

SUPPLEMENTAL INSTRUCTION: VARIATIONS ON THE BASIC MODEL

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Description of the Basic Supplemental Instruction (SI) Model

Supplemental Instruction (SI) provides an efficient and convenient opportunity for students to meet both academic and social agendas. Student groups convene on a voluntary basis at times convenient to the majority. These groups typically demonstrate heterogeneity with respect to academic and demographic characteristics. The informal study groups begin meeting during the first week of class and continue throughout the semester. A student leader, having previously studied that subject, earned high marks, and received the approval of the course professor, assists those who have enrolled in the targeted class. Before meeting the class, the SI leader participates in a structured training and supervision program designed to introduce the leader to the SI program and the use of collaborative learning techniques.

The SI leader attends every class. During SI, the leader helps students by facilitating discussions focused on the concepts, requirements, and other components of the course that the students may find daunting. The leader avoids re-lecturing to students, preferring to use a variety of small group learning strategies designed to enhance study and reasoning skills. Guided by the SI leader, students engage in productive dialogue about course concepts and assignments.

In the past ten years the SI model has been modified and enhanced to serve a wider number of purposes (e.g., learning communities, support of distance learning, integration of learning with technology). While it was initially developed in 1973 at UMKC to stem the tide of health-science school dropouts, variations of SI serve other needs of students and faculty members. More than 1,500 faculty and staff members from nearly 900 colleges have attended SI workshops conducted by staff from UMKC and its Certified Trainers. Reports from these workshop attendees indicate that they often adapt the SI model to meet specific institutional needs. Following are several of the reported modifications to the SI model. Other examples are available through the SI homepage (<http://www.umkc.edu/cad/si/>).

Video-based Supplemental Instruction (VSI)

Data suggest that the SI experience can move a student's performance from below average to average, from average to above average, from above average to excellent. In the lower ranges of performance, it appears that participation in SI can elevate a student's grade from sub-marginal to below average. At UMKC as at other Universities, however, practitioners have found that there are students for whom SI offers insufficient support. Typically, these students fall at or near the bottom of the fourth quartile in terms of entry level scores and/or high school rank. SI is not scheduled often enough, nor does it have sufficient structure, breadth, or depth to meet their needs. On other campuses, these students would be tracked into developmental courses. That is not an option at UMKC. UMKC, like a growing number of other institutions, is mandated not to offer traditional developmental education courses. It was necessary to "mainstream" the beneficial elements of developmental activities into graduation-credit courses.

In 1994, the National Education Commission on Time and Learning (NECTL) issued its findings regarding learning improvement. "Our schools and the people involved -- students, teachers, administrators, parents, and staff -- are prisoners of time, captives of the school clocking calendar" (Kane, 1994, p. 7). NECTL announced its first recommendation: reinvent schools around learning, not time. While knowledge doubles every few years, the academic calendar and number of class periods has remained fixed for more than a generation.

Studies indicate that differences in required learning time increase as slower students progress through the curriculum. "A student who begins a learning sequence by performing poorly on the first step performs even more poorly on the second step because he lacks some of the prerequisites. Without extra time to restudy these prerequisites, he misses more prerequisites at each successive step, becoming progressively farther behind. So the academically rich get richer get richer and the academically poor get poorer" (Arlin, 1984, p. 67).

To retain the target student population, UMKC developed an information delivery system called Video-based Supplemental Instruction or VSI© (Martin and Blanc, 1994). VSI differs from SI in several respects. The students are enrolled in required, core curriculum courses. The course professor has recorded 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 are enrolled 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 accompany each course. VSI extends the classroom walls and expands the classroom time for additional study and mastery of content material.

Students benefit from more time-on-task and student control over the learning process offered by VSI.

VSI students, led by a trained facilitator, start and stop the videotaped presentation at pre-determined times and when they have a question or want clarification. Professors design the video presentations to include periodic small group assignments to insure that learning has occurred before introducing the next concept. Students complete these tasks under the supervision and with the guidance of the facilitator. When the taped lecture resumes, the professor models how he or 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. As one student said, "When I sit in regular classes, I don't have to pay attention and even when I do, I'm often lost. In VSI I have to pay attention all the time and when I'm lost, my friends help me figure things out."

For a three credit-hour course, students enroll in an 8-9 hour block of time spread throughout the week. Students receive regular credit for the core curriculum course and, in some circumstances, three additional hours of credit for the reading, writing, critical thinking, and study skills that are embedded in VSI. In this way, VSI integrates much of what is best about developmental education directly into the core curriculum. Students develop needed competencies as they earn credit toward their degrees. Student success is largely a matter of efficient time on task combined with effective guidance.

VSI captures and manages what we see as the great, untapped resource on all our campuses: the students' study time. Only in retrospect do students tell us that they learned how to study more effectively. Few recognize that they engaged in developmental education; skill development is so closely tied to the content that they don't perceive a separation (Martin & Blanc, 1994).

In addition to being used with the UMKC college students, VSI is used with medical students who are studying for their national board examinations in the basic and clinical sciences. At present, 26 rural Missouri high schools are using VSI for dual high school/college credit. Students on average earn grades that exceed those of the regular campus lecture section. Reports from the field maintain that VSI courses provide a bridge program for college bound students more powerful and satisfying than standard dual credit courses.

Use of SI for Faculty Development and Renewal

In addition to serving students to increase their retention and understanding of course material, the SI program has been effectively used for faculty development and renewal. SI always provides an opportunity for faculty development. Some programs have added features to make faculty

development a central goal of their SI program. SI is offered only when the teaching faculty member understands and supports the model. SI sessions are established at the very beginning of the academic term. Although SI leaders do not report on individual students, faculty members are encouraged to inquire about how students as a group are grasping and grappling with course content. This feedback loop allows faculty members to learn, often for the first time, how students approach the assigned task and incorporate that knowledge into future teaching.

A natural extension of this informal feedback loop is to increase the likelihood of faculty members receiving and acting on feedback by formalizing the communication between faculty and SI leaders and creating an opportunity for faculty to reflect with colleagues on what they have learned. Development ensues when professors receive feedback from SI leaders regarding student compensation and its flip side, confusion (Marshall, 1994; Wolfe, 1990). It is often difficult for students to reveal through their questions what they perceive to be their own ignorance. Equally difficult for some is the process of questioning because they fear their queries may be taken as criticism by one who has carefully crafted and delivered the lectures, one who (in addition) determines their grades and, ultimately, promotion and graduation.

Marshall (1994) reported on the use of SI for faculty member enrichment at Salem State College. The Salem scheme permitted frequent interaction between faculty members and SI leaders through joint participation in SI leader training workshops, monthly meetings to discuss pedagogical issues, and weekly meetings to address common content issues. Faculty members reported numerous changes in their behavior and improved attitudes. Although this aspect of SI in faculty development was studied extensively at Salem State College, the use of SI as a feedback mechanism leading to faculty development is more frequently used in Australia and the United Kingdom than in the U.S.

A more direct way that SI practices impact the curriculum is when faculty members elect to attend portions of the SI leader training workshops, learning how to incorporate SI strategies into regular class activities (Martin, Blanc, & Arendale, 1994). Activities recommended to SI leaders could be successfully used by the course professor during class sessions: be certain that students have the big picture of the course throughout the academic term, illustrate the process of solving problems and thinking about issues, refer to the syllabus throughout the academic term, include an early, low impact exam to provide feedback regarding comprehension before the first major exam, organize course content through visual tools (e.g., matrix organizers), and be explicit about expectations for excellence.

Wolfe (1990) describes the use of SI at Anne Arundel Community College (Arnold, MD) to provide services for both students and faculty members. Some

faculty members serve as SI supervisors. A faculty member who agrees to serve in this role is called a "Faculty Mentor." An important feature of this program is that the Faculty Mentor supervises SI leaders in areas outside their content specialty. The Faculty Mentor focus on general learning skills, and not on critiquing the content of the instructor for whom the SI is being offered.

High involvement of faculty members is a common trait of SI programs in other countries. In addition to the benefits previously mentioned in this paper, Australian faculty members reported the following: increased rapport with students, participation in a professional association through their membership in national and international SI networks, increased recognition from their colleagues regarding learning improvement for students, additional opportunities to obtain grant funds to fund SI-related projects, and increased satisfaction with their teaching role (Gardiner, 1996).

Conclusion

During the 1998-99 school year, SI will celebrate its 25th anniversary. SI was originally created as a response to institutional need (i.e., stemming the tide of student withdrawal from UMKC graduate health science programs). The model has continued to be adapted for a variety of purposes through changing needs at UMKC and hundreds of adopting sites through the world. As a field-based program, SI and its variations must incorporate new pedagogy, effective practices, instructional technology. To stay a vibrant and effective model SI must continue to adapt itself to meet the local needs of students, faculty members, administrators, community members, and other stakeholders of education.

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