

**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


Old Model

New Model

Teacher-centered  Learning-centered

Transmission of increasing quantity  Efficiency & effectiveness of

Traditional exam and verify methods  learning
Continuous classroom

Traditional views of students  assessment
Understand needs of today's students

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**

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

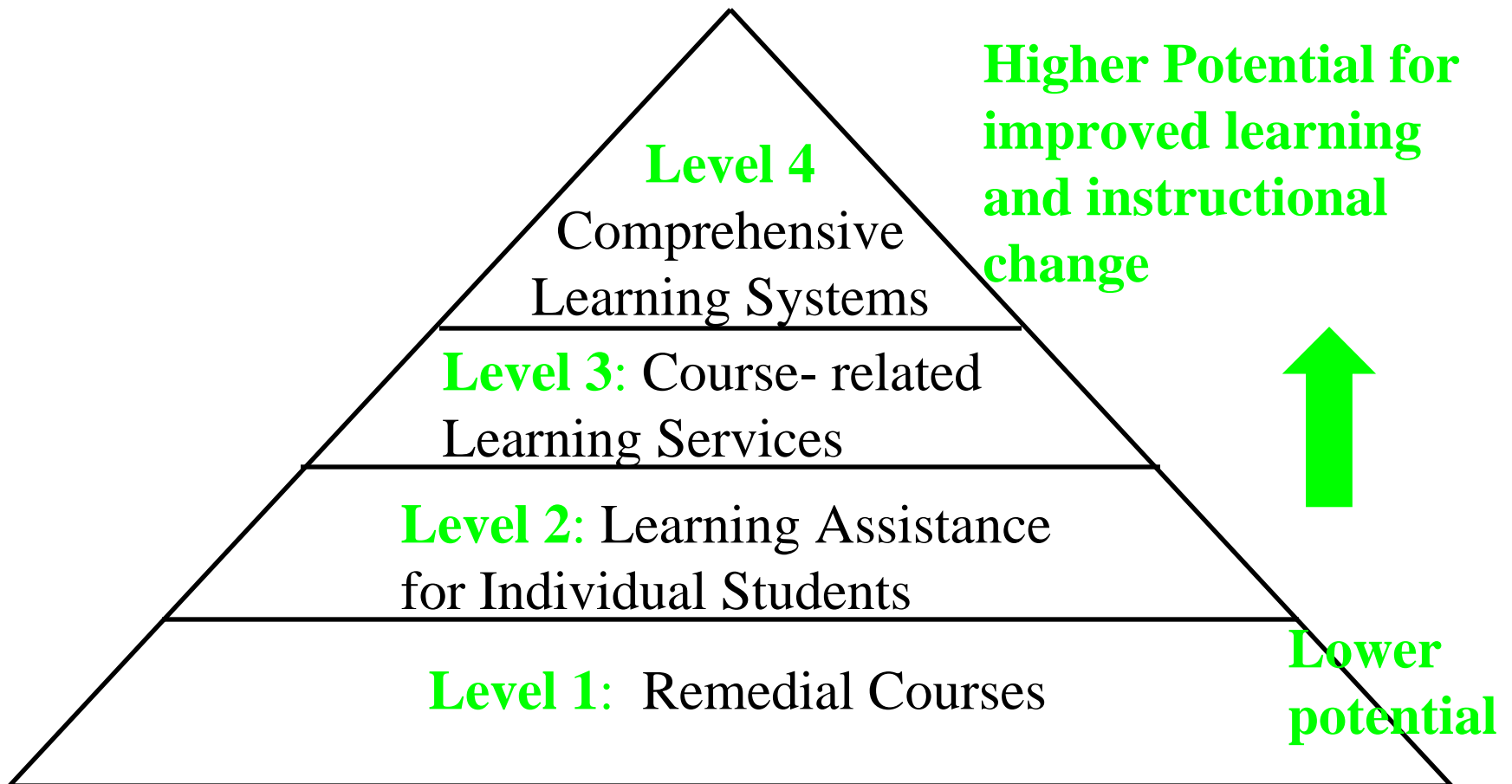
- **Difficult for students to transfer and apply specific strategies with their content classes**
- **Graduation credit courses increase student motivation to learn new skills**
- **Without support, students tend to revert back to old habits**

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.

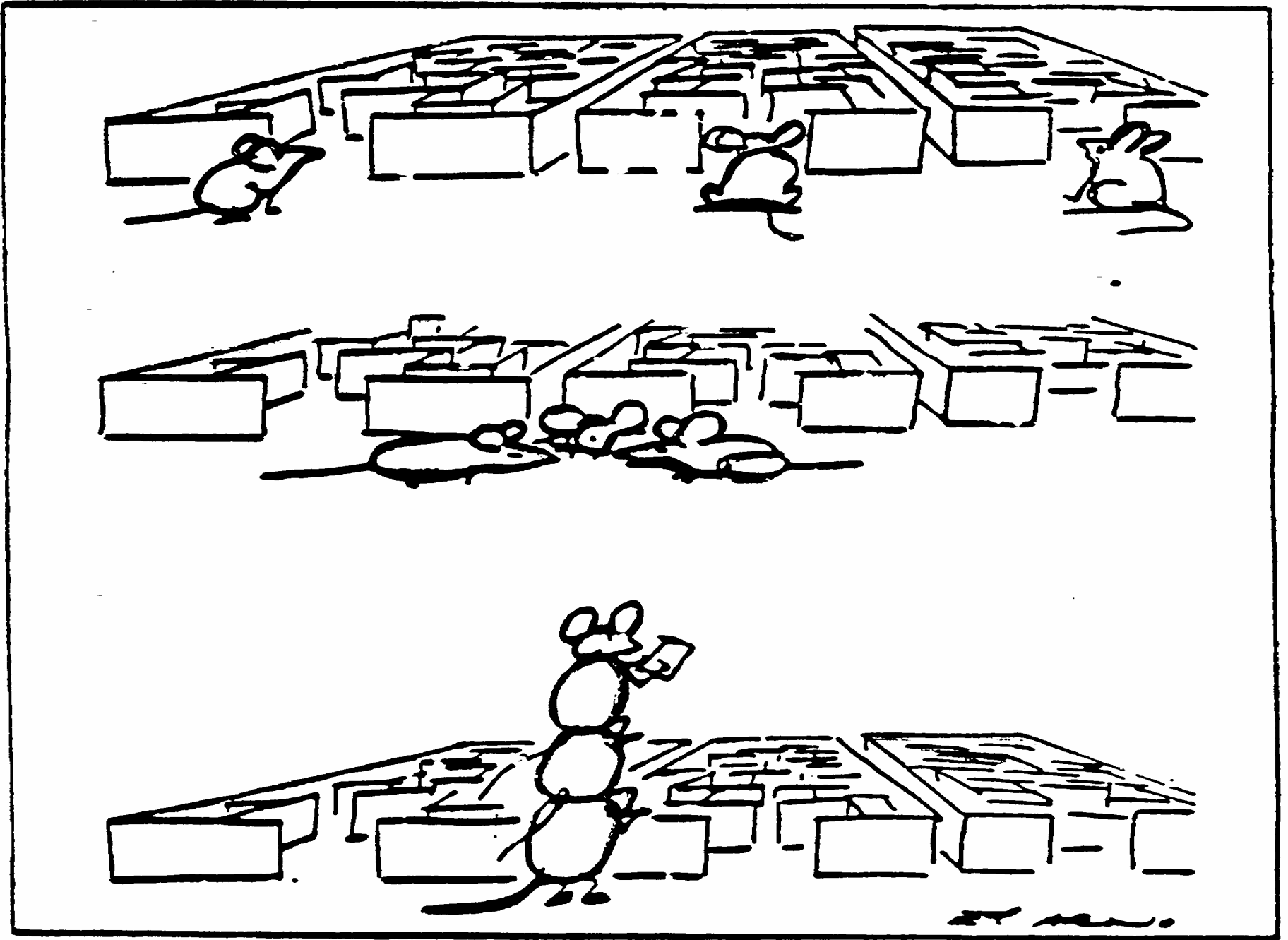
Hierarchy of Learning Improvement Programs



Keimig, Raising academic standards: Raising students to learning improvement, 1983
Standards, 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

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

Whitman, Peer Teaching, 1988

Whitman, Peer teaching, 1988.

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.
others

Magnitude of Peer Group Effect

The magnitude of any peer group effect will be proportional to the individual's *frequency and intensity of affiliation or interaction* with that group.

Astin, What matters in college: Four critical years revisited, 1993.

Astin, What Matters in College:
Four Critical Years Revisited,
1993

Influence of Dominant Orientation

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

Astin, What Matters in College:

Four Critical Years Revisited,

1993

Most Potent Source of Influence

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

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

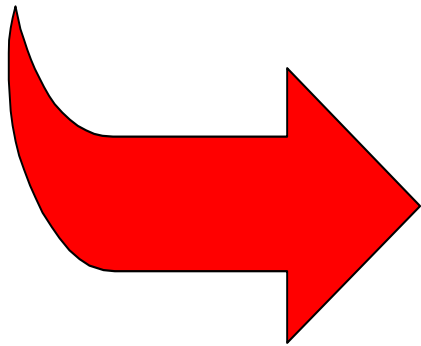
- **Training**
- **Supervision**
- **SI leader salary**
- **Textbooks**
- **Photocopying**

Identify Key SI Program Factors

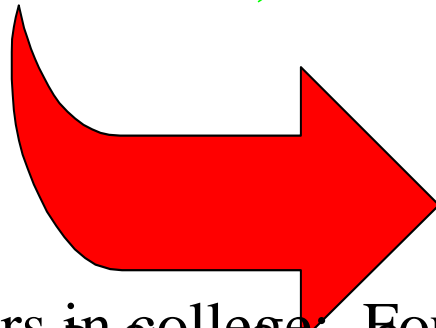
- Training
- Supervision
- Faculty involvement
- SI session activities
- Campus culture

Astin's I.E.O. Research Model

Inputs



Environment
[Difference, Involvement]



Outcomes

Astin, What matters in college: Four critical years revisited, 1993
Dr. Steven Covey, Seven Habits of Highly Effective People

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**

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**

These differences are statistically significant, despite ethnicity and prior academic achievement

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**

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.**

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/](http://www.umkc.edu/cad/si/)**
- SInet discussion group
- NADE homepage **[Http://www.nade.net](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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