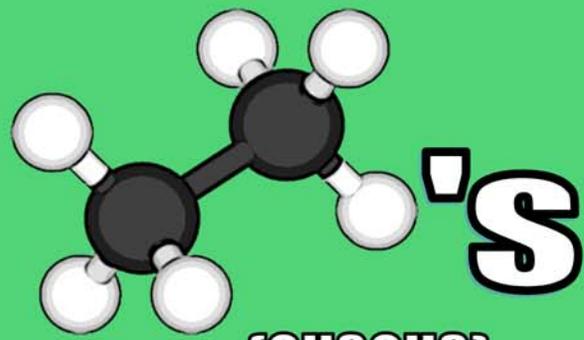


# BOOK OF



(CH<sub>3</sub>CH<sub>3</sub>)

WENT TO FIRST PLTL



GOT FREE GUSHERS

I DON'T ALWAYS SLEEP IN  
UNTIL 4:00



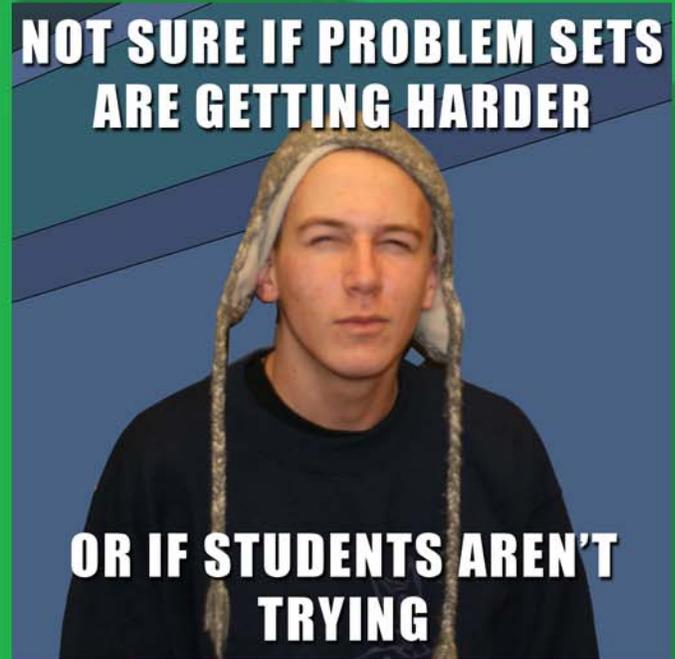
BUT WHEN I DO, I MISS  
PLTL

Y U NO



TELL US THE ANSWERS?!?

NOT SURE IF PROBLEM SETS  
ARE GETTING HARDER



OR IF STUDENTS AREN'T  
TRYING

# CREATING PLTL CULTURE



**SAM Course, Fall 2012**

Cover design by Ridwan Kazi, Nicholas Spies, Austin Spurlock and Libby Ward

Introduction by Regina Frey

Edited by Bryn Lutes, Mitchell Kundel, and Regina Frey

Introduction	pgs 4-9
<b>Socially Awkward Peer Leader</b>	<b>pgs 10-26</b>
Mikala Evans	pgs 10-12
Robert Gallo	pgs 13-14
Joseph Mulhall	pgs 15-16
Gina Phillips	pgs 17-18
Nathan Port	pgs 19-20
Jason Silberman	pgs 21-22
Anne Sun	pgs 23-24
Kathleen Vogel	pgs 25-26
<b>Wait, We're Supposed to _____</b>	<b>pgs 27-43</b>
Brandon Chang	pgs 27-29
Damari Croswell	pgs 30-32
Henry Ellison	pgs 33-34
Rachel Hoffman	pgs 35-36

Sindhu Manivasagam	pgs 37-38
Austin Spurlock	pgs 39-41
Libby Ward	pgs 42-43
Overly Attached Student	pgs 44-62
Amee Azad	pgs 44-46
Brian Basco	pgs 47-49
Daniel Hong	pgs 50-52
Jaclyn Khil	pgs 53-54
Michael Li	pgs 55-57
Richa Thakur	pgs 58-59
Annie Wang	pgs 60-62
Lazy Peer Group	pgs 63-82
Jonathan Ang	pgs 63-64
Jennifer Chan	pgs 65-67
Mitchell Hallman	pgs 68-70
Hannah Lo	pgs 71-72
Wei Jia Ong	pgs73-74

Amy Patterson	pgs 75-76
Kirinne Slaughter	pgs77-79
Bruce Wittmann	pgs 80-82
Sudden Clarity Chemist	pgs 83-100
Gina Chang	pgs 83-85
Tyler Ellison	pgs 86-88
Ridwan Kazi	pgs 89-91
Iqra Khan	pgs 92-94
Nicholas Spies	pgs 95-96
Richard Van Besien	pgs 97-98
Laura Watkins	pgs 99-100



### Introduction

In a pattern that seems to be repeating often these past few years, the SAM students made me stretch myself and my knowledge of current internet phenomena. This year it is “Memes.” At least last year I had heard of twitter and knew some rudimentary ideas about it. But when we discussed possible themes for this book last December, I had never heard of memes. In fact, I was positive the SAM students had made up this idea to trick me; but of course, Dr. Lutes knew all about memes and assured me that the SAM students had not invented the idea. I think the SAM students start on the first day of the SAM course to determine some phenomenon that I know nothing about, just to stretch my knowledge. To that, I say - “Thank you, SAM students!”

Okay, so what is a meme? (Humor me, if you already know the word’s history.) First used by Richard Dawkins in his 1976 book “The Selfish Gene,” “meme” comes from the Greek “mimema,” which means “something imitated.” Drawing on genetics, Dawkins defined a meme as a unit of information that is culturally transmitted, via imitation and replication. Memes spread by exposure to people, and they are copied and mutated depending on the environment (that is, the culture of the people who are exposed to the meme). Some memes replicate and change, while others are ignored and forgotten (similar to genes). An example of a famous meme is the “Two thumbs up” rating scale of Ebert and Siskel. As with very successful memes, their meme has lasted and moved into pop culture and will not soon be forgotten.

Great! But, what does this have to do with PLTL? I puzzled about this for quite a while - my excuse for not getting the introduction (and therefore the SAM book) finished earlier. Then, I learned more about memes while running with my son Walter. For example, common memes are fables or parables, jokes, or typical expressions and phrases. Walter told me that memes are the product of communal knowledge, and they reflect the process of how that knowledge is passed from generation to generation (or among different peoples); that is, a meme changes (or adapts) as “time passes.” Communal knowledge is knowledge that belongs to, and is shared by, people of a community and is characterized by collective ownership. No individual can claim to own communal knowledge. Similarly, no individual can claim to “own” a meme. An important characteristic of communal knowledge is the constant modification and refinement of this knowledge because of people interacting and discussing ideas with others.

For me, the concepts of communal knowledge and of the changing or adapting of this knowledge via interaction with others are at the core of PLTL; these ideas permeate the philosophy and implementation. In PLTL, we develop communal knowledge via interaction among all participants: 1) the student members of the PLTL group when they are interacting with each other; 2) the peer leader when interacting with his or her PLTL group; 3) the peer leaders when they are interacting with each other either in PAM or SAM; and 4) the SAM students and instructors when we are interacting with each other. In fact, this SAM book is a collection of communal knowledge about the effective implementation of PLTL that was given to the current peer leaders by peer leaders who came before, modified by the current peer leaders as they learned about and experienced peer leading, and is now being passed onto you to take, experience, adapt, and add to our PLTL-implementation communal knowledge.

I have been teaching the SAM course since 2003. Every year, I am amazed at the in-depth knowledge about effective PLTL implementation that the SAM students develop and pass onto the new class of peer leaders. I learn more about peer leading, group work, and facilitating every year from you, the peer leaders. The rest of this introduction is to give you a taste of the tidbits to come in this book.

The first PLTL session is exciting, fun, and can be terrifying for everyone--leaders and students alike. What can you do to ensure a terrific start? The leaders who have written essays for the first section, **Socially Awkward Peer Leader**, include some great advice. Starting off on the right foot is important. As **Mikala Evans** suggests, “make sure to set the correct tone, one that is respectful and makes the students feel comfortable. . . . It is important to be friendly and give the students a clear outline of the expectations you have for the semester.”

A number of leaders mention the silence that can occur during this first session, mainly because the students do not know you or each other, and the students do not know what to expect during a PLTL session. **Gina Phillips** remarks, “[getting them] over their awkwardness and actually [talking] to each other can be a painful experience. . . make sure you’ve come up with some questions to instigate small talk until everyone arrives.” However, **Robert Gallo** reminds us, “snacks and an icebreaker should help ease any awkwardness . . . if there is still awkward silence . . . that’s completely all right! . . . Let them think about [how to start at problem] . . . [waiting] allows the students to take responsibility for the discussion, and they won’t need you to hold their hand.”

Remember that your role is as a facilitator, not a tutor nor a teacher; this concept takes time to develop for the students, but it has to start during that first session. As **Joseph Mulhall** remarks, “They signed up for PLTL because they heard that everyone else does it and that it really helps their grade, but most likely they have never had any experience with [this type of] group work before. Seize this opportunity! Mold their brains into loving chemistry and the philosophy of PLTL. . . . Sell them on the PLTL philosophy right away.”

Kathleen, Nathan, and Anne give terrific specific ideas for you to use on your first day. **Kathleen Vogel** suggests, “make sure you send an email to your group a day or two before your first session. . . [give instructions in the email] . . . You will be surprised how comforted your students will feel just hearing from you.” **Nathan Port** has a suggestion if you are bad at remembering names, “say everyone’s name as frequently as possible. The repetition really helps.” **Anne Sun** suggests, “Outline expectations! . . . establish some ground rules . . . read the PLTL philosophy. This will save you a lot of headache in the future.”

**Jason Silberman** passes on some advice, “the most important piece of advice I received before my first session was to simply be myself. . . . Mistakes will be made along the way, but learning from your mistakes is the best way to improve. . . . Embrace the awkwardness! “

Okay, you made it through the first session; now what do you do? What really is the role of the peer leader? What are the essential elements of the PLTL philosophy and exactly what do you do to follow this philosophy? That is what this second section “**Wait, we’re supposed to \_\_\_\_**” is all about. This year’s SAM students have great ideas about how to be a peer leader.

Many of the peer leaders reminded us about the importance of following the PLTL philosophy. **Brandon Chang** muses, “crossroads: do you follow the PLTL philosophy or choose the path of least resistance by giving students the satisfaction of an answer? . . . Here is where you have to draw a line in the sand.” **Henry Ellison** cautions, “I came to realize that [giving the answer] would be far less powerful than if the group came to the answers themselves, and I made sure to bite my tongue and let them struggle a little to get to the right answer.” **Libby Ward** reminds us that “by adhering to the PLTL philosophy, your students will learn so much more than if you just gave them the answers or retaught the material. PLTL is not about the answers; it’s about how to solve these problems while working collaboratively with a group. . . . Solve the problems on a separate piece of paper and keep it in your backpack during the session. . . . Your conscience will be clear when you tell your students that you actually don’t have the answers.”

The SAM students also discussed other aspects of being a peer leader. **Damari Crowell** comments, “It is amazing how much motivation plays a role in mentoring and PLTL sessions. . . . It is important that the students recognize that it is possible to achieve the skill level necessary for a good grade through extensive, yet efficient practice.” **Rachel Hoffman** correctly points out, “A huge difference between Gen Chem and any high-school chemistry course is that students must not only learn and understand concepts independently, but also realize the extent to which the concepts all connect to each other. . . . As a peer mentor or PLTL leader, part of your job is to help them think about ideas from Gen Chem in a more holistic manner.”

You are not by yourself to learn about being a peer leader. You have training courses, instructors, and other peer leaders. The Friday PAM course is invaluable in terms of preparation, as **Sindhu Manivasagam** remarks, “During [PAM], if you take the time to work through and really understand the problem set, you will be prepared for your session. . . . Questions that you ask your group help push the discussion along . . . [constructing open-ended questions] is something else that you can do during PAM.”

I want to conclude my summary of this section with a very astute and honest comment by **Austin Spurlock**: “I wanted my kids to walk out with all of the answers and feel like they attended a class . . . but as the semester wore on, I realized my mentality wasn’t working. What started out as just answering some of the difficult questions . . . turned into my students expecting me to tell them everything they needed to know. They stopped thinking critically and by the end of the semester I was way too involved in the problem-solving dynamic of my group. . . . Assess how you are dealing with your students, and then see if this treatment aligns with the kind of session you would like to lead or the kind of student you would like them to be, and adjust your actions accordingly. . . . Now is the time for change, and . . . you will be able to end your semester with no regrets. “

Group dynamics are essential in effective collaborative learning. In group work, everyone must contribute equally and feel comfortable working with each other. The third section “**Overly Attached Student**” is full of ideas about improving group dynamics.

**Annie Wang** summarizes, “As the PLTL leader, it is your job to notice each student’s personality and establish an environment in which all participate in the discussion and work together cohesively as a group . . . it allows students to bounce their ideas off each other and learn from their peers.” **Brian Basco** urges, “Ensure that all the students participate . . . switch out the people in small groups and partners . . . don’t allow any cliques to form . . . [this will] hinder the formation of one cohesive unit.”

The SAM students discussed different types of students one often sees in groups. **Amee Azad** remarks, “outspoken students tend to dominate the group early on . . . it is very easy to allow these sorts of students to take over the group because it seems that the conversation can benefit the whole group, but be wary.” **Daniel Hong** cautions us, “The quiet student is equally as dangerous. This student tends to be one of two things: a lone gun who is used to working alone his whole life or a student who is behind in the class and has no clue what’s going on. . . . Direct questions are a useful tool when dealing with quiet students.” **Jaclyn Khil** reminds us, “It’s important as a PLTL leader to ensure that there is balanced discussion. . . . As a leader, I learned that some students learn best when given some time to personally reflect on problems before discussing.”

Michael and Richa both remind us of ideas from prior sections. **Michael Li** reminds us that “the strongest tool in a PLTL leader’s arsenal is the use of awkward silence . . . silence is not necessarily a sign of a bad leader.” **Richa Thakur** encourages us, “Reassure your students that you struggled through the class, too. . . . When they realize how many questions you got wrong on your way up here, they will be more willing to learn.”

Mid-semester is nigh. How do you keep the students and yourself motivated? The current SAM students have lots of ideas in the fourth section, “**Lazy Peer Group.**” **Jonathan Ang** describes it best when he says, “Mid-semester is a time when everyone at Wash U suddenly becomes cranky and moody. . . . Remind them that PLTL is a form of studying for General Chemistry and that if they put in the time and effort into the PLTL session, they will have essentially knocked off a couple of hours of studying that they might have to do otherwise.” **Hannah Lo** echoes this sentiment, “When life becomes so hectic, we all to some extent envy the simple life of a panda . . . but two hours reinforcing what they learned in lecture is not a waste of time. In fact, it will probably make learning and understanding the material easier in the future.”

**Jennifer Chan** cautions, “One of the biggest frustrations leaders face is when students do not come prepared...If no one comes ready, the session will be very unproductive. If this does occur, do not teach your students—that’s not your job!” (Remember what Austin cautioned about teaching - R. Frey) **Kirinne Slaughter** suggests, “Show them what it means to be a good, happy, healthy and successful student. A very important skill to have is time management . . . [early on] talk about how you managed all of your classes your first semester.”

**Wei Jia Ong** writes our inside thoughts, “Dealing with your group's mid-semester slump is really challenging, because many of the problems are more easily prevented than cured . . . [you think], ‘oh bugger, I should have \_\_\_\_.’ It may seem too late, but it isn't! . . . If you are engaged and excited about the material and PLTL activities, the students are likely to gain more out of PLTL and will be more willing

to show up to sessions.” **Amy Patterson** agrees, “One problem with PLTL can be its monotony. To raise enthusiasm, it is a good idea to change things up a little bit. . . . Pay attention during SAM, and talk to the other leaders about how they structure their sessions. . . . If you have fallen into a rut with the way you run your sessions . . . remember, it is never too late to get a lazy peer-leader group back on track!”

**Bruce Wittmann** cautions us, “It is important to be respectful to each of your students, regardless of how they react to the mid-semester slump. . . . Everyone has the right to choose the path that they want; you just have to help to make sure that no student goes to the extreme.”

As we all know, it is not only the students who feel the mid-semester slump. **Mitchell Hallman** reminds us, “All of a sudden studying for the Organic exam you have on Monday seems like a lot more important than preparing for your session, but you [need to] keep a positive attitude and a high energy level during your PLTL session. Your attitude will rub off on your group. . . . Show the students in your group that working on Chemistry can be an enjoyable and rewarding experience.”

Another essential element of PLTL is the use of the collaborative-learning strategies. These strategies encourage participation of all students and help to equalize the students’ contributions. This year’s SAM students give wonderful advice about utilizing these strategies in the last section of the SAM book “**Sudden Clarity Chemist.**”

**Gina Chang** reminisces, “you might remember from your days as a PLTL student, ‘why do we have to move for pairs?’ or ‘let’s just do this as a large group’ . . . our task as a PLTL leader is to use the collaborative-learning strategies in an effective manner, so that your students feel that they are actually helpful.” **Tyler Ellison** remembers, “I was skeptical at first. I knew that it wouldn’t be easy and that I would face a lot of resistance, but the benefits of collaborative-learning strategies came as a shchekotiki for me. (Look it up.) . . . Collaborative-learning strategies and creativity are your allies in running a smooth, productive PLTL session. . . . [However] Change it up! Keep [the students] on their feet and keep it entertaining!” **Nicholas Spies** advises, “Try to get people moving around, switch up the groups a lot. Staying out of a dry routine gets your students more engaged in the session. . . . Talk to your other leaders; see what they’re doing. . . . Most importantly, stick to the PLTL philosophy; it really works.”

**Ridwan Kazi** cautions, “At a glance, I feel the instructions to these collaborative strategies are very simple to follow and to do, but . . . these strategies themselves are an indicator of how cohesive the group is and over time [the students] get better at using them. . . . Assigning rules and delegating roles to students and what they should be doing is helpful.” **Iqra Khan** suggests, “At the end of the problem, ask each group to put their answers on the board and explain them. This allows the group to come back together, strengthens each group’s understanding of their answer, and encourages large-group discussion after small groups/pairs, which ultimately, will be most beneficial for the students.” **Richard Van Besien** counsels, “It’s important to keep in mind that the collaborative-learning strategies are an essential element of the PLTL program and are designed to allow for maximum participation and team development to occur in your group.”

Finally, **Laura Watkins** recommends, “[make] your group a safe environment, and [encourage] students to throw out their ideas, even if they’re wrong. There’s no penalty in PLTL for wrong answers! . . . Overall, be encouraging, relax, and have fun!”

Every year, I have the privilege of working with the peer leaders in General Chemistry, and I learn more about the effective implementation of the PLTL method. I hope that you enjoy learning the PLTL philosophy and methodology and reading the communal knowledge that your colleagues in the PLTL community are passing onto you through this SAM book, as much as I do. As you experience your first semester of peer leading and become a member of the PLTL peer-leading community, I challenge you to take this communal knowledge, make it your own, and add to the common knowledge of our peer-leading community. I hope you enjoy joining this community, and I look forward to modifying and expanding our communal PLTL knowledge together.

*Regina Frey*

### References

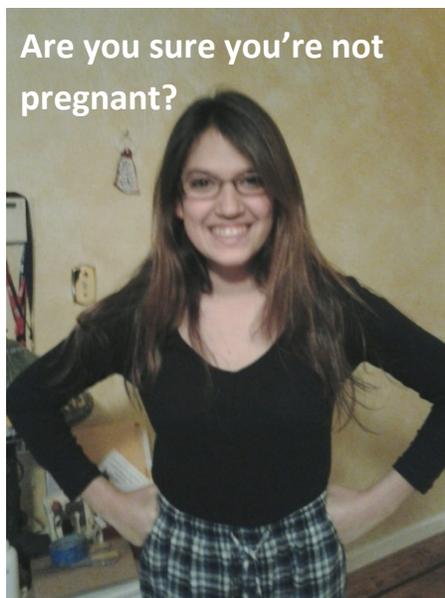
Dawkins, R. (2006). *The selfish gene*. Oxford university press.

Gil, P. What is a ‘Meme’? What are Examples of Modern Internet Meme? About.com.  
(<http://netforbeginners.about.com/od/weirdwebculture/f/What-Is-an-Internet-Meme.htm>).  
Retrieved August 4, 2013.

Scherer, M. (2013). Roger Ebert R.I.P. Swampland.time.com, April 04, 2013.  
(<http://swampland.time.com/2013/04/04/roger-ebert-rip/>). Retrieved August 4, 2013.

Wikipedia.org. (<http://en.wikipedia.org/wiki/Meme>). Retrieved August 4, 2013.

Wikipedia.org. ([http://en.wikipedia.org/wiki/Internet\\_meme](http://en.wikipedia.org/wiki/Internet_meme)). Retrieved August 4, 2013.



By Mikala Evans

First, congratulations on being selected as a peer mentor/PLTL leader! You have already shown a skill and passion for chemistry, and this will only help you in your first session. It is understandable if you are feeling nervous, I couldn't stop shaking when I first met my students! However, you must remember that the freshmen are most likely more nervous than you are. Not only are they starting PLTL but also all of the material taught in general chemistry is new to them. You have already been through the course, so the thought of atomic orbitals and  $PV=nRT$  no longer scares you. Use this as an advantage, and instead of fretting about how the session will go, focus your energy on preparations.

The first impression that you make on your students is one that will stick with them for the rest of the semester. You want to make sure to set the correct tone, one that is respectful and makes the students feel comfortable. This obviously will not happen automatically, the students are going to have to warm up to each other and to you! This learning environment can first be established if you exude confidence and make it clear that you are the leader. In my first peer mentoring session, like I mentioned before, I was very nervous. I tried to listen and be attentive to everyone, but I made one

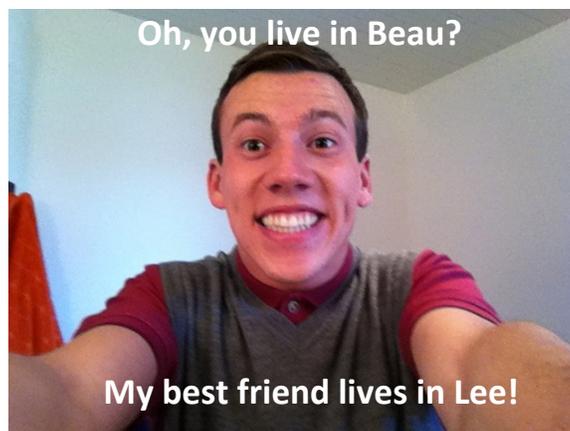
mistake. There were a few girls chatting in the back and even when other students told them to be quiet, I never told them myself. Those girls took this to mean that they could talk over me because I would not do anything. This became apparent in the second session when they tried to talk again. The solution to the problem was easy; I just had to be confident and tell them that they were at the session to learn and could chat another time. It's little things like this that establish the right dynamic within the mentoring or PLTL session.

Besides being confident as a leader, it is important to be friendly and give the students a clear outline of the expectations you have for the semester. Make sure to clearly explain the purpose of PLTL/peer mentoring and to also ask the students what they want to get out of the session. Another very important thing to remember is to bring food on the first day. All the students will be nervous, and bringing food is a great way to break the ice. Everyone loves sweets, and Paws n Go always sells cookies or cupcakes. This is also a great way to start conversation about people's favorite desserts, or other small talk that can help ease the awkward tension. An icebreaker is also a great way to get everyone talking and laughing. There will be awkward silence on the first day, since it is likely the students won't know each other. My PLTL leader would always ask us goofy questions like, “which do you prefer: chunky or creamy peanut butter?” or “would you rather...?” I find these are slightly less awkward than the traditional icebreakers and will allow students to get to know each other better.

Last, it is important to prepare yourself to be a leader. Make sure to look over the material prior to going to your first session (and every session for that matter!). You can never be quite sure what your students are going to ask you, so really understanding the material is a great way to prepare for any question. Also, make sure to arrive early with all of your supplies. Don't forget the expo markers, the PLTL sheets, or for peer mentor the problem set and class notes. Staying organized and on top of the

material will also help you exude confidence and be able to focus your attention on really helping the students.

Overall, make sure to enjoy your first PLTL session! Make sure to comfort them if they seem stressed and let them know that doing well in general chemistry is possible. Some students will not seem interested and may drop out, and that is okay too. Do not become distraught. PLTL/peer mentoring is not always the best way for everyone to learn. Just do your best as a leader and everything else will fall into place. Good luck on your first session!



By Robert Gallo

The first PLTL session can be a little frightening. I remember feeling anxious having never formally led a study group before, and realizing that the group would look to me as the leader to set the tone for the session. The good news, which you will learn during your first session as I did, is you have nothing to be nervous about! The session may be a little awkward at first but you have all the tools necessary to start forming a positive dynamic within the group.

The first thing you are going to want to do is bring food to the session. The students will be excited about the food and their enthusiasm will carry on into the session. As the students arrive, make sure to greet them and to start trying to remember all their names. It may help to write down all of their names, both so you know who is present at the session and so you can use it as a cheat sheet to call on them until you remember everyone's name.

Before you start working on the problem set make sure to use some sort of icebreaker. It can be a silly game, but some members in the group may not feel comfortable being silly in front of each other since they are most likely strangers. I prefer having everyone say their name and something like where they live on campus. This avoids any awkwardness some students might feel while still establishing a connection between members of the group since they all live on campus, if not the south 40. The

icebreaker will start conversation and pretty soon the students will be talking about how nice one dorm is or about how some mutual friend lives on the other student's freshman floor. This will facilitate discussion during the session because the students will not feel like complete strangers.

I was most anxious about how the actual session would go since I had never led a study group like this before. I knew the students would naturally look to me for guidance both with the material and in setting the atmosphere of the group. My worries were quickly dispelled though. It is important to remember that your role is not to tutor the students but to facilitate discussion. You don't have to be an expert, but ask questions to test the group's knowledge and help them collaborate in their problem-solving. It is their job to come to the session knowing the material, so you don't need to lecture them on anything. As for the atmosphere, the snacks and icebreaker should help ease any awkwardness, and if there is still awkward silence... that's completely all right! The students will most likely be confused on how to start a problem but let them think about it. Eventually someone will realize how to start the problem, or in many cases someone will finally get the courage to say what they think the group should do, and discussion will start. This allows the students to take responsibility for the discussion and they won't need you to hold their hand. As the leader, you should still look for ways to improve discussion through probing questions, but let the students make the discussion their own.

You have all the tools necessary to be a great PLTL leader, so just relax and have fun with your group! The students generally want to be at your session to learn, which will make your job easier, and it will only get better as the group gets to know each other.



By Joseph Mulhall

Howdy! You are about to take off on a wonderful journey through yester-year alongside your old friends molecular orbitals, radial wave functions, and Plank's constant. Sounds like fun right? Don't worry, it will be in due time. But before you get too comfortable amongst familiar concepts and equations, you must get your group on the same page as you. You must get through your first awkward PLTL session.

You will experience many firsts during your semester as a PLTL leader or Peer Mentor. But none are as important as your first meeting. Put yourself back in the mindset of the freshmen. They've just gotten through the really long orientation week and are probably sick of hearing how miserable Chem 111 is going to be. They signed up for PLTL because they heard that everyone else does it and that it really helps their grade, but most likely they have never had any experience with group work before. Seize this opportunity! Mold their brains into loving chemistry and the philosophy of PLTL.

One of the best ways to start off the first session is by doing some icebreakers. I started out my session by introducing myself and then saying a couple crazy facts about myself to kind of lighten the mood. Your icebreakers can be as fun or tame as you want, just make sure that each student has a

chance to talk and that you don't segregate students right from the get-go. Also, expect some awkward pauses. They won't know how to act around each other yet, and most likely won't be confident enough to speak in front of the group right away. Take this opportunity to explain how each of the PLTL strategies work and why each are useful. Try and sell them on the PLTL philosophy right away.

Remember the role you play in their eyes. You are this chemistry genius who was able to battle your way through all the tricks Chem 111 threw at you and came out with a really good grade. You hold a really powerful role in their eyes. You should have confidence going into your first session that you will be able to help them get through the problem set. One of my biggest worries was that I would totally blank on something super basic and that they would never trust me again. You were made a PLTL leader for a reason, and that is because you are fully capable of being a great group facilitator.

Make sure that you outline your expectations for them, and what they should expect from you. This way both you and your group will check each other during the semester. Have your group make a list of rules that you bring to each PLTL session (I highly suggest banning phone usage). Remind them that you are not an answer key (duck just in case they start to throw things), and that your role is strictly a group facilitator.

But also have a ton of fun! PLTL is a total blast. You will look back on this day a few months from now and laugh at how nervous you were. So relax and take a deep breath. You are going to be just fine. And if the first one goes poorly, don't sweat it. Learn from your mistakes. It's a long semester and you have plenty of time to improve. And if you really mess up...just be sure to bring extra snacks the next week.



By Gina Phillips

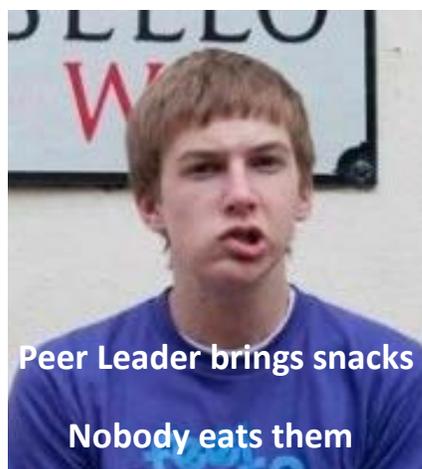
From a small seminar room in Lien came a strange assortment of “oinks,” “snorts,” and “zooms.” These sounds were the result of the icebreaker for my first PLTL session in which everyone had to guess the machine or animal sound that each student was assigned to imitate. An absurd icebreaker is a key aspect of your first PLTL session. Most likely, your group will be all freshmen, so making them get over their awkwardness and actually talk to each other can be a painful experience. When they first start trickling in, make sure you’ve come up with some questions to instigate small talk until everyone arrives. I started with the icebreaker right away and also participated so that everyone lightened up and got to know a little bit about each other.

Another great way to start the semester is by baking for your children (as you will soon come to call them). Big hint to being an awesome PLTL leader: you want your kids to like you! We all know that the way to a college student’s heart is free food, so bake some cookies or bring in some candy and then start a signup list for someone in your group to bring in food for each future session. Also, most of them truly think that you are some sort of chemistry genius with all the answers. While this could be a fun power trip to take, remember that you are only a year or two older than these students, so relating to them on more of a friend level will be more effective. If they think you know everything and can answer

everything, they are more likely to look to you for every question they have, which will cause you great difficulty when trying to follow the PLTL philosophy. Make sure you are confident so that they know you are a qualified, reliable leader, but don't be over-confident so that they think chemistry is so easy for you, which can make them feel inferior and incompetent.

The hardest part of the first session and the whole semester for me was not being able to answer my kids' questions directly or tell them if their answers were correct. On that note, make sure you read through the *whole* PLTL philosophy with you students for their sake and yours. A lot of students go into PLTL with the idea that it is some sort of tutoring session, so going through and explaining the guidelines of PLTL in depth will avoid confusion in the future. They will of course immediately forget these guidelines and ask you several direct questions throughout your first session. Remain patient and remind them of the PLTL philosophy, and no matter how hard they beg with their little freshmen puppy eyes, don't give into their pleas and/or angry requests.

The most essential skill I learned over this semester roots in the first session: a positive environment fosters a successful learning experience. If a student feels bored, threatened, pissed off, or invisible, he will be less motivated to contribute to the group or even to come to PLTL at all. Your job from the get go is to be friendly, encourage participation from all members, get students talking to each other, and make some jokes in order to keep the students engaged and stress-free. In your first email before you meet, perhaps try cracking a dorky chemistry joke. The first session will be awkward at some points if not the majority of the time, but have no fear, within two or three sessions, everyone becomes much more comfortable with each other, and you will see how this comfort level promotes a cohesive and efficient PLTL group.



By Nathan Port

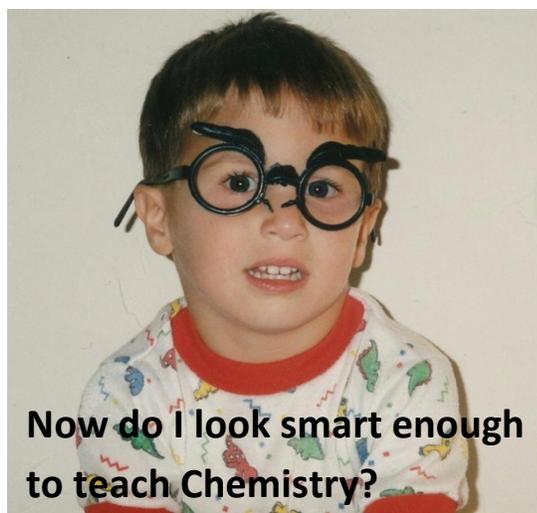
It'll be a bit awkward, the first session that you lead, there's no way that it can't be. You're being assigned to some kids that you've presumably never met before and there's this weird power dynamic that you aren't used to. That said it will be fine. It will be fine because they want to like you and you want to like them, it will be fine because you know that two hours of every weekend you will be spending your time helping these kids learn, and they know that two hours of every weekend they will be spending time with you. Some of them will probably irk you; grind your gears perhaps, but on the first session they will be in the exact same position you are so any funny guys will tone it down.

Maybe you're worried. "I'm kinda quirky!" "I'm shy!" "I smell bad!" There's a quote that I like from "Good Will Hunting" that adequately captures the relationship you will have with your students "People call those imperfections, but no, that's the good stuff." They'll come to love you for all of these things that you might be worried about, for your quirk, or your shyness. Don't actually come without showering though, they won't love you for that.

Just remember to be yourself and you'll be fine. As far as preparation goes just go to PAM and pay attention, maybe look over your notes a bit and you should be fine. The semester starts off easy.

Play getting to know you games – also dubbed “icebreakers” – they’re fun, they’re awkward, but they’ll certainly help ease any tension. There are some really amusing ones out there so ask your friends what they know, just be original. If you’re bad at names make it a goal of yours to say everyone’s names as frequently as possible. The repetition really helps and you’ll have all those kiddos compartmentalized in your head by the end of the session.

Oh and bring snacks. It shows you care (which you do right? You do volunteer for this job, nobody's forcing you to do it). I always like to get pastries, you can go to Schnucks, get them from Cherry Tree, or, if you want to show you *really* care, stop by Companion Bakery in Clayton. They probably won’t eat them, I don’t know why, but that always seems to be the case. Then you’ll have a whole bunch of tasty treats for yourself and your friends. You can even say you got it for them, pretend you care.



By Jason Silberman

Leading up to your first session, there's a lot that can make a peer leader nervous. Will the students like you? What if they get every question wrong and you can't tell them the right answer? What if I have really obnoxious students? For me, the most important piece of advice I received before my first session was to simply be myself. Even though at times I may say something incoherent or misuse a word or two, the only way the students will be comfortable is if you are comfortable yourself.

I'll tell you right off the bat—you probably won't come out of your first session saying that everyone in your group was super friendly and outgoing. There will be moments where it feels like your pulling out teeth just to get someone to answer how many electrons hydrogen has. At first, it may be disheartening that no one is able to answer those questions. However, as time goes on, participation will increase, and your group will start to function as one cohesive unit. Part of PLTL and peer mentoring is allowing students to develop new problem solving techniques; that can't be taught in only one session.

The majority of my first session was focused on building chemistry (pun-intended) between the students in the group. I remember that when I was in PLTL, my leader was able to make our two-hour sessions something enjoyable—it wasn't a burden to take two hours out of my Sunday every week. I

think that PLTL and peer mentoring are most effective when the students want to be there participating.

There are a few ways to help you accomplish this:

1. Bring food. I mean, come on...who doesn't like food?
2. Like I said before, just be you. Oftentimes students have somewhat of a godly view of PLTL leaders and peer mentors. At the beginning of the semester, they've only heard the horror stories from Gen Chem, and they think anyone who got an A had to be a genius. In addition to fulfilling the roles of a PLTL leader and peer mentor, I think it's also our responsibility to show students that we're human—we're just like they were when we started. Try to relate to your students; talk about other clubs and groups you're interested in, things you like to do on the weekend (if appropriate), and stuff you like to do around campus.
3. Be prepared. One of the worst things that could happen in week 1 is for you to not know what you're doing. Especially in the beginning of the year, students are looking at your every move. If you're not prepared, they won't be prepared. Make sure to set a precedence that your sessions are going to be taken seriously, and that starts with preparation.

As you continue through the semester, things will become a lot easier and natural you're both you and the students. Mistakes will be made along the way, but learning from your mistakes is the best way to improve. Don't be nervous! You'll be great! Embrace the awkwardness!



By Anne Sun

First day! Take a deep breath, and make sure the food you brought is still packaged perfectly. You did remember to bring food didn't you?

As a new PLTL leader, the first day is the most fun, but also the most stressful. You will meet a bunch of the sweetest students, who will look up to you, and come to you for chemistry advice. Don't panic! Take comfort in the fact that you have survived Chemistry 111, so you have the necessary experience to help your PLTL students. But just in case you aren't sure, here are a couple tips.

**Be Prepared!** Before your first session and really before every session, look over your old notes. Be prepared to ask probing questions that will challenge their thinking, so that they do not just regurgitate their notes. Remember back to when you first learned the material. What parts did you find most difficult to grasp? Look through your old PLTL problem sets, and think about what questions you struggled most with. Also make sure to bring your markers. It's always a good idea to arrive a few minutes early and rearrange the room to your liking.

**Bring Food!** My PLTL leader's PLTL leader told my PLTL leader, who told me and now I'm telling you: bring food. Years of experience tell us food will just make everything run a lot smoother.

**Icebreakers and Name Tags!** Prepare an icebreaker. This is the perfect way to get to know your students and to gauge everyone’s personalities. This will make the students feel more settled in and create a more comfortable environment. And while students trickle in, why not get them to make name tags? This will help you remember their names. It’s always better to refer to your students by name as opposed to calling them “hey you there.”

**Be Confident!** PLTL students can detect fear like horses. They will notice if you aren’t sure about yourself. Everyone makes mistakes; the key is to learn from them. They do not expect you to be perfect, but you should create the illusion that you know exactly what you are doing. It will reassure them that they are in the right place.

**Relate to them!** Think back to last year when you were in their shoes. It’s not easy being a freshman, especially a freshman in GenChem. At the end of the session, it might be a good idea to reassure them that the course really isn’t that bad! Give them some of your test taking/ quiz taking methods and really just make sure they don’t panic.

**Outline Expectations!** I save the best for last. This is really the most important part of your first session. The problem set is shortest for this session because Dr. Daschbach and Dr. Frey want to give you enough time to establish some ground rules. Make sure each student read the PLTL philosophy. This will save you a lot of headache in the future when they question the no answers policy. Also to create a friendly environment, make sure your students come up with a list of rules that everyone should follow. This can include, respecting each other, listening to everyone’s ideas, no texting or using their cell phones etc.

And there you have it. Relax! It’s your first session. Get excited! This is going to be a great experience, try to enjoy it!



By Kathleen Vogel

Congratulations on starting your career as a PLTL leader! As your first session approaches, I'm sure that you are getting a little bit nervous about meeting your group and leading the session. In order to calm your nerves a little bit, here are some things that you can do and think about to make sure that you are not a socially awkward PLTL leader.

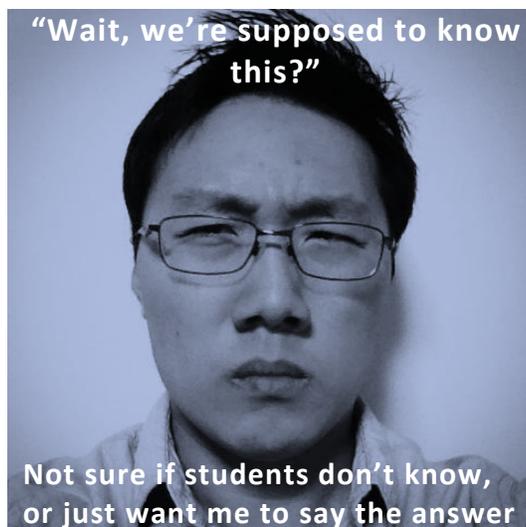
There are a few things you should do before your first session begins. First, make sure you send an email to your group a day or two before your first session. It is important that they hear from you beforehand because many of them, being freshmen, will be just as nervous about the first session as you are. Make sure that your email is friendly, and that you provide them with the date and time of the first session. Also, it is important to be clear about what materials the students should bring to the session, since this is the first time that many of them will be going to a PLTL. You will be surprised how comforted your students will feel just from hearing from you. In addition, before your session, make sure to come up with a good icebreaker for your students to do at the start of the session. This may actually be the most difficult aspect of your first PLTL session. Make sure that your icebreaker provides a way for the students to get to know each other, but is not boring for them. I came up with one that involved candy as well as interesting questions that expand on just the usual name, hometown and

major that most icebreakers include. I think that you will find that once your group goes through the icebreaker, things in your session will become more comfortable for everyone.

Once your session begins, there are a few things you should keep in mind to make sure your session continues to run smoothly. In order to keep the mood light, I would suggest bringing some food for your group to snack on throughout the session. If your group likes the idea of having food at the session every week, you may want to make a schedule for students to sign up to bring food each week. This way you don't need to spend your own money or meal points every week, and your students can have food at every session.

Before you start in on the first week's problem set, also make sure that you go through the PLTL philosophy in detail. Although this may be pretty boring for the students, it is important that they are really clear on the rules and conditions that go along with PLTL, especially the rules about absences. If you don't go over these in your first session, you may run into issues or disputes over the policy later in the semester, so it's better to just get it out in the open at the start of the semester.

My final advice to you as you head off to your first session is to be confident and learn from your mistakes. If you are confident during the session then your students will trust you and look up to you right from the start, and even if there are a few rocky points during your session, don't dwell on those mistakes. Just make sure that you take note of them and keep them in mind for future sessions. Keep up this confidence throughout the semester and you will have a fantastic experience.



By Brandon Chang

There's a time in every Peer-Led Team Learning Leader's experience where you come to a crossroads: do you follow the PLTL Philosophy or choose the path of least resistance by giving students the satisfaction of an answer? While it is so easy to just choose the latter and get on with it, you have to remember the real reason as to why PLTL is so effective in the first place. Working together to solve problems is an invaluable skill and although solving chemistry problems was why everyone showed up in the first place, that skill is what stays with your students, not necessarily what a wave function is.

For the first few sessions of PLTL, the students will not be used to the concept that they have to solve the problems together, decide if it's right, and then move on. Then they have to realize that the PLTL Leader is a facilitator, not a tutor, and manage to complete problems with minimal leader contribution. This however is the ideal PLTL session; it's definitely not something that will always happen.

In those first few weeks, to them you're the hero. You've conquered General Chemistry. You not only survived it, but you did so successfully. The students want to know what you know. As a result of this, every time a question pops up, heads swivel to you with questioning eyes.

The difficult task here is to redirect the question back to the group and get them thinking critically about the question. While you may know the answer, it's important to realize that what made you successful as a General Chemistry student was your ability to solve problems, not memorize answers. This is what you have to teach to your students.

One of your most important goals as a PLTL Leader should be to maintain the PLTL Philosophy and emphasize it every time a student or the entire group wants to stray from it. Remind them of what they signed up for. Of course, this is much easier said than done. Even presenting the philosophy to them on the first day does not necessarily mean that it is going to stick in their heads. Eventually the students will question it and wonder if the philosophy is worthwhile at all.

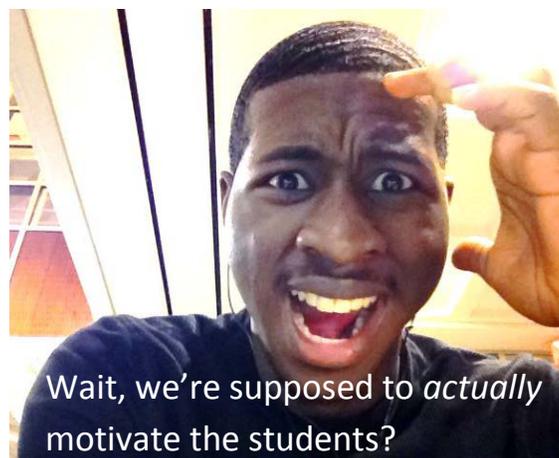
Here is where you have to draw a line in the sand. Don't give in now or it will just be easier for the students in the future to justify bending the philosophy a little bit. Convince the students that the PLTL philosophy has been proven to be successful and encourages them to think critically. It also pushes students to work collaboratively and use each other's talents and ideas. Finding solutions as a team is a great way to fully understand a problem and gain an important skill for all walks of life.

So how can you deflect those questions directed at you and also help your students learn something? Answer their questions with a question. Use open-ended questions that you and your fellow leaders thought up in PAM. Quite frequently, I would write questions and interesting chemistry facts in my notebook before the sessions and use them to either get the students thinking or flesh out a problem they just finished. Challenge your students and let them argue and defend what they think.

Sometimes though, you will have to watch out for your students as they can get a little tricky. If you end a problem without much ado, it can become pretty clear to the students that they got the right answer or they'll try to read your body language and discern the accuracy of their answer there. So if

this ever happens, just remember to always switch things up. Act like they got the question wrong or make them consider other avenues. In the end just always keep your students on their toes.

In the end it is with high hopes that I leave you these pieces of advice for you and your PLTL group. Don’t be afraid of making mistakes; we all do. Have confidence and let the philosophy sink in over a few sessions. As things run smoother, you won’t have to get *quite* so suspicious of whether or not they just want an answer as they will begin to confidently find their own solutions without you.



By Damari Croswell

The semester always starts off great. Everyone is ecstatic, full of energy, and incredibly driven. Most dorm rooms that you observe are completely clean and organized, and everyone is ready to go. Students get their problem sets done on time, go to help sessions, and study for their quizzes earlier than the night before (or the day of). As the semester continues, this steadfast drive begins to wear off, and many students do not work as hard. They go less to help sessions, they don't complete the problem sets in a timely fashion, they sometimes don't come prepared to peer sessions, and worst of all, many stop going to lecture. What is ironic about this mid-semester slump is that many of the peer leaders actually experience similar "symptoms" of weariness, even if it isn't manifested in the same way. However, this is when it is most important to motivate and push your students.

It is amazing how much motivation plays a role in mentoring and PLTL sessions. The sessions are in place to help students enhance their chemistry skills, but much of the time, whether we notice it or not, is actually directed towards motivating our mentees. They will complain, they will worry, and some may even cry. The question then is, how can we motivate them?

I find that the most useful way to motivate students, especially if they do poorly on an exam or a quiz, is to tell them that you also struggled in the class at some point. This may or may not be true

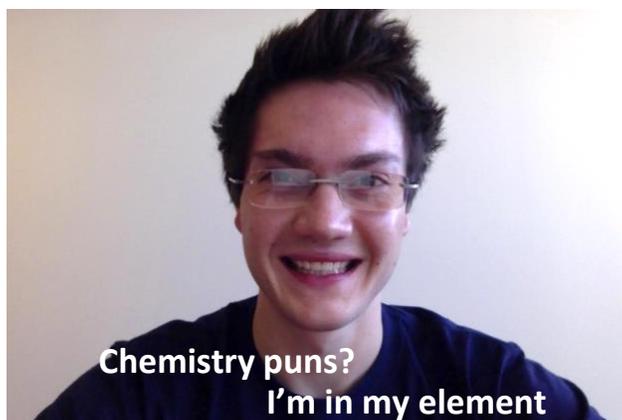
(although it should be true for most of us), but it is very important that the students recognize that it is possible to achieve the skill level necessary for a good grade through extensive, yet efficient practice. Many of our students also picture us as perfect chemistry masterminds, which none of us actually are – at least openly. Reminding them that it takes a lot of dedication and hard work to do well in this class will not only enhance their confidence, but it will also enhance their chances of actually doing well. This is so critical for most classes.

Another useful way to strengthen your students’ confidence is to congratulate them when they make a significant conceptual leap, or ask a very thought-provoking question. This seems trivial and rather unnecessary, but it is actually very important. It shows students that you have acknowledged that they are digging deeper into complex topics. This is solid proof to students that they are investigating topics in a way that is conducive to their overall understanding of the material. As a PLTL leader you cannot give answers or respond in a manner that suggests whether or not an answer is wrong, but you can acknowledge thought-provoking questions and conceptual leaps.

Lastly, try to get to know your students. Students that come to this school are skilled in so many ways and many of them come from backgrounds or have overcome obstacles that we might not even imagine. You may find that your group members or mentees teach you a lot about yourself and the world without even knowing. It is also always more settling for a student to feel more comfortable with a mentor who is actually interested in the student as a person, rather than as a follower. Contrary to what is easy to believe, students are more than filled seats in a classroom.

Each semester is its own marathon – everyone starts out refreshed and with plenty of energy. However, the most successful runners know that success in a marathon is contingent on one’s ability to maintain energy throughout the entire process, especially when things become challenging and the

semester tires them out. The ability to act as support for your mentees is a critical part of being a mentor. In fact, it is arguably almost as important as the material itself.



By Henry Ellison

So you have survived your first session as a peer leader, congratulations! Hopefully you were able to break the ice with your group and you got off to a great start. But now it's time to start thinking about your role as a leader/mentor and how that role needs to influence your actions looking forward.

One of the most important things to realize at this point is that you are a group learning facilitator and not a tutor, and it is therefore necessary that you do not tell your group any answers. Sure, you have been told this a number of times, but, as you now know, it is totally different with 10 freshmen looking to you for help. And that is why right now is the most important time to reflect on why this is the policy, it is the time when you are cementing the way the group is going to be for the entire semester. For me personally this was a pretty big challenge, I always found it hard not to give the answer when I knew that I could explain the concept well to my group. But I came to realize that this would be far less powerful than if the group came to the answers themselves, and I made sure to bite my tongue and let them struggle a little to get to the right answer.

Another important aspect of being a PLTL leader that you should focus on now is how you prepare for sessions. It is your responsibility as a leader to come prepared enough to move the discussion in a productive and informative way. This is not always easy even with the knowledge of the

chemistry being discussed but, without it, moving the conversation where you want is almost impossible. This makes it especially important that you pay attention in PAAM each week and ask questions if there are concepts discussed on the problem set that you feel particularly rusty on. It is not totally necessary that you go the 111 lectures, but reading through the TA notes for the week can also be very helpful, along with less time consuming.

And finally, it is now the time to determine how the group will interact for the entire semester. It is up to you to set a good, positive tone each week for the students to build off of. Maybe you facilitate this through snacks; you can set up some system for someone else to bring them each week. But, more importantly, I think one of the best things you can do is create a fun, relaxed environment. These freshmen are going through a scary, stressful time in their lives and any little thing you can do to alleviate that stress for a couple of hours is very powerful, and you would be remiss not to do so. As an added benefit, if you can make the PLTL environment painless and effective for your students early on then you can avoid a slew of issues down the road, from the mid-semester slump to issues with attendance in the last few sessions.

If you can apply these simple concepts to your sessions you are well on your way to an absolutely great PLTL group that all of your students should feel lucky to be a part of!

Cram→quiz→brain dump→exam...

Have I ever seen this before??

By Rachel Hoffman

A huge difference between GenChem and any high-school chemistry course is that students must not only learn and understand concepts independently but also realize the extent to which the concepts all connect to each other. Students often fool themselves into believing they understand (i.e. have memorized) a concept completely, but when they see it on a quiz or exam, they may freak out because the question asks about the concept from a different perspective or asks the student to link two concepts together in a way they have not seen before. As a peer mentor or PLTL leader, part of your job is to help them think about ideas from GenChem in a more holistic manner. This can be difficult, however, when your kids cannot seem to remember what they did a week ago!

As a peer leader, one way to help ease your students into adopting a more holistic mind-set is to explain right off the bat that students struggle in GenChem because they fail to connect concepts to each other as they learn them. Encourage them (tell them) to briefly review last week's concepts before diving into this week's problem set so they at least refresh their memory. Even if a student does not actively attempt to connect concepts from last week while working on a problem set from this week, having the information merely sitting in the back of their minds can help develop a deeper understanding of the material without really realizing it, and learning without trying too hard is always a great thing.

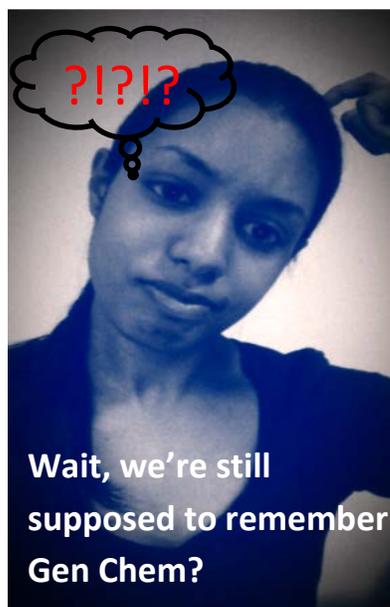
You ease some worries about that “surprise” question on the exam by pushing students to connect the dots during your peer mentoring or PLTL session. This way, they can openly discuss concepts and get some feedback from other students and the leader (peer mentor) about whether or not their train of thought makes sense. Through leading questions (this works for both types of

leaders!), you can encourage students to think about the material on a deeper and more comprehensive level.

Urging students to learn holistically seems like an easy thing to do; however, it does require some preparation on your part! Being prepared not only makes you look like a genius because you seem to magically remember everything you studied a year ago (yeah right!), but it also makes for a more effective peer mentoring or PLTL session. While reviewing, take your own advice- go through concepts and example problems without letting the big picture escape. Make yourself notes as you go through the material so you remember to ask your students to connect concepts through different problems.

Preparation... that thing you learned to put off until the very last minute in high school and have probably condensed again and again as a college student as well. As the semester wears on, reviewing peer mentoring/PLTL material will surely fall a few spots on your priority scale, but don't forget that you made a promise not only to the Chemistry Department/Cornerstone to be a peer leader but also to your students- they're counting on you! If they can tell that you are not prepared for a session or that you forgot the material from last week, they will absolutely mimic your actions. Because of this, you have to allow yourself time to prepare! The easiest way to do this is to have a regular time during the week that you review material. For me, it was the awkward gaps between my classes/meetings on Mondays. You can also pretend to be busy when you're eating alone in the DUC (I know we all do this) by actually being busy reviewing GenChem material. An added bonus: when GenChem concepts come up again in orgo, you can impress your peers since you will actually remember the concepts!

As a leader, you can help your students succeed by enabling them to approach concepts and problems like a GenChem student instead of a high school student. You know what to do... go for it!



By Sindhu Manivasagam

Being a peer leader can seem like a daunting task at first since you are solely responsible for facilitating a group of about nine students through a two-hour problem set every week. Personally, I know that I was nervous before starting because I didn't know exactly what being a peer leader meant, what was expected of me, what the job entailed, etc. But that's why this set of essays, "Wait, we're supposed to..." was put together – to help you better understand your role as a peer leader.

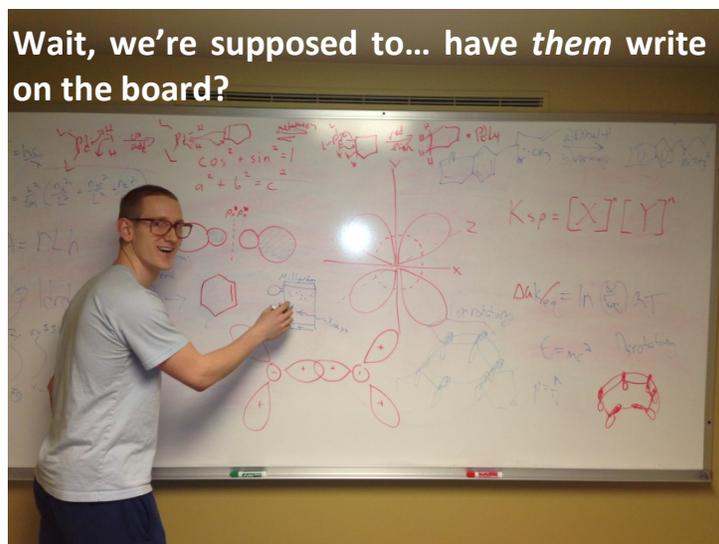
One of the most important aspects of being a peer leader is preparation. This includes things as simple as remembering to bring the problem set sheets to the session and making sure that you show up on time. If your students see that you're not showing up promptly, they'll feel that there's no reason for them to do so either. Also, you may want to consider sending out a reminder e-mail to your group the day before and let them know if there's anything specific they should bring to that session. Aside from this, another component of preparation is keeping up to speed with the material taught in the class. Since you probably took Chem 111 about a year ago, it's easy to forget certain concepts or terms. That's why it's really important to review each week's topics before the session and clarify any questions

you have. A great time to do this is during the PAM class on Fridays. During the class, if you take the time to work through and really understand the problem set then, you will be prepared for your session.

In addition to being prepared, your main role is to effectively facilitate your group. A key aspect of that is asking your group probing and open ended discussion questions. I’m sure that given the problem set, your group might be able to work through it all on its own. But as a peer leader, your job is to make sure they understand the problems and concepts and are not simply plugging numbers into equations, a tendency that many of them may have. Therefore, the questions that you ask your group help push the discussion along and help your students gain the most out of those two hours. Sometimes it’s hard to come up with open-ended questions on the spot, so this something else that you can do during PAM.

During your session, it’s also good to make sure that everyone in the group participates. You will quickly see that some students like to keep talking and answering questions for the whole two hours, and there are others who only say a sentence or two. To prevent one or two students from dominating the discussion, it helps to specifically call on or direct questions towards students who are quieter. Sometimes, if one student answers a question, then I will ask a different student to explain the answer and another one to put the answer up on the board. This allows more students to actively participate in every question. Much of the benefit of being in a PLTL group arises from working and discussing problems as a group; but if only a few students are actually contributing, then not everyone benefits.

Hopefully, this set of essays has given you a better idea of what your role is as a peer leader. As you continue leading sessions throughout the semester, you will start to figure out what types of strategies are most effective for your group in particular and all of this will become much easier.



By Austin Spurlock

You have made it through your first session – CONGRATULATIONS! The scary part of the semester is over and now it's time for some introspection. It's time to sit down and ask yourself what your goals are and what kind of impression you want to make on your kids. Your focus should no longer be on making it through the session but instead on being the best leader you can be. Now, being a great chemistry peer leader will mean something different to everyone, but to me a good leader achieves two goals:

1. Foster a sense of community.

At the end of the semester I want my students to say “hello” to each other in the hallway. Often we participate in some group activity and never talk to those group members again. You can change the cycle! If you make your peer sessions into something the students enjoy coming to, they are way more likely to make lasting friendships from the experience.

First you can take common sense steps toward building a positive environment, like saying “hello” to your students around campus, being friendly/smiley in sessions, joking around during sessions, and sending out positive emails during exam times. You can also spread positive energy in your

sessions with a college student’s best friend – food! Sometimes it can feel like a burden to always need to bring food, so at the beginning of the semester you can hand out a sheet for weekly snack volunteer sign-ups. Then, to make it easier for students to remember when they signed up for, you send them a personal reminder email before the registered session.

My favorite community-building activity is one I learned from an essay just like this, a year ago, in our SAM book. The peer leader emphasized that it’s not just important to get to know your students on day one. It’s important to continue that dialogue throughout the semester. He suggested that you start **every** session with an icebreaker. This year I always started my session with a random question about the students like, “What is your favorite holiday?”, “What country would you like to live in for one year?”, and “What would you do tomorrow if you won the lottery tonight?” These questions were something I looked forward to each week; they started our sessions by getting everyone involved in discussion and they always resulted in plenty of laughter. Overall, you should make your chemistry sessions a warm and inviting place in the ways that fit you best.

2. Help students build the capacity to think through and find material on their own.

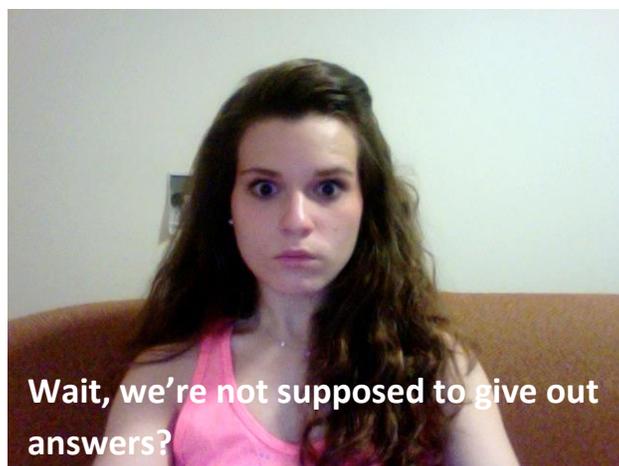
This is where my meme originates because even though I knew the mission of PLTL was to let students teach themselves, and I agreed with it, I still wanted to teach my kids every week. I always tried to get peers to answer a student’s question first, but if the answer wasn’t sufficient, I would add on what I felt was important. I often had my kids draw diagrams or explain things on the board... but I was also guilty of explaining myself with the board at times.

I wanted my kids to walk out with all of the answers and feel like they attended a class... but as the semester wore on I realized my mentality wasn’t working. What started out as just answering some of the difficult questions my students had turned into my students expecting me to tell them everything

they needed to know. They stopped thinking critically and by the end of the semester I was way too involved in the problem solving dynamic of my group.

I want to help you not make the same mistake. It's not too late; you have time to change your habits. Realize that letting your students struggle through a problem and walking out with only half of their questions answered can be a good thing. Education, especially at Wash U, is about critical thinking. Often you won't just need to recall an answer someone told you, but instead you'll need to take an abstract concept and apply it to something else. The level of understanding necessary for this kind of problem solving does not come from someone telling you the answers, but instead from deeply thinking about a concept on your own. By making your students seek out their answers in help sessions and struggle through chemistry problems, you are doing them a favor. Not only will they perform better on chemistry exams with their new critical thinking skills, but your chemistry sessions will be driven by student discussion and continue to run smoothly throughout the semester.

Now, I leave you by asking for a favor. Look at yourself, assess how you are dealing with your students thus far, see if this treatment aligns with the kind of session you would like to lead or the kind of student you would like them to be, and adjust your actions accordingly. Now is the time for change, and by assessing yourself now, you can end your semester with no regrets.



By Libby Ward

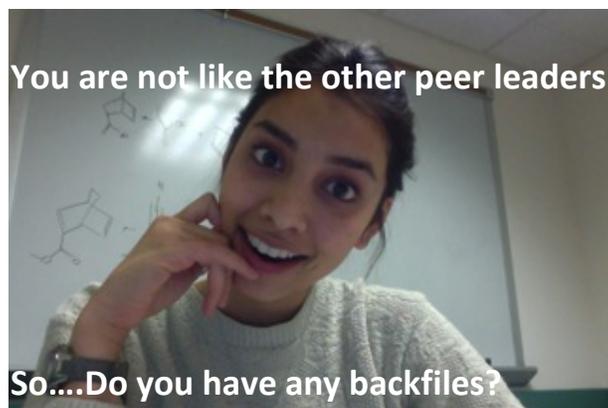
When you first explained the PLTL philosophy and your role as a facilitator rather than a teacher or an answer key, your students probably thought you were joking. You might have felt intimidated by their stares. You probably want them to like you. You definitely want them to succeed in the class. But by adhering to the PLTL philosophy, your students will learn so much more than if you just gave them the answers or retaught the material. PLTL is not about the answers; it's about how to solve these problems while working collaboratively with a group. At PLTL, they have other classmates there who can work together for two hours answering each other's questions and providing alternate ways to think about problems that go beyond what was said in lecture. Remind your students of the benefits of PLTL as a unique study opportunity to improve their chemistry knowledge. Encourage your students to use other resources if they need to be taught the material, like RPMs, help sessions, and tutoring!

I know it will be difficult and awkward at first to not give your students the answers, especially when they are headed in the wrong direction. However, if you uphold the PLTL philosophy from the very first session, your students will start looking at their classmates for help instead of you and eventually find the right way. They will learn more about chemistry and how to work out difficult problems through struggling through the problem than if you just corrected them.

This will be a lot easier if you make sure to not look at your solutions during the session. Your students are smart enough to tell that all that writing on your leader copy is not just doodling. For the problem sets, try to solve the problems on a separate piece of paper and keep it in your backpack during the session. Try to only use the leader copy to tell your students which collaborative learning strategy to use. Your conscious will be clear when you tell your students that you actually don't have the answers.

Your students will undoubtedly still direct questions at you, despite your efforts, especially in the first couple of sessions. A strategy that you will learn to love is to redirect questions asked at you back to the entire group. You can even use this as an opportunity to ask a quieter student what he/she thinks. This will allow the student in your group to gain confidence and practice the material by explaining it, and also show the students how great of a resource their peers are! (You also haven't seen this material in a year; your students who have recently learned it might know the concept better than you!)

Don't be afraid that your students won't like you because you aren't giving them the answers! By sharing your experience in general chemistry, giving them test taking strategies, and supporting them through this very difficult class, you will develop strong bonds with your students. It will also help if you keep PLTL a fun environment! By always having food at the session and spending the first few minutes talking about everyone's weeks and joking with each other, PLTL will seem like less of a chore and more interesting than just sitting around and routinely solving problems. Even though you aren't teaching your students chemistry, they are definitely going to look up to you as a role model and will be appreciative of your experience and the advice you can give based on that!



By Ameer Azad

Patience is a skill quickly learned by effective peer leaders. One of the biggest challenges of peer leading is in learning to balance and accommodate the diverse set of personalities in the group. Let's set the stage. Picture the study room and your students, strategically placed around a table or at desks. They are busy enjoying the small talk before the session begins. You clear your throat, and before you even get through the first question, Jackson has his hand in the air, Megan is whispering Marcus a question on the side, and Claudia is frantically writing down every word that comes out of your mouth. Be patient. Don't take it personally. All of these students want to hear what you have to say, but once it's been said, they will be taking vastly different routes to analyze, encode, and digest the material you've presented.

Recognizing the differences in the students' personalities is only the first step. The greatest obstacle is in utilizing them to provide coherence in your group and to help the students get the most out of the session. The first few meetings may seem chaotic as you learn, alongside your students, what sort of structure works best. By being attentive and willing to change to suit your students' personalities, you will be well on your way to being their favorite peer leader!

Some students are very vocal about their knowledge, or perhaps lack thereof, of the subject material. These outspoken students tend to dominate the group early on. They put their questions and answers on the table, looking to you for a correction or second opinion, i.e. overly attached! It is very easy to allow these sorts of students to take over the group because it seems that the conversation can benefit the whole group, but be wary. As likely as it is that another student has a similar question, you do not want to get held up on a single topic. Progressing through the problem set is vital because, if it's possible to generalize anything about how people learn, repetition is key and exposing the students to the material again will help them through the process.

There are the quiet ones too. The students that manage to perpetuate awkward silences in the midst of the most vigorous of conversations when called upon. They are the easiest to spot and the hardest to work with, but don't let that keep you from trying. Speak to them directly, ask them to read questions, and make eye contact when asking for an answer. At the same time, it isn't your job to reform them. Engage them and provide them with an environment that allows their personalities to feel safe and comfortable enough to ask questions and, yes, even be wrong.

Work with these students by developing good rapport by breaking down the rigid leader/student barrier. Utilize the group-collaboration strategy techniques from SAM, make the session interactive by getting the students to go to the board, and, like I said, be patient. By the time you reach your last peer learning session of the semester, you will look back and see how you have grown with your group. By that time, you will be accustomed to the different personalities and will be able to detach yourself from Jackson's lingering questions and get Claudia to take a minute to speak with the others.

These are two extremes: the outspoken vs. quiet student personality. Your group will be more likely to consist of a mixture and a spectrum of these types. They will test your patience, compete for your attention, and have different needs but by being perceptive of the different personalities in the

room, you can make your sessions more effective and ensure that everyone leaves with a better handle on General Chemistry. Above all, you will have provided your students with a taste of the group studying technique that they'll use for the rest of their college careers. They will have learned the flexibility that college-level learning requires and will have you to thank for it. Good luck!



By Brian Basco

PLTL groups are, to a large extent, quite random, and, like most other randomly assembled groups, will have people with vastly different personalities in them. These differences can be as simple as introverts and extroverts, and as extreme as one person lording over all the others. When it comes to dealing with these different types of students in a PLTL setting, there are some useful things to keep in mind.

First, if you have any introverts, take note of them and figure out a plan to draw them out during the course of the sessions. There are a couple of types of these quiet students: the ones who don't know anything, and the ones who think they don't know anything. The leader should deal with these two cases differently.

For the first scenario, the easiest solution is to remind the students via email or some other method to look over the problem sets and go to class before PLTL. Tell them at the beginning of the first session that PLTL is NOT a substitute for those other components of general chemistry.

To deal with the second group, sometimes, it is as easy as giving these reluctant students a chance to start off a round robin. Once the shy students see that they actually do in fact know what they are talking about, they will be inspired to participate more.

Dealing with the quiet students is far easier than dealing with the other problem group – the domineering students. Every now and then, a PLTL leader will stumble across a student who took AP Physics in high school. These students believe that they always have the right answer, due to their background, and try to drown out the other students, even when they may be wrong.

Controlling the AP Physics kid is not as hard as you may think! Remember, you are the leader and the students will look up to you, even if you are only one or two years older than them. Feel free to embrace your role as the facilitator and step in if you think one student is controlling the discussion. Politely and calmly ask that student to wait and give the rest of the group a chance to think. People at Wash U are pretty nice; chances are that the student will back down and listen to you. If the student willfully disobeys you, then have a talk after the session.

While the two types of students above are the largest potential problem groups, here are some general tips to keep in mind while running your sessions:

1. Figure out how the students in your group like to learn and then tailor sessions towards that. Some students love to use the board, so if it helps, use the board more often.
2. Ensure that all the students participate – this will keep everyone engaged in the session, and will help form a group of out these randomly-assigned students, which, in the long run, will allow you, as the leader, to act more as a facilitator.
3. Make sure to switch out the people in small groups and partner questions – don't allow any cliques to form, as that would exclude parts of the group and hinder the formation of one cohesive unit.

Overall, remember that your main role is to facilitate discussion of a group of students in general chemistry, so do your best to forge a unified group that doesn't need your direct intervention. Even if you have one or two problem children at first, remember that, given the right directions, they will learn to work with the group and the entire session will be better off as a result!



By Daniel Hong

At this point in the semester, you've probably learned in SAM about the different student personalities you might encounter. At first, you probably thought to yourself that it's impossible to place everyone into such simple groups. Then you probably thought about grouping yourself into one of those categories and further dismissed the notion. Don't. While these categories might be simple, almost every student you will see will fall into one. If you haven't already, take time and think about which categories each of your students fall into. How much do they talk? Are they more apt to work together or alone? Do they race ahead to the next problem when they finish one or do they pull out their phone? By classifying each of your students, you can better adjust your leading style around their personality to enhance their learning.

The most obvious student personality you will see is probably the dominant student. This is the student that is cocky, works fast, dominates discussion, and probably was the valedictorian at his high school. This student is dangerous. He will eliminate all discussion in PLTL through his domineering personality, which is a real problem in PLTL. If you haven't already, you should immediately work on subduing the dominant student. This isn't to say that you should place him in a corner every PLTL. However, you need to engage everyone in discussion and make sure that everyone contributes. This

might mean that you have to ask direct probing questions to everyone or ask the dominant student to be scribe (scribe is a particularly useful tool when dealing with dominant students!). The key thing about the dominant student is to not let him take away the discussion in a session; the conversations in PLTL are the single handedly most important aspect of PLTL that contributes to the students learning.

While the dominant student may seem like an obvious threat to discussions in PLTL, the quiet student is equally as dangerous. This student tends to be one of two things: a lone gun who is used to working alone his whole life or a student who is behind in the class and has no clue what's going on. These students will not contribute to conversations; in fact, they are probably scrunched up in their chair trying to avoid your eye contact. Make sure to engage these students. Direct questions are a useful tool when dealing with quiet students. You can either ask them probing questions or split the answers to the problem in multiple parts and distribute them evenly among the group. Don't back down if they say they don't know the answer. Throw them a few easy questions to pump up their confidence and remind them to keep up in the class. It is always important to remember to keep the conversation contributions even in the group.

There is also a third category of students that you will likely see: the average student. The average student is one who keeps up in class, contributes moderately to the conversations, and probably is taking the class because he is pre-med. While the average student is no threat to the conversation, you need to ensure that you engage him too. Often, it is too easy to forget about the average students if you are trying to engage the quiet students and check the dominant ones. Be sure to ask them probing questions too and make sure that they are learning in the group too.

After adapting your leading style to these personalities, start to think about the other categories the students fall in. Are they visual or auditory learners? Do they learn better in a certain environment? Keep tinkering with your leading style throughout the semester; there is always room for improvement.

Finally, reflect on what kind of student you are. This might help your understanding of the student personalities and how to best adjust to each one of them.



By Jaclyn Khil

At this point in PLTL you are beginning to get to know your students on a more individual level. You have a few sessions under your belt and you're beginning to recognize each student's different learning style and personality. You observe that one student has a strong physics background and takes on a kind of dominant role in the group while another student is a visual learner and likes to work out problems through diagrams and drawings on the board. As a PLTL leader you need to find a way to work through the problems and maximize the learning of all the students in the group.

In order to maximize the learning of each student it's important to first recognize how each student learns best. However, keep in mind that these learning styles are not mutually exclusive and most students rely on a variety of different learning methods. One of the easier student types to recognize is the dominant student. This student is often an active learner who learns through discussion. They are usually extroverted and become a vocal presence in the group. It's important as a PLTL leader to ensure that there is balanced discussion and sometimes this requires reigning in the dominant student. An easy way to do this is by making the dominant student scribe. I found it

sometimes challenging to keep the dominant student on task especially if they feel comfortable with the material. They may be tempted to work ahead so keep an eye on them!

It was also important for me to recognize who the reflective learners in my group were. Reflective learners are often quiet which can be taken as a sign of confusion. They sit quietly and think about many different aspects of a problem before actually attempting it. I had a student in my group who rarely spoke. Initially, I thought this student was quiet because he didn't know the material. However, when I directed questions to him he'd be able to articulate very clearly how to work through problems. As a leader, I learned that some students learn best when given some time to personally reflect on problems before discussing.

In general, it's sometimes difficult to find a way to ensure the learning and understanding of all your students, especially when they all have such different learning styles. I found it helpful to take full advantage of pair and group problems to observe the dynamic between different students.



By Michael Li

Since the students of Washington University are extremely diverse and unique, it is not a surprise that each PLTL group has a different set of personalities and learning styles. It is up to the leader to facilitate the interactions between everybody and make sure the group works together in a cohesive manner. Out of all of the types of students that you will encounter in your group, the two that might require the most facilitating are the overly dominant students and the shy quiet students.

Overall, I believe that the strongest tool in a PLTL leader's arsenal is the use of awkward silence. What I mean by awkward silence is if nobody in the group is willing to talk, the deafening silence will force people to at least say something or think of something to say. Remember, you are there to facilitate the group, not baby feed your students answers step by step. Silence is not necessarily a sign of a bad leader.

**Overly Dominant Students:** These are the students that are very open to sharing their thought process and answers, up to a point where they start shadowing and silencing the other students. In order to handle these types of students, you have to be sure to set a strong set of rules during your first session. Overly dominant students can be very helpful in some situations where the group needs a spark on the

question or to bring up different ideas. These types of students are usually not afraid to express their own opinion even if they differ from the rest of the group. This can help stimulate discussion and thinking.

However, the only real way to utilize these types of students to their full capability is if they respect and listen to you as a leader. If you allow them to push you around during the first session, they will only get bolder as time goes on. You must set a stringent set of rules during all of the group-collaborative learning strategies and make sure the dominant students follow the strategies.

As for the way to handle each group-collaborative learning strategy with these students:

*Round Robin*- From my experience, it helps if you state how much each student should say/do during the round robin instead of just letting the group on go on its own because if the group is let loose, the dominant students will take over the problem and it will not be a round robin. In this situation be strict on the students and make sure they follow the rules as to avoid a coup.

*Small Group*- I do not believe that grouping a dominant student with a quiet student is the best way to solve the problem because this will just reaffirm the roles of the dominant student being dominant and the quiet student being quiet. Instead, try pairing the dominant students together because this will allow for very long discussions between themselves and interesting ideas that will be shared once all the small groups come together.

*Scribe*- There are two choices in this situation. Either have the dominant student serve as scribe and enforce the no talking rule or allow try and stop the dominant student from taking over the entire scribe question. This will probably be the hardest to facilitate.

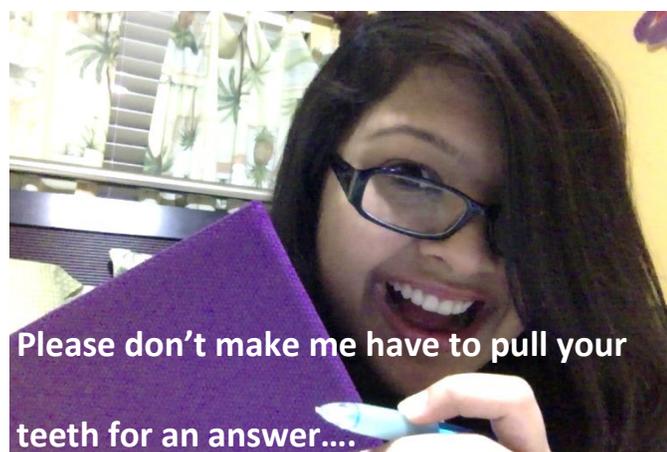
**Quiet Students:** These are the students that are more on the shy side and conservative in sharing their ideas. It will seem as though they do not want to talk unless you specifically call on them to speak. I

believe in this situation that the awkward silence is a strong tool in convincing these quiet students to speak out. It is also possible to put these people on the spotlight but sometimes this can backfire because if they get something wrong, they will shy back from contributing. The strategy I believe works best is to slowly build up their confidence in their abilities.

*Round Robin*- This is usually the best learning strategy for the quiet students because it requires them to come out and contribute to the group discussion. This may seem a bit forceful but sometimes there really is no other way to convince the quiet students to speak up unless it is absolutely required. Try and have the quiet students do two steps of the problem or more of the problem compared to the other students during round robin in order to build up their confidence.

*Small Group*- This learning strategy is difficult if the quiet student is not willing to talk at all to his/her partner and knows how to do the problem. Most of the time the quiet student will just work alone if they know how to do the problem, thus it is up to the leader to spark some sort of discussion within the small group. I would recommend pairing the quiet students together and then posing some of the interrogative assignment/conceptually difficult questions towards the small group in order to make them discuss. If the question is hard enough, it will cause the quiet students to spend a lot of time talking with each other.

*Scribe*- This learning strategy is also difficult because the problem is held in a large group setting where the quiet students do not have many opportunities to speak up. The only real solution I have done is to ask them if they agree or have anything to add but usually this doesn't help very much.



By Richa Thakur

No matter how hard you try, you will always have a quiet student in the group who will require some coercion for an answer. The best way to avoid this problem is to learn when and how to use your students' names effectively. It may seem trivial now, but the power of utilizing a person's name makes a dramatic impact.

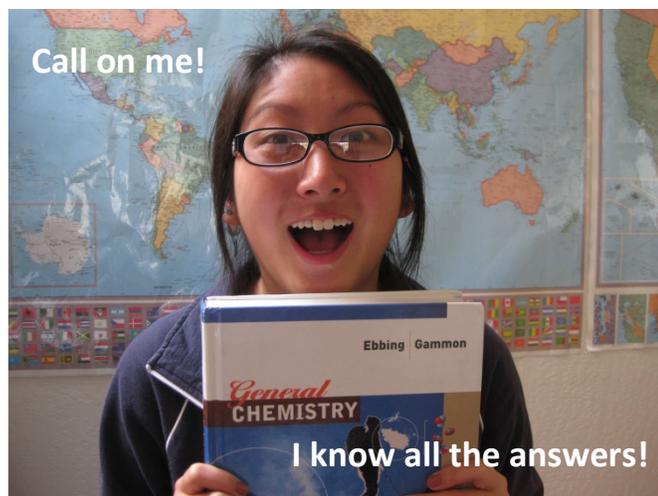
If you are bad with remembering names, try a mnemonic for each of your students. It's often easier to remember "Hilarious Hillary" and "Joyful John" than it is to remember the names themselves. You can also try creating a cheat sheet on your PLTL problems so that no one else can see. If you are really struggling, use the internet to your advantage. WebSTAC's faces and even a little Facebook stalking go a long way. You will be surprised at how much students appreciate being called their by their name instead of a "the lady in the \_\_\_\_ shirt."

When you see a quiet student, ask a generic question and use their name in the sentence. If you do this once or twice in a session, they will get enough confidence to speak up next time. Overtime you will see your group dynamic change substantially. Before you realize it, your students will not need you to facilitate discussions

Another important aspect when dealing with dominant/quiet students is to not embarrass either one. Calling on a shy student when they do not know the answer only makes them more hesitant. Embarrassing a dominant student will decrease a lot of the discussion in your group. The best way to address this problem is to create an environment where students understand that they are in PLTL to learn. They do not have to have all the answers; they just have to have an open mind.

I know it will seem strange at the beginning, but your students look up to you. When they see that a lot of the questions come easy to you now (especially after you have finished the entire course), they'll get frustrated because it will not be easy for them. Make sure you reassure your students that you struggled through the class too. Knowing that you had to work hard to get where you are will definitely motivate them more. Just listening to simple stories about how you have struggled and what small tips you have will help you build rapport with them. When they realize how many questions you got wrong on your way up here, they will be more willing to learn and want to help you out.

Just remember, no matter what happens, you will be the first PLTL leader your students have (almost always). They will love you and you are going to love them. It's okay if things do not go perfectly and if you cannot get students to always answer a question. If someone messes up once, reassure him or her it's okay and make sure they keep trying. That advice goes double for you. If you accidentally give your students an answer, don't worry about what you cannot control. Just make sure you don't repeat your mistakes. If you come to a question where your students are stumped, and you cannot think of a way to lead them through a question, just move on and come back to it. It will be hard at first, but you'll get the hang of it. I am positive you will make a great PLTL Leader.



By Annie Wang

One of the challenges of being a PLTL leader is figuring out your students' varying personalities and learning styles, and balancing them can definitely be a tricky task. There are the painfully quiet ones who refuse to contribute, even though you know they know the material. There are also those students that are overly eager to answer every question and don't let other students get a word edgewise. Hopefully you don't have either of these extremes in your group, but you will definitely notice which students are the more talkative ones and which ones are quieter. As the PLTL leader, it is your job to notice each student's personality and establish an environment where they all participate to discussion and work together cohesively as a group. It is really important to make sure that every member in the group is contributing to the discussion and the solving of each problem because it allows students to bounce their ideas off each other and learn from their peers.

Dominant students can be great assets to a PLTL group, but they can also be tricky to handle. These outspoken students are always willing to participate in the discussion, and it is often very helpful to have at least one student who will speak up when others won't. Even if their contributions aren't always correct, it is important to still encourage that student to keep trying, and use that student as model for the quieter ones to encourage them to speak up as well. However, some students can be too

dominant, and they may be the only ones answering your questions or volunteering to explain a problem. In these scenarios, it may be necessary to turn down the student's offer to explain a concept in the gentlest way possible and allow other students to speak up. It is important to not hurt the student's feelings and have them think their contributions aren't welcome anymore. Don't be afraid to monitor the discussion, especially when the conversation is only between a few students. As the facilitator, it is your job to keep the dominant students in check.

On the other hand, you may have some students that are so quiet that you have no idea if they understand the concept or if they are getting anything out of the sessions. It is important to pay attention to them and figure out why they're being quiet so you can help them open up and participate in the PLTL sessions. Participation is a key aspect of a worthwhile and helpful PLTL session, so you want to make sure all your students are participating so they can get the most out of each PLTL session. These students may be too scared that they're going to be wrong, or maybe they don't understand the concept at all and aren't prepared. If you notice students who are trying to blend into the background, it is a good idea to call on them for an opinion or an answer. Make sure they know it's ok if they don't know the answer or aren't sure, and if they are wrong, encourage them for trying so they know it is a safe environment to make mistakes and ask questions. Many students will speak up more as they become more comfortable with the other members of the group and with the environment; they might just need more support and reassurance.

Student personalities are important to consider when picking students for pairs, small groups, and even scribe problems. Pairing a dominant student with a quieter one could be a good idea because the smaller group may be a better environment for the quieter student to ask questions, and it forces the dominant student to slow down and explain the steps. This could also be a bad pairing if the dominant student does all the work in the problem, while the quiet student follows along, even though

he may have a different idea about the problem. Generally, it is a good idea to mix different types of students together so they can get used to working with different people, and it is your job to monitor the groups and make sure the problems are being explained thoroughly among the group members. To make sure this is happening, you can ask the quieter student to explain the group's reasoning or problem solving technique, and if that student can't explain it, you can ask the other students in the group to explain the concept to him. Choosing students for scribe can also be tricky, and it may be a good idea to put a dominant student as scribe so that he cannot contribute to the solving of the problem. This allows quieter students a chance to speak up and solve the problem without the dominant student's help.

Participation and group collaboration is key for PLTL to run smoothly and to be fully effective, and as the facilitator, it is your job to assess the students' personalities and roles in the group and work with them as best as you can. It may take a few sessions to figure out all your students, but don't worry if a good group dynamic isn't established right away. It takes time for people to get comfortable with each other, and the group dynamic may be off for a bit. I'm sure with some careful observation and a couple tries, you will all get a good sense of your students, and it will be smooth sailing from there.



By Jonathan Ang

Entering this semester, you may have thought that your PLTL group was full of angels and that nothing could ever possibly go wrong. However, you may have quickly snapped back to reality as you hit the mid-semester. Mid-semester is a time when everyone at Wash U suddenly becomes cranky and moody. Whether it is from the lack of sleep, the piling up of work, or the freaking out of bad midterm grades, the mid-semester marks a time where many PLTL groups head downhill. From being active participants willing to volunteer to your every question, your students suddenly transform into apathetic beings that have absolutely no motivation or drive to participate in your PLTL session.

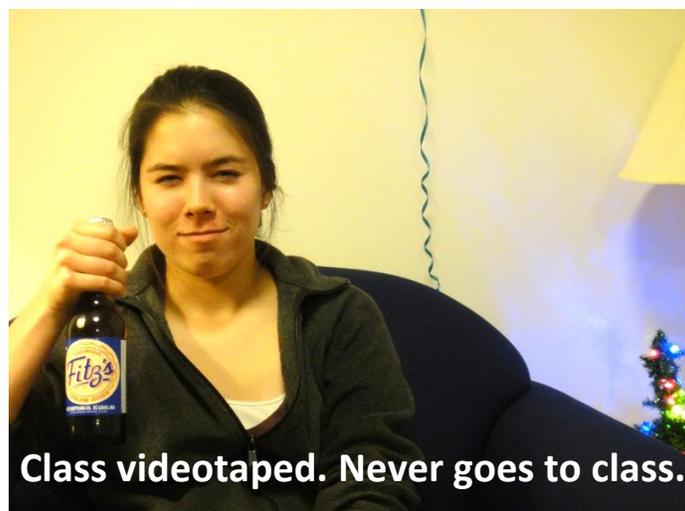
In order to conquer this problem, it is important that you understand where your students are coming from. During this mid-semester time, students in your group will often complain about how they could be spending PLTL time completing papers or studying for an upcoming exam in a different class. However, it is important that you constantly remind them that PLTL is a form of studying for General Chemistry and that if they put in the time and effort into the PLTL session, they will have essentially knocked off a couple of hours of studying that they might have to do for the course

otherwise. By politely reminding your group of this, your students may be more willing to participate in the PLTL session once again.

While this is a time when leaders may start to complain about the students in their PLTL group, it is also vital that they do some self-evaluation. After all, at this point of the year, you are probably stressing out yourself about the work you have to do. I'll be the first to admit that there were times when I was leading my group half-heartedly knowing that waiting for me after my PLTL session was an intimidating Biochemistry problem set waiting to be completed. During this time of the year, it is important that you remember why you signed up to be a PLTL leader. You should catch yourself whenever you see yourself cutting corners because after all, a leader lacking motivation will ultimately transmit this emotion onto their students.

While the mid-semester slump is unavoidable, there are many things that you can do to help re-vitalize your group. Just think back to your first session. Your students were probably excited to meet one another and respected you highly as a leader. Maybe you can re-create a scenario similar to this. Playing a quick interactive game with your group prior to starting the PLTL worksheet might get the juices flowing. In addition, bringing food definitely helps and can provide the spark of energy that is needed to get through this mid-semester slump.

Overall, the change really needs to start with you. A lazy PLTL group will never be able to be energetic if their leader lacks the motivation, passion, and drive. So, at this point of the semester, just keep reminding yourself why you wanted to be a PLTL leader and what you wanted to accomplish from it. Once you realize these things, you'll hopefully be reinvigorated to re-motivate your PLTL group. It's time to WAKE UP and get your lazy PLTL group rolling.



By Jennifer Chan

After your first session, you probably thought that the mid-semester slump could never happen to your group. Everyone came so anxious, excited, and most importantly, prepared. You too spent quite a while thinking about what you would first say to your group, how you would present yourself over the course of the session, and what was the best icebreaker to use. But now after a few weeks, with midterms, papers, and the general hustle-and-bustle of the school year, you are probably noticing that the general level of preparation in your group has dropped. One of your most diligent students had to skip class, no one attempted the problem set, and even you arrived five minutes late. Welcome to the Mid-Semester Slump!

However, there is no need to fret. There are many solutions. Occasionally during the Mid-Semester Slump, the sessions themselves sometimes seem to lag. It is very important to remember that peer-leading sessions should have an educational atmosphere but that it is also okay to let students have a few minutes of socializing and relaxing. During the session itself, I recommend allowing students a three to five minute break in the middle, so that they will come back refreshed for the second half of

the session. You can also spend the first five minutes or so just checking in with students. You should make it a priority that your session is productive but also enjoyable.

Another strategy that you could use to keep students motivated is, of course, food. Never underestimate its power. It might help to bring the food out at the halfway point in the session rather than the beginning. Not only will it relieve those grumbling stomachs but also your students will appreciate it! Always keep in mind that each session is two hours and on the weekend, as your students are very aware of this detail.

One of the biggest frustrations leaders face is when students do not come prepared. This frustration is mostly due to the fact that the leader has no control over this sort of situation. If no one comes ready, the session will be very unproductive. If this does occur, do not teach your students—it’s not your job! Hopefully at least one student will have gone to class and can provide his or her notes to the group. Make sure that before the next session, you send a friendly email to your group reminding them to continue to go to class and recitation and that you hope to see them next week.

While your students may not be as fully enthusiastic as they were at the beginning of the year due to other preoccupations, you might have become aware that you too have not been doing as much as you used to. As a student yourself, you have had a handful of school work the past few weeks and have not quite had the time to review your old chemistry notes or look over the interrogative assignment. However, it is really important that you remember to take the time each week in order to properly prepare for your session! When a leader does not come ready, the session will generally fall apart. If you do not ask probing questions or realize that students are missing a key concept, you are not fulfilling your responsibilities as a leader, and it is your students who will be at a disadvantage. One of the best ways to maximize your preparation time is to make use of the full two hours that leaders have

for going over the problem set together. The Mid-Semester Slump is a trying time for all groups but with a few adjustments, any group can be steered back on track.



By Mitchell Hallman

At this point in the semester, you have probably gotten to know everyone in the group and you guys are probably all getting along well. There's only one problem, no one in your group seems to be motivated and you are finding it harder and harder to dedicate time to PLTL. It seems as though PLTL has lost the appeal of being new and has become something you just do on the weekend. All of a sudden studying for the Organic exam you have on Monday seems like a lot more important than preparing for your session. Your group members are starting to show up late, or not at all. Don't worry, these problems are normal, and fortunately they are easy to solve.

It is very important that you keep a positive attitude and a high energy level during your PLTL session. Your attitude will rub off on your group, and if you are acting bored or uninterested then your group will likely feel the same way. Try to show the students in your group that working on Chemistry can be an enjoyable and rewarding experience. Make sure to ask them questions and try to spark meaningful discussions. It is also important that you come prepared to every session. This can easily be done by paying attention during PAM while going over the problem sets and simply spending a few

minutes reviewing your notes from the previous year. Even though you may feel like your time would be better spent studying for your other classes, it is your responsibility as a leader to know the material and present yourself at each session in a positive way.

Sometimes your efforts to keep a positive attitude just aren't enough to keep your students motivated. As the semester comes into full swing, your students will likely be devoting less time to studying Chemistry and more time studying for Calculus or working on their Writing I paper. As a result, they may not be working on the problem sets each week before PLTL and they might not even be going to lecture. If you find that this is the case, you should give them a gentle reminder of the PLTL policy, and that they should be showing up prepared to each session. This can be done at the beginning of one of your sessions or by sending out an e-mail a couple days before the session to remind everyone to attempt the problem set. It is better to address this problem as soon as it arises to prevent bad habits from forming. Also, you might find that your group will ask you more direct questions when they are unprepared. Don't give into the urge to give them the answers. Remind them that help sessions are available if they are having troubles.

Finally, attendance may become an issue as the semester progresses. Some students may show up late while others decide not to show up at all. If you find that someone isn't showing up to the sessions, try sending him an e-mail as a reminder that he is only allowed two absences before being removed from the group. If he values his position in PLTL then it is likely that he will stop being absent. If not then you shouldn't let it bother you, PLTL isn't for everybody. In order to solve the issue of people showing up late, try bringing food to each session or have someone in the group bring food. This is a great way to get your students motivated to do Chemistry.

Although the mid-semester slump is an issue, it is one that can easily be resolved with a little bit of effort. As a peer leader, it is important you remember that you are a role model for your students. If you put in the effort to make each session worthwhile, then your students will too.



By Hannah Lo

As we approach the mid-semester slump, I begin to envy the life of a panda, an animal whose only obligations in life are to eat, sleep and look cute and as a result, they are taken care of and adored by the world. Your once enthusiastic and prepared PLTL group is now feeling the stress of schoolwork, school activities and clubs. Being new to college, they may not know how to manage their time well and as a result, may be behind in chemistry lectures or come unprepared to PLTL. Perhaps even you, the leader, are starting to feel the stress of school and are starting to lack off in preparing for the session. When life becomes so hectic, we all to some extent envy the simple life of a panda. However this problem results in the fact that the students are not getting the most out of PLTL, where learning is through active participation by all members.

From personal experience, I believe the most basic solution to overcome the mid-semester slump is to act by example. If you, the leader, come unprepared, late or show no enthusiasm towards chemistry, the students are quick to pick up on that. I believe the peer leader sets the tone for how the PLTL session is going to be like. If they see that you are not putting the effort into PLTL, they will not

either. It is okay to act like a total nerd sometimes and get super excited about a question on the problem set. From personal experience, it seems to amuse the students and lighten up to the mood during the session.

In addition, one problem I've noticed as the semester goes on is that students begin to show up late or skip PLTL because they have other work to do. The best way to solve this problem is to send out an email every week, telling them what they are going to work on this week and reminding them to look over their notes and the problem set. Sometimes they might be busy studying for a calculus exam or have a paper due for writing one, but two hours reinforcing what they learned in lecture is not a waste of time. In fact, it will probably make learning and understanding the material easier in the future.

Lastly show them you care! It never hurts to bring cookies or other snacks for them or even something extra special for the week after their exam. Whenever there's food, for some reason, the participation and energy level increases tremendously. Ask them about what they are having trouble with in chemistry or how their week is going. Simple things like that show the students you care about them. That might help them feel comfortable in PLTL and therefore participate more and come prepared to sessions.

I have no doubt you are all doing a fantastic job as PLTL leaders, but everyone feels stressed out at times. Instead of viewing PLTL as an obligation you have to do during a weekend where you have to study Organic, view it as a time where you can take a break and focus on something else. That will reflect greatly in how the PLTL session goes. Keep up the good work!

**How to spot a lazy peer group**

Weekdays: I'll get my homework done over the weekend.

Weekends: Time to take a break. There's still the week.

By Wei Jia Ong

As a senior physics major, I know what the mid-semester blues feel like. Upper-level physics courses are generally set up so that there is one midterm, meaning that there are 3 solid weeks of desperation followed by declarations of “I NEVER WANT TO LOOK AT MY NOTES OR TEXTBOOK AGAIN. EVER.” I understand the mid-semester slump, I really do. It is as if every single one of your professors thinks that their class is the only one you are taking (especially English and History professors – 400 pages of reading! Every day! And a 20 page essay while you're at it!). It's important to realise that the mid-semester slump, for your group and yourself, is going to happen, and to be willing to tackle it.

Dealing with your group's mid-semester slump is really challenging, because many of the problems are more easily prevented than cured. By the time you reach October and you're thinking, “oh bugger, I should have \_\_\_”, it may seem too late, but it isn't! Students will be tempted to start skipping PLTL sessions after the first barrage of tests and papers, but if you've got off to a good start and made PLTL fun for them, they will continue to come. If you yourself are engaged and excited about the material and PLTL activities, the students are likely to gain more out of PLTL and will be more willing to show up to sessions.

The session right after the exam is usually the worst – many students do go to lecture or watch the lectures online, and it's even possible that no one in your group will have any notes at all. In this situation, try asking them if the professors have uploaded any PowerPoint slides that week so that you have at least somewhere to begin. Remember that it is not your job to teach the students the material and that, as much as you want to help them through the material, you need to reinforce the idea that the students are responsible for their own learning. Another big week comes right after Thanksgiving,

which isn't enough of a break (depending on what kind of relatives you have) that students come back prepared for the final push of the semester. Unfortunately, that is a big week for PLTL since the exam 3 review will be on that set. If your groups are having trouble those particular weeks, make sure to remind them that it is what happens when they do not arrive prepared. Especially remind them that there is actually a PLTL session, as there are always rumors floating around about there being no PLTL the week of an exam.

Another thing that can happen in the middle of the semester is that your group, after spending some time together, will start to treat PLTL like a gossip session. I had a somewhat hard time last year trying to refocus my group on the problem set, especially around the time they start registering for classes in Spring. Many times they would say “oh I'll just get it done later”, which really means that they'll only look at it again the night before the exam. I handled these situations by reminding my group that PLTL is time for chemistry and since they were at the session that they might as well put in two solid hours of chemistry work.

Remember that you also have to deal with your own mid-semester slump. Getting adequately prepared for your PLTL session probably seems increasingly tedious. It helps if you make yourself a check-list of things you need to do before going to PLTL the start of the semester so that you have some concrete steps that are harder to blow off. Additionally, PAM is a really great way to make sure you get your PLTL preparation time in. It may be hard to focus when you get to Friday afternoon, but getting your preparation in during mandatory class time will save you time down the line. During PAM or after, put some time into thinking about good probing questions (and there's always the compiled interrogative questions that Dr. Daschbach uploads!) when you're still thinking about the material.



By Amy Patterson

The first sign is their frustration with General Chemistry. The second sign is their lack of chemistry knowledge, which hits when they stop doing problem sets and start skipping class. By the third sign, you know there's a problem, because half of your group is skipping PLTL. Every week.

The mid-semester slump creeps up on even the best students, and by the time your group is in trouble, you are often so caught up in midterms and other class work that it can be daunting to try to get your group back on track. One of the most important things to do is to recognize the problem early. If your group's enthusiasm seems to be lacking, try sending regular emails reminding them to come to PLTL, and telling them that there may be food. And of course, that means you should bring food sometimes if there is no rotation already in place.

If a lot of students start missing PLTL, it may also be good to remind them of the attendance policy, and the research showing that PLTL raises students' grades an average of a third of a letter grade. Sometimes, students don't realize that PLTL is actually helping them improve their problem-solving skills, and they end up thinking that they are better off cramming alone than participating in a collaborative study group. They may even start skipping PLTL just to study for general chemistry! If you can convert your students to adherents of the PLTL philosophy, that can increase group loyalty and

participation in PLTL. This is, of course, often difficult, and may not work well with every group of students.

One problem with PLTL can be its monotony. To raise enthusiasm, it is a good idea to change things up a little bit. For variety, you might try tweak the collaborative-learning strategies. If you usually ask your group for volunteers for scribe, you might assign the scribe instead. Combining scribe and round-robin is often successful. If there is a long problem set, pick out the most interesting questions for primary focus, and continue on to the others if there is time. Also, try adjusting the way you review concepts and equations before the session begins. Pay attention during SAM, and talk to the other leaders about how they structure their sessions. You will probably find that their methods are different from yours. If you have fallen into a rut with the way you run your sessions, trying something new for a change might alert you to a better way of running your sessions in future weeks.

Most importantly, don't become too caught up in the slump yourself. If you complain about your exams all the time, or start arriving late, or begin forgetting the periodic tables, your students will have no qualms about doing the same. While it is okay to let them complain about their lives for a while, and one week of someone forgetting a calculator won't ruin the session, repeated slipping can easily take a toll on your group's productivity. Even if you are not as prepared as you could be, act confident, and remember that you shouldn't have to explain anything to your group anyway. If you are consistent in your enthusiasm for and control of your group, your group members will be more likely to be consistent, enthusiastic members.

Remember, it is never too late to get a lazy peer-leader group back on track!



By Kirinne Slaughter

Beware the month of October! Everyone knows what happens when the calendar flips to this dreaded month: midterms. Along with all of the extra work that this time of year brings, this is also the time that the students start feeling the effects of all the hard work they've been doing so far, all the sleep they've missed and the homesickness they've been trying to avoid. For a lot of students, this is the first time that they have had to go through anything like this, and you will see it start to impact their performance in the group. So how can you deal with this dreaded month with ease and grace? Below are some tips that will help you navigate the 'October Obstacle' and bring you safely to November.

- 1) As the leader, your job is to not only teach the students about Chemistry, but also to show them what it means to be a good, happy, healthy and successful student. A very important skill to have is time management. Take some time in one of your early sessions to talk about how you managed all of your classes your first semester. They know that you are a successful student and they look up to you, so hearing this advice early on will truly make a difference in their semester. Also, friendly reminders at the beginning or end of each session about what should be accomplished during the week will help the students stay on top of their game.

- 2) Another important job for you as a leader is to create a positive and happy environment. The students have enough stress on their plates and your sessions should not add to that. Simple things like bringing food, starting with a joke, or just smiling and being excited will keep the students wanting to come back. The students also learn a lot more during the session when they feel comfortable and happy.
- 3) A big problem that you will notice mid semester is that attendance will begin to drop. People may feel that if they use two hours of their time to study Chemistry this week, they will fall behind in something else. Your job as leader is to teach them the long-term goals and effects of attending session each week, and to remind them that while it may not pay off immediately, it will definitely pay off in the weeks to come. A way to keep this problem from happening is to send a polite email each week reminding the students what is going to be covered in session, about the upcoming quiz or exam, and about how it is important that they come to session.
- 4) You may also see students start to get a little impatient with one another and with you. They may demand the answers or get frustrated when a lot of questions are asked. If this happens, it's best to address the issue immediately. If there is one student who is particularly at fault, talk to that student after session, or if you feel comfortable, address it during session with everyone. A simple reminder to be polite is usually all they need.

While it may seem overwhelming to think about these sleep-deprived, overworked freshman coming into your session each week, you have to remember that you were once this way, and that you probably not so caught up on sleep yourself around this time. There are some simple steps that you can take to help yourself get through this slump along with your student.

- 1) Set aside a time each week in which you will prepare for your session. While it may seem less important than some of your other work, you have to remember that you made a commitment to these students, and they are counting on you to be on your game during every session.

- 2) Take the advice you are giving to your students. Use the time-management skills you know you have, think about the long-term goals, and have a positive attitude. If you do these things, and try to get some sleep along the way, you will have a very successful semester. And believe me, the students will thank you for it.



By Bruce Wittmann

Think back to the beginning of the semester. Think about how determined you were to do every reading assignment, finish every problem set, lock yourself in your room when midterms came around, and, in general, dedicate yourself fully and entirely to your studies. So what happened? If you're anything like anyone else: that problem set will sit on your desk for half a week before you even think about starting it; those readings aren't that important, the professor covers all of the material in class (but does he really?); weeknights are as good a time as any to goof off; the first round of midterms have come and gone and you do not feel like doing the same thing for the next round. You are experiencing the mid-semester slump! That wonderful time of the semester when everybody *shifts* (gotta make the title work somehow right?) from study mode into I-don't-want-to-do-anything mode. Everything that seemed like a good idea at the beginning of the year—studying day and night, devoting your free time to extra studying, and doing nothing else but studying—has now started to seem like a crushingly naïve decision. Everybody needs a life outside of school, right? Of course they do. That said, there is a difference between finding a balance in life and completely forgetting why you are in college in the first place: to study and learn. Now, as a successful Wash U student who has experienced the mid-semester slump multiple times, you know how to find this happy-medium without overcorrecting one way or the

other (i.e. too much work or too much play). Your students, on the other hand, will likely not know how to do this; it is your job to guide them.

Everyone will be feeling less motivated at this point in the semester, and different people will respond in different ways. For some, they will simply roll with the lack of motivation: parties, no reading, no problem sets, minimal studying, and “living the high life.” For others, they will feel guilty about the lack of motivation and try to remedy these feelings by, of course, working even more than they were before they started to burn out. For others still, they will find balance, taking some position intermediate of the two extremes just described; studying the amount that needs to be studied and still enjoying college life. People will react on a spectrum, with each extreme being detrimental and the happy-medium being exactly that: happy.

Each of these different types of students will present themselves in different, predictable ways: The students who have found the medium will appear unchanged and neutral in comparison to the extremes. The students who give up on academic life—and these are the ones that you will most likely encounter—will simply stop coming to your sessions. The students who bury themselves in work will come to your sessions incredibly prepared, ready to answer any and all questions, and—the key indicator—will push and push the group to finish well before it is meant to because they have “lots of other things to study.” Then, of course, there are all of those students who fit somewhere else along the spectrum, exhibiting varying “symptoms”: missing many sessions but not all, sometimes wanting to leave early, etcetera. For each type of student, you have to react in different ways. For those who stop coming to the sessions or else whose attendance dwindles, send a friendly reminder (by email or some other means) about the importance of studying the material at hand and how helpful PLTL or academic mentoring sessions can be. It is not your place or your concern if these students continue to not show up to continue to send reminders: if they truly don’t want to study anymore then that is their choice,

but at least you tried. For those who push the group along, remind them that they are in fact already studying by taking part in group discussion and doing the problems and that by rushing through the session they will understand the material less. Most importantly, it is important to be respectful to each of your students regardless of how they react to the mid-semester slump. Maybe you wouldn't choose to expand your social life. Then again, maybe you wouldn't choose to ramp up your studying. In either case, everyone has the right to choose the path that they want; you just have to help to make sure that no student goes to the extreme.

Think about yourself too! If you are working yourself into the ground, take a step back. Think about the other, non-academic opportunities that college has to offer and act on them. You will likely find that by allowing yourself to sleep more, do more stress relieving activities, and leading an overall more relaxed lifestyle your grades will improve. Over-studying does exist. If you are neglecting your studies, remember why you are here. Finding enjoyment in life is certainly important, but remember that not every aspect of life is enjoyable, nor should it be. If you yourself can find balance at the slump then you will already be helping your students find it too: they look to leaders and mentors as role models. They know that you are successful and will try to mimic you. If it worked for you it should work for them, right? In any case, the mid-semester slump is something that we all feel and all react to in our own ways. We simply need to make sure that our reactions, and those of our students, are not detrimental in any way.



By Gina Chang

“Wait, I get it now!” As a PLTL leader, that’s the phrase you most want to hear coming from your group. Unfortunately, as you might remember from your days as a PLTL student, “why do we have to move for pairs?” or “let’s just do this as a large group,” are the more commonly uttered phrases. Your task as a PLTL leader is to use the collaborative-learning strategies in an effective manner, so that your students feel that they are actually helpful.

It definitely takes a couple of sessions to see how your group works and figure out how to best use the learning strategies. Just be patient and observant, and feel free to modify the strategies to best fit your group’s dynamics. To give you a head start, here are a few tips from my first semester as a PLTL leader.

Pairs: I think this is the simplest learning strategy for students to understand and use. When you’re working with just one other person, it’s easier to ask questions and have discussions. That being said, while “pairs” problems may be the most “comfortable” strategy, especially when your group is still getting to know each other, make sure it’s being used to its full potential. You want your students to get to know *all* of the other members of the group, so that they are exposed to different methods of

problem solving and ways of thinking. The tendency will be for your students to automatically turn to their neighbor (who will be the same person every week, since your students will probably sit in the same seats....). To make sure that your students don't just work with the same partner week after week, you can choose the pairs yourself. This way, you can also try to match up your quieter students so that they speak more and gain more confidence in talking through chemistry.

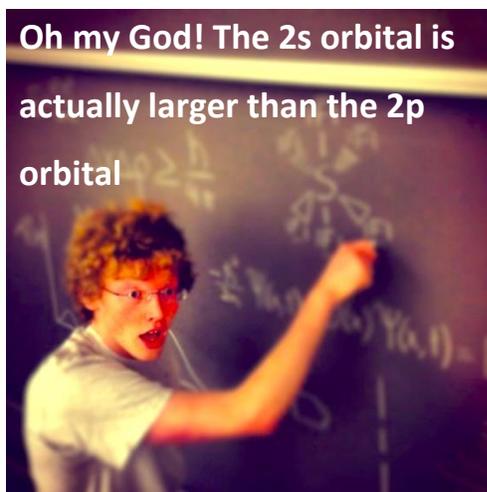
**Small groups:** This is also a pretty easy learning strategy to understand, but it can get out of control at times. Here too, it is most efficient to decide the groups yourself, so that you can make sure that your quieter students are not being dominated by the more talkative ones. A common problem that I had with this strategy was that the small groups would start working on a problem separately, but then it would eventually morph into a large-group discussion. While working in a large group doesn't seem that bad of an idea, it makes it too easy for quieter students to be overshadowed by the more dominant ones. To keep the small groups truly small groups, one thing you can do is have the groups move physically away from each other. That way you can also avoid the situation where one group is slightly ahead of the other and the second group is just awkwardly repeating what the first group said.

**Round Robin:** This can be a stressful strategy for your PLTL students, because it puts individual students on the spot. However, it's also a great opportunity to make sure everyone participates. To make it less scary for your students, make sure to stress that any amount of information is helpful, even if it's just an equation, the concept underlying the problem, or a guess as to how to go about solving it.

**Scribe:** Scribe can be the most difficult strategy to use, because students rarely want to be scribe, and dominant students may take over the discussion. To prevent this from happening, I would recommend choosing one of your dominant students to be the scribe so that your quieter students have to participate more, and you don't have to wait forever for someone to volunteer. Also, feel free to remind your students, even if it's already the middle of the semester, of the “rules” for scribe (and any

other collaborative-learning strategy for that matter), especially that the scribe is not supposed to contribute at all.

Hopefully these tips will help to start off your PLTL sessions. I think the most important piece of advice though, regarding these strategies, is to get your group used to all of them from the beginning. If you get your students into the habit of using the strategies effectively from the start, you'll be able to cut down on the complaining and make sure that your students are getting the most possible out of PLTL.



By Tyler Ellison

I was skeptical at first. I knew that it wouldn't be easy and that I would face a lot of resistance, but the benefits of collaborative-learning strategies came as a shchekotiki for me. (Look it up.) As a PLTL student, I advocated for large-group problems, but as a leader I realized the true power of the PLTL methods. Collaborative-learning strategies and creativity are your allies in running a smooth, productive PLTL session. As far as I know, the strategies are not set in stone, so it is left to you to interpret the different methods.

### **Scribe:**

Scribe is a great way for your students to practice articulating their ideas to other people, a fundamental skill for any chemistry test. It can be used to break down the process of solving a problem into steps that are easy to follow and it helps give the students a graphical representation of the problem. Of course, it can also be used to get the talkative student to shut up or get an inactive student involved. It is always helpful to have the students at the table put down their pencils and scoot away from the desk so that they focus on the scribe. Do you have a scribe that keeps talking? Try to play it off. Cough loudly whenever they begin talking. Ask, "Did you guys just hear that noise?" Is there a scribe that writes more than the group says? A fellow PLTL leader suggested that you create an eraser, someone who stands at the board and erases anything the scribe writes that the group doesn't say. Is it a long

scribe problem and you feel bad because you made Timmy go to the board even though he said he didn't want to? Try switching out the scribe, or make it a tag team endeavor. Adapt the strategies to fit your group!

**Round Robin:**

Round robin is effective for getting everyone in the group to participate, starting an interesting discussion, and similar to scribe in that it helps make some of the problems more algorithmic. Be careful, because round robin can be intimidating for some of the students. Make sure you let them process the problem before you put them on the spot. Also give them lots of options for what they can do when it is their turn so they are never left struggling. Tell them they can give the next step for the problem, reiterate the question, relate it to previous problems they have done, go up to the board to write something, ask a question about the problem, or even read a related section of their notes to the group. Sometimes the traditional round robin is a little hard to manage because the discussion tends to break down into a large-group discussion. Here are a few things you can try to spice it up. Try having your students pass around a foam ball or fake certificate to designate the one person who can talk. Maybe you could run it popcorn style. (You know, where one person says popcorn and then calls on the next person.) Another possibility is to go in a circle and have each person add something to the chalk board so the group solves the problem on the board one at a time (great for more visual problems). In addition, you could have the students ask a question after they give their contribution to the problem in order to help the next student get started. Change it up! Keep them on their feet and keep it entertaining!

**Small Group/Pairs:**

These strategies allow the leader the freedom to break up the group according to learning strategies and give more focused attention to each individual. It is a way to ensure that everyone is in a comfortable environment where they can contribute. Some students may not want to talk in front of

the whole group, and this is your opportunity to make them active. I found that it is best to get the students up and moving as much as possible. From my own group and observing other groups, I have found that even though Bob and Susie may grudgingly move to sit next to each other, switching up the classroom always seems to bring new life to the group.

By the way, you use the pliers to pick off the individual hairs on the coconut. Then weave them into a 16” rope with which you can tie three of the donkey’s legs together. This is just but one way! I’m sure there are more effective methods. Point being, use your creativity to build upon the already fantastic structures of the collaborative learning strategies. The methods have their general purposes; it is up to you to shape them to your advantage.

On an unrelated issue, but not so unrelated as the donkey anecdote, make sure to enforce the PLTL strategies early. It is too easy to slip into the “It’s okay if we do large group this one time” mentality and lose control over your group. It will pay off in the long run to follow the methods from the get go.



By Ridwan Kazi

One way of looking at it, PLTL is not only about reviewing and rehearsing chemistry concepts we learn and apply to problem solving, but to think deeper and interpret these connections, and especially to tease out gaps of knowledge... in a nutshell. So what do we do with collaborative strategies? Collaborative strategies are a tool to help shape the academic culture, primarily for the incoming freshman class in general chemistry. The need for them comes from the fact that we are an academic community and we learn together when we process and analyze a situation or a given problem and propose a synthesized solution to address it; we work together and join a discourse of knowledge and aim to improve or extend it. I mean, when we all attend a party, to wish well on some special occasion, do we sit by ourselves and pig out on the food quietly or do we engage in dialogue and activity, stepping in conversations, actively listening, getting to know people, and contributing some laughs?

Collaborative strategies shape independent learners who can “function on their own and in groups.” In context, it’s looking how students change over the course of PLTL. We deal mainly with the incoming freshman class in general chemistry, and every single individual is not equally well rounded based on how students “approach problems and concepts.” We learn in SAM that students have

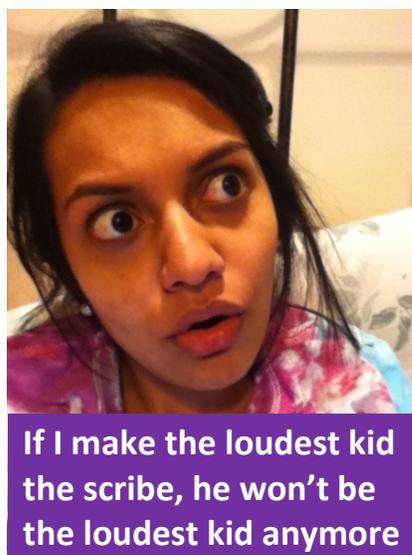
different ways of “gathering, interpreting, organizing, and thinking about information.” Do students prefer visual information or language-based ones; do they prefer to actively discuss or take time to reflect and process information quietly; do they tend to comprehend and make connections about information in sequential incremental and logical steps, or in a huge holistic jump where they get it internally, but just can’t put it in clear words?

So there is a bunch of ways to deal with this magical categorical model that collaborative strategies can address. I think what is important is to emphasize what these strategies can accomplish. First of all, as a facilitator, it is easy to come to the conclusion to coordinate “student personalities” effectively to bring out a productive session and allow everyone to participate and share and contribute their thoughts, and that’s totally right. We use this idea of looking at how people tend to work in order to use their strengths to effectively build a group that is able to function and move forward. The students won’t be able to recognize that initially, but as facilitators we’ll help bring that out. And a classic example is assigning the dominant student to be a scribe so the quiet students can take time to share their thoughts.

However, there is a particular reason when certain strategies like round robin and scribe are assigned to particular problems. First, think about the fact that according to the PLTL philosophy, students promise to participate and to be willing to be open to the group as a participant of this program. So in a way, fixing problems with certain strategies challenges students in the ways they deal with and process information. It’s like how one of my business professors emphasizes student learning, rather than student comfort. So the way to think about why we use strategies is that we want to maximize ways to approach a problem. For instance, a round robin problem forces us to think sequentially and make those connections in steps and to justify those steps with confidence. It’s more important to learn things from that angle than to learn it globally. In addition, as we partake in different science class, research, medical professions, and so forth, there are different ways to investigate a

problem; information is presented in different ways like graphs such that we need different ways of interpreting these results in order to synthesize some conclusions about those pieces of data. So a goal of these strategies is for students to develop a range of these assets, find different ways they seek information and develop the confidence individually and as a group to evaluate things because clearly there are no answers to the PLTL problems.

On a different topic, how do we structure an activity to maximize participation and improve group dynamics? At a glance, I feel the instructions to these collaborative strategies are very simple to follow and to do, but when I see my first batch of students using them, we often get stuck not working together initially. So these strategies themselves are an indicator of how cohesive the group is and over time they get better at using them. But the question is to know how to break the ice so that the transition into using these strategies goes quite smoothly (since these students are working together in groups for the first time). So assigning rules and delegating roles to students and what they should be doing is helpful. For instance, with a round robin problem, ask a student to give the first step of the problem, and this may be summarizing the given information to a problem. Next, have that student address a question to another student that could lead to using the previous step to arrive to the next step of the problem. Another example is to have students put their pencils down and discuss the problem before tackling it as small groups. So there are no boundaries to what a facilitator can do to enhance different ways of learning. It's like we want to maintain the same objective and goal of each collaborative strategy, but renew the interest in ways that prevent the monotonous pace of the session.



By Iqra Khan

Now that you're well into the year, you have probably figured out a lot about your students: their personalities, their working styles, and their favorite and least favorite collaborative-learning strategies. As a leader, it's important to use this information to maximize the effectiveness of each PLTL session. The best way to do this is by understanding each collaborative-learning strategy and piecing the strategies together with the students' personalities.

Let's begin with the infamous "Scribe" strategy. Most students will do anything to avoid being scribe. However, I found that my quietest student volunteered to be the scribe nearly every time. While it was nice having someone volunteer, I quickly realized how little the student was benefitting from the group by always being the scribe. So, when approaching "Scribe" problems, try to pick a new person each time so that everyone gets benefit out of the session. The nice thing about "Scribe" is that it can often be used to encourage certain students to speak up while keeping others quiet. If you have one student who always dominates the discussion, pick him or her to be the scribe; It forces the rest of the group to discuss the problem without the talkative student. Also, don't be afraid to be the scribe yourself, depending on your group. I found my group had many calculation difficulties so I chose to be

scribe on those problems. This made each student calculate each step on their own, strengthening their calculator skills. Because “Scribe” is a group strategy where everyone, but the scribe, must talk through the problem, it can be easy for only a few students to dominate the discussion. To avoid this, keep a careful eye on who is speaking and ask quiet students what their opinion is about the problem. It can be tricky to facilitate “Scribe” in a way that is most beneficial to students but it becomes easier once you have figured out each student’s personality.

“Pairs” and “Small Groups” are two other collaborative-learning strategies that are most successful when tailored to your students. First, it’s important to change up the groups and pairings as much as possible. As new students work together, new types of discussions result, allowing for a better understanding of the material. It is also important to use student personalities to make groupings. In my group, I had two very dominant students who would work very quickly through problems. I also had two students who didn’t have as much of a grasp on the material as the others and thus, worked through the problems at a more gradual pace. For these learning strategies, I would often pair the dominant students with the less dominant students so that each student could learn from each other. You must be careful with this, however, as sometimes the dominant student will finish quickly without working with his or her group/partner. To avoid this, watch each group carefully and encourage discussion when necessary. Another tip for these learning strategies is, at the end of the problem, ask each group to put their answers on the board and explain them. This allows the group to come back together, strengthens each group’s understanding of their answer, and encourages large group discussion after small groups/pairs, which ultimately, will be most beneficial for the students.

Collaborative-learning strategies can be tough to master. There are many ways that they could potentially go wrong but use PAM, these papers, your instincts, and your knowledge of each student

and each strategy to help your students get the most out of each session. It takes some practice but soon enough, you'll be a facilitating expert!



By Nicholas Spies

So at this point in the semester your group is probably beginning to settle in. You may even see that the group dynamic is really working for you. But making PLTL more than just a group of Chemistry students working problems together is still up to you. After a few sessions you will begin to recognize some patterns in your students, especially in their personality traits and learning strategies. These are your greatest tools when tailoring your group to each problem.

The problem set is carefully crafted to place each of the collaborative-learning strategies into selected problems. Now it's up to you to manage what you've learned about your group's styles so far and place them in a manner that will allow them to fulfill their potential. At times this can become very difficult, as few students have ever worked in groups like this. But there are some very helpful strategies for optimizing your group's performance with each collaborative-learning strategy.

First, working in pairs. The "pairs" questions often come early in the problem set, and can be used to really get discussions going. For those groups with a shy student or two, try pairing them up with

a real socialite, that way you can get them talking and into the group dynamic. Often if the more shy students start talking in pairs, they will be more likely to contribute later on in the session. The same can be said for small-group questions, try to get people moving around and switch up the groups a lot. Staying out of a dry routine gets your students more engaged in the session. Round Robin is another strategy that gives the leader a lot of room to work with what you know about your students. If your group has a dominant student—or many—you can set an order to round robin such that everyone has to contribute once before any single person contributes twice. If a student is behind or stuck however, you can offer them some little hints to keep them from feeling discouraged or uncomfortable. It's a great way to get everyone involved, but be careful not to let the round-robin questions turn into large-group discussions. It is your job to keep the group structured in PLTL format. Finally for the scribe questions, these are often the hardest to execute properly. Some good tricks for scribe is to have your more dominant student be scribe, that way you can allow the rest of the group time to work out the problems without that driving input, and the dominant students often like to be scribe. Make sure to keep your scribe in check, only let them write what they are told. It is easy for the scribe to simply solve the problem on the board without the group's consent, but that defeats the purpose. Also, don't shy away from being scribe yourself every once in a while, it gets the group thinking that you are one of them; a real *peer* leader.

Overall you will have to find your unique ways to apply the collaborative-learning strategies in ways that will keep things fun and productive for your groups. Talk to your other leaders, see what they're doing. There is always a lot of creativity going around between sessions. Most importantly, stick to the PLTL philosophy; it really works. The collaborative-learning strategies are there to help you make the most out of each session, and the more comfortable you are with them, the better your groups will be!

If I make that kid scribe...

HE'LL STOP TALKING

By Rick Van Besien

Congratulations! Your first few sessions have been going well and you're starting to get used to your new role as a peer leader. The members are growing accustomed to working in the PLTL format and are starting to work more cohesively as a group. However, by this point in the semester you might have noticed the students complain about certain collaborative-learning strategies or unintentionally use them improperly. It's important to keep in mind that the collaborative-learning strategies are an essential element of the PLTL program and are designed to allow for maximum participation and team development to occur in your group. Your job as the leader is to have “Sudden Clarity Chemist” moments with the group members when they veer away from the collaborative-learning strategies and make them realize their mistakes and get them back to using the collaborative-learning strategies appropriately.

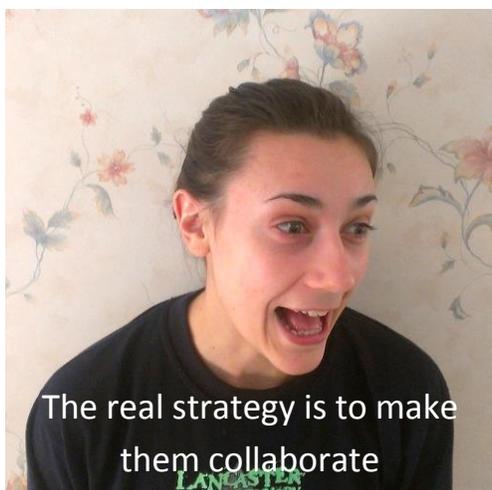
Let's start off with pairs. When doing pairs problems, the most common issue is students working with someone who isn't their partner, which then starts a chain reaction of students not working with their assigned partner. A great way to prevent this is to utilize all the space in your room to separate pairs from each other so that students are only able to communicate with their partner. This also works when doing small-group problems. If issues still persist, consider giving the students a gentle reminder and tell them that they should work with their assigned group members and then later they can come back together as a large group and discuss. It's also important to mix up the groups and make students physically move around a little when forming groups to keep them focused.

By now your group may start to give off a collective groan when you announce a scribe problem because it tends to be one of the least favorite collaborative-learning strategies. A great way to prevent

this is to show a lot of enthusiasm about scribe to counter their negativity. The students in your group look up to you as a mentor so if you are enthusiastic about scribe they will definitely pick up on it and the session will go a lot better. Even though scribe can be a difficult collaborative-learning strategy for your group to master, you should remind them that it is very effective and is great for solving the really difficult question in the problem set. You also might have noticed that one does not simply find someone to be scribe. If nobody volunteers to be scribe, you should be the scribe yourself and set a good example of how a scribe should act. Scribe is also a great way to balance the participation in the group, because you could make the dominant student the scribe so they don't take over the problem, or you could make a quieter student the scribe so they can get involved more with the group work.

Round robin can be a tricky collaborative-learning strategy to lead well. One of the biggest problems with Round Robin is students talking out of turn, which causes the process to break down and turns it into a large-group problem. I have found that the best way to fix this is to have a “talking marker” where students can only speak if they have the marker. I start by tossing the marker to random student, who does a part of the problem and then tosses it to another random student who continues it, and so on. The randomness of the process ensures that all students keep up with the problem because they might be tossed the maker at any time!

As the semester progresses, I'm sure you will find your own creative ways to make your group make the most of the collaborative-learning strategies. Be sure to share your ideas with your fellow PLTL leaders at SAM class!



By Laura Watkins

The collaborative-learning strategies are carefully chosen for each question, and as a leader it's up to you to enforce the strategies. Hopefully by now your students are familiar with the different strategies and willingly cooperate, but it may be helpful to really consider how you implement the different strategies and tweak them as necessary.

One of the tougher collaborative-learning strategies to stick to is Round Robin. At first, students may hesitate to participate when it is their turn for fear of being wrong, or not knowing what to do next. You can help them by making your group a safe environment, and encouraging students to throw out their ideas, even if they're wrong. There's no penalty in PLTL for wrong answers! Another common problem is students talking out of turn, or jumping in whenever they want to. A simple way to solve this would be to make it "pass the pencil" or other item, so that students can only talk when holding the item. It might also help to mix up the order and not just go around in a circle, so that students may be able to participate more when they feel comfortable—just make sure everyone contributes!

Scribe may be difficult to enforce at times, but it can also be one of the most helpful collaborative strategies for involving some of the quieter students. One way to do this is to have a more

dominant student as scribe. This forces that student to be quiet and gives other students a chance to participate and contribute more. Just make sure the scribe actually stays quiet! Alternatively, if a student is particularly shy or if he or she doesn't seem to understand the concepts, being scribe can help them gain a better understanding of the problem and how to solve it. Being scribe lets students participate without expecting them to give all the answers.

Pairs and small groups tend to be the students' favorite strategies and easiest to facilitate, but pay close attention to a few things: are students actually working together, and participating equally? It's easy for one student to take over in pairs, solving the problem and leaving the other in the dust. Alternatively, the students may not really be working together. The best way to address this is to just call them out! It's okay to step in a little while they're solving a problem to make sure everyone knows what's going on in their group. One way to help prevent this is to make them solve the problem on one page, with one pencil. That way, they can't do it completely on their own. It can also help a lot to have one student write the answer on the board, and have the other student explain the answer. Let them know before they start the problem so they'll both be able to explain it and prepared for either position.

The collaborative-learning strategies are all about getting students to participate and contribute to the group. If you feel a few students are starting to dominate the discussion and letting others participate less or be lazy, don't be afraid to ask the more quiet students to jump in. If one student in particular wants to answer all your questions, ask him or her to let someone else have a turn.

Remember, many of these students are intimidated by chemistry and anxious about doing well. Just relax and make it a safe environment where chemistry can be a little bit less scary and maybe even fun. Try switching up how you facilitate each collaborative strategy, which will make things less mundane and help students learn in various ways. Overall, be encouraging, relax, and have fun!