Postsecondary Peer Cooperative Learning Programs: Annotated Bibliography 2014

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Postsecondary Peer Cooperative Learning Program
Annotated Bibliography
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Peer collaborative learning has been popular in education for decades. As both pedagogy and learning strategy, it has been frequently adopted and adapted for a wide range of academic content areas throughout education at the elementary, secondary, and postsecondary levels due to its benefits. The professional literature is filled with reports of individual professors integrating this approach into postsecondary classrooms in diverse ways. Increased attention has been placed on this practice due to claims by some programs that carefully coordinated and managed learning programs with specific protocols can increase student persistence rates towards graduation, supporting both student goal aspirations as well as bolstering institutional revenues. Much of the narrative from this overview to the bibliography is drawn from a recent article published by me on peer cooperative learning groups (Arendale, 2004).

This annotated bibliography does not attempt to be inclusive of this broad field of literature concerning peer collaborative learning. Instead, it is focused intentionally on a subset of the educational practice that shares a common focus with increasing student persistence towards graduation. At the end of this overview, several suggestions are made for differentiating the models from each other and the level of institutional resources and resolve with implementing them.

The six student peer learning programs included in this bibliography meet the following characteristics: (a) the program must have been implemented at the postsecondary or tertiary level; (b) the program has a clear set of systematic procedures for its implementation that could be replicated by another institution; (c) program evaluation studies have been conducted and are available for review; (d) the program intentionally embeds learning strategy practice along with review of the academic content material; (e) the program outcomes include increased content knowledge, higher final course grades, higher pass rates, and higher college persistence rates; and (f) the program has been replicated at another institution with similar positive student outcomes. From a review of the professional literature, six programs emerged: (a) Accelerated Learning Groups (ALGs), (b) Emerging Scholars Program (ESP), (c) Peer-Led Team Learning (PLTL), (d) Structured Learning Assistance (SLA), (e) Supplemental Instruction (SI), and (f) Video-based Supplemental Instruction (VSI). As will be described in the following narrative, some of the programs share common history and seek to improve upon previous practices. Other programs were developed independently.

When possible, original text from the author’s document overview or summary paragraphs were used in this annotated bibliography. Frequently when peer collaborative programs are adopted for use outside the institution or country of origin, it is often contextualized for the educational system and needs of each individual setting.
Nearly one fourth of the entries in this database are from authors and researchers outside of the United States. Sometimes particular program are renamed. For example, while the Supplemental Instruction Program is the common term used in the United States, in other countries it is sometimes called PASS (Peer Assisted Study Sessions) or PALS (Peer Assisted Learning Sessions). The Emerging Scholars Program sometimes operates under different names as well. Examples include Treisman Workshop Program and the Gateway Science Program. If the reader of this document is aware of a publication related to one of the peer collaborative learning programs that has not been included or have corrections to the annotations, please contact the compiler/editor by telephone (612-625-2928) or send an e-mail (arendale@umn.edu).

**Collaborative Learning, Cooperative Learning & Learning Communities**

A review of the professional literature finds that the terms collaborative learning, cooperative learning, and learning communities are sometimes used interchangeably with one another. Although they share similarities with one another, a more precise differentiation is needed to help explore the area and the utility of each for its intended educational outcomes (Cooper, Robinson, & Ball, 2003). Regarding their historical development and appearance within the professional literature in the United States, collaborative learning appeared first, cooperative learning second, and learning communities last. A search of the ERIC Database (2004) found more than 8,000 entries regarding descriptive and research studies that contained one or more of these three terms indexed within their documents.

Collaborative learning refers to a wide range of formal and informal activities that include any form of peer student interaction. This is the broadest and most general of the three terms. This term describe any classroom activity by an instructor that involves student peer-to-peer involvement. Cooperative learning is more narrowly defined as a subset of collaborative learning. It often follows 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).

Collaborative and cooperative learning groups, learning communities are distinguished by their focus on interactive peer learning. Learning communities are often more focused on enhanced curricular and pedagogical outcomes. In addition to often employing some version of student interactive learning, learning communities take several approaches to modifying the classroom experience by restructuring the curriculum. Some of the ways that courses may be modified is through linked courses, learning clusters, freshman interest groups, federated learning communities, and coordinated studies (Gabelnick, MacGregor, Matthews, & Smith, 1990).

A way to understand the relationships among these three terms is through a Venn visual diagram, most often used in mathematics. Collaborative learning is
considered the largest construct, both due to its general definition as well as its numerical ranking as most frequently cited in professional literature (ERIC, 2004). A smaller construct lies within collaborative learning. This is cooperative learning. While it holds to the same generalizations and goals of collaborative learning, it is much more specific in its implementation and following of specified protocols for its use. A related term to both collaborative and cooperative learning is that of learning communities. While learning communities often utilize some peer collaborative or peer cooperative learning activities as part of its pedagogy, it is generally focused more on curricular transformation. However, it is possible to implement some aspects of learning communities without extensive use of either collaborative or cooperative learning since the focus may be more on team teaching by instructors and the integration of academic content material (i.e., cluster course that merges the content of an introduction to science with an ethics course) rather than extensive use of student peer interactive learning activities.

Relationship among Selected Learning Pedagogies

In this bibliography, the focus is with postsecondary peer cooperative learning programs that embed learning strategies practice within review of the academic content material and which meet the other selection criteria previously mentioned. This is an important topic in the field of developmental education and learning assistance in particular and with postsecondary education in general. This is due to the need by institutions to both meet the needs of a more diverse entering student body while maintaining or increasing academic rigor (Bastedo & Gumport, 2003). The institution must make systemic changes in the educational environment that will increase the academic success and persistence rates of all students to meet the expectations of
stakeholders such as parents, legislators, and funding agencies. 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 or eliminated by some states (Barefoot, 2003; Damashek, 1999; Parsad & Lewis, 2003). Many institutions have already adopted one or more of the six programs described in this chapter. The need for such approaches may 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.

Six Major Postsecondary Peer Cooperative Learning Programs

Six postsecondary peer collaborative learning programs were selected for inclusion in this chapter based on the criteria mentioned earlier in the narrative: (a) Accelerated Learning Groups (ALGs), (b) Emerging Scholars Program (ESP), (c) Peer-Led Team Learning (PLTL), (d) Structured Learning Assistance (SLA), (e) Supplemental Instruction (SI), and (f) Video-based Supplemental Instruction (VSI). The five programs have been divided into two groups.

The first group are those that provide adjunct 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 cooperative programs are those that share 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, two programs were created with similar purposes and protocols to ESP: PLTL and VSI. Most of these six programs cite in their literature reviews references concerning the other peer learning programs as it appears that each have been an incremental improvement upon previous peer learning models.

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

<table>
<thead>
<tr>
<th>Adjunct to the Course</th>
<th>Embedded Within the Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Supplemental Instruction</td>
<td>1. Emerging Scholars Program</td>
</tr>
<tr>
<td>2. Structured Learning Assistance</td>
<td>2. Video-based Supplemental Instruction</td>
</tr>
</tbody>
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Selecting the Cooperative Learning Model for Institutional Needs

To display the relationship between the six identified peer cooperative learning programs and learning assistance programs in general, it would be helpful to compare them with Keimig’s (1983) Hierarchy of Learning Improvement Programs. 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 1: 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. (p. 21)

Using Keimig’s hierarchy it is possible to arrange the six peer cooperative programs into the following figure. According to Keimig, 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, PLTL, and VSI 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, are those that are adjunct to the course and provide support for it through either voluntary or required participation. ALGs, SLA, and SI are placed into this group. The expectancy for results, based on Keimig’s model, is not as high as for the level four comprehensive programs as described in the previous paragraph. Nevertheless, ALG, SLA, and SI are predicted to yield higher student outcomes that either individual assistance to students such as tutoring or enrollment in remedial courses. This third category is less expensive and less labor intensive to implement, but may yield lower desired student outcomes.

### Placing Postsecondary Peer Cooperative Learning Programs Within Keimig’s Hierarchy of Learning Improvement Programs

<table>
<thead>
<tr>
<th>Levels of Integration</th>
<th>Peer Cooperative Learning Programs</th>
<th>Likelihood of Improved Student Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level Four</strong>: Comprehensive learning system in the course</td>
<td>ESP, PLTL, and VSI</td>
<td>High</td>
</tr>
<tr>
<td><strong>Level Three</strong>: Course-related supplementary learning activities</td>
<td>ALG, SI, and SLA</td>
<td>Above average</td>
</tr>
<tr>
<td><strong>Level Two</strong>: Learning assistance to individual students</td>
<td>Tutoring</td>
<td>Below average</td>
</tr>
<tr>
<td><strong>Level One</strong>: Isolated courses in remedial skills</td>
<td></td>
<td>Low</td>
</tr>
</tbody>
</table>

Higher levels of institutionalization of peer learning programs require high levels of funding and support from administration and faculty members. This investment may pay high dividends. The future political and economic environment may be supportive for these types of programs for supporting higher student persistence rates in comparison with traditional remedial or developmental education courses which are under considerable pressure for curtailment as described earlier in this chapter. It is
recommended that before adoption of any of the six programs, that both a careful review of the published literature be undertaken as well as personal communication with those successfully operating the programs.

Some of the programs, such as PLTL and SI, offer national training workshops to enable other to implement the programs. On site observations can probably be negotiated with any of the six programs. The investment in such telephone and onsite observations will help to reveal the numerous essential elements needs for successful implementation of the specific practice. Often these essential details are not revealed in the published literature which tend to be more focused on statistical studies and not on the detailed implementation protocols. Based on personal experience as a former national training director for one of the six programs (SI), the author of this document recommends careful planning before attempting to implement the programs. While the educational outcomes described in the published literature are replicable, it generally requires careful implementation and constant monitoring to assure continued quality.

Further Research Issues Regarding Peer Cooperative Learning

One of the most perplexing issues facing peer cooperative learning groups is dealing with student motivation and goal orientation. Sometimes the students who could most benefit from the positive effects of peer learning are the ones least likely to participate due to fear of exposing their academic weaknesses to others or even to themselves. Many of these six programs have dealt with the issue through mandatory attendance at sessions. Although brute force does compel attendance, it does not necessarily follow that students willingly adopt the new academic behaviors and implement them in other courses when not under the dictates of program requirements. 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.

Creating peer cooperative learning programs that provide both structure and an environment that encourages students to modify their motivations for learning will require more work by program designers. Too often students have been expected to adopt the expectations and learning conditions of the institution without direct instruction. This literature supports the notion that it is necessary for institutions to implement programs that are more attentive to individual differences among students. Much work has yet to be done.

Overview of the Six Peer Cooperative Learning Programs

**Accelerated Learning Groups (ALGs)**

Accelerated Learning Groups (ALGs) were developed at the University of Southern California in Los Angeles in the early 1990s by Dr. Sydney Stansbury. ALGs were designed the meet the needs of students who had significant skill or knowledge deficiencies that often inhibited their effective use of other peer collaborative learning
programs such as SI. ALGs combined peer-led small group learning activities, assessment, frequent feedback by a learning skills specialist, and development of an individual education plan (IEP) for each student. ALG students were concurrently enrolled in a challenging entry level course while they developed the necessary skills and knowledge prescribed by the IEP. The ALG students were placed into a triad with another student with similar IEP objectives and a peer leader who worked intensely with the students under the supervision of a learning skills specialist. Participation in ALGs continued in the academic term until the learning skills specialist deemed it appropriate to transition into another peer development program such as SI or individual tutoring. The developer of the ALG model, Dr. Sydney Stansbury, can be contacted via email at sydbury@yahoo.com.

**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. The approach is also known as the Calculus Workshop Program, the Mathematics Workshop Program, and the Treisman model after its creator, Philip Uri Treisman. Other names for the program can be found at the following web site, [http://merit.illinois.edu/educators_treismanprograms.html](http://merit.illinois.edu/educators_treismanprograms.html) The original ESP program has several critical elements: build a cohort community of first-year students of color that is academically-oriented and a source of peer support; provide the cohort with an extensive orientation to the college and with ongoing academic advising; advocate the interests of the cohort and monitor their academic progress and adjustment to the environment; 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. 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: the program is integral to the course through required attendance at two hours of workshop time weekly; peer leaders are trained in group leadership and course content; activities and materials are challenging yet accessible; faculty are deeply involved in the program; physical space and environments are conducive to discussion and learning; and the program has strong support from the institution. The national office for PLTL is hosted at City University of New York, [http://pltl.org](http://pltl.org) They host annual training conferences and provide 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. They host an annual conference that rotates around the globe, [http://pltlis.org](http://pltlis.org/)

**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. 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. The institution’s web site for SLA is [http://www.ferris.edu/htmls/academics/sla/](http://www.ferris.edu/htmls/academics/sla/)

**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 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: (1) improve student grades in targeted courses; (2) reduce the attrition rate within those courses; and (3) 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 is no stigma attached to SI since 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 web site for the SI center is [http://www.umkc.edu/asm/si/index.shtml](http://www.umkc.edu/asm/si/index.shtml)

**Video-based Supplemental Instruction (VSI)**

VSI was developed at the University of Missouri-Kansas City in the late 1980s and has been implemented by dozens of institutions in the U.S. and abroad. VSI differs from SI in several respects. The students enroll in required, core curriculum courses. The course professor records all didactic presentations on videotape for use with underprepared students as well as other students who opt for this highly interactive way of learning. Instead of attending the professor’s regular lecture classes, students enroll in the *video section* of the professor’s course. Students in both sections are held to the same performance standards. Specially designed facilitator and student manuals support the video sections.

VSI students, led by a trained facilitator, start and stop the videotaped presentation at pre-determined times and, in addition, whenever they have a question or want clarification. Professors design the video presentations to include periodic small group assignments to insure mastery of one concept before the next is introduced. Students complete these tasks under the supervision and with the guidance of the facilitator. When the taped lecture resumes, the professor models how he/she thinks about the assigned tasks. In this way, the students have time to construct and verify their understanding as well as compare their own thinking to that of the expert. The web site for the VSI program is [http://www.umkc.edu/asm/vsi/index.shtml](http://www.umkc.edu/asm/vsi/index.shtml)
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