Supplemental Instruction: Structured Learning for Higher Academic Achievement and Student Persistence

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Supplemental Instruction
Objectives for Session

- Review SI underpinnings.
- Provide basic overview the SI.
- Explore successful innovations with the SI model.
- Identify additional reference materials about SI (e.g., research, web page, annotated bibliography).
## New Emphasis in Higher Education

<table>
<thead>
<tr>
<th>Old Model</th>
<th>New Model</th>
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<tbody>
<tr>
<td>Teacher-centered</td>
<td>Learning-centered</td>
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<tr>
<td>Transmission of increasing quantity</td>
<td>Efficiency &amp; effectiveness of learning</td>
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<tr>
<td>Traditional exam and verify methods</td>
<td>Continuous classroom assessment</td>
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<td>Traditional views of students</td>
<td>Understand needs of today’s students</td>
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Future National Trends & Challenges

- Political
- Student
- Institutional
- Economic
- Instructional
Instructional Trends

- Research-based instructional improvements increase student success
- More departments are expanding into teaching/learning centers
- Services will need to be “bundled” to increase their synergistic impact
- “Mainstreaming” of developmental education
- Distance learning & instructional technology
Dropouts and Persisters: Separated by Cumulative G.P.A.

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<tr>
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<th>Below 2.00</th>
<th>2.00 to 2.49</th>
<th>2.50 to 2.99</th>
<th>3.00 to 4.00</th>
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<tbody>
<tr>
<td><strong>Dropouts</strong></td>
<td>42.1%</td>
<td>18.9%</td>
<td>19.6%</td>
<td>19.1%</td>
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<tr>
<td><strong>Persisters</strong></td>
<td>15.8%</td>
<td>24.9%</td>
<td>26.2%</td>
<td>33.1%</td>
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Tinto’s Themes of Attrition

- Adjustment problems
- Difficulty
- Incongruence
- Social isolation
- Personal finances
- Obligations to external communities (e.g., family, friends)

Tinto, *Leaving college: Rethinking the causes and cures of student attrition*, 1993
Challenges with Traditional Study Skills Instruction

- Difficult for students to transfer and apply specific strategies with their content classes
- Graduation credit courses increase student motivation to learn new skills
- Without support, students tend to revert back to old habits
Potential Solutions
Frontloading Services

To make the first-year student connection, institutions must adopt the concept of "front loading", putting the strongest, most student-centered people, programs and services during the first year.
Hierarchy of Learning Improvement Programs

- **Level 1**: Remedial Courses
- **Level 2**: Learning Assistance for Individual Students
- **Level 3**: Course-related Learning Services
- **Level 4**: Comprehensive Learning Systems

Higher Potential for improved learning and instructional change

Lower potential

Keimig, Raising academic standards: A guide to learning improvement, 1983
Structured Learning Communities

Embedding study strategy development within academic course content through use of learning communities.
Learning Community Models
Changes in Instructional Content

- Linked courses
- Learning clusters
- Freshman interest groups (FIG)
- Federated learning communities
- Coordinated studies

Gabelnick, et al., Learning community models, 1990
Out of Class Collaborative Models

“Near-Peers” and “Co-Peers”

- "Near-Peers"
  More academically advanced than others
  Recently successful in the targeted class
  Provide assistance outside-of-class

- "Co-Peers"
  Equal academically to others
  Presently enrolled in the targeted class
  Provide assistance in or outside-of-class

Cooperative Learning Programs: Basic Principles

- Positive interdependence
- Face-to-face promotive interaction
- Individual accountability
- Interpersonal skill development
- Group processing of activities

Cooper, Johnson, Slavin, Smith, and others.
The magnitude of any peer group effect will be proportional to the individual’s frequency and intensity of affiliation or interaction with that group.

Generally, students tend to change their values, behaviors, and academic plans in the direction of the dominant orientation of their peer group.

Astin, *What matters in college: Four critical years revisited*, 1993
The student’s peer group is the simply most potent source of influence on growth and development during the undergraduate years.

Astin, *What matters in college: Four critical years revisited*, 1993
Supplemental Instruction

One form of structured learning communities developed at UMKC in 1973
Supplemental Instruction
Student Academic Assistance Program

- Targets historically difficult academic courses
- Regularly scheduled, out-of-class sessions
- Student facilitated review sessions
- SI offered to all enrolled students
- Sessions are voluntary and anonymous
Goals of SI

- Improve student performance
- Increase continued enrollment
- Improve learning skills
  ^ Thinking /reasoning
  ^ Responsibility
  ^ Reflection
SI Guidelines

- SI leader regularly attends the class
- SI leader is trained prior to the term
- Trained staff member supervises
- Faculty member must approve SI service for the class
- SI sessions are regularly conducted
- SI sessions integrate course content & learning strategies
- Program is appropriately evaluated
In SI, Students Construct Own Knowledge Through a Process of

- social interaction
- exploration
- application
With the guidance of a SI leader...

- Students discuss course content
- Students clarify what they read and hear
- Students learn to analyze, criticize, question, and seek verification of ideas
- Students recognize that they perceive the world differently as a function of personal experiences
SI Program Expansion Since 1973

- Created at the University of Missouri - KC in 1973 by Dr. Deanna C. Martin
- Faculty and staff from 860+ institutions have been attended workshops
- Expansion to 12 countries
- Estimate 250,000 students per academic term participate in SI at 400+ institutions worldwide

Http://www.umkc.edu/cad/si/
Major Considerations When First Starting SI at UMKC

- Didn’t want to lose students at such a high rate.
- Didn’t want to lower academic standards.
- Didn’t want to inflate grades.
- Didn’t want to spend any money.
Initial UMKC Administrators Concerns

- Results must be measurable through tight evaluation.
- Program must be cost effective.
- Acceptable to faculty, if possible.
Initial UMKC Faculty Concerns

- Complement the lecture system.
- Couldn’t be an extra burden on them.
- Correct some student deficiencies.
- Work toward independent learners.
- Have a non-remedial image.
Mismatch Between Instruction and Student Preparation

- Attrition cannot be addressed effectively by treating only those who show either symptoms or predisposing weakness.
- The treatment must be more generalized.
- The problem must be addressed at or near its source: the mismatch between the level of instruction and the level of student preparation.
Theoretical Framework for SI

- Constructivism [Piaget]
- Zone of Proximal Development [Vygotsky]
- Student Involvement [Astin; Dale]
- Academic/Social Integration [Tinto]
- Situated Cognition [Hattie, Biggs, & Purdie; Hadwin & Winne; Weinstein]
- Collaborative Learning [Johnson & Johnson]
Unique Features of SI

- Focus on "historically difficult courses" rather than "high risk students"
- Deliver services to students beginning on the first week of class
- Integrate study skills with content
- Outreach services in geographic area assigned to academic department
- Use peer-led collaborative learning
SI Leader Point-of-View About Role of SI Sessions

- Break material into smaller pieces
- Help students discover prior knowledge
- Improve self-esteem
SI Participant Point-of-View
About SI Sessions

- Small group is more comfortable
- Don’t have to talk, can listen to others
- Group discussion puts lecture material into “better words”
Target Classes for SI

- Historically difficult for students
- 30 percent D, F or withdrawal rate
- Required class for many students
- “Gatekeeper” or prerequisite class
SI used in a Variety of Settings

- Undergraduate level
- Graduate level
- Professional schools [e.g., Medicine, Law, Pharmacy, Dentistry, Nursing]
- Secondary schools
- Proprietary test preparation programs [e.g., MCAT, USMLE]
Key Persons Involved with the SI Program

- SI leader
- Faculty member
- SI supervisor
- Students
SI Leader Qualifications

- Approved by class instructor
- Trained in proactive strategies
- Model “good student” behaviors
- Conduct three to five sessions each week

UMKC SI Leaders
SI Implementation Costs

- Training
- Supervision
- SI leader salary
- Textbooks
- Photocopying
Identify Key SI Program Factors

- Training
- Supervision
- Faculty involvement
- SI session activities
- Campus culture
Astin’s I.E.O. Research Model

Inputs

Environment
[Difference, Involvement]

Outcomes

Astin, *What matters in college: Four critical years revisited*, 1993
Discontinued SI Program Reasons

- 40%, Low SI attendance rates
- 28%, Reduction of funds
- 28%, Lack of time to supervise SI
- 17%, Trained SI personnel left
- 15%, Reallocated SI budget elsewhere
- 12%, Disappointing SI program results
- 3%, Lost faculty support for SI
Factors Associated with SI Status when different between groups

**Active SI**
- Training both before and during term
- Moderate levels of observations
- Professors highly supportive of SI
- Offers three or more SI sessions weekly

**Discontinued SI**
- Little training offered to SI leaders
- Low levels of SI session observations
- Professors moderately supportive of SI
- Offers two or three SI sessions weekly
Benefits of SI Program

- SI Leaders
- Faculty Members
- SI Participants
What Can SI Leaders Receive?

- Leadership skills
- Knowledge of group work
- Better understanding of content
- Improved learning skills
- Better job opportunities
- Better post-graduate opportunities

Lyle Gibson, UMKC SI Leader
History 102
What Can Faculty Members Receive?

- Anonymous feedback regarding comprehension level of students (classroom assessment technique)
- Opportunity to revisit previous lecture material and modify future presentations
- More academically prepared students to learn new material and retain old
- Managed study time
- Higher student satisfaction
Benefits of SI Program to Faculty Member

- Maintain efficiency of scale
- High satisfaction level of students
- Maintain high faculty evaluation even with large class size
SI Research Claims
Validated by the U.S. Department of Education

- SI participants earn higher mean final course grades
- SI participants receive a lower rate of D, F or course withdrawals
- SI participants persist (reenroll and graduate) at higher rates
Types of SI Data Studies

- National SI Data (270 institutions; 4,945 SI courses; 505,738 students)
- UMKC SI Data
- Data from Individual SI Studies at Other Colleges
Adaptations of SI

- Licensure examination preparation
- Computer-based supplemental activities
- Learning enrichment
- VSI
- Faculty development
- Critical units of instruction
Citrus College (Glendora, CA): SI with Internet Enrichment

- One-on-one E-mail review of papers
- English group tutoring web discussion board
- On-line live chat tutor chat room at designated time each week. (On-line SI session in addition to weekly in-person)
- Web text handouts (frequently asked questions & answers based on previous chat room and web discussion board, instructor made handouts, etc)
University of Missouri System: “Virtual” SI Resources

- Web site with “Frequently Asked Questions and Answers” pages
  - Base FAQ answers on questions raised during E-mail questions and logs from live chat rooms
- Weekly contests with difficult math questions submitted by math team via E-mail
- Nightly “virtual SI sessions” between 9:00 p.m. and 1:00 a.m. [NetMeeting-based]
- Web site with handouts & links to other math sites
Lessons of SI to Retain with Internet-Based Activities

- Students need to be actively involved.
- Group facilitator cannot dispense information for passive reception by others.
- Do research studies to examine student outcomes for comparison with others.
- Encourage everyone to participate regardless of previous academic success.
- Keep the process as simple as possible.
Next Steps for Exploring Internet SI

- Talk with other IT users
- Build partnership with campus IT personnel
  - Learn from them, access their computer hardware, partner with them on expenses
- Read the literature & attend IT conferences
- Experiment with IT software packages
- Budget twice as much time as expected
- Be sure that it is worth the effort before starting
Additional Resources to Review about SI and Related-Issues

- SI homepage  
  Http:www.umkc.edu/cad/si/
- SI.net discussion group
- NADE homepage  
  Http://www.nade.net
- Professional Associations and Publications
  - ASCD Cooperative Learning Network
  - Collaboration in Undergraduate Education
  - Cooperative Learning & College Teaching Newsletter
  - AAHE, CRLA, NADE, NTA, and many others
  - Nat Cnt. Postsecondary Teaching, Learning, & Assessment
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