

# PEER-LED TEAM LEARNING EVALUATION

## THE IMPACT OF THE PLTL EXPERIENCE ON WORKSHOP LEADERS: AN INVESTIGATION

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A team at the University of Rochester, composed of Vicki Roth, Nancy Niemi, and Lydia Tien, has been investigating the PLTL experience on peer leaders. They gathered information by designing and conducting interviews with student leaders, in a semi-structured interview format, with the understanding that final grades alone do not capture all of the effects of student participation in this model. While initial reports of higher grades and retention rates are encouraging, they serve equally as catalysts for additional lines of inquiry. The evaluation reported here works on a paradigm that considers the Workshop participants' words and interactions to be data that can be equally as informative as their test scores.

This report focuses on peer leaders' descriptions of their experiences and hinges upon two broad questions:

1. Does being a PLTL leader influence what leaders think about and approach their own academic work? If so, how?
2. Does being a peer leader influence that leader's stated professional goals?

The first round of interviews, conducted by Nancy Niemi during the 1998- 1999 academic year, began with five former student coordinators for the program. One of the coordinators interviewed was a graduate of City College of New York; the remainder were students or graduates of the University of Rochester (UR). Coordinators were included as initial interviewees because they shared a common, extensive set of experiences with the PLTL Workshop model. Moreover, each of them either had graduated from school and gone on to graduate school or were seniors, making definite plans about their future. These people could demonstrate, through their school and career choices, whether their feelings regarding the Workshop leadership translated into concrete actions.

Each coordinator interview lasted between one and two hours. Information collected from the transcripts of these interviews became the basis for the second round of interviews with 19 UR Workshop leaders. Each of the peer leader interviews included the following questions, although other topics were also discussed if the peer leaders chose to do so.

1. Please describe your experiences as a Workshop Leader in the [PLTL] Workshop Chemistry program.
2. Have your views of leadership changed as a result of your being a leader in the program?

3. Have your views of science or chemistry changed as a result of being a leader in the program?

4. Have your career plans changed as a result of your participation as a leader?

5. What do you know and/or understand about learning and learning styles that you did not know prior to being a leader?

### Results

It is important to note two limitations of the study immediately: nearly all of the peer leaders in this study were Workshop *students* first. This fact makes it difficult to separate the effects of being a student from the effects of being a leader. Many times, former peer leaders would refer to their leadership experiences in one breath and their student experiences in the next. The other point to be highlighted is that although the former peer leaders sometimes indicated that they were certain one aspect of peer leadership had caused them to do something different, we cannot say for certain that the Workshop experience was the causal agent of these reported changes.

That said, the reports of the leaders about the impact on their own learning can be summarized as follows:

1. Leaders learned through this experience that people had different learning styles and that their personal learning style was not the only or best way to study.

2. Leaders' understanding of the subject matter deepened.

3. Some leaders learned to be quiet while others thought about how to solve problems; others learned to be more outspoken.

4. Some leaders became more organized learners.

5. Some leaders began to think of science in general as more of a group process than as a singular pursuit.

A few comments from leaders illustrate these points:

“Up until Workshop, I never thought about how people learned before,” said one leader. “For some people using a molecular model worked very well and for some people it wasn’t very helpful. For some, writing on paper helped.” Another leader said: “As a freshman it’s a lot of ‘I’ve got to do better than everyone else, memorize more,’ but the more I got into Orgo [Organic Chemistry], the more I learned it’s not about competition. You want everyone to learn. In a sense the class is only as strong as its weakest link. Me and my friends understood that if we could tell someone else about the concepts, we understood [them] ourselves.” “I found myself understanding things a lot better as a leader,” reported a third leader. “I could get questions right on the exam [as a student], but I really made sense of stuff as a leader. After having to present the material, I really understood it. I had to know it before I could teach it.”

One of the coordinators clearly stated that her experiences as a leader and coordinator made her a more organized person, both in chemistry and in other areas of her life. “Prior to Workshop I did

things very haphazardly. When I started concept mapping, I started organizing stuff better. I started as an abstract thinker and became much more sequential, much more organized.” Several other leaders also mentioned that they felt the leadership experience helped them rearrange how they did things, scientifically as well as in their other academic pursuits. “The learning paradigm introduced in Workshop would be effective with anything,” stated yet another leader. “You find yourself as a student wanting to be the leader and encouraging other people, which is the goal of the model.”

In terms of the influence of this experience on professional goals, it should be observed that all 25 leaders interviewed were asked about this matter, and *each* stated that being a Workshop leader had had an influence on intended professional aspirations to varying degrees.

Their responses can be divided into three categories:

1. those leaders whose career decisions were not changed but reinforced or enhanced by this experience;

2. those leaders whose career decisions were somewhat changed as a result of Workshop leadership, either by confirming previously tenuous plans or by invoking new thinking about previously established plans;

3. those leaders whose career plans were significantly influenced or completely changed as a result of their participation as a Workshop leader.

Examples of these three categories can be observed:

1. One leader said, “Being a doctor [meant taking] a leadership role in the old sense. But as you get older, you still have to work in groups. Workshop made me realize I’m still going to have to do that as a doctor.”

2. “For me personally it [being a Workshop leader] was interesting because, mentally on my career track I wasn’t sure whether or not I wanted medicine as a clinical practice or medicine as a research-oriented type thing. And at the time I was doing research in bio-physics, and I saw the big difference between sitting in the lab doing work and actually dealing with people and helping them...Personally for me that was what made me think, well, maybe clinical, you know, changing my opinion of what I think I should be doing with medicine, because I [had come to] thinking I wanted to be a research doctor, and just do my stuff in a lab.” “I haven’t applied to grad school yet,” said another leader, “because I’m planning to take a year off. I’m a neuroscience major. I like neuroscience and I think I want to go into it, but now I’m not sure. I like doing research, I like teaching, just based on the teaching experiences that I’ve had, I think I would like to teach so I think I would like to combine the two in some way ....”

3. “Of everything I did in college, it’s one of the things I most enjoyed and I finally came across something where I can see myself in a profession related to this.”

The results of this initial leader evaluation study are varied; the leaders’ experiences point to a successful program in the sense that the leaders enjoyed themselves, understood the subject better, gained knowledge about their and others’ learning styles, learned about teaching, and for some, gained a new sense of their career possibilities.

A third round of interviews was initiated in the 1999-2000 academic year. Lydia Tien interviewed 15 undergraduate peer leaders (8 women, 7 men) during a three week period at the end of the Fall 1999 semester. The semi-structured interviews ranged from 40-60 minutes. With the student's permission, the interviews were audio taped and notes were transcribed during the interview. The data, discussed below, report some common themes and results that emerged from the interviews.

The interviews collected some information about leaders' attitudes toward the workshop, the role of the leader in the Workshop model, the team problem-solving activity, and student interaction during the workshop. For this study, a critical focus of the interview was its third section: the impact of this experience on leaders' professional plans.

In these interviews, leaders reported a unanimous espousal of the advantages of the team problem-solving activity central to the Workshop model. They recognized the value of all students contributing their ideas since many times "knowledge is distributed," i.e., no one person has all the pieces toward understanding a problem. Leaders also perceived additional benefits, such as increasing a student's confidence and easing individual fears as one sees classmates struggle and grapple with learning the material.

All of the leaders believed that their experiences leading workshops not only strengthened their subject knowledge and allowed them to learn other educational models, but also developed their communication and group facilitation skills. The Workshop experiences instilled an increased sense of self-confidence as leaders felt more at ease in front of a group and dealing with various group situations.

All of the leaders interviewed plan to pursue a graduate degree. Two intend to earn a Master's degree, and the remaining leaders intend to pursue a doctorate or medical degree. Two-thirds of those interviewed are planning or considering a career in academia, one on the secondary level and the remaining on the college or post-college level. One of the leaders interviewed shared that the experience of leading workshop was the determining factor in her decision to become a professor upon completion of her doctorate.

When asked how leading workshops affected their views on teaching and learning, the leaders mentioned ideas that had been discussed in their training class such as accommodating for different learning styles, the influence of motivation on performance, and the role of gender and ethnicity.

The 1998-1999 interview results suggested that the Workshop experience influenced how leaders pursued their careers, such as creating study groups in medical school courses similar to the Workshop model and appreciating the value of cooperative problem-solving. The 1999-2000 interviews support the earlier findings as leaders have created peer study groups in other courses in which they are currently enrolled, or created opportunities to discuss ideas with their classmates.

Another potential impact on a leader's professional development that emerged was the issue of mentoring. The students who are selected as workshop leaders are among the brightest students on campus in their respective fields, so it would seem that these first-tier students would be likely to have developed mentoring relationships with classroom faculty members and their research advisors. However, a number of leaders also felt that their experiences as workshop leaders had also had the

added benefit of being able to have the faculty of the Workshop [training]course as a role model and mentor.

### Next directions

The results of the leader interviews serve to endorse the PLTL model. Not only do leaders report the value of this experience to them in an immediate sense, but we can see how this opportunity is shaping careers. In fact, these reports have encouraged a particular line of thinking about peer leadership, i.e., that it can be considered a component of pre professional training for future faculty, serving some of the functions of a pre-medical or prelaw undergraduate program. Given that there is very little direct instruction in teaching in most faculty members' education, this seems like an intriguing direction for continued discussion and investigation.

Some public discussion along these lines has already begun; e.g., at the October 1999 conference of the Professional and Organizational Development Network (the national faculty development forum), Vicki Roth presented a session entitled *Starting at the Beginning: Including Undergraduates in Faculty Development*. Vicki Roth and Ellen Goldstein will present a workshop on a similar theme at the *International Conference on Improving University Teaching* in Frankfurt, Germany in July 2000.

The interview team is also aware that there are limitations within this previous work. Our most serious concern is our lack of clarity about how different, if at all, being a PLTL leader is from being a teaching assistant, or how much these leaders would have gained the knowledge they did simply through the process of maturation. Our final year's interviews will include a four-way study to compare the attitudes and experiences of those who were Workshop leaders, undergraduate teaching assistants in more traditional formats, and other strong students who were neither leaders nor Workshop participants.

As we prepare for our next round of study, we are encouraged by the words of one of our first leaders at the University of Rochester, who said:

*When you do [this] you are like a teacher ... You look from a different perspective, from a totally new point of view... [like being able to see] the back of the moon.*

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