

Overview of Supplemental Instruction

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I. Traditional Retention Strategies

Questions That Typically Determine Learning Center Design

- Who are likely to drop out? Who are "high risk" ?
- How do you identify them?
- Where are they?
- How do you diagnose their needs?
- How do you meet their needs?

Traditional Answer to Who/Where are "high risk" Students:

- Academically under-prepared
- Non-traditional demographics

Traditional Methods to Identify & Diagnose High Risk:

- Standardized test scores
- High school class rank and high school course performance
- In-house screening or diagnostic testing
- Self-referral by the student

Traditional Methods to Meet the Needs of High Risk:

- Individual tutoring
- Study skill courses
- Remedial subject courses
- Workshops
- Counseling sessions

Challenges with the Traditional Approaches:

- Inaccurate and incomplete Identification of "high risk" students
- Expensive to provide traditional developmental education courses, testing, etc.
- Presumes substantial time to identify and to remediate
- Promotes remedial image
- Difficult to evaluate effectiveness

II. Overview of Supplemental Instruction

A. Definition of SI. SI is an academic enhancement and support program that:

- Targets historically difficult academic courses
- Offered to all enrolled students

- Provide regularly scheduled learning community sessions outside of class lectures/labs
- Model and practice use of cognitive learning strategies within review of course content material
- SI sessions activities differ by academic discipline
- SI sessions provided several times weekly beginning the first week of class on an outreach basis in the geographic area assigned to the academic department
- Student serves as session facilitator and attends class along with other students
- Sessions are voluntary and anonymous
- Extensive training and supervision is provided for SI program and the student facilitators
- Offered through cooperation and support of the professor of the course.

B. Background on the Development of SI

1. In 1973 began in UMKC professional schools (*e.g., medicine, dentistry, pharmacy*)
2. Major considerations in establishing SI at UMKC:
 - a. Did not want to lose students at such a high rate
 - b. Did not want to lower academic standards
 - c. Did not want to inflate grades
 - d. Did not want to spend any money
3. Concerns of administrators:
 - a. Results must be measurable through tight evaluation
 - b. Program must be cost effective
 - c. Acceptable to faculty, if possible
4. Concerns of faculty members:
 - a. Complement the lecture system
 - b. Could not be an extra burden on them
 - c. SI should attempt to correct student deficiencies
 - d. Work toward independent learners
 - e. Have a non-remedial image

5. **Major assumption of SI:** the mismatch between instruction and student preparation. Attrition cannot be addressed effectively by treating only those who show either symptoms or predisposing weaknesses. 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.

"The underprepared student is often one who may have the basic intellectual capacity but who has reached a point of impasse temporarily created by a mismatch between his or her knowledge base and the new information that he or she is expected to absorb on an independent basis."-- Tomlinson, Postsecondary developmental programs, 1989, p. 20.

6. Certification by U.S. Department of Education as an **"Exemplary Educational Program"** SI was the first of only two programs certified by USDOE as contributing to higher academic achievement and higher persistence rates.

7. International dissemination to over 1,000 institutions both in the US and abroad in twelve countries: Australia, Canada, Egypt, Malaysia, Marshall Islands, Mexico, Puerto Rico, South Africa, Sweden, United Kingdom, & West Indies

C. Foundation & Theoretical Framework for SI:

A conscious decision was made to base the SI model on a developmental perspective. Such a theory base assumes that the students will learn if the conditions for learning are in place. A leading researcher in the field at the time the SI model was created was Jean Piaget.

1. Constructivism

Some of Jean Piaget's ideas have been formalized into an educational theory called "constructivism." Proponents of constructivism take their name from Piaget's observation that students must "construct" their own knowledge in order to be able to understand and use it. The major stages of cognitive development identified by Piaget were the sensorimotor stage, preoperational stage, concrete operations stage, and formal operations stage.

2. Socio-Cultural

"[The Zone of Proximal Development is] the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance and under the direction of more capable peers."--Vygotsky, Mind in society, 1978, p. 86.

3. Edgar Dale's Cone of Experience

Compatible with Piaget's theory base, the Cone of Experience (Dale, 1969) conveys some of Piaget's ideas on learning in a useful, graphic form. Dale

proposes that learning is stimulated progressively from concrete (*i.e., hands-on*) experiences to abstract (*i.e., verbal and visual*) symbols. The foundations for instruction reside in direct sensory experiences combined with purposeful interaction with the stimuli sources. At the most basic and most effective level of instruction, students are introduced to new material through an actual hands-on experience or "doing the real thing."

4. Academic/Social Integration

A key concept in Tinto's model is that the departure decision for a student is more heavily influenced by experiences with the college environment than by the previous academic and social experiences that occurred before college attendance. The institution has an opportunity to manipulate its environment to provide through informal and formal contacts an opportunity for the student to be integrated into the social and academic dimensions of the institution.

5. Metacognition

Major variables that separate expert and novice learners:

- Experts know more.
- Knowledge held by experts is better organized and more integrated.
- Experts have more effective and more efficient strategies for accessing and using their knowledge.
- Experts seem to have different motivations for acquiring and using their knowledge.
- Experts evidence more self-regulation in both the acquisition and application of their expertise. -- Weinstein and Stone, "Broadening our conception of general education: Self-regulated learner", pp. 1-2.

Four kinds of knowledge are needed by expert learners:

- Knowledge about themselves as learners (*e.g., their cognitive characteristics*).
- Knowledge about the cognitive demands of the academic tasks.
- Knowledge of a wide variety of strategies and study skills.
- Prior knowledge of the content material -- Weinstein and Stone, "Broadening our conception of general education: The self-regulated learner", pp. 3-5.

"An expert learner is a self-regulated learner. Self-regulated learning requires skill, it requires will, and it requires executive control."-- Weinstein and Stone, "Broadening our conception of general education: The self-regulated learner", pp. 9-10.

Steps to establishing executive control in studying:

- Create a plan.
- Select the specific strategies or methods they will use to achieve their goals.
- Implement the methods they have selected to carry out their plan.
- Monitor and evaluate their progress on both a formative and summative basis.
- If students are not reaching their goals, they must modify what they are doing.
- Make an overall evaluation of what was done and decide if this is the best way to go about meeting similar goals in the future.-- Weinstein and Stone, "Broadening our conception of general education: The self-regulated learner", pp 10-11.

D. Goals of SI:

- Improve student performance.
- Increase continued enrollment.
- Improve learning skills: thinking and reasoning; responsibility; and reflection

E. Unique Features of SI:

- Identifying the "*historically difficult*" course rather than the "*high-risk*" student.
- Delivering services to students from the first class meeting rather than waiting for students to be referred or to self-refer.
- Integrating study skills instruction with the content of academic disciplines.
- Delivering support services in the geographic area assigned to the academic department rather than in a separate learning assistance center.
- Encouraging peer collaborative learning and instructing students in the techniques that this study mode effective.

F. Reasons that Schools Choose SI:

- No remedial stigma.
- Population easy to identify.
- Record keeping simple.
- Evaluation tight.
- Program cost-effective.
- Faculty supportive.

G. SI Session Activities:

- Students discuss and analyze course content.
- Students clarify and enhance their understanding of what they read and hear.
- Students learn to criticize, question, and seek verification of ideas.
- Students recognize that individuals perceive the world differently as a function of personal experiences and associations.

H. Target Classes for SI:

- Historically difficult for students
- Over 30 percent unsuccessful enrollment (*D or F final course grade or Withdrawal*)
- Required class for many students (*e.g., general education*)
- "Gatekeeper" or prerequisite course

I. SI Used in a Variety of Settings:

- Undergraduate level
- Graduate level
- Professional schools (*e.g., Medicine, Law, Pharmacy*)
- Secondary schools
- Proprietary test preparation programs (*e.g., MCAT*)

J. Key Persons Involved with the SI Program:

- SI leader
- Faculty member
- SI supervisor
- Students

K. SI Leader Qualifications:

1. Approved by class instructor.
2. Trained in proactive learning strategies.
3. Model "good student" behavior.
 - a. Attend all class sessions
 - b. Do all assigned work
 - c. Show how effective students learn
4. Conducts three to five review sessions each week.

L. Implementation Costs

- Training for SI supervisor and SI leader.
- Supervision of SI leader.
- SI leader salary.
- Textbooks for SI leader.
- Photocopying of handouts and publicity announcement.

M. SI Research Data:

- Research since 1973
- Results replicated at different types of institutions (two/four year; public/private institutions)
- Effective with variety of students (*e.g., different levels of previous academic achievement, different ethnicities*)
- Claims of SI effectiveness validated by the U.S. Department of Education (1981, 1988 and 1992)
 - a. Students participating in SI within the targeted high risk courses earn higher mean final course grades than students who do not participate in SI. This is still true when differences are analyzed, despite ethnicity and prior academic achievement.

b. Despite ethnicity and prior academic achievement, students participating in SI within targeted high risk courses succeed at a higher rate (*withdraw at a lower rate and receive a lower percentage of D or F final course grades*) than those who do not participate in SI.

c. Students participating in SI persist at the institution (*reenrolling and graduating*) at higher rates than students who do not participate in SI.

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Supplemental Instruction Web Page

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