



Postsecondary Peer Cooperative Learning Programs

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Peer collaborative learning has been historically embedded into education. As both pedagogy and learning strategy, it has been adopted and adapted for a wide range of academic content areas at the elementary, secondary, and postsecondary levels due to its benefits. The professional literature is filled with reports of individual instructors integrating this approach into postsecondary classrooms in diverse ways. This is due to claims by some programs that following their specific protocols increase student academic performance, persistence rates, and bolstering institutional revenues as a result. Rather than attempting to cover the entire range of collaborative learning practices, this section is focused on four national peer learning models.

The four student peer learning programs selected for this chapter were the only ones that met the following characteristics: (a) implemented at the postsecondary or tertiary level; (b) clear set of systematic procedures for implementation to replicate by another institution; (c) evaluation studies have been conducted and available for review; (d) intentionally embeds learning strategy practice along with review of academic content material; (e) outcomes include increased content knowledge, higher final course grades, higher course pass rates, and higher college persistence rates; and (f) replicated at another institution with similar positive student outcomes. The following programs met these seven characteristics: (a) *Emerging Scholars Program* (ESP), (b) *Peer-Led Team Learning* (PLTL), (c) *Structured Learning Assistance* (SLA), and (d) *Supplemental Instruction* (SI).

Cooperative Learning Principles, Outcomes, and Research

Cooperative learning groups often follow these principles: (a) positive interdependence is established in the group through adoption of different roles that support the group moving to complete a goal, (b) peers interact with one another, (c) activities are structured to establish individual accountability and personal responsibility, (d) development of interpersonal and small group skills, and (e) group processing of small group activities through verification of information accuracy (Cuseo, 2002; Johnson, Johnson, Holubec, & Roy, 1984). Cooperative learning study groups are focused on assisting all participating students to increase their academic performance and encourage higher re-enrollment rates.

Cooperative peer study groups are a natural extension of learning assistance centers (LACs). While often students receive assistance individually in LACs, the peer study groups are able to assist larger numbers of students simultaneously. Both share the same goals of increasing student academic achievement and assisting students to acquire the necessary academic skills to meet the demands of a rigorous course. Since the study groups employ student paraprofessionals and generally hold their meetings in unoccupied classrooms, they are a scalable resource that can meet the needs of larger numbers of students as demand increases or decreases. The study groups also can direct students for more extensive help through the LACs and especially for those that require individualized support as tutoring is able to provide.

A classic researcher and theorist for the need of student study groups is Vincent Tinto. His scholarship identified that student academic success and persistence towards graduation occurs when they are integrated academically and socially integrated into college. The decision to leave college is more a function of the interaction of the student with the college than simply the academic preparation level of newly admitted students (Tinto, 1994). Tinto's research identified six college attrition themes: (a) difficulty adjusting to the college environment, (b) high academic rigor, (c) incongruence between what students know and what is presented in the classroom, (d) social isolation from others, (e) unable to meet financial cost of

college, and (f) negative peer pressure from family and social groups inside or outside of college (Tinto, 1994). Student study groups assist with nearly all these themes through providing a supportive small group of other students helping each other to meet academic demands and providing a positive social support group. Astin (1984) identified fellow students to be the most important factor for student satisfaction and success at the postsecondary level. Through the leadership of the study group leader, these small groups are focused on achieving high academic achievement. Numerous studies of the effectiveness of student study groups have been conducted (Speeding, Hawkes, & Burgess, 2017; Ye, 2017).

Although the number of academically underprepared students is increasing, historic delivery systems of academic development for students such as remedial and developmental courses are being reduced, eliminated, or replaced by accelerated learning modules by some states (Edgecombe, 2011). To help bridge the gap between services of LACs and student need, many institutions have already adopted one or more of the four programs described in this chapter. The need for such approaches will increase due to the demands to meet the needs of access to an increasingly diverse student body without the traditional approaches offered by developmental education in the past.

Four Major Postsecondary Peer Cooperative Learning Programs

Four postsecondary peer collaborative learning programs were selected for inclusion in this chapter based on the criteria mentioned earlier in the narrative: (a) *Emerging Scholars Program* (ESP), (b) *Peer-Led Team Learning* (PLTL), (c) *Structured Learning Assistance* (SLA), and (d) *Supplemental Instruction* (SI). These programs can be divided into two groups. The first group provides ancillary support through outside-of-class activities with little change by the primary course instructor. The first in this category is SI. In recent years, another program was developed to address limitations of the SI model: SLA.

The second group of peer programs shares a common characteristic of a transformed classroom learning environment

by all enrolled students. Major changes have been made by the primary course instructor through either integration of the peer learning model into the basic course delivery or heavy involvement by the instructor with the peer learning activities. The first of these programs is ESP, developed at approximately the same time as SI in the 1970s. In the 1990s, PLTL was created with similar purposes and protocols to ESP.

Categorization, Relationship, and Historical Development of Peer Cooperative Learning Programs

To understand the relationship among these peer cooperative learning programs, it is useful to compare them with Keimig's (1983) *Hierarchy of Learning Improvement Programs*. Dr. Keimig's model is frequently cited for understanding the relationships and effectiveness among different approaches to academic development. In the Hierarchy of Learning Improvement Programs, four basic program types are described and ranked, differentiated by the extent by which they are comprehensive in response to the various needs of students and institutionalized into the academic mainstream. Level I: Isolated courses in remedial skills. Level II: Learning assistance to individual students. Level III: Provides course-related supplementary learning activities outside the class for some objectives. Level IV: Comprehensive learning system in the course.

Using Keimig's hierarchy, it is possible to arrange the four peer cooperative programs into the following figure.

Ancillary to the Course	Embedded within the Course
Supplemental Instruction (SI)	Emerging Scholars Program (ESP)
Structured Learning Assistance (SLA)	Peer-Led Team Learning (PLTL)

According to Keimig (1983), the highest level of student outcomes occurs when a comprehensive learning system is integrated throughout the course learning experience. This requires a transformative experience by the institution due to: (a) heavy

involvement of the course professor with curriculum development; (b) training, monitoring, and supervision of peer group facilitators; (c) alignment of educational objectives among all course components; (d) changes in institutional and course policies and expectations; (e) release time for professors to complete essential tasks; and (f) stable, long-term institutional funding since outside grants are difficult to obtain or maintain. ESP and PLTL fit into this fourth level category. While these programs have a higher likelihood of improved student outcomes, they are also the most demanding of institutional resources and changes in the campus environment.

The next level of programs, according to Keimig (1983), are those that are adjunct to the course and provide support for it through either voluntary or required participation. SLA and SI are placed into this group. The expectancy for results is not as high as for ESP and PLTL. Nevertheless, SLA and SI are predicted to yield higher student outcomes than either individual assistance to students such as tutoring or enrollment in remedial courses. Following is a deeper exploration of each of these four peer learning programs and research studies that document their effectiveness.

Emerging Scholars Program (ESP)

Developed at the University of California, Berkeley in the early 1980s, the *Emerging Scholars Program* (ESP) has often been implemented in mathematics and the sciences with numerous evaluation studies of effectiveness (Deshler, Miller, & Pascal, 2016; Pilgrim & Gehrt, 2016). The approach is also known by various names such as the *Calculus Workshop Program*, the *Mathematics Workshop Program*, and the *Treisman Model* after its creator, Philip Uri Treisman. The original ESP program has several critical elements: (a) build a cohort community of first-year students of color that is academically-oriented and a source of peer support; (b) provide the cohort with an extensive orientation to the college and with ongoing academic advising; (c) advocate the interests of the cohort and monitor their academic progress and adjustment to the environment; and (d) provide the cohort with ongoing supplementary instruction in order to develop independent learning; and link high school-level

and undergraduate-level affirmative action efforts. The ESP program has been adopted and adapted by more than 100 institutions across the U.S. While there is no centralized national training office for ESP, the previously mentioned web site above provides contact information for programs operating across the U.S.

Peer-Led Team Learning (PLTL)

Peer-Led Team Learning (PLTL) is an innovative model in science education with numerous evaluation studies of effectiveness (Glover, Hammond, Smith, & Guerra, 2018; Johnson, Robbins, & Loui, 2017). PLTL was originally developed at the City University of New York in the mid-1990s. Support through a grant from the National Science Foundation has assisted in the model being adopted by more than 100 institutions. Student-leaders (peers) guide the activities of small groups of students in weekly workshop meetings. The students work through challenging problems that are designed to be solved cooperatively. The peer leaders are trained to ensure that the students are actively and productively engaged with the material and with each other. This methodology offers a number of educational opportunities: the supportive format encourages questions and discussions that lead to conceptual understanding; students learn to work in teams and to communicate more effectively; peer leaders learn teaching and group management skills.

The following are guiding principles of PLTL: (a) the program is integral to the course through required attendance at two hours of workshop time weekly; (b) peer leaders are trained in group leadership and course content; (c) activities and materials are challenging yet accessible; (d) faculty are deeply involved in the program; (e) physical space and environments are conducive to discussion and learning; and (f) the program has strong support from the institution. The national office for PLTL is hosted at the City University of New York, <http://pltl.org>. It hosts annual training conferences and provides helpful information for others who wish to adopt and implement the model. The Peer-Led Team Learning International Society supports practitioners and institutions implementing PLTL, both in the U.S. and internationally.

Structured Learning Assistance (SLA)

Initiated in 1994 at Ferris State University (OH), *Structured Learning Assistance* (SLA) workshops assist students in developing the background needed to connect to the course content and to develop and apply the learning strategies most appropriate to the content area. Several evaluation studies document its effectiveness (Diehl, 2017; Grant, 2015). All students in the targeted classes are required to attend the sessions until they demonstrate content mastery by high marks on unit exams. Attendance becomes optional for these students and continues to be mandatory for others. A faculty development component is also part of SLA which supports higher academic achievement for students. SLA has been recognized through several national awards and is currently supported by a USDOE Grant from the Fund for the Improvement of Postsecondary Education. Results indicated that SLA can significantly improve student pass rates, even for at-risk students.

Supplemental Instruction (SI)

The *Supplemental Instruction* (SI) model of academic assistance helps students in historically difficult classes master content while they develop and integrate learning and study strategies. The SI model has been the subject of evaluation studies (Podolsky, 2018; Skoglund, Wall, & Diene, 2018). The program was originally developed at the University of Missouri-Kansas City in 1973 and has been adopted by hundreds of institutions in the U.S. and abroad. Goals of SI include: (a) improve student grades in targeted courses; (b) reduce the attrition rate within those courses; and (c) increase the eventual graduation rates of students. All students in a targeted course are urged to attend SI sessions, and students with varying ability levels participate. There should be no stigma attached to SI because *historically difficult courses* rather than *high-risk students* are targeted. SI is scalable and can be implemented in one or more courses each academic term.

There are four key persons involved with SI. The first is the *SI supervisor*, a trained professional on the SI staff. The SI supervisor

is responsible for identifying the targeted courses, gaining faculty support, selecting and training SI leaders, and monitoring and evaluating the program. Once the historically difficult courses have been identified, the SI supervisor contacts the faculty member concerning SI for their course. The second key person for SI is the *faculty member* who teaches one of the identified courses. SI is only offered in courses in which the faculty member invites and supports SI. Faculty members screen SI leaders for content competency and approve selections. The third key person is the *SI leader*. SI leaders are students or learning center staff members who have been deemed course competent, approved by the course instructor and trained in proactive learning and study strategies. SI leaders attend course lectures, take notes, read all assigned materials, and conduct three to five out-of-class SI sessions a week. The SI leader is the “*model student*,” a facilitator who helps students to integrate course content and learning/study strategies. The fourth key member of the SI program are the *participating students*. The website for the SI center is <http://www.umkc.edu/asm/si/index.shtml>

Further Research Issues Regarding Postsecondary Peer Cooperative Learning

One of the most perplexing issues facing peer cooperative learning groups is dealing with student motivation and goal orientation. Sometimes students who could most benefit from positive effects of peer learning are least likely to participate due to fear of exposing their academic weaknesses to others or even to themselves. Three of these four programs have dealt with the issue through mandatory attendance at sessions. SI traditionally has remained a voluntary participation activity. Exploring the complexity of student motivation is being carefully studied among elementary and secondary education student populations. However, this important construct is often ignored in the study of postsecondary education in general, and the provision of learning assistance at the college level, in particular.

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