, Ontario, Canada. Retrieved from http://www.yorku.ca/newcol/pass/

Icebreakers Web site. Retrieved from http://www.icebreakers.ws/

Walker, L. (Ed.). (2010). *Two (or more) heads are better than one: Adventures in leading group learning, a facilitator storybook*. Minneapolis, MN: Peer-Assisted Learning Program, SMART Learning Commons, University of Minnesota-Twin Cities. A copy can be requested through the following website, https://wiki.umn.edu/PAL/FacilitatorStorybook

Image courtesy from the digital archives at the University of Minnesota

Educational Competitions, Games, and Rewards

Student engagement is essential for healthy PAL sessions. In addition to using the learning strategies described elsewhere in this workbook, small group competitions and educational games can raise student engagement with the learning process.

These activities work well with PAL sessions in some courses but are not as successful in others. This is especially puzzling when a PAL facilitator employs them with success in one session but not in the other. Factors could be the time of the day (early morning, late afternoon), makeup of the PAL participants and their individual personalities, and interpersonal dynamics of different student groups. Faculty members have noted the same differences among their courses as well.

Some PAL programs occasionally reward students in competitions with individual pieces of candy. This can be a playful way to energize an educational competition or game. Other programs report that it does not seem important. Experiment to see what works for your course or campus PAL program.

Questions:

1. *When selecting educational competitions and games that suit your course, what factors should you consider?*

2. *What do you think about recognitions and rewards for PAL participants who "win" competitions and games?*

CAUTION

Games require careful planning.

There is less control over what is learned and what is emphasized.

The nature of the groups and the timing must be conducive to game-playing.

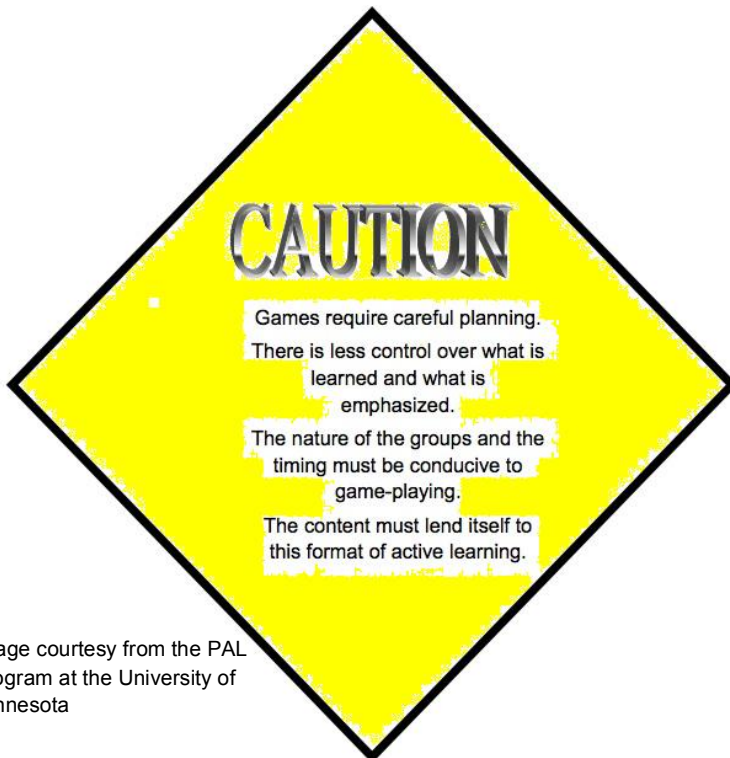The content must lend itself to this format of active learning.

Image courtesy from the PAL Program at the University of Minnesota

Below are examples of educational competitions and games developed by PAL facilitators at the University of Minnesota with success with their PAL participants. The examples are taken from the book, *Two (or more) heads are better than one*.

Word Scramble or Sentence Matching - Beth "Word Scramble or Sentence Matching is the game where I have students match the word to its definition, or just main sentences broken up. I print the game in two columns on a page, so the first half of the sentence is in the left column and the rest of the sentence is in the other column. Then I cut them apart. I put the students into groups and have each group try to organize the sets.

There are quite a few sets, probably 20-25, so it's a lot of work. When I played this in my session the groups got stuck. I pointed out wrong answers so they could try again. Then I took note of when they really couldn't get any further and let them each group send one person over to another group to ask for help. They had fun with that because they were running around, saying, ‚Hey, do you have this one?' It was great that they were using each other as resources, and since they were competing, they'd run over and joke with each other saying things like, ‚You can't have that answer! We're not telling you!' But, then they would anyways. The activity was hard enough that they could learn from it, but it was structured so they could have fun too. I played music in that session as well, which was something we had talked about in our team meetings. The idea was that music would change the atmosphere of the room, and I really think it helped that time. It gave the session a more casual atmosphere and allowed the students to have more fun" (Walker, 2010, pp. 136-137).

Mathemagical Mountain - Lauren
"I try to play games every other week. On the off weeks, I do problems on the board or worksheets, just to mix things up. Games are fun, but sometimes students don't learn as much from them because you're having too much fun. They're definitely more appropriate in review settings, too. Towards the end of the semester I play a board game with the students called Race to Mathemagical Mountain. They have little animals as game pieces and they race around a pi-shaped board answering questions relating to the chapter they're learning. I usually use the logarithm chapter because it has easier problems to move around the board. Also, in the spring semester, I like to take my students outside when it gets nice. "When they did [the activity] as a class, I

saw leaders emerge." Having a board game and all the pieces in a little box makes it easier to get out of the classroom.

I also like playing music in the background to lighten up the atmosphere. When I do this during games, students communicate more; they don't even realize they're talking about math. So instead of having awkward silences, you have groups of six or eight around a game board; they're sharing thoughts about math, doing math problems and even when the conversations get off topic, it's usually not to the extent that I have to stop them because I know they're still doing the math. I can observe that just by walking around. It's easier for them to work with one another when there is a game bringing them together.

I think what students like is that it allows them to almost be back in elementary and middle school again. Games bring the fun back, which they haven't had in a classroom in quite a while. In high school, I didn't have much fun in the classroom and in college, especially – you sit in lectures all day. So by playing games, the students have fun but they're doing what they're supposed to be doing at the college level" (Walker, 2010, pp. 138-139).

Vocab Race - Soo
"The vocab race was a test review. I had terms and definitions on individual pieces of paper, and made two sets of each. The terms were taped to the board and the definitions were on the table at the front of the room. The class was divided into two teams and when I said, ‚Go,' the first person from each team would run up, grab a definition off the table and match it to a term on the chalkboard. Once they were done, the next person on the team could go. If they were stuck, they could put the definition back and pick another one. Sometimes I felt the students were really lethargic because my session was fairly early [in the morning]. This activity was good because it got them moving around. You could tell that their energy levels perked up and as a result, they were more alert afterwards when we continued the review. Also, it instilled some friendly competition. They were joking around and egging each other on like, "I'm going to beat you!" and "Oh no, you're not!" (Walker, 2010, pg. 140).

Splitting Up - Lauren
"One thing I love doing is splitting up the class myself instead of letting the students choose their own groups because it forces them to get to know more people. It helps them a lot towards the end of the semester when people start missing class. Once the weather gets bad, people start getting sick and missing lectures. They're able to go up to anyone in the PAL sessions for notes as opposed to knowing just one person. It also splits up the ability levels – some people are really good at math; some people aren't so great. Splitting it yourself pairs them together" (Walker, 2010, pp. 143-144).

Scenarios of Possible Interactions
Rules and Procedures for the PAL Program
What is your choice and what principle(s) guide your decision?

Consider the following interactions PAL facilitators might have with the people they work with. What would you do in these situations? The goal is not only to identify the better choice, but also identify a principle that can help guide other possibilities. If the first name of the PAL facilitator is provided with scenario, they come from the actual events that occurred with the peer learning program at the University of Minnesota. First names of the PAL participants mentioned in the scenarios [noted with an asterisk (*)] are pseudonyms to protect their identities.

1. The professor has asked you not to pass out old exams during PAL sessions. A student finds one somewhere and brings it to the PAL session.

    a. *What do you do?*

    b. *What if the exam copy came from the reserve shelf at the library that the professor placed there for students to review by themselves?*

2. (Shannon, PAL Facilitator).”Last semester, I had Pete*, who was a non-traditional student, probably mid-40s or so, and hadn't done math for years. I think it was probably his first semester of school at the U of M as well. It was an 8 a.m. class, so he often came in late saying he had to bring his daughter to school or something else” (Walker, 2010, pg. 41).

    a. *Do you count Pete as attending the session even though he is nearly always late?*

    b. *If you count Pete as present, what do you do about the other students who come in late with no excuses?*

3. A student **repeatedly** arrives late to the PAL session or leaves early.

    a. *If you are taking attendance that is reported back to the class instructor, do you count them as present?*

    b. *Do you talk with the student about this behavior?*

4. Students criticize the professor during a PAL session. They say that the class lecture was unclear, exam grades were unfair, and the professor due to her foreign accent.

    a. Do you immediately intervene to stop them?

    b. Do you quietly let the students talk for a couple of minutes?

    c. How could you redirect their critical comments into a more productive direction?

5. (Mandy, PAL Facilitator). “My session was on a Thursday and the following Monday was a midterm for my students. The class was freaking out because there were some word problems that the lecture hadn't covered. They went crazy on me. They were like, “We don't know how to do this. No one showed us how to do this! This is totally crazy and I can't believe we're getting tested over

this!" They were getting mad at me, but I'm not the person to get mad at, right? It was terrible" (Walker, 2010, pg. 8).

   a. *Should you provide short lectures on the topics students are struggling with?*

   b. *How could you involve the students in dealing with preparing for the exam?*

6. (Melissa and Lauren, PAL Facilitators). "When the first test came around this particular semester, we decided to do it again. We made up 25 copies of our worksheet. At this time, I hadn't had really high attendance in my PAL sessions, so I didn't think too many people would come to the review. I held it on a Saturday and, as the students started flowing in 15 minutes beforehand, I ran out of worksheets before the session even started. I was also trying to pull in extra chairs because there wasn't enough seating. The 25 I expected turned into 48 students in the tiny room and, of course, it gets loud" (Walker, 2010, pg. 31).

   a. *Where else can you photocopy handouts at the last minute?*

   b. *How could the materials have been provided after the PAL session?*

7. (Mandy, PAL Facilitator). "In almost all of my sessions, the topic of professors came up at one point or another – the students thought the professor did a bad job teaching, a bad job grading , wasn't consistent, was hard to understand, didn't write clearly on the board. Whatever the problem was, someone would address it and the rest of the class would join in. If I didn't so something the conversation would have gone on for the whole 50 minutes. I had the same opinions as the students – I didn't put in my feedback – but listening, I could relate and understand" (Walker, 2010, pg. 73).

   a. *If this conversation that criticizes the professor continues, how might this negative conversation affect their attitudes towards the professor?*

   b. *What is the potential impact upon the academic performance of the students?*

   c. *If the professor becomes aware that these conversations are occurring during PAL sessions, what is the potential consequence for you as the PAL facilitator or for the PAL program?*

8. (Abby, PAL Facilitator). "I had this problem where one of the girls in particular would always show up late, which I could never understand because she came from the lecture room down the hallway with everyone else. She would sit in class, act disinterested the entire time, and not follow along. She'd constantly say, "What are we doing? Wait, what?" She was the "I'm-not-paying-attention-to-you-but-I'm-going-to-ask-a-ton-of-questions-because-I'm-not-sure-what-we're-doing" type. Then she started taking phone calls. She would text on it, then it would ring and she would answer it. She'd say, "Excuse me, I have to take this," and walk outside. The first time it happened I thought, "Okay, maybe it's an emergency," but then it happened more than once and I knew that she was simply taking calls to get out of class. She also started leaving early with excuses like, "I have something to be at and I need time to eat dinner." There were other people in the class who had the same obligations, and they stayed

until the end. It became a problem because she started a trend of people wanting to leave early" (Walker, 2010, pp. 74-75).

   a. *What behaviors of the female student were disruptive to the session?*

   b. *How could her behavior impact the other students in the PAL session?*

   c. *What could you do as the PAL facilitator to prevent this from the start?*

9. (Lauren, PAL Facilitators). "In my first semester of PAL, I LOVED it. I really enjoyed facilitating. In my second semester though, I had three sessions back-to-back and was getting pretty tired. The first day, in my third session, a guy comes in with a beer. I was like, "Ohhhkay…" I had never seen anyone do that before; it didn't even occur to me that that might happen. So I was kind of shocked, and I didn't know how to deal with it. He sat in the front corner, and I didn't say anything. I thought, "Well I'll just let it go for now, and if it happens again, I'll approach it." So the next week came around and he brought a six-pack for the other guys in the session. They were all freshmen, and they were loving it because they weren't even old enough to drink. Here they are getting beers handed to them in the middle of a PAL session! At that point, I asked them to leave. Some of them left; some of them stayed but didn't drink it. I told Mary about the situation, and she came to watch the next week. Because she was there, the beer – which they did bring – stayed in the pack. But they decided they needed a smoke break in the middle of my 50-minute session. So they left to go outside for 20 minutes of my 50-minute session. I talked to them after class and told them, "If you're not going to be here for the majority of the class and you can't stay here for the 50 minutes, I'm not going to be able to mark you for attendance." They said, "Oh okay, we can stay here. We'll wait and smoke after." The next week they didn't go out and smoke, but the main guy decided he would bring his water bottle to chew and spit tobacco. The girls were totally disgusted. It smelt bad, first of all, and it was gross to watch and hear. One girl, who liked to speak her mind, confronted him about it, which made it a lot easier on me. She said she didn't want him to do that; she was trying to learn, he was distracting her, and it was just gross" (Walker, 2010, pp. 108-109).

   a. *Identify all the negative behaviors. Why did they escalate during the PAL session?*

   b. *How could the PAL facilitator have stopped them from the start?*

   c. *What action was needed by the PAL facilitator when they occurred?*

   d. *Who should be informed of these behaviors and at what point?*

References and Recommendations for More Information:

Lipsky, S. A. (2011). *A training guide for college tutors and peer educators*. Boston: Pearson.

Walker, L. (Ed.). (2010). *Two (or more) heads are better than one: Adventures in leading group learning, a facilitator storybook*. Minneapolis, MN: Peer-Assisted Learning Program, SMART Learning Commons, University of Minnesota-Twin Cities. A copy can be requested through the following website, https://wiki.umn.edu/PAL/FacilitatorStorybook

Summary of Principle Three
Facilitate a Blend of PAL Session Activities

Effective PAL sessions employ a variety among activities. Some of them serve as ice-breakers to develop relationships of the participants with each other and with the PAL facilitator. Others are educational competitions and may involve rewards. Sometimes the activities that work with one group during the day may not with another. It will require experimentation to understand which ones will work for each group. Classroom instructors do the same thing. Each class is different. Students like a diversity of learning experiences in the sessions just like they do in the classroom with the instructor. Go into the PAL session with a preliminary plan and adapt it as needed. Include the participants in final planning of the session so they feel included in co-creating the learning experience.

Image courtesy from the digital archives at the University of Minnesota

Principle Four **Shift of PAL Session Authority and Ownership**	

4. While the PAL facilitator remains a visible authority and guide, throughout the academic term authority and ownership shifts to the PAL participants.	A. More authority and ownership is shifted to participants throughout the term for operation of the PAL session. B. PAL participants expand their sources of knowledge beyond the PAL facilitator. C. The PAL facilitator skillfully uses different kinds of questions to prompt student learning. D. Participants take more initiative to talk during small group cooperative learning activities and large group discussions. E. Students increasingly take ownership of solving problems and completing learning tasks. F. By the end of the term, high engagement by PAL participants makes it difficult for outside observers to detect who is the PAL facilitator.

Transition of Learning Control of the PAL Session

At the beginning of the term, the PAL facilitator provides most of the leadership and makes more learning activity decisions. In healthy PAL sessions, the participants assume increasing responsibility throughout the term. The PAL facilitator helps to guide them to more learning independence by the end of the term. As the diagram below illustrates, the PAL facilitator's control during the PAL session is decreases but is never eliminated. The transition process varies between different PAL participant groups. It takes great care by the PAL facilitator for this to be effective.

Beginning of Academic Term→→→→→→→→→→→→→→→End of Term

HIGHER →→→→→→→→→→→→→→→→→→→→→→→→→→→→ **LOWER**

PAL Facilitator-Centered Control

LOWER →→→→→→→→→→→→→→→→→→→→→→→→→→→→→ **HIGHER**

Student Participant-Centered Control

Adapted from the _Video-based Supplemental Instruction training manual_, University of Missouri-KC.

Expanding the Authority within the Group to Answer Questions and Solve Problems

A major issue for students who attend PAL sessions is understanding the role of the PAL facilitator. The natural belief is that participants ask questions and PAL facilitators provide answers. Changing this dynamic is one of the most challenging and important actions that the PAL facilitator will take.

> (Alex, PAL Facilitator). *"Students know that my role is sort-of a teacher; that's why they come. I can 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"*
> (Walker, 2010, pp. 3-4).

Establishing Multiple Authorities within the PAL Session

It is essential to broaden the expertise and authority base within the group. The PAL facilitator draws upon multiple authorities when a student asks a question to help them become more independent learners. The authority within the PAL sessions includes:

- Textbook

- Assigned supplemental readings

- Reference books, Internet sites, dictionaries, and other materials

Image courtesy from renith kroshnan through DigitalPhotos.net

- Lecture notes of individual students

- Lecture notes generated and revised by the entire group of PAL participants

- Prior knowledge of the PAL participants

- Course instructor and teaching assistant

- PAL facilitator

Overview to Using Questions in Organizing PAL Sessions

An effective question used during a PAL session is a great catalyst for discussion and learning.   As the previous section described, there are multiple authorities within the PAL session that can answer the question. The following are different categories of questions.

- Questions to organize PAL sessions

- Redirecting questions back to the PAL participants to answer

- Probing questions to go deeper into the discussion of the course material

- Higher order questions to develop deeper thinking skills

Questions to Organize PAL Sessions

Use questions at the beginning and end of a PAL session to engage the students.
- To begin each class session, put a brief "agenda" of goals or topics on the board.   Invite students to comment on or add to the list.
- Help students restate and articulate what they are expected to learn, via well-directed questions. If they have their own organized view of how the course is going, they will learn better.
- End the PAL session by quickly asking students to define the key concepts identified at the beginning of the PAL session.
- When you provide an answer as a PAL facilitator during the session, 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.
- When completing a topic area, ask a student to summarize the main points for the class.
- Point at, and help students identify, habitual errors or blind spots they have in attacking questions or problems of a certain sort.

Reprinted with permission from Andrews, J. *Teaching Assistance: A handbook of teaching ideas*. Teaching Assistant Development Program, University of California-San Diego, 142.

Redirecting Questions Back to the Group

To empower PAL participants to do well in other courses where no PAL facilitator is available, it is important to redirect questions posed to the facilitator back to the group. The PAL facilitator does not need to pretend to be ignorant, but rather to be part of the team that answers questions and solves problems. Following are suggested phrases to use in redirecting the discussion and questions back to the group:

- Does anyone think that they know the answer to that question? (*The PAL facilitator should carefully observe the nonverbal behavior of participants to see if anyone may have a clue to the question or wish to participate*.)

- Ask students to react to each other's ideas directly (especially when you aren't sure what to say!).   This will add diversity and reduce the tendency to look to the instructor for the "right" solution.

- Let's look in our lecture notes (*or textbook*) and see if there is information there that can help answer that question.

- Tell me more of what you are trying to find out by your question.

- What do you mean by that question? Can you be more specific?

- What do we need to know or do next to help solve the problem?

- 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 this question of the course instructor either during their office hours or at the beginning of the next class? (*Use this question only if the PAL facilitator is unsure of the answer to the question*.)

- Let's break into small groups to work on this question. (*PAL facilitator uses this as an opportunity to engage in small group cooperative learning activity. See elsewhere in this workbook for suggested cooperative learning activities*.)

Scenario
(Mandy, PAL facilitator) "So during review days, I'd go through all the chapters, figure out main concepts and either make a Jeopardy board or a review packet. There would be so many problems to do that, in the 50 minutes of the PAL session, the students wouldn't get it done. They'd always want me to go to the board and finish it or do more. Those days, I taught the most. Even though that's not what we're supposed to do – we should be redirecting questions to the students' peers – it's hard. It's hard to know where you can cross the line and where you can't in regard to how we're supposed to help as a PAL facilitator" (Walker, 2010, pg. 2).

Questions:

1. *What situations might you vary from the principle of redirecting?*

2. *Are there any other choices Mandy might have made <u>before</u> the session even began?*

3. *Explain your ideas for other choices Mandy might have made <u>during</u> the PAL session?*

Probing Questions

In addition to redirecting questions back to the PAL participants, another option is to ask "probing" questions. These questions help students clarify their initial statements and prompts them to think more deeply. There are four types of probing questions.

1. **Clarification probes**: Used when a student's answer is vague or unclear. The facilitator asks the student for meaning or more information.
   a. What do you mean by ___?
   b. Tell me more.
   c. What else can you tell me?
   d. Be more specific about your question.

2. **Critical awareness probes**: Used when the facilitator suspects the student does not fully understand or wants the student to reflect more deeply on an answer.
   a. What are you assuming?

      b. Why would that be so?

      c. How can that be?

      d. What do we need to know in order to solve the problem?

3. **Refocus probes**: Encourages the student to see a concept from another perspective by focusing on relationships.

      a. What is that related to _____?

      b. Can you summarize the discussion up to this point?

      c. If that is true, then what would happen if _____?

      d. How is your answer (or point of view) different from ____?

4. **Prompting probes**: Used when a student cannot or will not answer a question. The facilitator gives a hint or rephrases the question. This type of probe reinforces the search for answers and the willingness to try.

      a. Could you say that in a different way?

      b. Could we clarify something to help?

      c. Can anyone help us with this?

Practicing probing questions

1. PAL workshop facilitator makes handouts of several paragraphs of textbook material from a variety of subject areas. Multiple copies are made of each handout.

2. PAL facilitators are broken down into groups of two or three to practice the skill of asking probing questions.

3. All students in the small group take a couple of minutes to read their assigned reading materials.

4. One student makes a summary statement about the assigned reading.

5. Others in the small group practice asking questions from each of the categories of probing statements or questions. Rotate the roles.

6. Reconvene as a large group to process the activity with each other.

Improving Higher Order Thinking through More Challenging Questions

While engaging in discussions of the course material, the PAL facilitator can help students to engage at higher levels of cognitive thinking. Not only should the discussion be aimed at a level to prepare students for upcoming unit exams, but also to encourage more rigorous thinking in future courses. It is important to ask questions during PAL sessions that reflect the types used on the exams. After studying the different levels of think in Bloom's Taxonomy, schedule an appointment with the course instructor. Explain to him/her you want to align the PAL sessions to fit the types of questions that might be asked on a major exam. Ask if you could look at previous major exams. Observe how often each of the six levels of thinking are required. In introductory courses, the levels are often only one through three since these courses lay the foundation for the more challenging ones that come later. Upper division courses often

focus more on the levels four through six. Also examine the textbook and assigned readings as you did with the previous major exams.

Bloom's *Taxonomy of Educational Objectives* (1973) identifies six increasing levels of thinking. With each level, key words are provided to help target questions at that stage of thinking. PAL facilitators are encouraged to promote higher levels of thinking by carefully integrating these words into discussion questions.

- Level one: <u>Knowledge</u> (*define, repeat, record, list, recall, name, relate, underline*)

- Level two: <u>Comprehension</u> (*translate, restate, discuss, describe, recognize, explain, express, identify, locate, report, review, tell*)

- Level three: <u>Application</u> (*interpret, apply, employ, use, demonstrate, dramatize, practice, illustrate, operate, schedule, show, sketch*)

- Level four: <u>Analysis</u> (*distinguish, analyze, differentiate, appraise, calculate, experiment, test, compare, contrast, criticize, diagram, inspect, debate, relate, solve, examine, categorize*)

- Level five: <u>Synthesis</u> (*compose, plan, propose, design, formulate, arrange, assemble, collect, construct, create, set up, organize, manage, prepare*)

- Level six: <u>Evaluation</u> (*judge, appraise, evaluate, rate, compare, value, revise, score, select, choose, assess, estimate, measure*)

Practicing Bloom's taxonomy of questions

1. PAL workshop facilitator makes handouts of several paragraphs of textbook material from a variety of subject areas. Make copies for participants.

2. PAL facilitators work in groups of two or three to practice the skill of asking questions at different levels of Bloom's taxonomy.

3. Facilitators in each small group take a couple of minutes to read their assigned reading materials.

4. One facilitator makes a summary statement about the assigned reading.

5. Others in the small group practice asking questions from each of the categories of Bloom's taxonomy. Rotate the roles.

6. Reconvene as a large group to process the activity with each other.

Image courtesy from the digital archives at the University of Minnesota

Scenarios of Possible Interactions
Referring or Resourcing PAL Participants
What is your choice and what principle(s) guide your decision?

Sometimes PAL facilitators hear questions or conversations that are not directly related to preparing for the next course exam. Serving as an authority and resource in a PAL session is knowing when to be a resource to them and when to refer students to another person or office on campus or in the community. PAL facilitators are often the first person to hear students' needs and can be a powerful influence with them. The scenarios in this section are focused on issues outside the traditional PAL session topics.

The following possible interactions are with PAL facilitators and the people they work with. What would you do in these situations? The goal is to not only identify the better choice, but also identify a principle that can help guide other possibilities. If the first name of the PAL facilitator is provided with scenario, they come from the actual events that occurred with the peer learning program at the University of Minnesota. First names of the PAL participants mentioned in the scenarios are noted with an asterisk (*) and are a pseudonym to protect their identity.

1. (Melissa, PAL Facilitator). "One girl has come to me as a tutor for about a year, and now she comes to PAL twice a week and my tutor hours. She and a couple other girls come to do homework, and we spend half the time talking about other things. I'll be going to med school and a lot of the people in chemistry are thinking about going into medicine too, so I can give them advice about future career things which is nice. It's a lot calmer in the session if you have that bond with students" (Walker, 2010, pp. 18-19).

   a. *When is it okay to talk about other issues during the PAL session?*

2. (Kelley, PAL Facilitator). "I was at the Mall of America. I saw these two girls who looked so familiar to me and I just figured I knew them from the journalism school. I glanced over – they hadn't seen me yet – and walked further into the store. They saw me and were like, "Kelley, Kelley! Hiiii! How are you?" I said "Hi," but I still hadn't made the connection. Then they asked, "Hey, what are we doing in class tomorrow?" I was thinking to myself, "What are they talking about?" Then finally I realized that they were students from my PAL session. We started talking a little bit, and they said, "What are you doing? We were just going to get some coffee, do you want to come?" I knew my mom was going to take forever, so I said sure! We didn't talk a thing about math, which was good – just leave it in the classroom. They were freshman, so they were asking me about my major and things that I had done in college so far. It was cute because they were so excited about it. They thought it was really cool" (Walker, 2010, pg. 19).

   a. *What was a key decision Kelley made about her communication with the students?*

   b. *What was a potential consequence of the chance conversation?*

     c. What is the potential impact of social conversations with students outside of PAL sessions?

3. (Kelley, PAL Facilitator). "One of my students always spoke out in class. She couldn't keep up with the groups. She got better as the semester went on, but at first, she was dragging them down. For example, her group would be working on the first problem when everyone else was finishing the worksheet, because they had to sit there and explain each step to her. That was one issue. Another issue occurred when we would go over the problems on the board. She would constantly raise her hand or just speak out and say, "Wait, wait, I don't get it." It got to a point where she was more of a barrier to the other people's learning because we weren't getting through the material when she was questioning every single step. In terms of personality, she got along fine with all the other students; that wasn't the issue. It was just the learning barrier that had a negative impact" (Walker, 2010, pg. 7).

     a. What more can you do as the PAL facilitator?

     b. Where could you refer the student for more assistance? If you make a referral, what do you need to know ahead of time to help the student link with the resource?

4. (Alicia, PAL Facilitator). "One student I had really needed help. Other class members disliked being paired with her, and she knew it right away, you could tell. People would work as fast as they could to get ahead of her, and she wouldn't know what to do. They would give her short answers and turn away, because she needed so much one-on-one instruction. She needed you to write it out for her, so she could stare at it and see what to do" (Walker, 2010, pg. 10).

     a. Do you suspect a learning disability? What might be going on with this student?

     b. If you met with her privately, what would you recommend?

5. A student confides a personal problem that could range from significant life challenges with depression, chemical abuse, harassment, or other.

     a. How do you respond if they ask for your help?

     b. How do you respond if they don't ask for your help but instead just mention it in conversation during the PAL session or privately with you?

     c. Where do you go for help?

6. A student confides that they need information to help them with an issue that is not necessarily life threatening, but is frustrating or unmet need.

     a. Examples of questions the students might have asked you:

     i. *English is not their first language and is having difficulties following the class lectures.*

     ii. *They would like to get involved with some campus organizations.*

     iii. *Course registration procedures are difficult and would like some suggestions how to be more successful.*

     iv. *They disclose they have a learning or physical disability.*

     v. *They are an international student and want to meet up with other students from their home country.*

   b. *To what campus resources would you refer a student, how could you or other members of the PAL group help?*

7. One of the students is struggling with the course. The PAL sessions do not seem sufficient to meet their needs. They ask you for several private tutorial sessions to help catch up.

   a. *Do you provide the private tutorial sessions with or without approval of the PAL supervisor?*

   b. *What other actions could you take?*

8. (Allison, PAL Facilitator). "I had one situation that I was totally unprepared for. One girl, who commuted, was having problems at home, and she confided in me about some bad things. I couldn't really make assumptions, but it did not sound good. I didn't know if it was abuse or a divorce, but she was alluding to it when she explained that she was depressed and that school wasn't going well" (Walker, 2010, pg. 23).

   a. *What campus or community resources would you refer her to?*

   b. *Would you follow up with her? If so, how?*

   c. *Do you make a report about the conversation to your PAL administrator?*

Image courtesy from the PAL Program at the University of Minnesota

Before the First Class Period

Before you can begin to shift authority and ownership of the PAL session, you need to establish your own credentials and expertise with the course instructor and the PAL participants. The following can help establish you as dependable and knowledgeable.

1. Develop your relationship with the course instructor::

- Send an email to the instructor to request a meeting time.

- Meet with the instructor to discuss your role as PAL facilitator.

- Identify the expectations the course instructor has of the PAL facilitator.

- Agree on the time and manner to introduce the PAL program on the first day of class (when appropriate).

2. Prepare for the PAL program introduction on the first day of PAL. Sometimes the PAL Supervisor will be the one to speak with students enrolled in the course on the first or second day of class. Sometimes it will be the PAL facilitator. The speech should take between five and seven minutes.

- Make an outline of the speech on large note cards (*i.e., 4"x6" note card*)

- Answer basic questions that students will have: What is the PAL program? Who should come to the sessions? What is the role of the PAL facilitator? Why should students be confident in you facilitating the PAL sessions? What sorts of results can students who come to the sessions expect?

- Practice giving the speech out loud several times.

3. Create handouts needed for the first day of PAL:

- If necessary, prepare a handout to give to all students about the PAL program

- If there is flexibility as to when the PAL sessions can meet, prepare a survey to determine student preferences for day and time.

Image courtesy from the PAL Program at the University of Minnesota

First Day of Class for Voluntary PAL Participation Courses

For courses where participation in PAL is voluntary, active recruitment is often necessary. In courses where attendance is mandatory, there is no need for this activity since the PAL session meeting times have already been made and students are aware of them. Here are the recommendations.

1. Arrive early to class to meet the instructor and find a seat in the front.

2. Distribute the handout about the PAL program to the students. Discuss with the course instructor when to do this activity (*e.g. as students arrive in class, at same time as announcement about the PAL program*).

3. Distribute the survey to students to determine their preferences for day and time of PAL sessions.

- The PAL program administrator will design the survey to meet the reporting needs of the program.

- Only questions that are essential will be collected. The survey on the following page is a sample to be customized for local campus needs and the time periods that coincide with the normal times that courses are offered.

- Cross out times the class lectures or labs are offered and times the PAL facilitator has other conflicts (*e.g., other courses, jobs*).

- Students should only indicate the times that they have unavoidable time conflicts. Otherwise, if students only indicated their preferences, there would be little consensus on when to offer the PAL sessions.

4. Introduce the PAL program to the students in the class.

- Make a great first impression with the students; act with confidence and speak clearly so everyone can hear you.

5. Collect the survey at the end of the class. Return to the PAL program administrator for scoring and decision-making.

Worksheet for Developing First Day of Class Introduction of PAL Program

Develop a short speech (five minutes) to deliver at the first session. Refer to the overview of PAL at the beginning of this workbook or other materials provided by your PAL program administrator to prepare an outline for the talk. Take a few minutes and sketch some ideas that help to answer each of the following questions. Work with two of three PAL facilitators and to practice with each other.

1. *What is the PAL program? Where else is it used in the U.S.?*

2. *Who should come to the sessions?*

3. *What is your role as PAL facilitator?*

4. *Why can students be confident in you as the facilitator? (What are your credentials?)*

5. *What will happen at the PAL sessions?*

6. *What sorts of results can students expect if they who come to the sessions?*

PAL Program Survey

Instructions for use by PAL facilitator: The facilitator should mark out time periods they have regular time commitments (e.g., other jobs, courses, etc.) The facilitator could recommend several time periods for students to consider when completing the survey.

Student Name: _____ Date: _____

Course Name: _____ Section #: _____

Weekly PAL program sessions will be offered for students enrolled in this course. This survey determines the most convenient times to schedule these sessions. Responses will be kept confidential and used by the PAL program only. The course instructor will not see these surveys and will in no way be used to influence grading for this course.

Directions: Please fill out this survey whether you think you will attend the PAL sessions or not. Thanks for your participation.

1. On a scale of 1 to 5 (1=not interested, 5=very interested) please indicate your interest in attending PAL sessions for this course.
        Circle one: 1   2   3   4   5

2. Have you enrolled in this course before?
        Circle one: Yes   No

3. Have you ever attended a PAL session before (in this or another course)?
        Circle one: Yes   No

Directions: Mark with an "X" the hours that you are NOT available to attend.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8 am							
9 am							
10 am							
11 am							
Noon							
1 pm							
2 pm							
3 pm							
4 pm							
5 pm							
6 pm							
7 pm							
8 pm							

Sample PAL flyer to distribute to students

Give PHSL 3051 your best shot:
PAL Study Group

- **Fridays 1:25-2:15**
- **Lind H 229**
- Get in some focused weekly study time
- Work with peers to reinforce understanding of concepts
- Facilitator will lead active discussions to keep up on the material
- No need to register – just come
- **It's FREE**

I hope to see you there!

*Begins Jan 31

See back for more information

SMART LEARNING COMMONS

Give PHSL 3051 your best shot:
PAL Study Group

- **Fridays 1:25-2:15**
- **Lind H 229**
- Get in some focused weekly study time
- Work with peers to reinforce understanding of concepts
- Facilitator will lead active discussions to keep up on the material
- No need to register – just come
- **It's FREE**

I hope to see you there!

*Begins Jan 31

See back for more information

SMART LEARNING COMMONS

Give PHSL 3051 your best shot:
PAL Study Group

- **Fridays 1:25-2:15**
- **Lind H 229**
- Get in some focused weekly study time
- Work with peers to reinforce understanding of concepts
- Facilitator will lead active discussions to keep up on the material
- No need to register – just come
- **It's FREE**

I hope to see you there!

*Begins Jan 31

See back for more information

SMART LEARNING COMMONS

Give PHSL 3051 your best shot:
PAL Study Group

- **Fridays 1:25-2:15**
- **Lind H 229**
- Get in some focused weekly study time
- Work with peers to reinforce understanding of concepts
- Facilitator will lead active discussions to keep up on the material
- No need to register – just come
- **It's FREE**

I hope to see you there!

*Begins Jan 31

See back for more information

SMART LEARNING COMMONS

What is PAL? Peer-Assisted Learning

- Informal, social, and productive weekly group study sessions
- Reinforces concepts through small group work with other motivated peers
- Concentrated focus and active discussions on the material

Why attend PAL?
- Research shows that students who consistently attend PAL improve their grade by a half to whole letter
- Meet other students in an informal learning environment
- Efficient way to get studying in
  https://smart.umn.edu

References and for more information:

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Rubin, D. (1983). *Teaching reading and study skills in content areas*. New York, NY: Holt, Rinehart, and Winston.

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Image courtesy from the PAL Program at the University of Minnesota

Summary of Principle Four
Shift of PAL Session Authority and Ownership

One of the best things a PAL facilitator can do is work themselves out of a job by the end of the academic term. We want PAL participants to be stronger students with more content knowledge and more confidence in themselves as learners. They will have a wider array of learning strategies for studying and better understand how to set up their own productive study groups when PAL is not available. There are times when you need to assert your authority within the PAL session. Key questions for the PAL facilitator are: when is it okay to take an authoritative role in your session? What are some things to be mindful of when asserting your position?

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

My Best PAL Session – Niketa, PAL Facilitator
"The best session I ever had was towards the end of the semester. We were finishing up the probability unit, which is one of the hardest units the students have in algebra. The students were getting to the point where they understood all the concepts, so we were going over really tough problems that had to do with counting cards and different keys words they had to know to do problems. It was right before a midterm. I would put up a problem on the board, and they would take five minutes to work in the groups to get the best answer they could. Then we'd come together as a class and I'd ask, "Okay, what's the first step?" Someone would raise their hand and tell me and then we'd go through the entire problem like that. The best thing about that session was that there was really good conversation. No one was off topic or really behind. They had done all of their work to that point and were very much on task. If there were people who were having troubles, I would just ask them a question that would help them answer their own question in a way, which was really good. I know we're supposed to redirect questions in PAL, and it felt really good to know I could do that. 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" (Walker, 2010, pp. 144-145).

Questions:

1. *Which of Nikita's behaviors helped students solve their own problems yet showed that she was still a resource for them?*

2. *What did the student participants do and why did those behaviors increase their skill and self-confidence?*

Principle Five
Model Productive Learning Behaviors

Cognitive learning strategies are modeled and used during PAL sessions so that individual students adopt them for use during this course and in future ones.

5. PAL facilitator and participating students model productive learning behaviors that students adopt and adapt.	A. Both PAL facilitator and session participants share learning strategies that are personally helpful. B. Apply learning strategy directly to course content. C. Identify the most important information and concepts in the course. D. PAL facilitator looks for "*teachable moments"* during the session to model a learning strategy that directly connects with course material. E. PAL facilitator preplans use of a rotating set of learning strategies during PAL sessions.

It is critical to employ a wide variety of learning strategies during the PAL sessions. While you may personally use only a few, the students in your sessions may be very inexperienced and need practice with many to find ones that work best for them. In an earlier section of this workbook, you were encouraged to employ a blend of different categories of PAL session activities; you need to do the same with the learning strategies. Be sure to apply these strategies to your own courses before using them in a PAL session; it will give you more credibility when you show how you used the learning strategy with success in your class. Some strategies, like vocabulary development, are critical regardless of whether your course is in humanities or mathematics. Our experience for many years is the PAL participants are more likely to experiment with using a learning strategy if you share how it was helpful to you. Look for an upcoming section of this workbook where it talks about adapting some of these strategies in different academic disciplines. Principle Six provides examples of how to adapt some of these learning strategies for particular academic disciplines.

List of learning strategies and activities in this section of the workbook:

1. Lecture Review
2. Oral Reading of Lecture Notes
3. Building Readiness for Learning
4. Reciprocal Questioning Procedure
5. Examination Preparation
6. Visual Strategies: Mind Map, Outline Map, Continuum Map, Matrix Map, Time Line
7. Vocabulary Development
8. Reading Textbooks and Assigned Materials
9. Modeled Study Skills: Note Taking, Note Cards, and Memory Strategies

Activities addressing these learning strategies are found in the publication "*Tried and Tweaked: Activities to re-energize peer learning sessions."*

Scenarios of Possible Interactions
Boundaries for Helping Students Above and Beyond
What is your choice and what principle(s) guide your decision?

Consider the following interactions PAL facilitators might have with the people they work with. What would you do in these situations? The goal is not only to identify the better choice, but also identify a principle that can help guide other possibilities. If the first name of the PAL facilitator is provided with scenario, they come from the actual events that occurred with the peer learning program at the University of Minnesota. First names of the PAL participants mentioned in the scenarios [noted with an asterisk (*)] are pseudonyms to protect their identities.

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 PAL facilitator. The following are situations that test the boundaries of helping.

1. A student shares how they did not attend the last class lecture due to a family emergency. Were the next exam is coming up 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.

    a. *If you have been attending class and taking notes, do you share a copy of them with the student?*

    b. *If you share a copy, how do you do it?*

    c. *If not, what other resources are there for him to obtain the lecture notes?*

2. A student misses a PAL session and asks you to provide a copy of any handouts and worksheets that were used at that time. She also ask for the answer key for the worksheets.

    a. *What are alternative ways to make the information available to her?*

    b. *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 than the way the course professor demonstrated it during class.

    a. *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 PAL session. They are stumped on how to solve several of them.

    a. *Do you let them take time during the PAL session to work together to solve the difficult homework problems?*

    b. *Do you "help" them in some way?*

    c. *What boundaries on this issue have been established by the PAL program and the course professor?*

Fostering Independence Throughout the Academic Term

The goal is to observe students develop their learning skills over the semester. The "Fostering Independence: handout was developed at UT Austin. It promotes a guide for the PAL facilitator on how to modify various learning strategies during the semester. Also included are Academic Skills Student Survey to use at week five of the course and an Academic Skills Inventory developed by the UMN PAL program.

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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

Student Survey (Given 5 weeks into the term)

Reflect on your first 4 weeks of studying.   Place an **X** in the box that best describes how often you've 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.				

Student Survey (Given 5 weeks into the term)

Reflect on your first 4 weeks of studying. Place an **X** in the box that best describes how often you've used the following study strategies in **this course**:

I. Class Preparation	Almost Always	Some times	Rarely	Never
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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 outside of PAL.				
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.				

Academic Skills Inventory (PAL facilitator Copy)
This document is used by the PAL facilitator when debriefing survey results from the PAL participants that completed the Academic Skills Inventory. The student feedback on the survey can help guide you in your choice of activities at upcoming PAL sessions.

I. Class Preparation	Actions
I read assigned material BEFORE each lecture.	- Write questions on post-it notes to put in margins of textbook and having students highlight answers directly in text - Split assigned reading and assigning different parts to small groups; each group presents a summary to the class - Create Study guides with questions from book that are not easy to find unless the reading has been completed - Jigsaw reading activity where partners type notes on the text into an outline on a laptop; email outline to students
I prepare questions for discussion sections.	- Ask students questions that have been asked in lecture or lab that are typically hard to understand - Ask at least one challenging question in the session and encouraging students to visit office hours - Five minutes at the end of the session: write down a question you still have about a topic and list 3 topics that you think are going to be tested
II. Self-Study Skills	
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 in the note space - Hand out copy of your notes with notes in margins
I take notes in lecture and discussions.	- Note share (5 min.) in PAL session so everyone can catch up and ask around if they missed something - Skeleton outline of lecture notes provided in PAL session for students to complete - Packet to guide students through the chapter notes with leading bullet points
I rewrite notes in my own words.	- 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 in the note space - Have students summarize difficult terms in a way they can understand - 5 minutes – discuss lecture notes from the day - Explicitly give ideas for how to take notes (spoken ideas from lecture instead of copying down lecture slides that will be posted)
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 - Vocab competitions with a race to get through flash cards the fastest - Post-It notes on forehead

I make graphic organizers like charts, tables, mind maps, matrices.	- Design matrix to summarize the main 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 novel; pairs of students responsible for characters and relationships of the character - Organize ideas and themes and establish relationships between course concepts
I work with other students in the course.	- Encourage students to engage in study groups - Use two different levels of interaction each week (whole class vs. small group) - Create activities in groups of two or four; large-group discussion - Place students in groups so they are 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 they have a built-in study group - Do an activity that requires collaboration that is too long to finish in session
I practice solving extra problems beyond homework.	- Give students practice problems similar to their homework questions - 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 to visit TAs and professors - Collaborate with professor and TA to determine focus of PAL sessions - Cite the professor's view that PAL activities are important so that students see the relevance
If applicable, I revise my draft several times.	- PAL session workshop where students bring essays and do a peer editing exercise using a handout with the steps to the process - Use PAL time to have students create outlines for their papers, then do peer-editing
If applicable, I read papers/essays aloud.	- Have students practice public speaking (for speeches) in front of the PAL students
III. Exam Preparation Skills	
I predict test questions.	- Practice exam questions where students vote to determine which questions would most likely be on the exam; winner of vote gets candy - Students make list of themes and concepts the think they will be tested on - Students develop questions for review sheet
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 and try to find topics that haven't been covered… have they been discussed in different terms? - Discuss questions on practice exams in PAL sessions - Old test questions as basis for review sessions
I create study guides.	- Jeopardy study guide with 25 questions; emailed to students if they participate during session
I review returned quizzes and tests to identify difficult concepts for future studying.	- Select difficult test questions that are likely to reappear on future exams and reviewing those questions in the PAL session
If applicable, I prepare outlines for possible essay questions.	- Group effort to create outlines that could be used to answer potential essay questions

Lecture Review

Description: A review of one or more of the lectures delivered by the instructor in the past week. It does not need to be the most recent lecture if the review session immediately follows the lecture since the PAL facilitator needs time to prepare for the session and make copies of handouts.

Purposes:

1. Review the instructor's recent lecture.

2. Help students to separate the lecture material: important concepts, illustrations, and other material. Some students act like stenographers in class and record everything equally, but have difficulty sorting out the most important material to study for future examinations.

3. Expose students to different methods of note taking (*e.g., Cornell Method, mind mapping*). Put students in small groups so they can share their note taking styles with each other.

4. Group discussion allows students to self-discover their level of note taking in comparison with others. This provides an opportunity to modify their methods, especially if they have missed important material.

5. Provide opportunities to see linkage of the lecture with the textbook, outside readings, previous lectures, student prior knowledge, and anticipated future lectures. This leads to higher comprehension of the new material.

6. Help students to discover an organization pattern in the lecture to make it easier to learn the material.

Procedures and Examples: (After the facilitator has directed the students to quickly silently read their lecture notes of the designated day in class, choose one of more of the following activities. Rotate their use throughout the academic term.)

1. Ask students to generate a list of the main topics from the lecture. Next ask them to take several minutes to review their lecture notes concerning the topic. Following that, the PAL facilitator leads the group in a more in-depth discussion of the topic.

2. Facilitator asks for a volunteer to go to the board and serve as recorder for a list of new vocabulary words and terms contributed by the group. Suggest that students record the list in their lecture notes.

3. Facilitator leads a group discussion to establish connections between the current lecture with previous lectures, previous and current assigned readings, and student prior knowledge.

4. When the facilitator notices that someone is using a unique note taking system, ask him or her to share their strategy with the group. Throughout the term the facilitator should model different methods *(e.g., Cornell, mind mapping)* of note taking and share them with the group.

5. After a challenging lecture early in the academic term, the facilitator could photocopy one or more pages of their notes to share with the group as a sample.

This is especially helpful in math courses where some students have great difficulty taking effective notes from the lecture and the material copied onto the board by the instructor. *Cautionary note: PAL facilitators should never regularly copy their notes for students or loan them out to others. The request should be redirected to the group for find a volunteer. If necessary, tell the student that you are prohibited from distributing your lecture notes.*

6. Facilitator prepares an incomplete outline of the lecture to include the major (and some secondary) points in the lecture with space to add more information. This is a useful activity early in the academic term to help students see patterns in the instructor's lecture.

7. Students create their own outline of the lecture. A member of the group goes to the board and serve as recorder for the group. This is especially helpful for a challenging lecture.

8. Students summarize the lecture at the end of the review session. This could be done by asking each to write one paragraph in their notes; several volunteers could share what they wrote with the group.

References and Suggestions for Further Investigation:

Carter, C., Bishop, J., & Kravits, S. L. (1998). *Keys to effective learning*. Upper Saddle River, NJ: Prentice Hall.

Dembo, M. H. (2000). *Motivation and learning strategies for college success: Self-management approach*. Mahwah, NJ: Lawrence Erlbaum Associates.

Heiman, M., & Slomianko, J. (1993). *College: A new beginning*. Cambridge, MA: Learning to Learn.

Sellers, D., Dochen, C. W., Hodges, R. (2001). Academic transformation: The road to college success. (2nd ed.). Boston, MA: Pearson.

Image courtesy from the digital archives at the University of Minnesota

Oral Reading of Lecture Notes

Description:
Each student is asked to read aloud a portion of their lecture notes for other members of the group. If the class is large, break down into smaller groups for this activity.

Purposes:

1. This group activity allows students to self-discover their level of note taking in comparison with others. It encourages them to modify the note-taking methods since some group members are recording material missed by some students.

2. Increases awareness of the amount of information that is being communicated throughout the class session, important announcements at the beginning and end of class, and various means that information is communicated (*e.g., oral lecture, board work, audiovisual presentations, handouts, group discussion*).

3. Students can fill in gaps of their lecture notes by listening to contributions by others in the group.

Procedures and Examples:

1. The facilitator reminds the group about the procedures for the activity, i.e. group members are given permission to "pass" and not read aloud. While everyone is encouraged to participate, some will choose not to read aloud for different reasons: fear of revealing their academic weakness regarding note taking; missing class that day; cultural sensitivity issues regarding speaking in front of people of other cultures and genders; speech disabilities; or other personal reasons.

2. The facilitator models the activity by being the first to read their lecture notes. The facilitator's lecture notes should include all announcements given by the instructor at the beginning of class, all material written on the board or presented through other audio-visual means, the lecture itself and any final announcements given during the last minutes of class. The facilitator reads for a minute or two and then pauses to ask the group if anything needs to be added to the notes.

3. The next person reads and begins at the next place in the lecture notes and continues for several minutes.

4. The group is then asked if anything needs to be added. Group members are encouraged to add new material from their lecture notes that was not read by the student. To encourage others to share, the facilitator should be the last one to make a contribution.

5. The next person seated beside the student is encouraged to continue in a like fashion.

6. If a student reads notes with incorrect information, see if another student challenges. If no one does, the facilitator should not directly challenge the student but gently state that, "I didn't have that in my lecture notes." The facilitator would then ask if anyone else in the group had written similar material in their notes. To resolve the difference of opinion, students consult the textbook, outside readings,

and their lecture notes. To support increased autonomy and self-confidence of the group members, the authority for the discussion cannot be the expertise and prior knowledge of the facilitator, but rather the individual student, knowledge gained through the group and use of the textbook. It may be necessary to resolve the issue by one of two means: (1) asking a group member to ask the instructor privately and to report the resulting conversation back to the group; (2) ask a group member to ask the instructor during the next class period. facilitators should not be placed in a position of acting on behalf of the group to talk with the instructor.

Image courtesy from the PAL Program at the University of Minnesota

Building Readiness for Learning

Description:

Students engage in activities to prepare them for future lectures and reading assignments.

Purposes:

1. Helps to activate prior knowledge about the upcoming topic, making it easier to learn the new material since they can connect it with information they already understand.

2. Future lectures and textbook readings are easier to learn if students are familiar with the new vocabulary terms that will be introduced at that time.

Procedures and Examples (select one or more of the following. Rotate use of the strategies throughout the academic term):

1. At the end of a session, the group facilitator asks students to make predictions about the topic and direction of the next lecture and material in assigned readings.

2. The facilitator asks for students to share what they already know about the upcoming topic. This helps to build a bridge to the new material by connecting with prior knowledge of the student.

3. At the end of a session students are asked to skim the upcoming chapter to identify the main topics (*generally in bold type*) and key vocabulary words (*sometimes noted in a list at the beginning or end of the chapter*). This activity could be done in a more comprehensive manner by using SQ3R, KWL, or other strategies.

References and Suggestions for Further Investigation:

Pauk, W. (1997). *How to study in college*. (6th ed.). Boston, MA: Houghton Mifflin.

Image courtesy from the PAL Program at the University of Minnesota

Reciprocal Questioning

Description:

This strategy can increase comprehension of reading material. Activity takes about 20 minutes.

Purposes:

1. Improve reading comprehension
2. Model thinking related to questioning and answering skills.
3. Gives practice of these thinking skills in a nonthreatening rewarding environment.
4. Allows students to learn from facilitator and each other.

Procedures and Examples

1. Preparation by the facilitator:

    a. Selects a section from the assigned readings of (between two and five paragraphs).
    b. Carefully reads and studies the reading selection.
    c. Prepare five to ten questions of following varieties at different stages of Bloom's Taxonomy of Educational Objectives (1973): factual/detail, inferences, application, evaluation, and one question requiring prediction of where the author is going and another how the topic relates to something else.
    d. Distribute copy of the reading selection to the students.
    e. Provide the following introduction to the activity. "Here is a procedure that I think will help you improve your understanding of the material. Let's read this selection together silently. Read it at your usual study reading rate. After we have read it, I will turn my paper over and not look at it. I then want you to ask me questions, like the ones an instructor might ask, that will check how well I have read the material. Ask me as many questions as you can find. After you have asked your questions, I want you to turn your paper over, and I will ask you some questions". Allow ten minutes for this activity.

2. Students ask questions of the facilitator. Facilitator responds as follows:

    a. Make sure students state their questions clearly. Help them frame the questions clearly and does not answer poorly articulated questions.
    b. Listens carefully to questions individual students ask. If questions do not make sense, facilitator asks the student to share what thoughts generated that question. Facilitator uses tact to avoid embarrassing students.
    c. Praises higher level questions and model critical thinking. Helps students ask questions that require inference and application, first praise them. "I don't remember the author stating an answer to that" and then model your

thinking: "From what I know … and … I would say that … would be the case because…"

d. When asking higher order thinking questions, ask the group for input. "Is that what you had in mind?" or "Did I leave out anything?" or "Did someone think of a different response?" Avoid confronting the student with his or her own question. Students are not necessarily asking out of a posture of ignorance. They may need be seeking information, but, then again, they may have the answer themselves.

e. Occasionally feign ignorance. For one question, feign ignorance and model "What I do remember is … Does anyone else remember more? How could we find the answer?" Students need to see how an intelligent self-respecting person handles not knowing the answer. If no one knows the answer, ask a volunteer to ask the professor or look up the answer in the larger assigned reading or their lecture notes.

3. facilitator asks questions of the students

   a. Beginning of this phase of the reciprocal questioning activity

      i. Students turn over the reading selection.

      ii. Initially, ask recall questions: facts, details, definitions

      iii. Ask for volunteers, call on students who are having some difficulties with the reading

      iv. Praise responses.

   b. Midway through this phase:

      i. Ask inference, application, translation, and evaluation questions

      ii. When no one knows, assume responsibility for answering the question. The facilitator models the thinking process. If no one can answer the question, admit the question may not have been appropriate since it was asking too much.

   c. End of this phase:

      i. The last question should be one that asks the group to predict something that might follow in the larger reading selection from which this smaller one was selected.

References and Suggestions for Further Investigation:

Manzo, T. (1960). The ReQuest procedure. *Journal of Reading 3*(2), 123-126, 163.

Martin, D. C., & Blanc, R. A. (1984). Improving comprehension through reciprocal questioning. *Life Long Learning 7(*4), 29-31.

Examination Preparation

Description:
Activities to prepare students for major unit examinations.

Purposes:

1. Help students to see that effort and time invested in preparation can enable them to earn higher grades on examinations.

2. Potential questions on the examination can be reasonably predicted from review of the lecture notes and assigned readings.

3. Students can begin to think like instructors' think concerning what academic content from the course is most important.

Procedures and Examples:

1. Identify the calendar for all course assessments from the course syllabus. The calendar of upcoming examinations and homework assignments is regularly noted in review sessions.

2. Review whether the instructor has placed past examinations on file at the campus library. If so, copies of the examination could be reviewed during the review session.

3. Identify the types of questions that will appear on the examinations and discuss strategies to deal with each type of question: essay, multi-choice, true/false.

4. Take a few minutes at the end of each review session for the students to generate two or three potential examination questions based on the lecture. Encourage students to leave extra room at the end of their lecture notes so that there is space for a summary paragraph and potential examination questions to be added by the student later. The facilitator could keep a running list of these potential questions generated by the group and distribute them before the next major unit exam.

5. During each review session the group identifies the new vocabulary words that are introduced during the lecture. The facilitator could then compile the list and distribute it before the next major unit exam.

6. A mock examination is administered before one or more of the major unit examinations:

   a. The mock exam is created by the PAL facilitator. Questions could be those generated by the group (*see #4 above*) and the facilitator.

   b. The mock exam has representative question types that may appear.

   c. Time should be split in the review session so that the mock exam can be completed and then time provided to debrief and discuss the exam. Suggestions can be provided concerning strategies for test taking.

   d. So that students can preview the time pressure on the real examination, the number of questions that appear on the mock exam push students to complete them within the time provided.

e. Following the mock exam, the facilitator leads the group in debriefing the experience by describing the strategies used to read and respond to the questions, strategies for dealing with test anxiety. Use the "post exam survey" described in another section of their workbook as a tool during the debrief of the mock exam.

The following information about examinations might be used by the facilitator during the debrief of the mock exam or the post exam review. It could be printed as a handout for distribution or posting to a web page.

<u>*General Test Strategies*</u>:

1. Carefully read the directions for the exam before beginning.

2. Make a plan to budget time for each part of the exam.

3. Carefully read each question. Mistakes are often made by rushing through exams. If you have permission to mark on the exam, underline key words in the directions and questions if it helps you to focus on the statements.

4. Use the information provided in one part of the exam to help answer questions in another part. For example, use vocabulary words, definitions, and answers to multi-choice questions when providing additional supporting information with essay questions.

5. If making an educated guess on a question you are unsure, do not go back and change it later.

6. Be sure to respond to all questions unless points are deducted for incorrect responses.

7. Allow time at the end of the exam to check for completion of all questions.

8. Take the entire test taking time to complete the exam, extend essay responses, and check your answers.

9. If you have a diagnosed learning disability that has an impact upon your test taking skills, request an accommodation from the school to take the exam under alternate conditions. This is not seeking an advantage, rather to assure that all students have an equal opportunity to do well on an exam.

<u>*Multiple-Choice Exams*</u>:

1. Carefully read the question stem (*keep potential answers covered with hand*).

2. Identify what the question is asking. (if you have permission by the instructor with marking in the exam booklet: *underline key words or phrases, write short notes in the exam booklet margins*).

3. Focus on understanding the question, not just identifying the correct answer.

4. Restate the question into your own words and interpret its meaning.

5. Predict an answer without looking at keyed responses.

6. Look at the potential responses and notice if any of the options permit selecting more than one correct answer (*e.g., all of the above, b and c, all except answer a*).

This is especially important in case the first answer option is correct and you are tempted to select it immediately and then stop reading the options and go on to the next question.

7. Pay attention to special question words (*e.g., not, all except*). If question has this format, write a T for true and F for false beside each answer option to make question easier. Then select the answer option with the F beside it. Watch for multiple answer options (*see suggestion #6 above*).

8. Eliminate the answers that are obviously incorrect.

9. Never be afraid to use common sense in determining your answer. Most instructors do not design questions to be intentionally difficult and confusing.

10. Unless there is a strong and logical reason, do not change answers.

11. If all of the above suggestions do not help and you are still clueless, guess at an answer and move on to the next question. Budget your time and do not waste time on only a few questions.

Matching Exams:

1. Determine the pattern of the matching questions (e.g., people with quotes, words with definitions, events with descriptions)

2. Choose the longest column to read first. It will provide the largest amount of information and clues for matching with the shorter column.

3. Make it easier to complete the questions by eliminating items already answered. Cross out the items used from both columns as you complete them.

Essay Exams:

1. Quickly scan through the whole test first to allow you to budget your time for each section.

2. Answer the questions you know best first.

3. Read the instructions to each question carefully.

4. Take time to structure your answer if it is an essay question. Take 15 to 30 seconds to outline your answer on the back of the exam page.

5. Come straight to the point in your answer and provide supporting detail and evidence to support your conclusions. Build a case with supporting information.

6. Use the information provided in other parts of the exam to help answer the essay questions. For example, use vocabulary words, definitions, and answers to multi-choice questions when providing additional supporting information with essay questions.

7. Take time at the end to reread the exam to check for unanswered questions or to add more detail for essay questions. Never leave an essay question blank. If you

miscalculated on time, write an outline of your answer and indicate that you ran out of time. Perhaps you will receive partial credit for the question.

8. Qualify answers when in doubt. Show the instructor why you are taking the position on the answer.

Key words on exams:

1. *Compare*: examine qualities, or characteristics, in order to determine resemblances.

2. *Contrast*: stress dissimilarities, differences, or unlikeness of associated things.

3. *Criticize*: express your judgment with respect to the correctness or merit of the factors under consideration

4. *Define*: write concise, clear, authoritative meanings.

5. *Discuss*: examine, analyze carefully, and present considerations pro and con regarding the problem or item.

6. *Enumerate*: a list or outline form of reply. Recount, one by one, in concise form, the points required.

7. *Evaluate*: present a careful appraisal, stressing both advantages and limitations.

8. *Explain*: clarify, elucidate, and interpret the material you present.

9. *Illustrate*: present a figure, diagram, or concrete example.

10. *Interpret*: translate, exemplify, solve or comment upon the subject, and, usually, give your judgment or reaction.

11. *Justify*: prove your thesis or show grounds for decision.

12. *List*: present an itemized series or a tabulation.

13. *Outline*: give main points and essential supplementary materials in a systematic manner.

14. *Prove*: establish something with certainty by citing evidence or by logical reasoning.

15. *Relate*: emphasize connections and associations.

16. *Review*: analyze and comment briefly, in organized sequence the major points.

17. *State*: express the high points in brief, clear form.

18. *Summarize*: give in condensed form the main points or facts.

19. *Trace:* give a description of progress, sequence, or development from the point of origin

References and Suggestions for Further Investigation:

Bogue, C. (1993). *Studying in the content areas: Science* (2nd ed.). Clearwater, FL: H&H Publishing.

Bogue, C. (1993). *Studying in the content areas: Social science*. (2nd ed.). Clearwater, FL: H&H Publishing.

Carter, C., Bishop, J., & Kravits, S. L. (1998). *Keys to effective learning*. Upper Saddle River, NJ: Prentice Hall.

Dembo, M. H. (2000). *Motivation and learning strategies for college success: Self-management approach*. Mahwah, NJ: Lawrence Erlbaum Associates.

Ellis, D. (1991). *Becoming a master student*. (10th ed.).Independence, KY: Cengage Learning.

Gardner, J. N., & Jewler, A. J. (Eds.). (1997). *Your college experience: Strategies for success*. (3rd ed.). Belmont, CA: Wadsworth Publishing Company.

Heiman, M., & Slomianko, J. (1993). *College: A new beginning*. Cambridge, MA: Learning to Learn.

Lipsky, S. A. (2011). *A training guide for college tutors and peer educators*. Boston: Pearson.

Maxwell, M. (1979). *Improving student learning skills: A comprehensive guide to successful practices and programs for increasing the performance of underprepared students*. San Francisco, CA: Jossey-Bass.

Pauk, W. (1997). *How to study in college*. (6th ed.). Boston, MA: Houghton Mifflin.

Image courtesy from the digital archives at the University of Minnesota

High Stakes Examination Preparation

Description:
This activity has historically been used to help prepare students for examinations such as the GRE, DAT, and USMLE. Extensive time is taken with each question to complete the entire learning cycle. This protocol was originally designed to work with students in an intensive exam preparation program over a period of between one and five months. The quality of the discussion is more important than rushing through the questions. Taking a full time-length mock exam is a separate activity. It is suggested to use commercial test preparation guides for that activity.

Purposes:

1. Increase carefulness of reading multi-choice questions and the potential answers.

2. Read and interpret questions accurately, not just rapidly identifying correct answer.

3. Increase confidence with answers selected for the questions.

4. More effectively recall information already learned for use in solving questions.

5. Identify error patterns in test taking.

Procedures and Examples:

1. Preparation for the exam review session:

   a. Purchase examination preparation workbooks for the admission or licensure examinations such as the GRE, DAT, and USMLE. Use the questions from the workbooks for practice with this activity.

   b. The facilitator of the study review session creates a mock examination. Each question is placed on one sheet of paper. Consecutively number all the questions. Due to extensive discussion time for each question, do not prepare more than ten. On one side of each sheet, place only the question. On the other side, place the question and the potential answers.

   c. The mock exam has representative question types that may appear.

   d. Prepare a set of 3x5 cards for each participant. Each set has six cards numbered one through six.

2. Protocol for the exam review session **before** potential answers revealed:

   a. Divide the students into small groups that do not exceed five or six. This provides more interaction and conversation among the participants.

   b. The facilitator passes out the decks of 3x5 cards and the question sheets.

   c. The facilitator instructs the students which one of the question sheets that will be analyzed. Students are instructed to only look at the side of the sheet that has only the question displayed.

   d. One member of the small group carefully reads the question aloud. The rest of the group checks for accuracy. (*Keep potential answers covered with hand*

or the stack of index cards). Mistakes are often made by misreading the questions.

   e. The group identifies what the question is asking.

   f. Another member of the group restates the question into their own words and interprets its meaning. The group discusses if all are in agreement.

   g. The group spends several minutes recalling everything they know about the question topic and what is being asked. One or more members of the group go to the marker board to write key information, make diagrams, or other visual organizers with others in the small group contributing information as well.

   h. Each individual in the group predicts an answer without looking at keyed responses. (Keep potential answers covered.)

   i. Each member establishes confidence rating for the predicted answer by holding up one of the 3x5 cards with the number representing their confidence (6=high, 1=low).

   j. Each member discusses their rational for their predicted answer.

3. Protocol for review session **after** potential answers revealed:

   a. The small group facilitator requests that everyone turn their question sheet over so that the potential answers are revealed.

   b. Each participant underlines key words in the questions and potential answers. Write notes in the margins to assist with understanding what information is being requested.

   c. Read carefully each of the potential answers from top to bottom. Observe whether the predicted answer is among them.

   d. Look at the potential responses and notice if any of the answer options permit selecting more than one correct answer (*e.g., all of the above, b and c, all except answer a*). This is especially important in case the first answer option is correct and tempted to select it immediately and then stop and go on to the next question.

   e. Pay attention to special question words (*e.g., not, all except*). If question has this format, write a T for true and F for false beside each answer option to make question easier. Then select the answer option with the F beside it. Watch for multiple answer options (*see suggestion #6 above*).

   f. Never be afraid to use common sense in determining your answer. Most instructors do not design questions to be intentionally difficult and confusing.

   g. Unless there is a strong and logical reason, do not change answers. If all of the above suggestions do not help and you are still clueless, guess at an answer and move on to the next question. Budget your time and do not waste time on only a few questions.

4. Activities **after final prediction** of answer to the question:

   a. Each individual in the group selects an answer

b. Each member establishes confidence rating for the predicted answer by holding up one of the 3x5 cards with the number representing their confidence (6=high, 1=low).

c. The facilitator leads the group in debriefing the experience by describing the strategies used to read and respond to the questions, strategies for dealing with test anxiety.

d. Following the mock exam, the facilitator leads the group in debriefing the experience by describing the strategies used to read and respond to the questions, strategies for dealing with test anxiety.

e. Group members debrief reasons for correct or incorrect responses to the question.

f. Group moves onto to the next question.

The following information about examinations might be used by the facilitator during the debrief. It could be printed as a handout for distribution or posting to a web page.

General Test Strategies:

1. Carefully read the directions for the exam before beginning.

2. Make a plan to budget time for each part of the exam.

3. Be sure to respond to all questions unless points are deducted for incorrect responses.

4. Allow time at the end of the exam to check for completion of all questions.

5. Take the entire test taking time to complete the exam, extend essay responses, and check your answers.

6. If you have a diagnosed learning disability that has an impact upon your test taking skills, request an accommodation from the school to take the exam under alternate conditions. This is not seeking an advantage, rather to assure that all students have an equal opportunity to do well on an exam.

References and Suggestions for Further Investigation:

Morton, A. M. (2006). Improving NCLEX scores with Structured Learning Assistance. *Nurse Educator, 31*(4), 163-165.

Image courtesy from the PAL Program at the University of Minnesota

Visual Strategies

Description:
Employing visual organizers with academic content material.

Purposes:

1. Students retain information longer if they can see visual relationships among separate pieces of information by developing a schema, an overarching organizational device.

2. Provide an easier method for studying academic content before major examinations.

Procedures and Examples:

Image courtesy from the PAL Program at the University of Minnesota

1. A ***mind map*** is an organizer in which the central concept of the lecture is placed in the middle of the page. Like a spider web, each point made during the lecture is arranged on the page based on its relative relationship with the central concept.

2. An ***outline map*** arranges information into an organization that descends in a logical sequence from primary, secondary, and tertiary information.
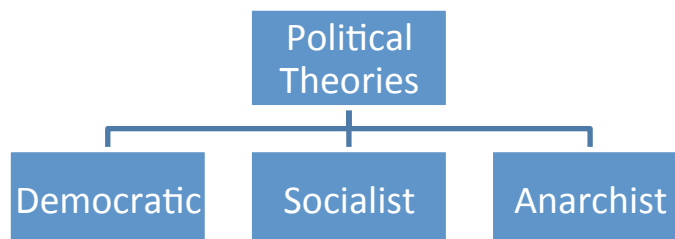
3. A ***continuum line map*** arranges information into a sequence. Rather than a time line that displays information chronically, this map displays items in their relative relationship to one another.

Sample Continuum Line Map: *Positions of Theorists on Basic Human Nature Assumptions*
[Freedom] ------------------- Maslow —Rogers -----Freud ----- Skinner -- [Determinism]
[Good Nature] ---------------Rogers ---Maslow ---- Freud ------------------- [Evil Nature]
[Environment Controls] -- Skinner ---Erickson --- Freud ---- Jung ------- [Heredity Controls]

4. A *matrix map* is useful when there are several categories of information that can be compared among multiple topics. In addition to allowing for more rapid learning of the material, matrix charts can be used to prepare for examinations. Much like the television game show, Jeopardy, each box of information can be turned into a question. Also, the creation of comparison and contrasts in the matrix box provides structure that often makes more powerful essay question responses. At the beginning of the academic term the facilitator can take more guidance in helping the group to create matrix boxes to organize lecture or textbook information. The facilitator may suggest the organization of the rows and columns and help the group locate the needed information to complete the matrix in the lecture notes and textbook. As the academic term progresses, it is better for the facilitator to sometimes prompt the group to create a matrix, but to let the group struggle with how to create the matrix. This leads to independence for group members when they must create such structures by themselves.

Sample Matrix Box: *Examining the Muslim Empires*

	Ottoman Empire	*Savadid Empire*	*Mughal Empire*
Political Organization			
Religious Toleration			
Foreign Relations			
Economic Policies			

5. A *time line* can display a continuum of events or ideas over a period of time. This activity should only be employed in review sessions when it is certain that this level of detail is necessary for exam preparation or for more deep mastery of the academic content. On the board in the room someone can draw a line along the top end of the board and important dates and short descriptions of events can be contributed by the group. To show comparisons, two of more horizontal lines might be drawn next to each other with each representing events within another country. Time lines can also be helpful for connecting previous course material with upcoming material.

Sample Time Line: *Comparing U.S. Events and Immigration Policy*

Time Line #1. U.S. Events

Erie Canal	Railroads	Civil War	Industrialization	WWI Involvement
Built	Built	Occurs Beings	Occurs	

___/_____/_____/_____/_____/_____
1825   1850   1860-65   1900   1917-1918

Time Line #2. European Immigration to the U.S.

Wave I	Wave II	Wave III		
Quotas Imposed		Irish & German	N.W. Europe	S.E. Europe

_____/_____/_____/_____/_____
      1840   1880   1915   1921

References and Suggestions for Further Investigation:

Bogue, C. (1993). *Studying in the content areas: Science* (2nd ed.). Clearwater, FL: H&H Publishing.

Bogue, C. (1993). *Studying in the content areas: Social science*. (2nd ed.). Clearwater, FL: H&H Publishing.

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Vacca, R. T. (1981). *Content area reading*. Boston, MA: Little, Brown and Company.

Image courtesy from the PAL Program at the University of Minnesota

Vocabulary Development

Description:
Developing mastery of the technical language used in the course.

Purposes:

1. Identify the key technical terms in the lecture notes and assigned readings.

2. Understand the relationships among key terms.

3. Use the technical terms appropriately and precisely during review sessions rather than paraphrasing them in other words. It is important for the students to be fluent of the vocabulary in their academic discipline since it will be required for future courses and work careers.

Procedures and Examples (*Select one or more of the following activities*):

1. At the beginning of the review session, the group identifies the new vocabulary terms in the lecture. The facilitator writes the words on the board.

2. The facilitator ensures that the group uses their lecture notes or the textbook to provide a short definition of each new words written on the board. This could be done in one of several ways:

   a. create a group activity where each word is defined;

   b. break group into smaller units to answer part of the word list and then report back to the large group;

   c. give each student is given one word to define and report back to the large group;

   d. define words as they are encountered throughout the review session.

3. The facilitator monitors the group discussion and prompts group members to precisely use the technical language presented during the lecture or contained in the textbook.

References and Suggestions for Further Investigation:

Bogue, C. (1993). *Studying in the content areas: Science* (2nd ed.). Clearwater, FL: H&H Publishing.

Bogue, C. (1993). *Studying in the content areas: Social science*. (2nd ed.). Clearwater, FL: H&H Publishing.

Heiman, M., & Slomianko, J. (1993). *College: A new beginning*. Cambridge, MA: Learning to Learn.

Lipsky, S. A. (2011). *A training guide for college tutors and peer educators*. Boston: Pearson.

Maxwell, M. (1979). *Improving student learning skills: A comprehensive guide to successful practices and programs for increasing the performance of underprepared students*. San Francisco, CA: Jossey-Bass.

Pauk, W. (1997). *How to study in college*. (6th ed.). Boston, MA: Houghton Mifflin.

Reading Textbooks and Assigned Readings

Description:
Strategies to increase comprehension and mastery learning of topics in textbooks and assigned readings.

Purposes:

1. Demonstrate the value of the readings by referring to and using them during review sessions.

2. Explore textbook elements that can be used to increase comprehension and prepare for examinations.

3. Discover strategies to identify the most important material for exam review.

4. Connect reading assignments to lectures and activities in the classroom.

5. Increase readiness for lectures by encouraging students to read ahead in their assigned readings.

Procedures and Examples (select one or more of the following. Rotate use of the strategies throughout the academic term):

1. The facilitator always brings the textbook and assigned readings to use for group activities as well as to demonstrate that the materials are valuable.

2. Early in the academic term, the facilitator surveys the textbook to point the group to sections that may answer specific questions.

    a. Chapter elements: topical outline, vocabulary lists, headings embedded within the text, listed potential essay questions

    b. Book elements: table of contents, vocabulary glossary of key terms, topical index of key words with page numbers (*to more quickly locate information*)

    c. Web-based resources: flash cards, study guides

3. Preview upcoming course topics by skimming the assigned readings before the lecture that is connected to it. Make predictions of what topics will be covered by the upcoming lecture.

4. Early in the academic term the facilitator can lead the group to create a study guide for the assigned reading. Using elements from the textbook as the guide, identify key vocabulary terms, create an outline of the topics, and predict some potential examination questions.

5. Discuss the connections between the assigned readings and the lecture notes.

6. Compare notes taken over the assigned readings. (*See the note taking section for suggestions*.)

7. Analyze selected charts, graphs, and diagrams in the readings. Many students skip these elements when quickly reading. Often the instructor will assume that students have read and understood these elements in addition to the reading narrative section.

SQ3R – Specific Reading Strategy for Textbooks (http://en.wikipedia.org/wiki/SQ3R)

Description:
SQ3R is a specific reading comprehension method named for its five steps: **survey, question, read, recite, and review.** The method was introduced by Francis Pleasant Robinson in his 1946 book *Effective Study*. Similar methods developed subsequently include PQRST and KWL table. Use this strategy several times early in the academic semester to help sharpen the students' critical reading skills.

Purposes:
1. Students are able to generate main ideas from the textbooks/study material
2. Students are able to learn more effectively which means that they will remember for a longer period what they have learned.
3. The method is relatively easy to apply and does not require a specific effort from the PAL facilitator.

*Procedures: (*http://www.ucc.vt.edu/lynch/TRSurvey.htm)
1. **Survey.** The first step Survey or skim advises that one should resist the temptation to read the book and instead glance through a chapter in order to identify headings, sub-headings and other outstanding features in the text. This is in order to identify ideas and formulate questions about the content of the chapter.
    a. Read the title. This helps your brain begin to focus on the topic of the chapter.
    b. Read the introduction and/or summary. This orients you to how this chapter fits the author's purposes. It also provides you with an overview of the author's statement of the most important points.
    c. Read each boldface heading and subheading. This helps you create a framework for the chapter in your mind before you begin to read. This framework provides a structure for the thoughts and details to come.
    d. Review any graphics. Charts, maps, diagrams, pictures, and other visual aids are there to make a point. Publishers will not include these items in the book unless they are deemed to significantly add to the text.
    e. Review any reading aids in the chapter. This includes italics, chapter objectives, definitions and study questions at the end of the chapter. These aids are there to help you sort, comprehend and remember. Use them to your advantage.

2. **Question**. Formulate questions about the content of the reading. For example, convert headings and sub-headings into questions, and then look for answers in the content of the text. As you read this section, you will be looking for the answer to your questions. For example, if you are reading a book to help you improve your study skills and the heading is "use a regular study area," the questions you might ask are "why should I have a regular study area" and "where should my regular study area be located?" Other more general questions may also be formulated:
    a. What is this chapter about?
    b. What question is this chapter trying to answer?
    c. How does this information help me?

3. **Read (R1).** Use the background work done with "S" and "Q" in order to begin reading actively.
    a. Read one section at a time. Look for answers to your questions and jot them down, in your own words, on the right two-thirds of your piece of paper.
    b. Add more questions, if necessary. A single question is probably adequate for a section that is only a few paragraphs; however, for longer sections, you may find that you need to add a question or two.
    c. Don't get bogged down with the details. Well-written textbooks often provide examples to further explain the main ideas. Try to separate the details from the main ideas.   Use the details to help you understand the main ideas but don't expect yourself to memorize every detail provided in the chapter.

4. **Recite (R2).** The second "R" refers to the part known as **Recite/wRite or Recall**. Using key phrases, one is meant to identify major points and answers to questions from the "Q" step for each section. This may be done either in an oral or written format. It is important that students to use her own words.
    a. When do you recite? At the end of each section of the chapter.
    b. How do you recite? Look at the question(s) you wrote down before you read the section.   Cover your answers with a piece of paper and see if you can answer the questions from memory. What if you can't recall the answers to your questions? Reread the section or the part of the section that has to do with that question. When you can answer your question(s) about this section, go back to step two, "question." Develop and write down your question(s) for this section, read the section and then recite again.   Proceed through the chapter repeating these three steps.

5. **Review (R3).** The final "R" is Review. In fact, before becoming acquainted with this method, a student probably just uses the R & R method; **Read and Review.** Provided students have followed all recommendations, they should have a study sheet and test by attempting to recall the key phrases. This method instructs students to immediately review all sections for any key words forgotten.

References and Suggestions for Further Investigation:

Dembo, M. H. (2000). *Motivation and learning strategies for college success: Self-management approach*. Mahwah, NJ: Lawrence Erlbaum Associates.

Ellis, D. (1991). *Becoming a master student*. (10th ed.).Independence, KY: Cengage Learning.

Gardner, J. N., & Jewler, A. J. (Eds.). (1997). *Your college experience: Strategies for success*. (3rd ed.). Belmont, CA: Wadsworth Publishing Company.

Pauk, W. (1997). *How to study in college*. (6th ed.). Boston, MA: Houghton Mifflin.

Robinson, F. P. (1970). *Effective study* (4th ed.). New York: Harper & Row.

Modeled Study Skills

Procedures:

1. The facilitator watches for "*teachable moments*" when they can quickly share a study skill that has worked for them.

2. The facilitator intentionally plans to use as many of the study skills throughout the academic term, even though some have not been used before. It is important that the facilitator have personal experience with using the study skill in the same class along with the other students. Other students are more likely to experiment with the specific study skill if they see that the facilitator has successfully used the skill and can validate its usefulness from personal experience. See "Fostering Independence" chart on page 95

3. Our experience over the years indicates that most students, even if they are doing poorly in the course, who listen to talks about study skills. They want to see them in action rather than have the PAL facilitator state they "you should do this" if they have not used them successfully themselves. A great strategy is to share one of the following study skills and then ask others in the session to share the way that they use the skill differently, or share how their lecture note taking books looks.

4. After the facilitator has modeled how to use a specific study skill, the facilitator should also encourage others in the group to share their experiences with the skills. This encourages them to see that there is a wide variety of study skills available for use. The key is matching the study skill or strategy to the demands of the specific learning task.

List of activities that follow:

1. Note Taking (*Lecture or Assigned Readings*)

   a. General Procedures

   b. Cornell Method

   c. Mind Map Method

   d. Method for Courses With Extensive Board Work

2. Note Cards

3. Mnemonic Devices

Image courtesy from the PAL Program at the University of Minnesota

Note Taking (*Lecture or Assigned Readings*)

Description:
Employing a variety of note taking systems.

Purposes:

1. She how different systems can be adapted depending upon the organization and presentation style of the lecture or assigned reading.

2. Encourage students to take notes on assigned readings as well as lectures.

3. Recognize the value of using note taking strategies to prepare for examinations.

Procedures and Examples:
Below is a general overview followed by procedures for each of several note taking strategies. The facilitator is encouraged to employ each strategy throughout the academic term so that they can show students what the written notes look like during sharing opportunities.

General procedures:

1. Use a full-sized, three-ring notebook to contain the notes since other course materials can be three-hole punched and integrated together (*e.g., syllabus, lecture handouts, notes over textbook with notes from lectures*). In case a lecture of handout is missed, it can be easily integrated into the appropriate location in the notebook.

2. Date and number the note pages to make it easier to locate material.

3. Provide lots of blank spaces (*one to two inches*) between major points in the lecture to allow for adding more material after a review session, writing potential exam questions, notes from the textbook, or adding visual organizers later.

4. Begin taking lecture notes as soon as the instructor begins to speak in class until the instructor ends the session. Sometimes important material is given in the first and last minute of class.

5. Take lecture notes on both what the instructor says as well as what is written on the board.

6. Use only one side of the page when writing notes. When reviewing the notes later in the notebook, the back of the previous page (*left side*) will be blank. Additional notes and diagrams can be easily added to this blank page to accompany the notes on the right hand side.

7. Review notes within one or two hours afterwards. This gives an opportunity to fill in missing information and to reinforce learning of the material. Review notes again on a weekly basis to increase retention of the material.

8. When reviewing lecture notes, predict potential examination questions. Write potential questions in either the left hand side of the page (*e.g., Cornell Method*) or at the end of the lecture notes for the day. See strategy on "*Examination Preparation*" for more suggestions.

Cornell Method of Note Taking:

1. With regular note paper, draw a vertical line three inches from the left margin. Sometimes you can purchase note paper already printed in this fashion. Sometimes it is called "law-ruled" paper due to its popularity for students in law school. Templates for printing your own blank copies of Cornell note paper: http://www.timeatlas.com/5_minute_tips/general/word_templates_and_cornell_note_taking and http://office.microsoft.com/en-us/templates/cornell-note-taking-method-TC010080377.aspx

2. Write notes only on the right hand side of the page. See "*general procedures*" above for more suggestions.

3. After taking notes (*from class or over the assigned reading*), use the left hand side of the page to record key words or phrases about the notes located directly to the right. Another strategy is to use the left side of the page to write potential exam questions that relate to the notes on the immediate right hand side of the page.

4. When reviewing the notes, cover up the right hand side of the page and try to remember the meaning of the word or phrase located on the left hand side. Then uncover the right side. If the prediction was correct, move down to the next word or phrase. If the prediction was incorrect, study the material on the right hand side more before proceeding to the next item. Another variation is that if you wrote questions on the left hand side, cover up the right hand side and see if you can answer the questions.

5. The bottom inch of the note take taking paper is reserved for summarizing the content from that particular page. Another use could be to write potential exam questions related to the content above.

Mind Map Method of Note Taking:

This strategy is especially effective for students who are very visual learners. It is also helpful for lectures or reading material that does not have an apparent organization structure.

1. Write the main point of the lecture or reading material in the middle of the page.

2. Like spokes on a wheel or a spider web, arrange all other information from the main point.

3. Each major supporting item is drawn on a line from the central point.

4. Illustrating information for each point is drawn as lines for that particular point.

Lecture Notes When Board Material Not the Same as Spoken by Instructor:

There is a temptation for some students in courses, especially mathematics, to only take notes on what the instructor writes on the board and not on the oral material delivered which may be different (*i.e., problems are written on the board but the oral presentation is on the procedures and other content material*.)

See Appendix 1, p. 134.

1. Employ any of the previous methods of note taking. Take notes on the page located on the right hand side of the notebook.

2. Reserve the page located on the left hand side of the notebook for all board work by the instructor.

3. Draw lines or arrows to show connections between material written on the left and right hand pages.

References and Suggestions for Further Investigation:

Academic Center for Excellence. (n.d.). *Cornell method of note taking and templates for its use*. Florida State University. Retrieved from http://ace.fsu.edu/Gfx/Cornell_Template_ACE.pdf

Dembo, M. H. (2000). *Motivation and learning strategies for college success: Self-management approach*. Mahwah, NJ: Lawrence Erlbaum Associates.

Ellis, D. (1991). *Becoming a master student*. (10th ed.).Independence, KY: Cengage Learning.

Heiman, M., & Slomianko, J. (1993). *College: A new beginning*. Cambridge, MA: Learning to Learn.

Lipsky, S. A. (2011). *A training guide for college tutors and peer educators*. Boston: Pearson.

Image courtesy from the digital archives at the University of Minnesota

Note Cards

Description:
Recording key course information on small cards for frequent review.

Purposes:

1. Model an effective and portable method to remember key words or phrases with their accompanying definitions, explanations, and examples.

2. Maximize wait time by using easy to carry note cards to review material.

3. Increase retention of material by frequently reviewing and studying throughout the week when the course notebook is not available.

Procedures and Examples:

1. Using 3 x 5 cards, on one side write the question or the key word/phrase, and on the other side write the definition, explanation, and or example.

2. Students carry the cards throughout the academic term. File cards that are unneeded after examinations.

3. Use wait time (*e.g., riding, waiting for the next class to begin, breaks at work*) to review the material.

Image courtesy from the PAL Program at the University of Minnesota

Memory Techniques

Description:

A memory aid for information or steps to a process.

Purposes:

1. Mnemonic devices are more efficient than rote memory techniques (*learning by simple and frequent repetition*).

2. More quickly memorize the information since a pattern is presented to attach the new information.

Procedures and Examples:

1. ***Jingles*** are created by remembering information that is attached to part of a melody or song. For example: (1) days in the month, "*thirty days hath September, April, June, and November.*"

2. ***Acronym*** (*catchword*): a single word that prompts memory of a series. For example, "*HOMES*" represents the Great Lakes: Huron, Ontario, Michigan, Erie, and Superior.

    a. Identify the information to be learned.

    b. Underline the first letter of each word.

    c. Create a word or phrase that uses each letter underlined above.

    d. Memorize the acronym or acrostic created.

3. ***Acrostics*** (*catchphrase*): a phrase that prompts memory of a series of words. For example, "*my very educated mother just served us noodles*" represents Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.

References and Suggestions for Further Investigation on Memory Strategies:

Carter, C., Bishop, J., & Kravits, S. L. (1998). *Keys to effective learning*. Upper Saddle River, NJ: Prentice Hall.

Dembo, M. H. (2000). *Motivation and learning strategies for college success: Self-management approach*. Mahwah, NJ: Lawrence Erlbaum Associates.

Ellis, D. (1991). *Becoming a master student*. (10th ed.).Independence, KY: Cengage Learning.

General References and Recommendations for More Information:

Dembo, M. H. (2000). *Motivation and learning strategies for college success: A self-management approach*. Mahwah, NJ: Lawrence Erlbaum Associates.

Walker, L. (Ed.). (2010). *Two (or more) heads are better than one: Adventures in leading group learning, a facilitator storybook*. Minneapolis, MN: Peer-Assisted Learning Program, SMART Learning Commons, University of Minnesota-Twin Cities. A copy can be requested through the following website, https://wiki.umn.edu/PAL/FacilitatorStorybook

Summary of Principle Five
Model Productive Learning Behaviors

Modeling study strategies rather than lecturing about them is one of the key features 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 PAL facilitator shares and models these learning strategies, and when other participants share their experiences using them, students are more likely to experiment with them.

Image courtesy from the digital archives at the University of Minnesota

Principle Six
PAL Sessions Vary in Different Academic Content Areas

The unique demands of each academic discipline often require different approaches to learning. Some learning strategies that have already been described in this guide will appear again in this section. The difference is that they have been customized for different academic disciplines. The same learning activity may look slightly different in each area.

6. PAL sessions in academic content areas vary according to academic and learning requirements unique to them.	A. PAL sessions often appear and operate differently in various academic content areas. B. Carefully review PAL strategies and customize them for use in a particular course. C. Factors requiring different approaches for various academic disciplines include: problem-solving, vocabulary, reading requirements, memorization, concept learning, and synthesis among concepts.

Four Major Academic Content Areas and How Learning Strategies Were Customized for Them:

1. Mathematics and other problem-Solving Courses

2. Humanities Courses

3. Writing Intensive Courses

4. Social Science Courses

(Abby, PAL Facilitator). *"We were doing Lewis structures in my chemistry session and it was at the "ah ha" point in the semester that the students were either really going to like chemistry or not like it at all. There was one girl who had been really struggling all class. I can't remember what I told her, but 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. It's definitely rewarding. You go in week after week, and you want your students to leave with something. They leave week after week and you don't know if they've been learning anything. Then they have days when they go, "I get it!" and you're like, "Really? Good, that's amazing! Thank you for making this worthwhile"* (Walker, 2010, pp. 80-81).

Mathematics & Other Problem-Solving Courses in the Sciences

(Jeff, *PAL Facilitator*). *"In empirically focused courses, compared to the humanities courses, there's a much different threshold for what makes an activity successful. 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. I made a lot of worksheets in a class like this, and 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 that when they do get the point of the worksheet, it's works for them. That's really cool."* (Walker, Two heads, pg. 79).

Description:

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. One issue is that there is a well-defined process for solving for the 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.

Purposes:

1. Learn how to reduce rather than elaborate information. Humanities courses often seek to elaborate on the available information. Probing for more complexity and alternative, multiple answers is often a goal. Science courses often have a goal to reduce, simplify, or solve for the "correct" answer. Common words in problem solving courses are *"reliability, verifiability, clarity, empirical evidence, natural law, research methods*." This difference in perspective is sometimes quite difficult for students who are not majoring in the humanities.

2. Develop reductionist thinking processes so that students can systematically understand the problem-solving process, solve complex problems, and arrive at the correct answer.

3. Understand the demands of the problem to the be solved and the ability to select the appropriate means to solve.

4. Give multiple opportunities in each review session for students to self-test themselves regarding the course material so that they can immediately ask questions of the group to clarify and understand.

5. Create a safe place for students to experiment with the problem-solving process and not suffer stigma for being vocal with what they know and do not know.

6. Acquire the vocabulary and understanding the scientific notation/symbols needed for understanding and problem-solving.

Overall Principles that Guide Problem-Solving PAL Sessions:

1. In problem-solving courses, the PAL facilitator pre-selects a representative set of problems to work during the session.
2. Worksheets emphasize different components of the problem-solving process.
3. PAL facilitator works through and solves all problems on the worksheet so that they can facilitate others in the process and avoid potential errors.
4. During the session, students generate the steps to solving a problem and discuss their approach on the marker board before beginning with the problem set.
5. Students work individually and in groups to solve problems in the textbook, notes, or worksheets.
6. Students direct the scribe at the marker board on solving the stated problem.

Procedures and Examples:

1. The facilitator should almost never go to the board to illustrate a point or to solve a problem. It is vital that the students in the group be the ones to serve as scribe for the group or to solve a problem. It is too tempting for the facilitator to "*help*" the students by solving the problem and slipping into a "teacher" mode.

2. Establish clear roles for the student who volunteers to serve as a scribe at the board: (a). The scribe can choose to say nothing and only record what the group wants written. If they want to participate, they are allowed as long as they do not begin to lecture. (b). Rotate the student scribe at the board frequently so that they have a chance to rejoin the group and edit their lecture notes as the discussion proceeds.

3. If the group is small enough, send all students to the board to work on problems; then compare both the process and product of their work.

4. Encourage group members to share their thinking process that they used in solving the problem.

5. Spend several minutes at the beginning of the review session on key vocabulary terms, scientific notation, and symbols essential for solving the problems. Some students do not readily acknowledge their lack of understanding. The facilitator may want to model use of note cards (described elsewhere in this manual) to help memorize key definitions and problem-solving procedures.

6. At the beginning of the academic term, it may be useful to talk about note taking strategies during a PAL session in courses where the instructor may write on the board the problems to be solved but there is no written material concerning the oral lecture delivery. If the instructor is creating graphs on the marker board, the students may only focus on writing down exactly what is seen on the board without taking any other notes.

   a. See sample of notes taken in a math course in Appendix 1 at the end of this section. (*See general note taking strategies elsewhere in this manual.*)

> b. Instruct students to draw a vertical line from top to bottom on their note taking paper located about one-third of the way across the paper from the left side.
>
>> i. Students write down all the board work on the right-side of the note paper and include notes about what instructor says.
>>
>> ii. On the left-side students to write concepts and key vocabulary words. They could also use this section of the page when they review their textbook and add additional material to understand formulas and other critical information.

7. Be clear about following rules concerning not working on assigned homework problems that are graded.

8. Rather than allowing students to focus on solving obscure homework problems during the review session, it is best for the facilitator to develop ahead of time a work sheet with a good selection of problems that represent the different areas that need to be mastered.

9. The facilitator works out solutions to the problems on any worksheets ahead of time so they can guide students in solving the problems. It also reduces the potential stress on the facilitator and potential for losing credibility with the students if solved incorrectly in front of the group. It is best to ask for volunteers to go to the board and have the group work together on solving problems.

10. Establish a pattern for solving problems. The end of this section has several samples to consider. Appendix 1 was developed by key faculty in the Department of Mathematics at the University of Minnesota. The faculty members wanted to be sure that the approach they displayed in class when solving problems was similar to the way that PAL groups approached problems. Common steps in the problem-solving process are:

    a. Identify what the problem is asking.

    b. Decide what information is needed to solve the problem.

    c. Correctly apply the information to solve the problem.

    d. Go over the answer to verify that it is reasonable.

    e. Compare the answer with the correct one.

11. A systematic chalk board model for solving problems can provide the structure that some students need to have a clear visual understanding. The focus is on deep understanding of the process of solving problems, not the quick repetition of identifying correct answers to a large number of problems.

Chalk Board Model of Problem Solving

Examples Problem to Solve: $x + 2x = 16$			
Prerequisite Information	Steps in the Solution Process	Rules for the Steps	Similar Problems
This first step includes relevant equations, formulas, chart, and general information for solving this type of problem.	The facilitator and the group identifies the step by step method to solve the problem.	A narrative description is written on how to solve the problem.	Students check for understanding by solving similar problem types.

12. While worksheets are a common activity in problem-solving courses, sometimes it is overwhelming for students to focus on all the elements of solving the problem. The following suggested worksheets focus on one element of the problem-solving process. Rather than only working on three to five problems in the review session, these worksheets are designed for students to complete one task with five to ten problems. Following completion of this type of worksheet activity, then the group may be better prepared for solving complex problems.

a. *First Step Worksheet*. These worksheets list five or ten equations to solve. The student is asked to write down the first step to take in solving a problem that might require three or total steps. Figuring out just the first step is often the biggest challenge. (*See appendix 2 at the end of this section for a sample*).

b. *Converting Word Problems to an Equation*. The student is asked to simply write down the numerical equation that needs to be solved based on the word problem. The group then shares the equation that they create. In addition to this essential task to solving the equation, it also provides a reading comprehension activity to help students self-discover if they are inaccurately reading the narrative. (*See appendix 3 at the end of this section for a sample*).

c. *Converting Equations to Narrative*. Just as in the above example, the translation process between numbers and words can be very difficult. Ask students to take a list of equation problems and write out in words what is required. This will show if they really understand what is being required, or if they are trying to only imitate the process without understanding. (*See appendix 6 at the end of this section for a sample*).

d. *Writing the Procedure and Formulas*. In this worksheet, students only write down the steps needed to solve a list of equations. Then, they can discuss their list, check for completeness with each other's lecture notes and compare with the textbook. This also provides an opportunity to discover is there is more than one procedure for solving and encourages students to see multiple options available to them. (*See appendix 4, 5, and 6 at the end of this section for samples*).

e. *Predicting Exam Questions*. The PAL facilitator provides a list of math problems and asks students to write why the instructor might select them for an exam. The group discussion helps to develop an understanding of the course instructor's thought process on question selection and helps them to see that the examination writing process is not random, but predictable. A variation of this activity is to ask the students to review all the problems from the textbook and

select the different types of problems that might be on the exam. Again, they would explain why the instructor might select them. Another option is to ask students to outline the steps to solve each type of problem that they identified. Finally, students explain, from the instructor's point of view, why each of the problems would be good and what major math concepts they represent. (*See appendix 5 at the end of this section for a sample*).

Image courtesy from the digital archives at the University of Minnesota

①

Hw # 1 due on thurs.
(10.1)

Calculus depends on algebra
may need to review

Start at Ch. 10 but 1st one alg
 0.8 factor
 0.9 fraction
 1.1-1.3 Solu. of linear & quad eg
 3 functions

Review suggestions for algebra

alg problems in discussion

Ch 10 — boundary between alg & calculus
 LIMIT
  example : $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \ldots$
   never get out the door!
  sum close to → 2
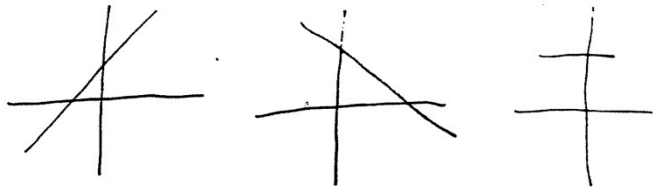   above 2? (no, never)
  limit (rough & ready; intuitive examples)

 Mathematical way
 (elusive & slippery concept)

$$f(x) = 3x - 5$$

depression !

function → set of ordered pairs of
 form (x, y) with no
 repeats in x).

linear functions

ex:

linear

0-21

quadratic/
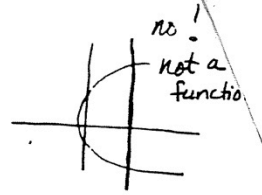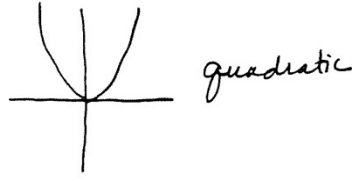non function

quadratic

no!
not a
functio

vertical line test

A graph rep a f^n if a vertical line intersects it only once.

all alg expressions will be functions!

Slope formula

$f(x) = 3x - 5$

$f(x) = mx + b$

$m = $ slope
$b = $ y intercept

(0,-5)
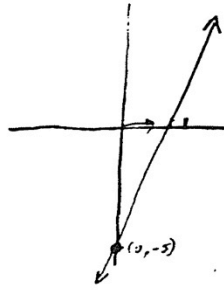
what happens on graph

$$\lim_{x \to 2} 3x - 5 = $$

look at 2 things $x \to 2_-$ $x \to 2_+$
hoping for same limit for pos + neg side
this becomes the limit

from negative

$x \to 2_-$
$x = 1.5$ $f(x) = -0.5$
1.7 $= 0.1$ seem to be
1.9 $= 0.7$ approaching 1
1.99 $= 0.97$
1.999 $= 0.997$

③

8-31
from positive

2.5
2.1
2.01   1.03
2.001   1.003

$f(x) \to 1$
as $x \to 2_+$

∴ since same $\lim\limits_{x \to 2} 3x - 5 = 1$

general limit
notation

In general $\lim\limits_{x \to a} f(x) = L$

If substituted $f(2) = 3(2) - 5 = 1$
But real concern is approach; are they
approaching the same value?

Most of the time → not so much computation!
97% can substitute
well behaved fn

approach is the
important

$f(x) = \begin{cases} 3x-5 & x \neq 2 \\ -11 & x = 2 \end{cases}$

never gets to 1
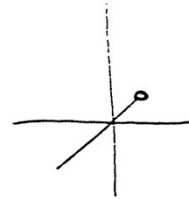(does not have effect
on the limit)
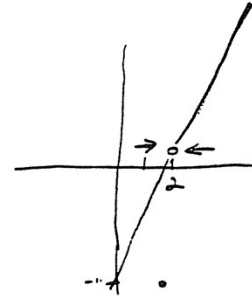
Rules p. 377
① horizontal line
    $-\pi$ $f(x) = C$

② $\lim\limits_{x \to a} x^n = a^n$

③ lim of sum = sum of limits

④ lim of prod = prod of limits   etc.

APPENDIX 2

The directions for the problems below read "Differentiate." In the blank opposite the problem, write the FIRST THING you would do toward a solution.

Example: $y = 6^3$ _____recognize that 6^3 is a constant_____

===

1) $f(r) = \ln (r^2 + 5r)$ _____

2) $f(x) = (2x^2 + 4x)^{100}$ _____

3) $y = e^x (x^2 + 2)$ _____

4) $f(z) = \dfrac{z^2 - 1}{z^2 + 1}$ _____

5) $Y = \dfrac{(X^2 + 2)^{3/2} (X^2 + 9)^{4/9}}{(X^3 + 6X)^{4/11}}$ _____

6) $g(x) = x^{(x^3)}$ _____

7) $2xy + y^2 = 6$ _____

APPENDIX 3

Set up the equations for the following problems. DO NOT SOLVE NOW.

1) A company manufactures and sells Q radios per week. The weekly cost and demand equations are

$$C = 5000 + 2Q$$
$$P = 10 - \frac{Q}{1000}$$

Find the maximum profit.

2) A car rental agency rents 100 cars per day at a rate of $30 per day. For each $5 increase in rate, 0.8 fewer cars are rented. At what rate should the cars be rented to produce maximum income?

DO YOU KNOW THE PROCEDURES TO SOLVE PROBLEMS WHICH ASK . . . .

Find the limit if it exists.

Sketch the graph of the function and find the indicated limits.

Find the compound interest and compound amount.

Find the present value.

State whether a function is continuous everywhere. Give a reason for your answer.

Does the given function have a finite or infinite discontinuity? Explain your answer.

Find all points of discontinuity for the given function?

Solve the following inequality.

Use the definition of the derivative to find f'(x).

Find the equation of the tangent line to the curve at the given point.

Differentiate the following function.

Find the marginal cost (revenue) function. What is the marginal cost (revenue) for the indicated value of q ?

Find the: rate of change of y with respect to x
relative rate of change of y
rate of change of y at x = (specified value)
relative rate of change of y at x = (specified value)
percent rate of change of y.

Photograph courtesy of the digital archives of the University of Minnesota.

1. Choose a representative problem from Section __11-1__ in the textbook and write it below.

   Find the derivative of $f(x) = \frac{1}{x-1}$ D: $x \neq 1$

   Find the equation of tangent line at point $(3, -\frac{1}{2})$

2. Outline the steps needed to solve it.

   a) Find the derivative by definition of derivative or by using correct procedure.

   b) Find derivative at $x = 3$

   c) Put given and found values into point-slope form
   $$y - y_1 = m(x - x_1)$$

3. Why do you think this problem would make a good exam question?

   - uses the definition of derivative as presented in class
   - uses derivative and tangent line to a given point (relates the two concepts)
   - tests understanding of two concepts

Image courtesy of the digital archives of the University of Minnesota

Write as many of the differentiation formulas as you can remember. Use mathematical symbols, English phrases or sentences, or examples.

FOR INSTANCE:

(formula)	(sentence)	(example)
dy/dx C = 0	The derivative of a constant is equal to zero.	If y = 4, then dy/dx = 0.

PRACTICE TEST

1) Choose a question from the Review Section of Chapter ـــــ (pp. ـــــــ).

2) Write it below. Solve.

3) Return this sheet to Pat no later than Thursday, November 12th.

Photograph courtesy of the PAL Program at the University of Minnesota.

Problem-Solving Protocol

This protocol was developed in cooperation with the Department of Mathematics at the University of Minnesota

Problem # _____

1. Read the problem individually

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, geometrical, or conceptual relationship exists between the information you know and the information you want to learn?

3. Restate the information in your own words.

4. Solve the problem individually.

5. Check your answer with your group members. If there is disagreement, find out where you made different choices. Come to an agreement on the correct answer and method of problem solving.

6. When you've come to an agreement, 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?

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Image courtesy from the PAL Program at the University of Minnesota

Humanities

Description:

Humanities courses often seek to elaborate on the available information. In this situation, probing for more complexity and alternative, multiple answers are often the goals.

Purposes:

1.   Students learn how to elaborate rather than reduce information. Science courses often have a goal to reduce, simplify, or solve for the "correct" answer. Common words are *"ambiguity, uncertainty, intuition, insight, self-knowledge."* This difference in perspective is sometimes quite difficult for students who are not majoring in the humanities.

2.   Develop expansive thinking processes.

3.   Enhance writing skills required for essay examination questions and completion of papers.

Procedures and Examples:

1.   Introduce visual organizers such as mind maps and matrix boxes. Many humanities courses and assigned readings have few illustrations and organizers. This helps visual learners who crave such tools to help see the relationships between ideas and words. (*See "visual organizers" strategy for more detail.*)

2.   Vocabulary activities are very important since humanities courses focus heavily on the use of language (*See "vocabulary activities" strategy for more detail.*)

3.   Writing assessments are frequently the major basis for course grades and demonstrating content competence. Taking time in review sessions to work on practicing for examination essay questions and taking steps to complete research papers is an important activity. (*See "writing intensive courses" for more detail.*)

4.   Discussion activities that help students explore multiple interpretations of the material and multiple solutions. This is very challenging for dualistic thinkers who look for the "*right*" and "*wrong*" answers.

5.   More careful attention needs to be placed on reading assignments. Not only is it important to understand what has been said in the text, but also who said it, who they are as a person, and why they said it. Interpretation of the people, events, and interactions are important.

6.   Short writing activities where students write on an issue could be useful. Graded writing assignments in humanities courses often focus not only on containing the "correct information," but also on student expressing some original thinking. Sometimes instructors will welcome controversial and opposing positions on issues if the student is able to support the ideas with strongly developed arguments.

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Image courtesy from the PAL Program at the University of Minnesota

Writing Intensive

Description:
Helping students meet course expectations when demands are frequent for writing activities.

Purposes:

1. Support students in developing their writing skills on assigned papers.

2. Provide ungraded feedback regarding the writing skills.

3. Upon request of the course instructor, provide assistance with writing assignments during class time.

Procedures and Examples:

1. facilitators are not permitted to assign grades to papers or essays.

2. Peer review of papers is an essential activity within the review sessions. Having students work in pairs or triads to exchange papers and provide verbal feedback in these small groups can be less intimidating than conducting as a large group activity. Students are sometimes more likely to receive constructive comments from peers and trust their honesty than from authority figures. Developing this habit of student peer review can be transferred to other courses where formal support systems such as the facilitators are not available or easily accessible.

3. The facilitator can make verbal recommendations to students regarding their papers with the understanding that the final authority for such commentary is with the course instructor. facilitators are not to take home papers outside of class or review sessions to make written remarks.

4. Review sessions can focus on upcoming writing assignments periodically throughout the academic term. These reviews may facilitate discussion on:

    a. brainstorming a potential writing topic,

    b. developing a precise thesis,

    c. completing a time line for each phase of the paper (*e.g., topic identification, thesis, first draft, second draft, etc.*),

    d. editing drafts,

    e. reference documentation (*e.g., what is appropriate "evidence" for the paper, what style of documentation is required such as APA or MLA, how should references be cited in the work and in the bibliography at the end of the paper*), sources of information for the paper (*e.g., Internet, journals, books*),

    f. issues regarding plagiarism, and

    g. peer editing of papers by members of the group.

5. Facilitators need to approach their role as a "co-worker" rather than as an "expert" as they work with students. Asking questions on why choices were made in the paper is more valuable than marking up their papers.

6. An optional activity is to refer students to the campus Writing Center.

7. Invite students to read aloud portions of their drafts. Getting students into the habit of reading aloud will help them to detect errors that might be missed if they only read the material.

8. Visual organizers (see "visual strategies" p. 115) may be very effective for writers who have a poorly organized paper. Often, they need to see a basic overview of their paper, the main and supporting points, and evidence used to support. The student can select the visual organizer that they find most useful.

9. Have students complete "*microthemes*" using a 5 x 8 index card. This process requires students to be efficient and organized in answering a question due to the restricted amount of space. Examples of this assignment 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.

10. Rather than attempting to identify all individual problems, help students to identify error patterns that reoccur in their papers. This more global strategy will help them to detect and resolve writing problems in the future.

11. If the course requires essay question completion for major examinations, spend time practicing this form of assessment. This might entail timed writing activities for potential essay questions (five to ten minutes each) to simulate the pressure experienced and they need to budget time.

12. Vocabulary development activities can expand technical vocabulary of the students when answering essay questions. (*See elsewhere in this manual for strategies concerning examination preparation and vocabulary development*).

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Social Science

Description:
Identifying useful strategies for studying in social science related courses.

Purposes:

1. Effectively preparing for examinations that employ multiple types of assessment questions covering numerous chapters of assigned readings and large amounts of lecture note material.

2. Moving beyond memorization of material to deeper learning mastery.

Procedures and Examples:

In addition to the learning strategies previously listed in this manual (*e.g., note review, visual organizers, reading textbooks, etc.*), the following strategies are especially important for social science courses. There are common patterns in many social science courses.

1. Help students recognize patterns:

   a. *Sequence*: Understanding the proper placement of individual events and observe their cumulative impact.

   b. *Parts/Types/Lists*: Memory retention of individual facts is easier when they can be categorized.

   c. *Compare/contrast*: Observing similarities or differences is often required in the social sciences, especially with writing assignments and essay exam questions.

   d. *Cause/effect*: In both psychology and history, sequence of events is also accompanied by understanding more deeply their relationship with one another and observing the catalyst for all the events.

   e. *Categorization*: Identify the categories of information for the academic discipline and create an acrostic to remember. For example in history the following six main categories are generally present in each textbook chapter: political, economic, religious, social, intellectual, and artistic. Taking the first letter from each word 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. See elsewhere in this training manual for suggestions for development of acrostics.

2. Practice us of visual organizers: Remembering deeper understanding of the material and are often reflected on examinations. For example in history, sequence of events/ideas and cause/effect relationships are common. Use of visual organizers such as matrix boxes and time lines are often helpful. This is an example of spatial relationships which has been demonstrated by educational

research to significantly increase memory retention. See more information how to develop visual organizers elsewhere in this training manual.

3. Employ discussions help students sort information in assigned readings and lecture notes. Students often report problems identifying "what's important;" making the implicit explicit through guided discussions is especially valuable.

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Summary of Principle Six
PAL Sessions Vary in Different Academic Content Areas

Students are more receptive to learning new study strategies if they can practice using them during a PAL session connected to a specific course. A key success factor is using the learning strategies successfully in your own courses before using it in a PAL sessions. 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. PAL facilitator report that doing so results in students being more willing to participate during the PAL session and to use these strategies on their own.

Image courtesy from the digital archives at the University of Minnesota

Principle Seven
Model Student Self-Monitoring Strategies

There are several ways for students to verify what they know and do not know about the academic content. This knowledge can help them select the appropriate cognitive learning strategies based upon demands of the particular task required. It is common for students to use their study strategies from high school. Maybe they only had to employ a few to receive good grades. These same students may not adjust quickly enough to the much higher rigor of the college courses before it becomes too late to recover. Sometimes students are blissfully misled that things are going well in the class before the midterm exam on which they may have such a disastrous result that they decide to drop the class. If they have enough of those experiences, they are more likely to drop out of college.

These comprehension and post exam debriefing activities provide ungraded and informal feedback to students about their comprehension level of the material. The informal classroom assessment techniques give them information on what they know, and more importantly, what they do not know. This provides an opportunity for students to modify their academic behavior before suffering consequences on major unit or midterm examinations. When students develop the skill to strategically use the most effective cluster of learning strategies for the learning task, academic success is much higher for them. Also, the students recognize there is a more clear link between the choices they make and the grades they receive.

7. PAL students develop higher skill in self-monitoring their comprehension of course material and adapting to each learning task.	A. Students reflect about major exams, discover error patterns, and prepare more effectively next time. B. Informal classroom assessment techniques are used to measure student understanding, help guide PAL session activities, and assess student learning. C. Students acquire strategies to self-test their own comprehension level with course material. D. Through development of their self-monitoring skills, they increasingly select the most effective learning strategies for the particular learning task.

List of Activities to Help Student Monitor their Comprehension Level and Potential Error Patterns on Major Exams:

1.   Post Exam Review

2.   Informal Quiz

3.   Review Session Assessment Techniques

Post Exam Review

Description:

Reviewing what occurred during the major unit examination.

Purposes:

1.   Analyze what parts of the exam were easier or harder.

2.   Identity error patterns students in the examination made.

3.   See relationship between effort and results.

4.   Encourage students to increase effort and select more effective study methods before future examinations.

Procedures and Examples:

The following page provides a sample of a survey that could be used in a PAL review session or used by a faculty member in their class. In the PAL review session immediately after the exam is returned by the class instructor, this activity could either be solely an oral discussion of the following questions on the survey or students could be asked to complete it before opening up for a general discussion.

References and Suggestions for Further investigation:

Heiman, M., & Slomianko, J. (1993). *College: A new beginning*. Cambridge, MA: Learning to Learn.

Image courtesy from the PAL Program at the University of Minnesota

Below is a survey given by the course instructor in a world history course to help students think about their test taking decisions. The survey is given to the students during the class period when they receive back their exam. Revise this sample for your PAL session.

Post-Exam Survey

Do **NOT** write your name on this survey

1. The information that I ***remembered best*** on the exam I learned by:
2, How confident were you before you walked in to take the exam? Why?
3. *Which of the following activities did you do **before** the exam?* (*Circle your response*)
   A. Used resources from outside the classroom
      1. Listened to the unit course podcast **(T / F)** *How many?* ___
      2. Studied with other students in the class **(T / F)**
      3. Studied the online exam study guide constructed by others **(T / F)**
      4. Listened to the online review session by the instructor (**T / F**)
   B. Reviewed the assigned readings or audio podcast episodes
      1. Read or listened to all of them at least once **(T / F)**
      2. Reread or listened again to them before the exam **(T / F)**
      3. Took written notes about the assigned readings and audio **(T / F)**
      4. Read or listened to them *before* they were discussed in class **(T / F)**
   C. Review of class lecture notes
      1. Printed or downloaded the lecture PowerPoint slides ahead of class **(T / F)**
      2. During class I wrote additional comments about the lecture **(T / F)**
      3. Reread the lecture notes again before the exam **(T / F)**
   D. Examination preparation activities
      1. Created outlines for each of the potential essay questions **(T / F)**
      2. Defined each of the vocabulary words listed on the study guide **(T / F)**
      3. Predicted potential exam multiple-choice questions based on your lecture notes and the assigned readings or audio files **(T / F)**
      4. How many hours did you spend preparing for the exam? ___ hours
         This includes all the items mentioned above plus studying by yourself.
      5. Practiced writing answers to several of the potential essay questions **(T / F)**
   E. How many class sessions did you miss (*for any reason*) before the exam? ___
4. *Which of the following activities did you do **during** the exam?* (*Circle your response*)
   A. Took time to make an outline of my essay question before writing **(T / F)**
   B. Marked up the exam questions by underlining or circling key words and phrases to help make them easier to understand **(T / F)**
   C. When answering essay questions, I looked back at the vocabulary and multiple-choice questions to find more information to incorporate into my answer **(T / F)**
   D. About how much time did you take to complete the exam? ___ minutes
4. How satisfied were you with the grade you received on the exam?
5. Name a couple of changes you will make preparing for the next exam.
   Indicate your grade received on the exam (*checkmark one*): ___ A or B; ___ C or Below

The course instructor collects the surveys, summarizes results of the students who either earned an A or B and those that earned a C or below. The instructor reports averages back to the students at the next class period.

PAL: Post-Exam Analysis (PEA)

Overall, thinking about my performance 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): _____

Considering the week leading up to the exam, I spent the following time studying:

_____ hours on Thursday

_____ hours on Friday

_____ hours on Saturday

_____ hours on Sunday

_____ hours on Monday

_____ hours on Tuesday

_____ hours on Wednesday

= _____ hours total (spread over one week)

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:

_____

_____

_____

Now, debrief your first exam

Use the table below to go through **each** question you got wrong, thinking about the type(s) of question it was, why you missed the question (there is usually more than one reason), and where you could have found the correct answer. We'll talk about this in an upcoming PAL session.

If you want, you can use the codes on the next page to fill in this chart (it's faster than hand-writing the reasons). Look for patterns as to why you got wrong answers.

My score: _____ /Total; _____ %

Question #	Question type	Why I got the question wrong	Where was the right answer?

(more than one number can go in each box) *(the "key" is below) ->*

Question type:
1. vocabulary
2. applied relationship
3. quantitative
4. specific recall
5. applying knowledge
6. connecting two lecture topics in a new way
7. analyzing a figure or picture
8. comparing or contrasting two ideas
9. other: _____

Why I got the question wrong:
1. misread the question
2. missed a "not"
3. mixed up vocabulary (not "guessed")
4. guessed
5. could not understand question
6. understood question, but didn't know how to solve
7. changed from correct answer
8. was tricked by fancy wording
9. didn't have *time* (guessed)
10. accidentally left this question blank.
11. other: _____

Where was the right answer?
1. explicitly defined in lecture slides/handouts
2. explained through lecture examples
3. explained by instructor during lecture
4. concept discussed in lab
5. concept discussed in PAL
6. similar question in sample exam questions
7. answer in book/readings
8. other: _____

Informal Quiz

Description:
Assessing comprehension with a short, informal quiz of the previous lecture content or assigned reading.

Purposes:

1. Provides a comprehension checkpoint for the student before a major unit examination occurs. Many students have difficulty with this.

2. Provides a model that displays benefits of self-monitoring before major examinations.

3. Offers a safer environment for weaker students to participate since they will be confident knowing one or more answers to the questions.

4. Builds confidence due to the moderate rigor of the questions and the opportunity to answer questions with multiple correct responses.

5. Can be used as a preview of the PAL session.

Procedures and Examples:

1. The activity is often used at the beginning of the session and takes between five and fifteen minutes.

2. facilitator asks students to write down responses on a scrap of paper to several short questions. Students retain the paper for the ensuing discussion.

3. The questions should be based on the last lecture and have multiple and short answer options (*e.g., give one of the three reasons for the initial success of Martin Luther*). Facilitator develops these questions before the session.

4. Most questions should be of moderate to easy difficulty levels to ensure that students have an opportunity to answer some correctly.

5. Remind students that if they do not know the answer they should write down the question. This is done so as not to embarrass students who do not know enough to guess the answer.

6. After all the questions have been given, the facilitator then asks if anyone has an answer for any of the questions. This is done to give the student who is confident of one of their responses. The facilitator should watch for the weaker student and call upon them if they raise their hand.

7. If a student gives an incorrect response, the facilitator should gently ask if the rest of the group agreed. If they do not, ask them why. If no one in the group challenges the incorrect response, the facilitator should respond that he or she did not have that information in their lecture notes or the textbook. Refer students to look back to their notes and textbook to discuss the difference of opinion.

Review Session Assessment Techniques

Description:

Assessing learning during the review session. Strategies based on Angelo and Cross's book, *Classroom Assessment Techniques* (CATs)

Purposes:

1. Allow students to self-discover their level of comprehension of course material.

2. Provides opportunity for students to make changes in their academic behaviors based on feedback from the assessment techniques.

3. Provides feedback to the facilitator. If used at the beginning of a session, the facilitator has time to plan an agenda. If used at the end of the session, it provides helpful feedback on what students learned at that time.

Procedures and Examples:

More in depth information is provided about each of the strategies in the Angelo and Cross book referenced below. These assessments are relatively quick activities, lasting from one to five minutes. They can be used at any time in the review session to motivate student interest, test for comprehension, and serve as a way to summarize new information learned.

■ *Misconception/Preconception Check* A technique focused on uncovering prior knowledge or beliefs that may hinder or block further learning. It is important that students connect to the correct schema.

■ *Minute Paper* The most popular of all the CATs. Students are asked to take one or two minutes to respond to the following two questions: "What was the most important thing you learned during this review session?" and "What important question remains unanswered?" facilitators can use these to help guide the upcoming review session and also to see what students most valued from the session. Comments from the students can be used at the following review session as an opening activity or discussion item.

■ *Muddiest Point* Students take one minute to 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 be taken in dealing with them.

Using assessment techniques during review sessions as a modeled study strategy. These are activities that can be done in a large group and then used by the participants when they are alone or studying with other students.

■ *Focused Listing* Students focus on a single important term, name, or concept and are directed to list several ideas that are closely related to that "focus point." This helps the students see the connections between ideas. Students share their lists with each other.

- *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 within an appropriate knowledge structure, making retention more likely and aiding understanding. It also provides a model of a schema for organization that could be used with other lecture material.

- *Memory Matrix* The matrix is a two-dimensional diagram, (a rectangle divided into rows and columns) used to organize information and illustrate relationships. The facilitator may provide the row and column headings, or it may be a group activity to create the matrix box and name the headings as a group. In addition to the matrix, a variety of other visual organization diagrams could be used. Research suggests that many students fail to use visual organizers when reviewing their course material.

- *Categorizing Grid* Somewhat opposite of the Memory Matrix, in this activity the matrix and the headings are provided by the facilitator. A list of the contents of the matrix is separately provided. Students fill the matrix with the correct information items. This allows an evaluation of the students' "sorting rules." Students discuss as a group the rules that they used in sorting the information.

- *Pro and Con Grid* This activity provides important information for students as they analyze course material in an objective manner. Students must search for at least two sides.

- *One Sentence Summary* Students are asked to synthesize an entire lecture into a single informative, grammatical, and long summary sentence.

- *Word Journal* First, the student summarizes a short text in a single word. Second, the student writes a paragraph or two explaining why he or she chose that word. This helps students to write highly condensed abstracts and to "chunk" large amounts of information for more effective storage in long-term memory.

- *Concept Maps* Students draw or diagram the mental connections between a major lecture concept and other concepts that the students already know. This helps students to see connections. It also provides feedback to the facilitator on how well students are connecting with the information.

- *Problem Recognition Tasks* The students' task is to recognize and identify the particular type of problem each example represents. This strategy is very helpful in problem-solving review sessions (*e.g., math, chemistry*). Identifying the problem type and the first step to take in solving are significant hurdles for many students.

- *What's the Principle?* This assesses students' ability to associate specific problems with the general principles used to solve them. The focus is on the general principle and not the precise individual steps taken to solve the problem.

- *Documented Problem Solutions* Students are asked to identify the specific steps taken to solve the problem. By analyzing these detailed protocols in the review session, students can see the different steps taken by other students. The group can build a protocol for others to use in solving future problems of the same category.

- *Application Cards* After students have dealt with an important principle, generalization, theory, or procedure, the facilitator hands out an index card and asks them to write down at least one possible, real-world application for what they have

just learned. This helps them to connect newly learned concepts with prior knowledge. This helps to increase relevance of what they are learning.

■ *Student-Generated Test Questions* Students generate possible examination questions. This provides feedback through seeing 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 examinations in a proactive manner rather than believing that exams are chance events and that study is often unpredictable.

References and Suggestions for Further Investigation

Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques*. San Francisco, CA: Jossey-Bass.

Walker, L. (Ed.). (2010). *Two (or more) heads are better than one: Adventures in leading group learning, a facilitator storybook*. Minneapolis, MN: Peer-Assisted Learning Program, SMART Learning Commons, University of Minnesota-Twin Cities. A copy can be requested through the following website, https://wiki.umn.edu/PAL/FacilitatorStorybook

Weinstein, C. E., & Stone, G. V. M. (1985). Broadening our conception of general education: The self-regulated learner. In N. Raisman (Ed.), *Directing general education outcomes*. San Francisco, CA: Jossey-Bass.

Image courtesy from the digital archives at the University of Minnesota

Summary of Principle Seven
Model Student Self-Monitoring Strategies

One of the most powerful things you can do is help students to self-monitor what they know and don't know and to make adjustments. 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 students think that school is like the lottery; there is not a relationship between effort and the grades received. If you can help students be to more realistic about what they comprehend and show them new learning tools needed, (along with understanding of when to use them), 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.

Image courtesy from the digital archives at the University of Minnesota

Principle Eight
Students Actively Engage with the Course and Each Other

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

8. Students actively engaged with the course material and with each other through intentionally planned large and small group activities.	A. Students work with one another through cooperative learning activities intentionally designed by the PAL facilitator. B. Roles and responsibilities for members of the peer group are clearly stated by the PAL facilitator. C. Students indicate involvement by taking notes, reading material, and solving problems. D. PAL facilitator circulates around the room to monitor the small group sessions, provide help when needed, and monitor when to reassemble the large group. E. Individual accountability for active engagement in the group activity is monitored by the PAL facilitator. F. PAL facilitator debriefs the learning activity and checks for correct information and skill development by leading a discussion of what was learned as a result of the activity.

(Soo, PAL Facilitator). "*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. They're actively participating, and they're suggesting answers in the larger group – something that they've never done before. That's when I realize, "Okay, this is working." The students are going to use those skills later on in upper level courses and life in general, making sure their voices are heard. That's something I tend to stress in PAL sessions – the students have to become independent. They have to look out for themselves. And it's not bad to ask for help in doing that*" (Walker, 2010, pg. 78).

Overview to Group Dynamics and Engagement

The activities in this section of the workbook are common ones used to encourage active learning by students. These activities have been used widely in education and not just for PAL programs. The role of the PAL facilitator is to assign the task, establish the amount of time for the task, assign the members to the small groups, monitor the work of the small groups by rotating around the room during their work, reconvening the large group again, and encouraging students to volunteer and share with the large group. Strive use small groups of between two and six. Facilitator experience with the PAL program proves that small group discussions by themselves are not always effective. The term "group dynamics" means that the behaviors of groups of people follow patterns which can be predicted and directed. As the scenarios have illustrated in this workbook, unusual things can occur in small groups. Following the peer cooperative learning group principles and instructions for specific activities increases the chances for a successful learning experience for students. A quick overview of this topic is an article in Wikipedia, http://en.wikipedia.org/wiki/Group_dynamics

Principles of Peer Cooperative Learning Groups
from David W. Johnson, Roger T. Johnson, Edythe Johnson Holubec, *Cooperation in the Classroom.* Edina, MN: Interaction Book Company, 1991.

1. **Positive Interdependence**. Students perceive that they need each other in order to complete the group's task *("sink or swim together").* PAL facilitators may structure positive interdependence by establishing mutual goals (learn and make sure all other group members learn), joint rewards *(if all group members achieve above the criteria, each will receive bonus points),* shared resources *(one paper for each group or each member receives part of the required information)*, and assigned roles *(summarizer, encourager of participation, elaborator).*

2. **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 PAL 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. As the authors explain, "sit knee to knee, and look at one another eye to eye.

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

4. **Interpersonal and Small Group Skills**. Groups cannot function effectively if students do not have and use the needed social skills. This principle of cooperative learning groups is most often used when working with students in elementary or secondary school. However, there are times when it is also appropriate for PAL 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. Many research studies of college-level study groups like PAL indicate these are skills that PAL participants and PAL facilitators are grateful to acquire informally through the PAL experience.

5. **Group Processing**. Groups need specific time at the end of the learning activity to discuss how well they are achieving their goals and maintaining effective working relationships among members. In elementary and secondary education the classroom teachers structure group processing by assigning such tasks as (a) list at least three member actions that helped the group be successful and (b) list one action that could be added to make the group even more successful tomorrow. More commonly among college-level study groups, the group processing is to affirm that all the students achieved the learning objective and no one leaves the room with incorrect information. The K-12 classroom teachers and college-level study group leaders could also monitor the groups and give feedback on how well the groups are working together to the groups and the class as a whole. However, this is optional for college-level study groups.

Small Group Roles
Benne and Sheats (1948) identified three broad types of roles people play in small groups: task roles, building and maintenance roles, and self-centered roles. The following narrative is available from the University of Pittsburgh, http://www.speaking.pitt.edu/student/groups/smallgrouproles.html

For purposes of PAL small groups, it is not normally necessary to assign each member of the group a specific role. The intent of the following information is to help you identify people exhibiting specific behaviors, good or negative for the group. For some specific small group activities, you will need to assign or ask the group to divide up specific tasks such as spokesperson, note taker, time keeper, and others. While a PAL participant may have a specific role, everyone is expected to be an active member in the discussion or problem-solving activity.

As you will notice, all the roles fall within three broad categories: task roles that focus on getting the job done. The second category ensures the well-being of the group members. Any effective and healthy group needs people representing those two areas. Some need to help the group focus on the task at hand and others need to be sure the individual members and their emotional needs are being served. The third broad category is those not interested in completing the task. The most common role is of the "loafer" who does not contribute and expects everyone else to do the work.

1. **Task Roles: Focus is on completing group's goal**
   a. Coordinator: Relates statements made by one group member to another. "Krista's comment relate well to what Erik was saying."
   b. Energizer: Stimulates group to take action. "How many of you are willing to bring in a video on conflict for the next class?"
   c. Elaborator: Expands upon another's ideas/ "I think what Kristina and Jennifer are suggesting is that we first explain nonverbal before we turn to verbal communication."

d. Evaluator-critic: Assesses the group's work by higher standards. "This is okay, but I think Lisa needs to give more feedback."
e. Information-giver: Provides helpful information. "Jake has some books about conflict we could use."
f. Information-seeker: Asks for clarification. "Lisa D. or Laura, could you please tell me what you said about disconfirming responses?"
g. Recorder: Keep notes (minutes) about meeting. "Last class we did not get to J-P's presentation. Dave and Michelle had just finished theirs."
h. Procedural Technician: Takes responsibility for tasks. "I checked out the VCR for Adam and LeighAnne's presentations."

2. **Group-Building/Maintenance Roles:** Focus is on building interpersonal relationships, maintaining harmony
   a. Encourager: Provides positive feedback. "I think what Heather was saying was totally right."
   b. Follower: Accepts ideas of others in group. "Let's follow Cotton's plan—he had the right idea."
   c. Compromiser: Attempts to reach a solution everyone finds acceptable. "Nicole, Beth, and Nimat have offered three great solutions. Why don't we integrate them?"
   d. Gatekeeper: Facilitates participation from everyone in group. "I don't think we've heard from Monique yet."
   e. Harmonizer: Reduces conflict and tension (often through humor). "After that exam, we deserve a free meal!"
   f. Observer: Evaluates group progress. "I think we've learned a lot so far. Sara and Heather gave us great information."

3. **Self-centered Roles: Focus is to prevent group from reaching goals**
   a. Aggressor: Acts antagonistic towards other group members and their ideas. "Playing desert survival is the dumbest idea I've ever heard."
   b. Dominator: Monopolizes group speaking time Interrupting—"I'm going to tell you the six reasons why this is a bad idea."
   c. Blocker: Refuses to cooperate with other's ideas. "I refuse to play Desert Survival."
   d. Help-Seeker: Acts helpless to avoid work. "I don't think I can put together a bibliography. Why don't you do it for me?"
   e. Loafer: Avoids work. "Why don't we just go have drinks instead of finishing this project?"
   f. Special Interest Advocate: Presents own viewpoint and needs. "I can't meet tomorrow. I need to sleep late and call my mom."
   g. Self-confessor: Discusses topics only of importance to self and not the group. "I really like coffee. Yesterday I went to Kiva Han. Their coffee is better than what you get elsewhere . . ."

List of Activities to Engage Students More with the Course Learning and with Fellow Students:

1.   Large Group Discussion

2.   Cluster group Discussion

3.   Turn-to-a-Partner Discussion

4.   Pairs-Compare Discussion

5.   Think/Pair/Share Discussion

6.   Jigsaw Discussion

7.   Academic Controversy Discussion
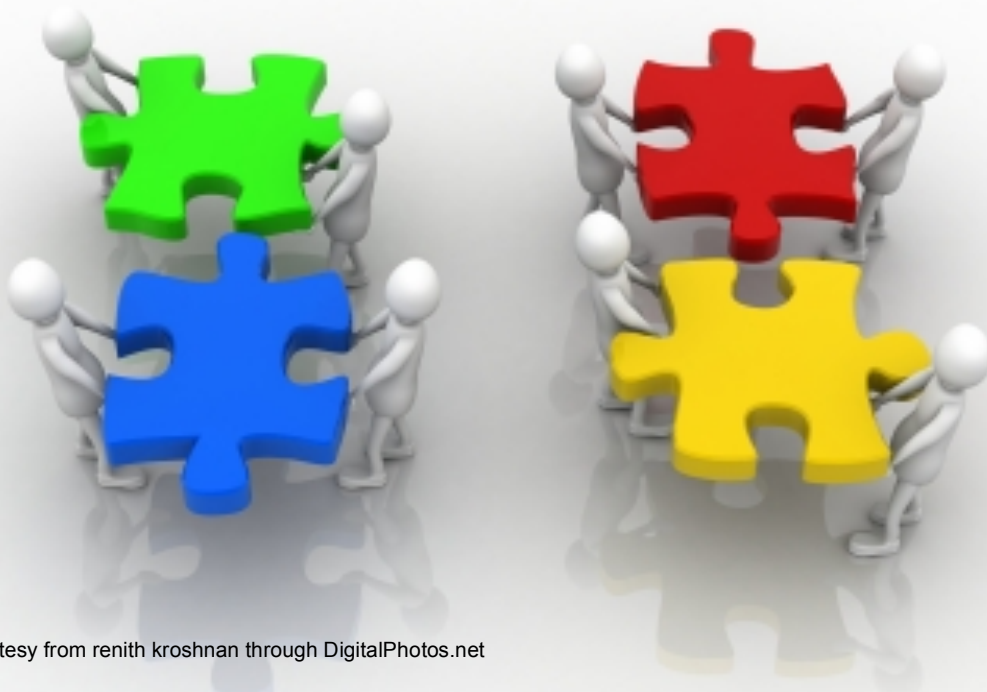
8.   Group Survey Discussion

Image courtesy from renith kroshnan through DigitalPhotos.net

Scenarios of Possible Interactions
Group Dynamics: One Student Does Not Participate in Group Activities
What is your choice and what principle(s) guide your decision?

(Soo, PAL Facilitator). "*Is it my place to say, "Stop what you're doing?" Or "Stop making phone calls?" Or "Stop looking at cows?" Yeah, one girl in my class bought cows – these were Animal Science students – and one day, instead of paying attention to me, she was searching online for a new heifer. I didn't know you could buy cows on the Internet, but apparently you can! I think I said something like, "I know this is important to you, but right now we're doing chemistry. I think you need to wait and buy your cow later*" (Walker, 2010, pg. 64).

The following possible interactions are with PAL facilitators and the people they work with. What would you do in these situations? The goal is to not only identify the better choice, but also identify a principle that can help guide other possibilities. If the first name of the PAL facilitator is provided with scenario, they come from the actual events that occurred with the peer learning program at the University of Minnesota. First names of the PAL participants mentioned in the scenarios are noted with an asterisk (*) and are a pseudonym to protect their identity.

1. (Allison, PAL Facilitator). "There was a student in my session who seemed to be just a little off. He didn't seem to be really present. He was clearly very smart, but he wasn't fitting in socially. One day, he started blowing his nose in my session, and I knew it was him. His behavior proceeded to puzzle me. I think he just got bored. He would come, take out his laptop and work on it. He wouldn't work in groups no matter what I tried to get him to interact. I would assign him to a group using cards or numbers so he would have to get up and move, but the other group members didn't know what to do with him either. They tried to talk to him, but he was unresponsive and would mostly just sleep" (Walker, 2010, pg. 47).

   a. *Does your decision on what to do (or not do) depend if the PAL session is mandatory or not?*

   b. *What action could you take about the student?*

2. (Soo, PAL Facilitator). "I had one student who used to bring his laptop to the session. He said he used it to take notes. Sometimes I'd have him work in a group on a worksheet, and he would bring the laptop out and start typing. I'd go over and say, "What are you doing?" He'd say, "Oh, I'm just working on the worksheet. I'm typing it up." Every once in a while then, I'd walk around the room and would make sure to walk behind him. I usually have my students sit in just the first few rows. A couple times I noticed that he was on Facebook – a typical college student" (Walker, 2010, pp. 70-71).

   a. *How could this behavior be addressed at the very beginning of the academic term?*

        b. *What do you do during the PAL session if it occurs, or do you wait until afterwards?*

        c. *If you take no action, what is the potential impact on the other students?*

3. One of the students has headphones on during the PAL sessions. The student participates during discussions and works quietly on worksheets. When asked, the student says the music is relaxing to them.

        a. *Do you intervene by asking them to put them away?*

        b. *Will this encourage other students to do the same?*

4. One of your students in the PAL sessions seems to be continually using their smart phone to text or receive cell phone calls during the PAL sessions?

        a. *How do you deal with this behavior at the beginning of the semester?*

        b. *Are there any exceptions for students receiving a phone call during a session?*

        c. *How could other students in the PAL session help with establishing group norms on behavior?*

5. One of the students in the PAL sessions is obviously well-prepared academically. The student displays knowledge and skills far ahead of the other students in the sessions.

        a. *How do you make the PAL session meaningful for them since they are only attending due to the mandatory nature of this particular PAL program attached to a class?*

6. One of the students in the PAL session repeatedly dominates the conversation of the group. They could be the one that always knows the correct answer or always have questions.

        a. *How do you meet their need and the needs of everyone else in the PAL session?*

7. It is one of your first PAL sessions, and you are standing at the front of the large group giving important directions about their assignment, when all of a sudden a student interrupts what you are saying to ask a question.

        a. *Do you think this is a problem?*

        b. *What do you say and or do?*

8. During the first couple of PAL sessions there is one student who always seems to ask a lot of questions.

a. *What are some benefits and drawbacks to this?*

b. *Do you think there is a problem?*

c. *What do you say and or do?*

9. (Shannon, PAL Facilitator). "Every once in a while there are students who sleep in the back of the room. The one that I really remember was from the first semester I was doing PAL. He always finished his worksheet and then slept. I was like, "Well<okay." I'd just let him sleep. I mean, I was a sophomore at the time, and it was scary. I think he was older than me in grade" (Walker, 2010, pp. 72-73).

a. *Does it make a difference if this is a voluntary or mandatory PAL session?*

b. *If this is a pattern of behavior during PAL sessions, do you say something?*

c. *How could have this issue been addressed at the beginning of the academic term?*

Image courtesy from renith kroshnan through DigitalPhotos.net

Scenarios of Possible Interactions
Group Dynamics: Small or Large Group Not Participating
What is your choice and what principle(s) guide your decision?

The following possible interactions are with PAL facilitators and the people they work with. What would you do in these situations? The goal is to not only identify the better choice, but also identify a principle that can help guide other possibilities. If the first name of the PAL facilitator is provided with scenario, they come from the actual events that occurred with the peer learning program at the University of Minnesota. First names of the PAL participants mentioned in the scenarios are noted with an asterisk (*) and are a pseudonym .

1. (Mandy, PAL Facilitator). One girl was such a flirt with all the boys. She would sit with the same three guys, right in the middle, and would always dress up for PAL. You could tell she was going out of her way to be a flirt. She'd whisper to them, talk to them – anytime I'd turn my back to that group, I could hear her talking! I asked her over and over again to get to work. I didn't get really mad with her, but I had to separate them. When I would ask the students to do group work and find a partner, she'd always go right back to those guys. It came to the point when she seriously had assigned seating, without her knowing it. She sat in her one spot, and I never had the class get up any more to do group work. I would walk around and say, "Okay, you two are sitting next to each other. You two, you two, you two." Everything I did involving more than one person was to make her not be with these boys! But she'd still walk in with them, talk, talk, talk, talk across the room, smile at them, and pay zero attention to what the class was doing. It was absolutely terrible. I didn't really know how to handle it other than splitting them up. After I talked to her a couple times in class, I asked her to stay after. I was very casual, not mean or mad. I just asked that she actually pay attention and not side-talk to the guys. It got a little better the next week, but then it went right back. It affected the class because the guys were distracted in return. And I can only imagine how the other students surrounding them felt – especially when the talkers were split up – and how they wanted to handle it. It obviously affected her learning too. She never used her worksheet and never completed the problems. She would only write down the answer and circle it, so I knew she wasn't learning the material. It made it really hard to stand by her side and baby her, when she's an adult and in college" (Walker, 2010, pp. 67-68).

   a. *How could have this behavior cycle been stopped at the very beginning?*

   b. *Does your action depend on whether this is a mandatory or voluntary PAL session?*

   c. *How could you involve the other students in the class for establishing norms for behavior during the PAL session?*

2. You have a large group for the PAL sessions. You have not met anyone of them before. You wonder if it would be a good idea to learn and use their names

during the PAL sessions. A roster of the names and their photographs are available to you.

  a. *Why would this be a good idea to do with your PAL participants?*

  b. *Why would it be important for the PAL participants to do the same?*

  c. *What activities could you use so everyone could learn each other's names and perhaps some limited personal information as well?*

3. As the facilitator, one of your tasks is to ask guiding/leading questions. You ask what you think is a fantastic, engaging and thought provoking question, except the students are now looking at you with blank expressions.

  a. *What do you think is going on?*

  b. *Do you think there is a problem?*

  c. *What do you say and or do?*

  d. *What is your backup plan if the activity you have planned is not working?*

4. Typically when you ask students to begin working on a problem independently the "sound level" gets very quiet, then later, as people begin to finish the problem and start comparing answers with their small group the "sound level" begins to rise fairly quickly. However, this time when you ask students to start working on a problem independently, you notice that people immediately start looking at one another's papers and there is a low of low level muttering and mumbling, as well as a shifting and darting of eyes happening.

  a. *What do you think is going on?*

  b. *Do you think there is a problem?*

  c. *What do you say and or do?*

5. (Jeanna, PAL Facilitator). "My second [PAL] session was silent. I asked for a volunteer to go up and type at the computer, and nobody said a word. I was like, "We can sit here, but that's going to be pretty boring." So finally, one person says he'll go up and type. He sits at the computer, reads the question out loud, and everyone is silent. I sat there for probably 30 seconds, which is a pretty awkward amount of time. I gave the students a clue, told them to look at a certain section of the book, and finally someone shared an answer. The two of them talked about it, put the answer up and we moved onto the next slide. After going through three or four different questions, only four different students had participated in speaking or typing – four out of twelve. It wouldn't be a big deal – well, it kind of still would – if I felt like the other students were at least paying attention and getting a lot out of it. But that wasn't the case; I felt like they were just spacing off" (Walker, 2010, pp. 63-64).

  a. *What did the PAL facilitator do to encourage student participation?*

    b. What other actions could the PAL facilitator take to engage more students in group discussion?

6. You have prepared a worksheet that assumes that the students have read the textbook ahead of time. When you distribute the worksheet, no one admits to having read the textbook. They are clueless about how to answer the questions since the professor did not address those problems during the last class lecture.

    a. What is your backup plan for this session? Sometimes you may need to have a backup for the backup plan.

    b. In addition to the PAL facilitator, what are the other sources of information that the group can use to solve the questions on the worksheet? See the unit on transferring authority and responsibility to the students.

    c. In addition, what do you do if the students seem to never read their textbook before the PAL sessions?

7. Several weeks into the academic term, you are beginning to understand the different skill levels of the PAL participants. It is obvious to you that students are all over the map in their skill levels. Sometimes you receive complaints from students in small groups that others are not contributing to the discussions and solving the problems. Some students are grumbling about who they have to work with in their groups. They also don't like that you assign them to different groups each time.

    a. How would you adjust your groups?

    b. What are the advantages of having students work in mixed ability groups or should they be relatively the same level of ability?

    c. Is there any advantage to the more academically prepared and confident student being assigned to work in small groups with students of less ability?

    d. What could you do with the students who display high skill with the academic content with helping others in the PAL session?

8. You notice that most of the conversations inside the PAL sessions are between you as the PAL facilitator and the other students. They are not talking with each other but instead directing questions to you.

    a. What could you do to encourage students to interact with each other?

9. Since the start of the academic term, a small group of students regularly sit with one another in the PAL sessions. When you try to organize the students into different small groups, this small group refuses to move.

    a. What can you do to have them participate with the others?

    b. Does your answer change if this has occurred just once or they have been sitting together for a number of sessions?

10. Some students are having a side conversation and not listening to you or others in the PAL session.

    a. *How do you react the first time it occurs? What if it becomes a pattern of behavior?*

11. One of the small groups you work with is comprised of four (same gender) students, who also all happen to be very good friends. When you check in with this small group, you find that they are often talking about some social event and they have not gotten much work done.

    a. *What do you think is the problem?*

    b. *What are some possible solutions?*

    c. *How do you choose to respond?*

12. One of the small groups you work with is comprised for four (same gender) students, who also all happen to be very good friends. Often when you check in with the group you find they are talking about some social event. However, they always have completed their work rapidly before talking about the social event.

    a. *Do you think there is a problem?*

    b. *If so, what do you think is the problem?*

    c. *What do you say and or do?*

13. One of the small groups you work with is comprised of four students (two males and two females). There always seems to be a lot of talking going on in this group. The females are often seen and heard giggling and when you glance over in their general direction you also notice the young men are smiling and trying to be funny.

    a. *What do you think is going on?*

    b. *Do you think there is a problem?*

    c. *What do you say and or do?*

14. There are a number of students in your PAL session who appear to be getting all their work done early. Some of the students ask to leave the session because they perceive they are done while others are still working on the problems.

    a. *What are some benefits or drawbacks to letting these students leave?*

    b. *Do you think there is a problem?*

    c. *What do you say and or do?*

Large Group Discussion

Description:

Activity that involves the entire group in a simultaneous discussion. While this appears to be the easiest and simplest of the discussion activities described in this section of the training workbook, it is actually the most difficult. This is because as the group increases in size, people are less likely to talk and be engaged with the material.

Purposes:

1.   Check comprehension of material presented or a process skill.

2.   Works best after students later in the academic term have become more comfortable with one another and with talking before a group.

3.   Used sparingly since it is the most difficult discussion activity to encourage student participation and engagement.

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Procedures and Examples:

1.   Discussion facilitator assigns a discussion task and procedures for the group. The facilitator designates the amount of time for this discussion activity.

2.   Each participant may be directed to engage in silent reading or work on a problem assigned by the facilitator. This activity may include writing a statement or working on a worksheet. The facilitator announces the amount of time for this task (*generally one or two minutes, perhaps longer if solving a problem*). Or, the facilitator may directly begin the discussion with no time for review or rehearsal.

3.   The facilitator invites volunteers to explain the answer to the question or problem with the large group. The facilitator looks for opportunities to redirect discussion back to other group members and refer them to the textbook, lecture notes, and other reference materials.

4.   If incorrect information is provided by group members, the facilitator redirects them back to the textbook, their own lecture notes, and lecture notes by other members of the group.

5.   This activity ends by the group developing a summary of the discussion.

Cluster Group Discussion

Description:

Simultaneous discussion of the same question or material by several small groups.

Purposes:

1. Increase likelihood of individual participation in discussion by provider small group discussion environment.

2. Often is a less structured small group discussion strategy than others described in this section of the training workbook.

Procedures and Examples:

1. Discussion facilitator assigns a discussion task and procedures for the group. The facilitator designates the amount of time for this discussion activity.

2. Facilitator breaks large group down into small groups of three or four for the activity. The facilitator may also designates roles for members of the groups: facilitator, blackboard scribe, recorder, reporter (*see elsewhere in this manual for discussion of these and other roles for discussion participants*).

3. The facilitator instructs all small groups to then explain the answer to the question or problem to one another.

4. Facilitator circulates around the room as the small groups discuss with one another. The facilitator monitors groups to ensure they are on task, each member is participating, clarifies the task as needed, and monitors their progress. The time schedule for the activity is followed with announcements to the group when to move to the next phase.

5. After the small groups have completed their discussion, the large group is reformed once again. An individual from each small group is invited to share a portion of their group's discussion with the larger group. This phase of the activity seeks to provide a group summary of the discussion and correct any erroneous information shared within the small groups.

Image courtesy from the digital archives at the University of Minnesota

Turn-to-a-Partner Discussion

Description:

This smallest of discussion groups provides an immediate activity to process information or a procedure. No time is provided for preparation for the activity,

Purposes:

1. Provides a quick opportunity to interact with another person to check comprehension of material or procedure to which they were just exposed.

2. Ensures that everyone participates in the discussion.

3. Increases confidence of a person to participate in a discussion since only one other person is involved.

4. By requiring each person to explain a concept or a process, each individual is more likely to remember the information.

5. Works well as an activity in rooms where furniture is in fixed position (*i.e., lecture hall*) and students cannot easily move around to face one another.

6. Can serve as a simple and relatively quick discussion activity.

Procedures and Examples:

1. Discussion facilitator assigns a discussion task and procedures for the group. The facilitator designates the amount of time for this discussion activity.

2. Facilitator breaks large group down into pairs for the activity. A group of three is formed if there is an uneven number of people participating.

3. The facilitator instructs all pairs to then explain the answer to the question or problem to one another. Immediately one member of the pair begins to explain their answer to the other. Half way through the designated time, the facilitator reminds all pairs that they should reverse their roles.

4. Facilitator circulates around the room as the pairs discuss with one another. The facilitator monitors groups to ensure they are on task, each member is participating, clarifies the task as needed, and monitors their progress. The time schedule for the activity is followed with announcements to the group when to move to the next phase.

5. After the pairs have completed their small group discussion, the large group is reformed once again. Individuals are invited to share a portion of their discussion with the group. This phase of the activity seeks to provide a group summary of the discussion and correct any erroneous information shared within the small groups.

Pairs-Compare Discussion

Description:

Pairs of students compare their answers to a problem or question.

Purposes:

1. Most useful when there are multiple answers to a problem or ways to solve a problem.

2. Foster higher-level thinking skills.

3. Increase likelihood of identifying all potential answers to the question or approaches to solving a problem.

4. By requiring each person to explain a concept or a process, each individual is more likely to remember the information.

Procedures and Examples:

1. Discussion facilitator assigns a discussion task and procedures for the group. The facilitator designates the amount of time for this discussion activity.

2. Facilitator breaks large group down into groups of four for the activity. A group of five is formed if there is an uneven number of people participating.

3. Within each small group, two pairs of teams are formed.

4. The facilitator instructs all pairs to then explain the answer to the question or problem to one another with one person recording the information generated.

5. Half way through the designated time, the facilitator asks all pairs that they should explain what they learned with the other pair. One team shares one item, then the other team shares one item. This cycle continues until all information is shared from the two pairs with each other.

6. Following this cycle of sharing, the two pairs then form a group of four. This new group then identifies new information and approaches to the problem or issue.

7. Facilitator circulates around the room as the pairs discuss with one another. The facilitator monitors groups to ensure they are on task, each member is participating, clarifies the task as needed, and monitors their progress. The time schedule for the activity is followed with announcements to the group when to move to the next phase.

8. After the small group of four has completed their discussion and generated new information, the large group is reformed once again. At least one individual from each small group shares a portion of their discussion with the large group. This phase of the activity seeks to provide a group summary of the discussion and correct any erroneous information shared within the small groups.

Think/Pair/Share Discussion

Description:

This small group discussion procedure mixes activities that require silent work by each person and paired discussions.

Purposes:

1. Increase confidence of individuals with the task since they are given time to think and rehearse before sharing their comments with another person.

2. Increase competency of individuals with the task since they have time to prepare.

Procedures and Examples:

Image courtesy from the digital archives at the University of Minnesota

1. Discussion facilitator assigns a discussion task and procedures for the group. The facilitator designates the amount of time for this discussion activity.

2. Facilitator breaks large group down into pairs for the activity. A group of three is formed if there is an uneven number of people participating.

3. Each participant engages in silent reading or work on a problem assigned by the facilitator. This activity may include writing a statement or working on a worksheet. The facilitator announces the amount of time for this task (*generally one or two minutes, perhaps longer if solving a problem*).

4. After the silent activity phase is concluded, the facilitator instructs all pairs to then explain the answer to the question or problem to one another. Immediately one member of the pair begins to explain their answer to the other. Half way through the designated time, the facilitator reminds all pairs that they should reverse their roles.

5. Facilitator circulates around the room as the pairs discuss with one another. The facilitator monitors groups to ensure they are on task, each member is participating, clarifies the task as needed, and monitors their progress. The time schedule for the activity is followed with announcements to the group when to move to the next phase.

6. After the pairs have completed their small group discussion, the large group is reformed once again. Individuals are invited to share a portion of their discussion with the group. This phase of the activity seeks to provide a group summary of the discussion and correct any erroneous information shared within the small groups.

Jigsaw Discussion

Description:

A complicated topic or task is broken down into parts with each addresses by a small group who seek to solve their part of the jigsaw puzzle.

Image courtesy from renith kroshnan through DigitalPhotos.net

Purposes:

1.   Useful when dealing with a large amount and perhaps complex section of academic material that could not be effectively addressed in the amount of time during the discussion session.

2.   Helps individuals to see the need for breaking down complex material into its natural component parts.

3.   Models a useful strategy that students could employ in courses where formal discussion group leaders and sessions are not provided.

4.   Encourages students to be interdependent upon one another when completing tasks that would be difficult for an individual to complete by themselves.

Procedures and Examples:

1.   Discussion facilitator assigns a discussion task and procedures for the group. The task is broken into parts for completion by separate small groups. The facilitator designates the amount of time for this discussion activity.

2.   Facilitator breaks large group down into small groups for the activity. These groups are composed of three to four individuals.

3.   Each small group has a specific question or problem assigned to them. If there are more small groups than tasks, assign the same to multiple groups. Groups are kept small to increase opportunity for each member to participate and be actively engaged in the process.

4.   Facilitator circulates around the room as the pairs discuss with one another. The facilitator monitors each small group to: ensure they are on task, each member is participating, clarify the task as needed, and monitors each small group as they make progress. The time schedule for the activity is followed with announcements to the group when to move to the next phase.

5.   After the small groups have completed their discussion, the large group is reformed once again. One individual from each small group shares a portion of their discussion with the larger group. This phase of the activity seeks to provide a group summary of the discussion, allow each small group to teach the others about the part of the topic not explored by them, and correct any erroneous information shared within the small group

Academic Controversy Discussion

Description:

Participants explore several potentially conflicting perspectives on the same issue.

Purposes:

1.   Use with controversial academic material with multiple perspectives.

2.   Recognize that there may be multiple perspectives that appear contradictory on the same issue, but may be reconciled after discussion.

3.   Better understand an issue by both defending and opposing positions with it.

4.   Practice skills for rationally advocating for a position on an issue with others who do not share the same perspective.

Procedures and Examples:

1.   PAL facilitator assigns discussion task and procedures for the group. The facilitator designates the amount of time for this discussion activity.

2.   Facilitator breaks large group down into groups of four for the activity. A group of five is formed if there is an uneven number of people participating.

3.   Each small group of four is broken into two pairs. One pair represents one side of the academic controversy (pro). The other pair represents the other side (con).

4.   Each pair privately prepares for the debate by reading the assigned document, reviews lecture notes, or other reference materials with their partner. The facilitator announces the amount of time for this task. To ensure that they are ready for the next phase of the activity, each pair may write a statement, organize their arguments, and complete a worksheet prepared by the facilitator.

5.   After the preparation phase is concluded, the PAL facilitator instructs all pairs to then advocate their position on the issue to the other pair.

6.   When most all the small groups have completed presentations, the facilitator instructs all pairs to reverse their roles. The con side now advocates the pro position. The pro position in turn must then advocate the con position. They can use material and strategies employed in the previous round, or they may add a different approach.

7.   The facilitator monitors groups to ensure they are on task, each member is participating, clarifies the task as needed, and monitors their progress. The time schedule for the activity is announced to the group when to move on.

8.   After the small groups have completed both rounds of the debate, the large group is reformed once again. At least one member of each small group shares a portion of their debate with the large group. A recorder notes all the evidence and logic used to support either position on the black board. This phase of the activity seeks to provide a group summary of the discussion and illustrates the complex nature of the topic. The facilitator probes the students concerning their use of evidence and their logical thinking in advocating the position.

Group Survey Discussion

Description:

Provides an opportunity for each participant to share their perspective on a question, topic, or approach to solving a problem.

Purposes:

1. Ensure that each participant has an opportunity to talk.

2. Helpful for groups where some members are reluctant to talk due to dominance by a few individuals or needing more encouragement to participate.

Procedures and Examples:

1. Discussion facilitator assigns a discussion task and procedures for the group. The facilitator designates the amount of time for this discussion activity.

2. The facilitator may instruct each participant to engage in silent reading or work on a problem assigned by the facilitator. This activity may include writing a statement or working on a worksheet. The facilitator announces the amount of time for this task (*generally one or two minutes, perhaps longer if solving a problem*). Of the facilitator may skip this step and move immediately to asking each participant to respond to the survey.

3. After the silent activity phase is concluded, the facilitator instructs all participants to then explain the answer to the question or problem to the entire group. Either the facilitator can ask for volunteers or simply begin with one member of the group and go around the circle until all have answered.

4. The facilitator carefully listens to the responses by each individual. If the answer is unclear or incomplete, the facilitator asks the person to extend their answer. A recorder may be designated to record the tally of responses and perhaps to write them on the black board.

5. If responses concerning a controversial issue from some participants seem to be unpopular with the larger group, the facilitator must provide support to the individuals with their right to their perspective.

6. If factually incorrect information is provided, the facilitator may need to ask the individual to compare their response with the textbook, lecture notes, or other reference material. This provides an opportunity for the individual to self-correct their response rather than the facilitator acting as the authority figure.

7. After everyone has responded to the survey, the facilitator decides what to do with the information. This phase of the activity seeks to provide a group summary of the discussion and correct any erroneous information shared within the small groups.

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Summary to Principle 8

Students Actively Engaged with the Course and Each Other

One of the most powerful learning environments is when PAL participants work in small groups to accomplish a learning task. It allows students to develop multiple skills that will be essential in their personal and professional lives. As the facilitator, you will be more successful with group activities when you understand the dynamics that can make wonderful or difficult outcomes. Following procedures and planning carefully will make these activities more effective tor students and more satisfying for you.

Image courtesy from the digital archives at the University of Minnesota

Summary to PAL Facilitator Workbook

From David Arendale and Mary Lilly

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. What you bring that is unique to the classroom, with the students attending your sessions, is the peer-to-peer relationship. Combine that with your content knowledge and a few of the tools in this guidebook each week, and you will provide a learning environment that no one else can. How powerful is that! Each PAL 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 PAL session] isn't friendly and welcoming, it is nothing.*"

We close this workbook with a story from a previous PAL facilitator. Alex reflects about his experience with the program and his informal interactions with students. Sometimes those can be the most powerful and long-lasting outcomes from the PAL Program.

> (Alex, PAL Facilitator). "*My session was on the St. Paul campus, and all of the students lived there except for one. After the sessions, we would see each other on the bus. Why not have a conversation instead of just sitting there? She was really friendly, so we talked about almost anything: high school, college, what our plans after college. Through those conversations, she was able to find some advice from a person a few years older than her. She was considering different careers, and one of them is what I am pursuing, medicine. She was also considering a study abroad program and asking which semester is a good one to go. She was able to ask me questions about all sorts of things.*
>
> *When I think back to myself as a freshman, I realize that those opportunities aren't presented often. To be able to talk to someone who is not just one but two or three years older, and get some sincere advice … I think it's helpful to a student's decision making. And in the session, she was more personable with me than other students just because of the opportunity we had to get to know each other*" (Walker, 2010, pg. 22).

Image courtesy from the digital archives at the University of Minnesota

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