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A Reflective PLTL Journey by a Former Head Peer Leader

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A Reflective PLTL Journey by a Former Head Peer Leader

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Abstract

Peer leaders at the University of Texas at El Paso (UTEP) are asked to provide faculty with reflective, journal-like essays describing their experiences, challenges, advice, and anything else they may want to share to benefit future Peer leaders. Here, a similar approach has been taken in the form of two separate essays; one written immediately after the completion of my undergraduate studies (December 2019) at the University of Texas at El Paso (UTEP), and a second towards the end of my graduate studies (August 2025) at the University of British Columbia. As a senior graduate student preparing to transition into the scientific and academic workforce, I wish to share my experiences, thoughts, and reflections on a program that has meant, and continues to mean, more than I ever anticipated when I first joined the first semester General Chemistry 1305 Peer Leading program at UTEP.

Keywords: Peer Led Team Learning, Peer Leaders, Reflective Essays, PLTL Impact, Intrapersonal Development

Introduction

As an undergraduate at The University of Texas at El Paso (UTEP) I first encountered Peer-Led Team Learning (PLTL) as a student in Dr. James Becvar's first semester general chemistry course. UTEP's first and second semester general chemistry courses entail a three-component registration of lecture, laboratory, and workshop sections, where workshop is generally viewed as the essential cog of student learning. These workshops employ a PLTL approach led by a student who excelled in the course, displayed a genuine interest in chemistry, and eventually was hired, trained, and offered the chance to lead one or two of these workshops. My first Peer Leader (PL), Jaime Ayala, forever altered my professional course.

To further define this program, the Peer-Led Team Learning International Society (PLTLIS) describes PLTL as students working in groups to solve challenging problems by debating, negotiating, and building consensus under the guidance of a trained PL, where PLs are students who have completed the course and have strong interpersonal skills. PLs are the students who ask how and why things work the way they do, facilitating the learning of group members, and they do not provide the answers (Gosser et al., 2001). This definition of PLTL captures the core components of these programs. Recently, the importance of not only crafting and strengthening interpersonal skills for PLs but intrapersonal skills as well through journaling, or similar reflective writing modes has been highlighted (Lew & Schmidt, 2011; Love & Becvar, 2021; Marin, 2022). Development of these intrapersonal skills through reflective writing, discussion, and subsequent dissemination among local and national PLTL programs should continue to be promoted for the continued growth and learning of all programs old and new alike.

Here I present two essays from different periods of my life. The first was written immediately after completing my undergraduate studies at UTEP in December 2019, documenting my four years as a general chemistry PL, and year and a half as Head PL of the first semester program. The second reflects on how these experiences have impacted my graduate studies, professional development, and current ongoing job search. Through these reflections I hope to provide useful information to current and former PLs, as well as those currently directing or starting programs of their own.

Undergraduate studies essay, December 2019

By the time I was nine years old, I knew I wanted to be a professional hockey player. Like the hundreds of others who pursue this dream, I fell short of the National Hockey League, even after chasing this vision all over the country: Chicago, Illinois; Cincinnati, Ohio; Helena, Montana; Seattle, Washington; and in the high desert of El Paso, Texas. Eventually I came to a crossroads. A phone call from a former El Paso Rhinos coach on the way to a fishing trip with Dad altered my course. I was two years out of high school and too old to play junior

hockey anymore, so I came to the University of Texas at El Paso (UTEP). I was enticed by the opportunity to receive inexpensive tuition and to continue playing hockey for the ACHA hockey club. I planned to study biochemistry because in high school in Chicago I enjoyed biology and chemistry so why not do both?

While taking my general chemistry course at UTEP I was required to take a chemistry workshop led by a student who had already taken the course. I would often find myself not only excelling in this course but tutoring and helping the other students as well. The experience would lead me to become a Peer Leader (PL) as well, after being recommended by the student who had run my workshop. Joining the PLTL program in my second semester would not only open doors to the academic world, but to several personal development ones as well. There is quite a difference in how athletes and academics behave and while I had always been a more "mature" hockey player for my age, PLTL was changing the nature of my community of friends. The structure and formality of those in the PLTL program would begin to teach me how to act alongside all the bright minds in PLTL and at UTEP. While the biweekly PLTL Preview (Dreyfuss, 2021; Gosser et al., 2001) meetings, trainings, and interactions among professors and colleagues would teach me many life lessons, it is perhaps the students from whom I learned the most.

As a PL I started off attempting to lead the students to learn chemistry; however, the position entails so much more than just teaching chemistry. For example, I learned how to interact with students to make them more interested in the topic, whether it be trying to spark scientific interests by discussing research, something exciting learned in an upper division course, or just trying to get them to see the light: How chemistry is important and relatable even if general chemistry is the only science course they take. Through these conversations I learned many lessons; perhaps one of the biggest was the ability to listen and understand what the students were having difficulties with. They struggle with material, often detest chemistry, and simply want to pass. As a biochemist this can be difficult to hear; but by being relaxed, approachable, and understanding I often found that the students were willing to listen and be more involved. Of course, there is a line in the sand that is needed to be drawn so that I would not become overburdened by submitting my homework assignments or grades late, holding extra hours outside of workshops, office hours, or reviews, and the students genuinely appreciated having someone they could talk to as well. By being in the workshop room a few minutes early and chatting with the students, joking around, shows that you, too, are a real person, and not a teacher. Trying to create a more amicable workshop often leads to the students to feel more relaxed and at ease. This was easily translatable to proctoring exams as well. The more relaxed and understanding I was when approaching students, the more willing they were to listen.

After a semester or two I moved on from being a PL to running the Explorations (Becvar, 2012, 2021; Kerstiensa et al., 2017) each week. From designing new ways to bring chemistry out of the classroom and into "real life," to learning how best to have students guide me through what was occurring, and to then having them relate it back to course concepts, I grew a great appreciation for these small experiments. The simple hands-on approaches to learning chemistry and physically showing that the topic is not a fantasy tale of a place 'in a galaxy far, far away', but present in our everyday life was such a fantastic experience. From looking at the wave properties of the light emission of flames, the sun, and light bulbs, to how handwarmers work, I was always intrigued.

Eventually I came to a fork in the road during my last year at UTEP. Being fully involved in peer leading, biomedical research, and hockey, I applied and was accepted into an NSF S-STEM research program. This forced me to think about time management and to remove one of my numerous activities so I could have time to breathe. Perhaps by fate, although not the best kind, I had severely injured one of my knees. Looking clearly at the future where playing the sport I grew up loving would not be possible, I decided to hang up the skates. At this same time, I would be selected as one of the next Head PLs. The next year-and-a-half would become my favorite part of peer leading and likely where most of my personal growth occurred.

At this point I had been a Peer Leader for two and a half years and had been through a lot of good, some bad, and some even a little ugly, too, in the PLTL program. As Head PL, when I began considering what to do for training, and what to include in agendas for the Preview meetings, I reached back to think 'what worked,' and what I would have liked more of in terms of advice. While the four-and-a-half days of training before the start of the semester, and two hours a week in Preview meetings during the semester, there was never enough time for the plans and schedules for items I thought would be great for the program. To me the team building activities, and selection of PLs (based more on the people they were than on academic merit) was key to building such a fun, constructive, and successful team of PLs. We made sure that the PLs who were hired were genuine people who were willing to learn and could work well with others. Using this approach, the PLTL program at UTEP blossomed. While cliques were inevitable, a core of good-natured, coachable, and enjoyable PLs were hired. As my time progressed as a Head PL, I started implementing a "less is more" mindset like that which I used in my workshops. This approach let the other PLs be more "behind the wheel and drive" the program. This included having the other PLs be more involved in conducting and contributing to preview meetings, deciding who incoming PLs would be, how best to teach active learning techniques in trainings, or design and implement new Explorations, while I was more of a guiding hand. I continually challenged the other PLs to do more themselves. And by listening to their problems, comments, and concerns each

week, I feel that the other PLs experienced the growth that I did myself, whether they knew it or not. By promoting internships, volunteer events, and the occasional get-together, it is an amazing experience to see all my colleagues grow into who they are today.

Perhaps one of my favorite stories was regarding one of the next Head PLs, Lester. When Lester became a PL in the program and for some time after, he was a go-lucky, relaxed, laid-back person. He did what he needed but was more the class clown than anything else. In the semester before he applied for the Head PL position, he approached me and began asking about the position, what it entailed, how much work it was, and other questions. The semester before he became a Head PL, Lester transformed himself into someone who wanted to lead, who gave insightful advice for all to hear, and truly earned the right to become the next Head PL.

All these experiences helped me grow as a leader, a person, and a researcher. From Dr. Becvar's continuous pushes for listening, taking notes and creating abstracts, Dr. Saupe's calm, cool, and hidden humor, and Dr. Alexander's continuous wonder and fascination with science, I will not forget what I learned at UTEP. But perhaps what I will carry with me is how the peer leaders around me taught me how to run a program, be a good friend, and be an even better person. The PLTL Program at UTEP is built on the PLs who are in the program, not the professors, or the Head PLs. Those colleagues I worked with at UTEP helped make me who I am today.

Graduate studies essay, August 2025

After leaving UTEP, I continue to consider the PLTL program and the ever-lasting impact it has had upon me. The way I stumbled into peer leading may be a path that started long before I was ever a PL. I was born in the desert in the state of Washington yet learned to ice skate by the age of three, because I had a parent from Chicago. I became a goalie at the age of ten, because the pads looked cool. I continued to skate and compete in hockey because I loved it.

I wound up in El Paso because I had developed into a competitive hockey player. Even when I rolled into UTEP I continued to just "stumble" into opportunities. I hope I never forget the first day I was on campus, a week or two before the semester started. The UTEP hockey club had set up appointments for players with a guidance counselor, Jorge Cardenas, who I'm sure had some interesting conversations with many former junior players who had not thought about anything academically for years. I'll remember at least part of mine. "Well, what did you like in high school?" he asked, to which I replied, "I don't know, I really liked biology and chemistry." Jorge responded with "Perfect! We have a Biochem program you can try!" This led to my mother getting a good chuckle later in the day, finding it hard to believe that would be the program that would stick. Yet I am now less than a year from finishing my Ph.D. at the

University of British Columbia in the Biochemistry and Molecular Biology program as a structural biologist. That same conversation led me to my first interaction with Dr. Becvar as well.

The week before a semester starts is a rather busy time for a professor, particularly one in their 70s, teaching multiple courses, and in the middle of training multiple levels of chemistry peer leaders. Looking back at it, it is a wonder I even found him at his desk in his office. I had thought I was visiting the biochemistry advisor, which turned out to be a duty Dr. Becvar had stopped doing some time long before that day in August 2015. He was as polite as a busy, flustered, slightly annoyed professor could be, and he sent me off to the correct office. Here we are ten years later, and he is writing me letters of recommendation. Who would have guessed? As I have traversed from state to state, school to school, and even from one country to another, one of the biggest things I have learned is that if you follow what you love to do, work hard to grind out the difficult times, and take a moment to celebrate the moments that deserve to be celebrated, it is crazy what you might "stumble" into.

Peer leading is by far one of my favorite things to have stumbled into.

As a trainee in structural biology, I cannot say that peer leading itself has directly taught me the skills necessary to solve the x-ray and cryo-EM structures that I now do. What I can say is that having been in the PLTL program at UTEP, having been in charge of the Explorations (Becvar, 2012), having had the opportunity as Head PL to orchestrate trainings, meetings, and workshops, all gave me a confidence and self-assuredness as to who I am, and that I could excel that I would not have had otherwise. Peer Leaders are given the freedom to create, to think outside of the box, to find ways to reach out to students in ways that lecturers cannot. Not because lecturers aren't allowed to, or that they are not able, but because the experience of learning is at the forefront of PLs' minds. Each PL has a different experience, a way of approaching a problem and then solving it that lecturers and other PLs have not had yet. As a Head PL promoting that idea during trainings by having PLs create a game or activity in mixed groups of experienced and new PLs, I found that PLs would bring out something new that would then get used in multiple workshops. This same concept, accepting that someone else might have an experience, method, or idea that you had not thought of and is worth thinking about or using, is key in graduate school. Trying the many other ways that worked for a fellow grad student, post-doc, or research assistant who recommended a method of expression, purification, binding, crystallization, vitrification, has been absolutely critical for me. Rarely, especially in the first couple years, did anything work on the first try, and often others' experiences, beyond the literature, was what helped me come up with creative solutions.

One of the biggest factors that I think about is the community that was built in the UTEP program. Some benefits from the PLTL community are simple, and perhaps obvious.

One of those is that you must talk. You have to speak to your students, you have to speak to your colleagues, and you have to speak to those professors who run the courses and program. I am a person who is often described as chatty, likes to insert extra comments in emails, texts, verbal conversations, essays. What I can speak to is the culmination of all that time being at the front of a room, in training sessions, exam reviews, in office hours, or other situations where whether by design or simply as the PL "in charge" of a workshop, I was the center of attention. I was expected to say something, and as the weeks went by, I grew increasingly comfortable with it. As a grad student I hear statements like, "I hate giving talks;" I cannot say the same. There is always some form of nervousness with a new crowd, new location, new set of slides, but all the time on task as a PL contributed to my having the confidence that I can lead a room, I can run a course, I can present my work to people.

Then there are those parts of the PLTL community, the PLTL family (Carreon-Morales, 2023; Christian et al., 2023) that are less obvious. A key part of my development has been as part of a community that supported a different type of competitiveness that shaped me to be the best version of myself as a student, while learning methods to pass these critical thinking skills on to others. The round table discussions we held in biweekly meetings, the push to come up with hands-on activities to better represent chemistry topics, such as using gummy worms and toothpicks to teach bonding and valency principles, for example, were ways that I started to shift away from simply trying to outperform others - as someone who had an ultra-competitive sports-filled childhood - and find ways to get others to succeed as much, and more, than myself. This idea did not only apply to those who were PLs helping PLs, but is what really drives those who are in PLTL to continue to develop and create solutions to the new problems we face term to term and year to year. This commitment extended even further after I became a Head PL: I enjoyed watching the growth of the students and the PLs as well. Hearing of others going on to medical school, graduate school, excelling in industry, continuing to be involved in STEM fields, are all stories that bring a little extra light into my day and continue to remind me why I am doing what I am doing.

Impacts of PLTL

PLTL programs have demonstrated their ability to raise student passing rates, provide immediate and personalized feedback, strengthen peer learning communities, and generally improve student learning (Darnell, et al., 2012; Preszler, 2009; Young & Lewis, 2022). As a student in general chemistry workshops at UTEP I experienced first-hand how having a peer mentor can improve lecture content retention, build student communities, and assist in improving general study habits via active learning. Many of these same benefits were experienced as a PL. PLTL programs consistently create environments that foster positive outcomes for PLs in their programs, and throughout their professional and academic careers,

by building inclusive communities that promote self-confidence, develop leadership skills, and strengthen several other tools applicable to many fields including time management, interpersonal communication, and problem solving (Chase, et al., 2020; Marin, 2022; Martinez, 2022; Torres, 2023; Pinkhashik, 2024). I can say with the utmost confidence that being a PL helped me build upon these skills, and being a Head PL further reinforced these traits.

These experiences have directly translated into my success as a graduate student. Learning time management by balancing being a student-athlete to planning workshops, previews, trainings, and participating in undergraduate research allowed me to better step into managing multiple projects, manuscripts, and collaborations at the same time. Having experience leading workshops and a PLTL program directly improved my ability to mentor a summer student, gave me a greater understanding and appreciation of the patience and potential challenges of teaching new techniques to all levels of researchers, and interact with diverse individuals. Along with the productivity side of my graduate studies, having a community to fall back on, reach out to, and stay connected with, has helped develop methods to disconnect from the workplace appropriately, have outlets to reach out to for personal and professional advice, as well as maintain confidence and a sense of self during the peaks and valleys that accompany graduate studies.

As I move towards the next steps of my academic and professional journey, I think of instances that UTEP and being a PL has positively influenced me. PLTL continually earns at least a paragraph in my cover letters and personal statements, and I doubt I will ever exclude these experiences from them. PLTL at UTEP is what planted the seeds that I might want to be a mentor one day, that I might not just enjoy, but might want to go through the rigors of graduate school so I could one day bring the opportunity to others; that I might want to bring these experiences to an institution that has not yet benefitted from such a program, or one that has PLTL but could benefit from the practices that I had at UTEP. Ultimately without having friends and mentors like Jaime and Dr. Becvar I would never have had the opportunity to experience PLTL and grow professionally or personally the way that I have, and I will continue to pass on these experiences.

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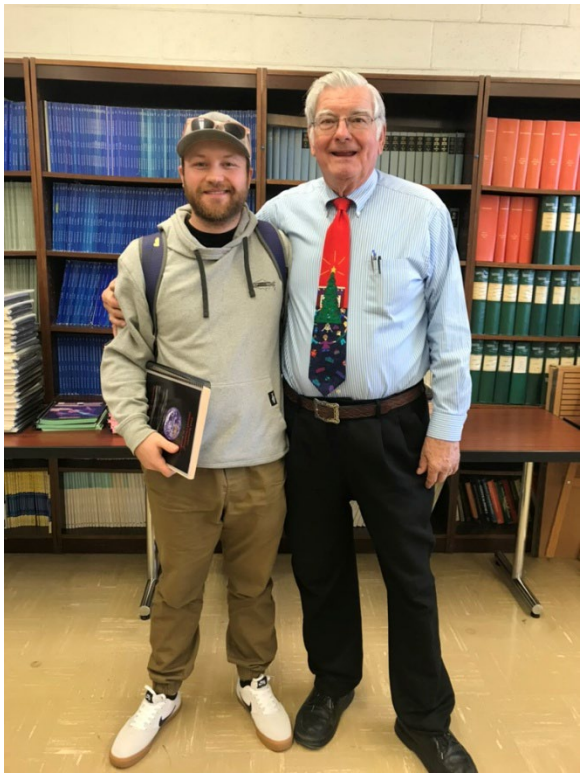

Figure 1. Alek and Dr. B, 2019