

THE PEER-LED TEAM LEARNING MODEL

THE SIX CRITICAL COMPONENTS

1. The Peer-Led Workshop is integral to the course.
2. Instructors (faculty & teachers) are involved in the selection of materials, training and supervision of peer leaders, and they review the progress of Workshops.
3. Peer leaders are selected, trained and supervised to be skilled in group work as facilitators.
4. Workshop materials are appropriately challenging, directly related to course methods of assessment, designed for small group work.
5. The Workshops are scheduled and held once a week for two hours, contain six to eight students per group, in space suitable for small-group activities.
6. The Peer-Led Team Learning program is supported by the department and the institution with funds, course status and other support so that the method has the opportunity to be adopted across courses and disciplines.

INTEGRATION OF COMPONENTS

I. WORKSHOPS ARE INTEGRAL TO THE COURSE

- ✓ INTEGRATED WITH THE COURSE
- ✓ STUDENTS VIEW WORKSHOP AS IMPORTANT TO LEARNING
- ✓ LEADERS ARE AWARE OF LECTURE APPROACH
- ✓ LECTURER REFERS TO WORKSHOPS

That the workshop is integral to the course is an overarching concept that in one sense integrates all of the critical components. The workshop is part of the fabric of the course. This is closely related to faculty involvement – the faculty has the primary responsibility to see to it that the workshop is closely related to other course components. The primary instructional component is in place.

But consider the following questions:

- ✍ Does each group of six to eight students meet with a peer leader in a weekly session?
- ✍ Is there a formal notification of the session, such as being listed on the course schedule?
- ✍ Does the faculty voice support for the workshop in lecture and often refer to workshop content as part of the lecture?
- ✍ Are the content and practice of the workshop closely related to the lecture?

For instance, a typical practice is to have two or three lecture hours to set the stage for the PLTL session. If that is the case, then the lecturer should be discussing material that is relevant (as in *just in time* teaching).

- ✍ Do student leaders have practice connecting pedagogy and content of the workshop?
- ✍ Is the practice of the workshop closely tied to the learning/performance goals that the instructor has in mind?

In practice the best way to ensure that the PLTL workshop is integral to the course is for the instructor to engage in good communication with the workshop leaders. If allowed to present their opinions

in a non-threatening manner (through written feedback, for instance), they can alert the faculty member when things are going awry in the workshop. Peer leaders will be very sensitive to the students' needs—and their input can be invaluable. One of the most important things faculty can do is to listen to the peer leaders, setting aside preconceptions and opening the windows of perception to students' views!

David Gosser

THE FACULTY ROLE IN PLTL

II. COURSE PROFESSORS ARE INVOLVED

PROFESSOR'S INVOLVEMENT

- ✓ PREVIEW OF PROBLEMS WITH PEER LEADERS
- ✓ PREPARATION AND REVIEW OF MATERIALS
- ✓ AVAILABLE TO STUDENTS AND STUDENT LEADERS

Learning (PLTL) model addresses the direct role of the instructor in implementing workshops:

Course professors are involved in the selection of materials, the training and supervision of peer leaders, and they review the progress of the workshop program.

The very first major implementation issue that faculty PLTL adopters may face is only implicit in the critical component statement: the instructor's involvement in adapting or redesigning the structure of the course to better accommodate peer-led team learning. Traditional science courses have changed relatively little in their structure over the past decades. So, how is the workshop to be integrated into this structure? Where possible, the workshop session should be at least 90 minutes in duration, because group problem solving is a labor-intensive activity.

This type of structure is not always possible. Institutional constraints often shape the form that PLTL takes locally, especially in the early stages. It is the adopter's responsibility, consistent with local constraints, to design the effective integration of the PLTL experience into the overall course structure. My own experience in teaching an evening General Chemistry section over the past two years has led to a substantial re-allocation of instructional time. My one hour and 45 minute weekly workshops have been built from corresponding reductions in lecture and laboratory time, and I hope that the course structure will continue to change.

The availability of workshop materials in several levels of chemistry is a distinct advantage to chemistry faculty wishing to implement PLTL. When I implemented PLTL, I decided to use the classic *General Chemistry Workbook* (Gosser, Strozak, and Cracolice, 2001). This workbook is now available from Prentice-Hall. This (or perhaps, any) standard workbook presented its own set of implementation issues. Such issues take the form of questions like: Is the reading level appropriate for my students? Is there enough descriptive material provided in the workshop units? What about the level of difficulty of the workshop activities? Can the workshops actually be completed within the time allotted?

Another issue relates to the coverage and ordering of topics within the course. Is there a departmental (or even state) requirement that prescribes the learning objectives and/or outcomes for the course? My experience is probably typical of most PLTL adopters – a quick realization that I would need to adapt the available workshop materials for my own course. Where am I in this process?

Currently, I am working on my own “version 4.0 (!)” of my adaptation of the *General Chemistry Workbook*. Nevertheless, having a starting point for adaptation, as I did and you can, is very important and very, very helpful.

More often than not, it falls to the faculty PLTL adopter to recruit the workshop leaders. Ideally, colleagues in the department can be solicited to suggest potential leaders and to spread the word about this opportunity among their classes. Some enterprising adopters seek permission to visit other classes to talk up the advantages of serving as a workshop leader. An alternative approach is to solicit leader candidates through mailings or general announcements. Having the assistance of a supportive learning specialist can be very helpful when it comes time to choose the slate of leaders. In addition to an understanding of the basic subject matter, human interaction skills are very important in the makeup of a strong workshop leader. Recognize that recruiting workshop leaders may not be so easy. Most community college faculty are well aware of the difficulties that we face in this regard. Our pool of potential leaders is narrowed by a number of factors, including student transfers, changing work schedules, and heavy personal responsibilities. This means that recruitment must be in full swing almost all the time.

Responsibility for the training and supervision of student workshop leaders is another major concern for the PLTL adopter. A learning specialist colleague can help enormously in sharing this responsibility. At some institutions, workshop leaders fall under the management of a tutoring or learning center, an arrangement that also helps to ease the faculty burden. But, more often than not, especially at small institutions, the PLTL adopter will be directly involved in these responsibilities as well. The *Peer-Led Team Learning Guidebook* (Gosser, et al., 2001, Prentice Hall) is quite helpful in dealing with these issues. Finally, the PLTL adopter must recognize the crucial importance of evaluation. Evaluation is important at two distinct levels, internal and external. Documenting and charting student performance and outcomes are an essential part of instructional innovation, and can often make the difference between a sustainable or a short-lived PLTL effort. Institutional resources generally flow in the direction of those activities that can be demonstrated to have a positive impact on key goals and objectives. It is also important in this respect to assess student attitudes toward learning with PLTL, along with quantitative measures of their performance. Students' attitude toward their learning experience can be an important factor in determining subsequent retention.

The external component of evaluation emphasizes one's participation in a national program of instructional reform. The Project's growing national data base of evaluation findings at varied and diverse institutions is a major factor in encouraging and facilitating PLTL implementation across the nation. Each of us, as an individual adopter of the PLTL model, has an important role to play in supporting the dissemination and successful implementation of the model.

Dennis Bartow

PEER LEADER TRAINING

III. PEER LEADERS ARE TRAINED AS FACILITATORS

PEER LEADERS

- ✓ ARE SKILLED WITH GROUPS; FACILITATOR RATHER THAN TEACHER
- ✓ ARE TRAINED AND SUPERVISED
- ✓ HAVE KNOWLEDGE OF THE DISCIPLINE AND PROBLEM-SOLVING SKILLS

Why is leader training a critical component? Without it workshop leaders tend to default to what they already are familiar with, that is, lecture and recitation. In 1996, the Workshop Project's¹ summative evaluation found that 69% of the workshop leaders strongly agreed that training is helpful, while only 5% disagreed.

Peer leaders are recruited from current students taking a course. While colleges using the PLTL workshop approach have variations in methods of selection and training, the following will provide a broad overview of a suggested process, currently used at the City College of New York (CCNY).

Selection Criteria for workshop leaders include:

- ✍ recent completion of course with an "A" or "B";
- ✍ recommendation by current workshop leader, coordinator and professor in regard to being responsible and having leadership ability;
- ✍ recommendation by all three interviewers (at least one faculty member, coordinator and current workshop leader).

Selection Process for new leaders involves the following:

- ✍ interest/recruitment meeting is held during previous term or semester to provide information about the program and application process;
- ✍ applications are completed by students currently taking the class. The application form requests name, contact information, interest statement, GPA, and grade in course;
- ✍ feedback on student is solicited from current workshop leaders and the professor;
- ✍ an interview is conducted, asking general questions as well as how the applicant might handle a workshop situation. Note that some campuses conduct group interviews of applicants;
- ✍ invitations to participate as workshop leaders are mailed;
- ✍ leaders sign a contract that describes course, outlining criteria for working with the coordinator (if applicable), communication with the professor, and workshop responsibilities.

Components of Leader Training Courses

PLTL affiliates offer a variety of training options for peer leaders. The most formal provides an orientation seminar before the term starts, and continues for part or all the semester with a leader training course. Some campuses opt for the orientation session only, and some condense the training to weekly meetings with the faculty member or student coordinator, where discussions of techniques are combined with the week's problem(s). At the City College of New York, CUNY, a two-day orientation seminar introduces students to the Workshop Model, and includes the following components:

- ✍ use of icebreakers;
- ✍ awareness of different learning styles;
- ✍ equity issues regarding race, gender and ethnicity;
- ✍ examination of group dynamics and research on cooperative learning;
- ✍ pedagogical tools such as concept mapping, pair problem-solving, construction of models, round robin, etc.;
- ✍ introduction to developmental theories (e.g., Vygotsky, Perry);
- ✍ skill and leadership development through role playing;
- ✍ assessment of students' learning.

Several topics are subsequently presented in more depth during the leader training course, which also requires reflective journal writing and a final project. The orientation seminar and the course allow workshop leaders to try different pedagogical tools, thus promoting active student learning and skills development. The

¹ The "Workshop Project" was the predecessor name for what became known as Peer-Led Team Learning in the late 1990's.

coursework also provides a forum for collaboration between faculty in specific disciplines and specialists in learning.

Ellen Goldstein West

MATERIALS FOR WORKSHOPS

IV. WORKSHOP MATERIALS ARE APPROPRIATELY CHALLENGING, DESIGNED FOR SMALL GROUP WORK

MATERIALS:

- ✓ FIT WITH COURSE; RELATE TO TESTS
- ✓ ARE ENGAGING AND APPROPRIATELY CHALLENGING
- ✓ ARE SUITABLE FOR GROUP ACTIVITY

What materials should be used in PLTL workshops? This simple question is often the beginning of a long process, which can result in re-examining course content as well as pedagogy.

The concepts to be examined in the workshop should already have been introduced in the lecture by the instructor. The instructor should identify one or two key ideas to be explored in a given workshop. A good workshop unit is not a random collection of problems. The problems should build on one another to help develop a deeper understanding of a core concept. Problems should be constructed around a theme. Hence the construction of workshop problems, while imposing some constraints on faculty, also provides an opportunity and the freedom to be creative. The challenge is to create problems that are suited for a unique learning environment, keeping in mind the structure and dynamics of the workshop.

Constructing appropriate materials might involve the following process:

- ✍ setting benchmarks for learning in the course; the benchmarks may then lead to re-examining the content and structure of the course materials normally used;
- ✍ selecting and developing materials that are designed to meet the goals implicit in the benchmarks;
- ✍ testing of the materials by student leaders and students; revising the materials in response to the feedback from the students and the peer leaders.

The materials should:

- ✍ assist the leader in engaging the students in a productive discussion;
- ✍ allow the students to practice speaking the language of the discipline;
- ✍ be constructed while keeping in mind the background of the students; what may be drill for one group of students may be very challenging for another group;
- ✍ be relevant;
- ✍ be challenging enough to require a group effort;
- ✍ appeal to different learning styles and therefore should involve a variety of activities such as model building, brainstorming, pair problem-solving, round robin format etc.;
- ✍ present problems that have different methods of solving them, so that the merits of each can be examined.

Solutions to the workshop problems should not be provided since the focus in a workshop is on the process of finding and collectively evaluating answers and arriving at a consensus. Confidence in the solution should come from debate and discussion, not from consulting the “answer key.”

There are pitfalls to watch out for while writing materials:

- ✍ a problem may be too difficult. The difficulty level should be just slightly above the level at which students are now competent in solving problems;
- ✍ more time and effort than expected may be required to construct good problems for group work. The writer(s) should continually consult with the student leaders and revise the problems until a good match to student abilities is achieved.

Pratibha Varma-Nelson

ORGANIZATIONAL ISSUES

V. WORKSHOPS CONTAIN SIX TO EIGHT STUDENTS PER GROUP, IN SUITABLE SPACE

ORGANIZATIONAL ARRANGEMENTS

- ✓ TIME: 1.5 TO 2 HOURS
- ✓ SPACE: TABLES AND CHAIRS GROUPED FOR DISCUSSION; NOISE CONSIDERATIONS
- ✓ GROUP SIZE: 6 TO 8 STUDENTS
- ✓ ATTENDANCE

Having the right physical environment will go a long way to making the workshop program successful. Ideally, each workshop group should meet in a quiet space that has a table, comfortable chairs, and chalkboard. The table should be large enough to accommodate six to eight students and the peer leader. The chalkboard will allow students and the peer leader to illustrate and discuss solutions to problems in full view of the entire group. A small classroom where students will not be distracted by outside noise or discussion from other groups is the perfect environment.

Students, especially in community colleges, are frequently intimidated by large groups and are reluctant to present their ideas or solutions to a problem to a large group or in an environment where they feel that all eyes are on them. The small, quiet space makes them feel more comfortable and after a few weeks, students will engage in animated discussions at the chalkboard.

In reality, however, it is often difficult to get the ideal environment and it may be necessary to make compromises. Whatever the compromise, the physical facilities should be such that all students can see what's being written and hear what's being discussed. If it's necessary to have two or more groups in the same room, the room should be large enough so the groups can work at a chalkboard or newsprint stand. Groups should be far enough apart that they won't distract each other. In some programs, when several groups are meeting in the same room, portable white boards can be passed around the group so students can write their contribution to the problem and hold it up for the entire group to see. Learning centers can frequently provide an environment where several groups of students can meet simultaneously and have access to tables and chalkboards. Science laboratories can also provide an adequate meeting space for one or more groups. Whatever the environment, the guiding principle is to create a space for the workshop where students will feel and where they will be free from as many outside distractions as possible.

Victor Strozak

PHASE THREE: CREATING ALLIANCES

VI. THERE IS INSTITUTIONAL SUPPORT

In 1994, the National Science Foundation (NSF) announced the first grants in the Systemic Changes in the Undergraduate Chemistry Curriculum Initiative: "The purpose of the Systemic Chemistry Initiative is to enhance the learning and appreciation of science through significant changes in chemistry instruction. Supported projects are designed to make fundamental changes in the role of chemistry within the institution." The language of the announcement sets the challenge to make changes in the system of instruction, i.e., in the discipline and in the institution. As implied by the title of this newsletter, there is a natural progression in the objectives of the Workshop Project.

The first phase targeted research and development of the Peer-Led Team Learning (PLTL) model. Project implementers are currently in the thick of phase two activities, the nationwide dissemination in diverse courses and institutions. Since the idea of changing the system implies long-term continuing effects, phase three of the Workshop Project aims to secure the changes in the context of disciplinary and institutional structure and practice. This article focuses on changes in the institution.

There is a complementary line of analysis about changes in the disciplines that could be pursued in a separate article. It would be a sad waste of energy and opportunity if the PLTL workshops last only as long as the commitments of the initial implementers, or as long as the NSF funds last. That is, however, the common fate of many educational reform projects.

To avoid such outcomes, PLTL workshops need to reach beyond the concerns of an isolated implementation to make connections to the priorities and actions of others within the institution. As these connections become hard-wired, the PLTL Workshop becomes part of the institutional network, with multiple reasons to survive. The first key point about this long-term goal is to recognize that it is long-term. It takes time for the results of the initial implementation to become known and more time to make the necessary connections and commitments. The experience of most institutions in the Project is that institutional commitment to PLTL develops over several years. The "Rochester Clock" where each semester another course was added gives another view of the time course of institutionalization. The clock starts at noon with the first pilot project in 1995. Each subsequent hour corresponds to one semester in academic time. The clock shows the semester-by-semester propagation of the PLTL model from Organic I to other courses at the University.

There are several goals to work toward in the institutionalization process. These goals can also be used as benchmarks to assess progress.

- ✍ Budget: PLTL Workshop is a continuing line in at least one institutional budget.
- ✍ Scheduling: PLTL Workshop is part of the regular course schedule.
- ✍ Teaching: PLTL Workshop is recognized as faculty teaching and considered part of the faculty work.
- ✍ Leader Training: Leader training is recognized as faculty teaching and is accomplished in a scheduled, systematic way.
- ✍ Internal Connections: The PLTL Workshop is connected to other institutional priorities and programs.
- ✍ Propagation: The PLTL Workshop is adopted in other courses by other faculty.
- ✍ External Connections: The PLTL leaders and faculty are connected to other PLTL practitioners. The PLTL program has sought external support.
- ✍ Culture: The PLTL Workshop is accepted by students and faculty as a good way to learn.

Making connections to "allies" is an essential element of the processes of implementation and institutionalization. Allies share goals and can be intramural or intermural. In either case, they provide key support, knowledge and experience for the PLTL practitioner. Intramural allies are especially important elements in the institutionalization process because they become part of a network of connections and interactions. The key to building intramural alliances is to find the parts of the institution whose agenda coincides with that of the PLTL Workshop.

Those connections could include other faculty teaching PLTL Workshops, Centers for Teaching and Learning, academic support offices, learning communities, teacher preparation, programs for instructional innovation, etc. Ultimately, the resulting multi-dimensional structure of interactions acquires the stability that guarantees the long-term survival and persistence of the PLTL Workshop.

Jack Kampmeier

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EVALUATING STUDENT PERFORMANCE

The PLTL Project wants proof of success, but what student outcomes should be taken as evidence of improved learning? Some professors want improvements in solving more challenging problems; some favor the enhancement of conceptual as opposed to algorithmic skills; some use out-of-class assignments as a basis for part of the grade.

Administrators are naturally interested in improved retention of students, particularly in science courses. Many instructors adopting PLTL notice that instruction and learning in the sciences have already moved to a more conceptual plane, that problem-solving skills must go beyond "plug and chug" pattern matching to be of real value, and that tests have become more challenging. Other PLTL instructors take a more traditional view of learning and are satisfied if students can demonstrate the basic skills and ideas. In both cases instructors use their own tests to measure student progress and the value of the workshops.

Since the first PLTL workshops began more than six years ago, a number of comparison studies have been made to gather data about the effect of the workshops on student performance as reflected in test scores and grades. The results of a number of studies are reported here. More studies are underway, and it will be important to determine how well the workshops succeed in differing circumstances and different disciplines. What follows is a compilation and summary of instructor-directed comparisons. In some cases a class was divided into two parts, one with workshops and one without. In other cases performance of workshop students has been compared with that of students in years prior to the introduction of the PLTL workshop. We have tried to use the percentage of students achieving grades of A, B, and C (as a percentage of the number of initially-enrolled students) as the primary comparative measure. There is a convergence of evidence indicating that workshop classes have earned higher grades than non-workshop classes, and also that retention is significantly improved.

University of Rochester Jack Kampmeier collected comparative data for students in the first semester of Organic Chemistry using percentages of ABC grades for recitation for four years before workshops were implemented, as compared with workshops from 1995 to 1999. The course and tests remained essentially unchanged except for the substitution of workshop for recitation.

U of Rochester	Non-PLTL(n= 1450±)	PLTL (n = 1554)
% ABC	66	79

Portland State University Carl Wamser taught an Organic Chemistry class in which some students selected the pilot PLTL workshop. We do not have baseline data such as GPA's to determine whether the two groups were comparable at the outset.

Portland State U.	Non-PLTL (n= 119)	PLTL (n = 44)
%A	26	34
%B	24	39
%C	24	16
Total ABC Grades	74	89

University of Portland (Oregon) Agnes Tenney compared General Chemistry historic grades. She found student performance on the final exam particularly noteworthy: 58% of the students improved their final grade

by taking the final exam, compared with 3% historically; eight students achieved a perfect score, compared with none or one (never more), historically.

U of Portland	Non-PLTL	PLTL
%AB	44 (historic)	73 (n = 99)

Prince George's Community College Jim Bridger teaches Human Anatomy and Physiology. Grades for Fall 2000 are compared with the averages for the last 20 sections.

Prince George's CC	Non-PLTL	PLTL
%ABC	39 (historic)	53 (n = 34)
% Retention	54 (historic)	66 (n = 34)

Miami University of Ohio Jerry Sarquis has introduced optional workshops in General Chemistry. Students who do not select workshops have a homework assignment to complete each week.

Miami U. of Ohio	Non-PLTL	PLTL
%ABC (Fall 99 v. Fall 97)	70 (n = 236)	75 (n = 116)
%ABC (Spring 2000)	55 (n = 12)	61 (n = 54)

Eastern Oregon University Anna Cavinato piloted peer-led team learning during the 2000-2001 year in General Chemistry. PLTL students significantly outperformed non-PLTL students in earning A's.

Eastern Oregon U.	Non-PLTL (n = 78)	PLTL (n = 31)
%A	15	32
%B	30	29
%C	41	26
%ABC	86	87

Summary The table below summarizes the results of the studies in which comparisons were made between the percentages of students obtaining ABC grades, except as noted where it is percentage of AB grades.

Institution	Non-PLTL % ABC	PLTL % ABC
U. of Rochester	66 (n = 1450±)	79 (n = 1554)
Portland State U	74 (n = 119)	89 (n = 44)
U of Portland	44 (%AB, historic)	73 (%AB, n = 99)
Pr. George's CC	39 (historic)	66 (n = 34)
Miami of Ohio	70 (n = 236)	75 (n = 116)
Eastern Oregon	86 (n = 78) [45% AB]	87 (n = 31) [61% AB]

Conclusion Each of the studies described has produced data demonstrating positive gains for PLTL students as compared with those in non-PLTL classes, whether non-PLTL classes were conducted with or without recitation or some required assignment. These studies do not contain all of the controls of randomization, nor comparable experiences outside the workshops that one might wish. But the fact that in each case the workshop students outperformed the non-workshop students provides a very strong case in favor of the PLTL workshop approach and is a source of confidence that the workshops enhance learning. These studies add to a considerable body of data supporting peer-led collaborative learning at the college level. Additional

comparison studies of workshop and non-workshop student performance will be collected, analyzed, and made available on the PLTL website as these studies are completed.

Leo Gafney

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HOW'S IT GOING? LISTENING TO THE STUDENTS

At the City College of New York, peer-led workshops are used in the introductory chemistry courses. Since the first semester course alone has a combined enrollment of 360 students, with four professors, there is an organizational need for two student coordinators, each working with two professors and twenty workshop leaders.

In the first two weeks of the workshop, some students begin to complain, saying that the workshop should be voluntary and they should be excused. This happens at the beginning of every semester, since the students do not yet know the value of the workshop. As a month went by we, the coordinators, were not sure how the workshops were running, and what students' reactions to them were, so we decided to find out.

Each week, at the end of the workshop session, a quiz is given to review the main type of problem for that

session. During the Spring 2001 semester, the third quiz, given at the end of the fourth week, included the following question, for "extra credit": *Write your honest opinion about the workshop. Let us know if it is helpful or not; let us also know your reasons for your thinking, and give suggestions on how the workshop can be improved.*

The responses were very helpful. The majority of the students value the workshop and believe that it is a necessary part of the course. Out of 203 students who responded, 90% found the workshop helpful in some way, 7% were neutral, while only 3% responded negatively. As noted by the students, the six major benefits of workshops are that they:

1. help to understand the material better, clarify, reinforce, and solidify the lecture and the material in the book (36%);
2. offer a chance to participate, give hands-on experience with solving problems, allow for examination and analysis (24%);
3. give a chance to interact, have small group discussions, provide a comfortable atmosphere, allow one to learn from peers, and provide individual attention (19%);
4. allow for asking questions and hearing others' questions (13.3%);
5. encourage studying, preparing for exams, and learning from mistakes (8.9%);
6. help to develop problem-solving strategies and good study habits (6.4%).

Suggestions for improvements included changing some of the physical conditions of the workshop. Having separate rooms for each workshop group would help as there is now too much noise, the room is too warm, groups are too large. Some students thought that the workshop should be worth more in terms of grading, while others believed that it should be optional; a few students asked to go over the pre-workshop assignment in the workshop, and some want an answer key to the workshop problems.

By listing its benefits and offering suggestions for the workshop, students helped us find out whether the workshops are doing what they were intended to do. One finding was that students responded more positively to the question if they were in sections where the workshop is more integrated in the class and where the professor actively participates in the workshop, making sure that the lecture and workshop are correlated. The students in the sections where the workshop is not as tightly correlated with the lecture and the professor is not as involved still found the workshop very helpful; there were also more complaints and suggestions. The responses proved again that the students' needs and learning styles vary greatly. While some students thought that the workshop sessions were too slow, others said that they would like to slow down; while some students wanted to solve more problems, others asked for more discussion-type questions. Looking at these responses not only gave the coordinators an idea of whether the workshops are running smoothly, but also let the leaders know whether they are getting their points across with their own group. The survey results helped workshop leaders to improve the quality of the workshop by clarifying the intentions of the workshop, and fixing some of the problems.

Elina Yusufova

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