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Writing in 1927 from the perspective of the educated female, Virginia Woolf argued that the one advantage that was almost beyond attainment for a woman university student of her social class was "a room of her own." She was, of course, addressing social and economic and also academic issues as she compared the opulent ambiance of the male milieu with the spartan circumstances she and her gendermates endured.

Today, other differences obtain, and gender is not the sole barrier that imposes restrictions. Students from economically privileged backgrounds enjoy opportunities not available to the less privileged. Additionally, differences appear between those who work and those who do not, those with family responsibilities and those without, those with a tradition of education in the family and those with no such tradition, those from exemplary secondary schools who are well prepared for further education and those from substandard schools who are ill prepared, those to whom the academic culture is familiar and those to whom it is obscure and vague -- in short, those who are more likely to find academic access through the community college and those whose paths are more likely to lead them directly into universities.

The disadvantages which beset community college students are largely congruent with factors that researchers have long associated with lack of college success. Vincent Tinto and others have identified four clusters of experiences that are likely to accrue to the unsuccessful student along the rocky, premature pathway out of the community college: difficulty in adjusting to the college environment; experiencing academic and social difficulty; suffering from incongruence between student expectations and institutional demands; and a feeling of social isolation.

According to Tinto, effective models of retention stress the need for students to be integrated into the academic and social dimensions of the college community (Tinto, 1993). An interpersonal support system is important for all first year students, despite their background and experience (Upcraft et al., 1989). Two-year colleges have set up many services to help their students. The Freshman Year Experience (FYE) movement has been strongly embraced by two-year colleges (Fidler and Fidler, 1991). Over 70 percent of such institutions offer some version of the FYE seminar for their students (Barefoot, 1992).

The present volume details the ways in which the F.Y.E. program addresses these issues directly in the curriculum with the course "University 101" and in many co-curricular activities designed to substitute integration for isolation, to facilitate the student's adjustment to college, to ameliorate academic difficulties, and to bring students' commitment and institutional assumptions into greater resonance. This chapter highlights an instructional asset, Supplemental Instruction (SI), which brings directly into the general curriculum the ideology and emphasis of "University 101" and the many corollary FYE activities. Widespread use of the SI model, careful evaluation, and many replication studies have displayed SI effectiveness in terms of both educational outcomes and cost.

Description of SI

Supplemental Instruction (SI) is a student academic assistance program that increases academic performance and retention through its structured use of collaborative learning strategies. The SI program targets traditionally difficult academic courses, those that have excessively high rates of D or F final course grades and/or withdrawals. SI provides regularly scheduled, out-of-class, peer-facilitated sessions where students have the opportunity to discuss, process, and interact *vis-a-vis* lectures, reading, studying, and preparing for examination (Martin and others, 1977). Advocates of SI believe intense student interaction focusing on academic concerns provides the most productive form of bonding, since the primary mission of institution is academic, and thus students are bonding around the central issues of their academic lives.

Integration of study skills with the course content stands as a crucial difference between SI and other forms of collaborative learning. It is not just that students are working together, but it is the planned integration and practice of study strategies during these sessions that sets SI apart. We believe that by combining ***what to learn*** with ***how to learn it***, students can develop both content competency and transferable academic skills. SI sessions capitalize on the use of the teachable moment, i.e., the moment when information is either requested by students or the SI leader finds the information essential to efficient completion of a task, to introduce, apply, and model appropriate learning strategies with the course material.

Research has shown that teaching study skills in isolation from content has little impact on the students' academic performance (Dimon, 1988; Keimig, 1983; Stahl, Simpson, and Hayes, 1992). While students can be taught elaborate note-taking and text-reading strategies, these skills are not necessarily put to use in subsequent courses. Also, it is likely that different classes will require different note-taking styles and a chemistry text will be used differently from an American History text. As SI leaders model appropriate questioning and reasoning, students begin to internalize aspects of thinking strategies that will carry over into their individual and group study.

The SI process begins in the first week of the term. The SI leader introduces the program during the first class session and surveys the students to establish a schedule for the SI sessions. All students are invited, and attendance is voluntary. Students of varying abilities participate, and no effort is made to place students in different tracks based on academic ability. Many underprepared students who might avoid seeking assistance will participate in SI, since they perceive no remedial aspect and no stigma attaches to participation. Such stigmata can cause motivation problems for developmental students (Somers, 1988). SI is a cost-effective program both in comparison with one-on-one tutoring programs and increasing student persistence/graduation rates (Martin, Arendale, and Associates, 1993).

Designed originally in 1973 to retain minority and disadvantaged medical students at UMKC, SI soon found its way into other tertiary institutions including many community colleges. In 1983, SI won approval by the United States Department of Education as an exemplary program and since 1985 has received government funding that has been used to provide SI training for faculty and staff in 517 institutions. Nearly 200 of these are community colleges.

Unlike most other retention efforts, SI is a comprehensive program, not simply a philosophical approach to a problem. Firmly rooted in developmental psychology and constructionist thought, SI goes beyond its theoretical bases to provide a blueprint for

effective application and evaluation. The SI program includes training workshops for supervisors, manuals for training campus SI leaders, guidelines for contextualizing SI to meet specific campus goals, specific evaluation procedures, and ongoing technical assistance from UMKC and UMKC-certified trainers within the SI network, and national standards against which to compare local results. Additionally, SI practitioners interact regularly through an international computer mail network.

Each year the Supplemental Instruction office at UMKC conducts a telephone survey of SI programs across the U.S. This year the survey was conducted during August. Excerpts from several interviews concerning two-year colleges are included with this book chapter.

Glendale (CA) Community College is a member institution of the SI network. During the August telephone survey they reported success with SI in calculus courses. One typical comment summarizes student response to SI: "What I really liked about the SI was that if I had any questions, Dr. Kolpas or the other helpers didn't tell us the answer. Instead, they let us think about the problem, set it up, and solve it ourselves. I also liked the one-on-one help and the friends I made." And, as we all recall from our math classes, learning how to think about it and set it up is the key to solving it.

SI Responds to the Tinto Paradigm

Once SI had been established in a wide range of tertiary institutions, and once the program began to be acknowledged, it became incumbent upon the advocates of SI to attempt to explain the success of the model. The work of Tinto gave a structure to that explanation. If, as Tinto wrote, there were four factors that beset students in their first year in college, then it might be reasonable to examine SI from that perspective to see in what ways the model responds to the constellation of factors that Tinto associates with college failure.

Factor One: Adjustment

Tinto recognizes that adjustment to the tertiary academic milieu presents a problem to all students. The obverse may also be invoked to explain this phenomenon, i.e., the inability to separate from prior associations and milieu. To some, the problem is insuperable, and of course those become attrition statistics. Although SI does little to lessen separation anxiety, it does offer guidance and associations in structured study groups and student mentors.

Evaluative data suggest that SI meets the needs not only of the students whom faculty typically regard as marginal, but others with much higher aspirations. Too many fail to meet their academic goals because they have no experience in the milieu of tertiary education. Many, for example, interpret things they are told literally. The professor says, "You are not graded on attendance but you are responsible for the notes." Only after the student has failed the first exam and made a personal appointment does the professor explain, "Of course you are expected to attend the class. I only meant to assure you that your final grade is not specifically lowered because you miss a lecture. Furthermore I did not mean that you were responsible for acquiring a copy of the notes taken by your friend. I meant . . ." This latter conversation is mentorship, but it comes too late. The role of the SI leader, usually a peer or near-peer, is central to SI effectiveness. SI leaders, in training for their mentor role, find support for the following ways they might help their students. This list of considerations

gives a sample of the very specific instructions offered to SI leaders in their training, where they are encouraged to make explicit the implicit messages students encounter.

1. Be explicit about expectations. Students need to know more about the performance criteria for the course than the number of exams scheduled and how much each counts. They need to know both what objective measures constitute excellent work and what excellent work looks like. They need to see how a grade is calculated. Many students have come from secondary schools where grading seems arbitrary, capricious, or whimsical, and they have little or no experience with objective evaluation.

2. Be explicit by modeling your thinking. Underprepared students need a window into the mind of a successful student. For many, their idea of intellectual mastery of a subject is the high school history teacher who knows her textbook so well that she can tell you from memory the page where a picture may be found. "She has the textbook *memorized*," they say, in awe of such learning. And, until they learn otherwise, they believe the same is true of their professors. Therefore, when an SI leader answers a question, she must lead off with something like this: "Let me tell you how I think about that." Then tell them.

3. Be explicit about the intellectual tools of the discipline. Help students develop strategies to organize information. Simple visual matrices allow for organization of some kinds of information. Differences among bacteria, for example, fit this kind of organization, as do differences among national or local governments with respect to a finite number of characteristics. Students need to see discipline-specific information patterns.

4. Be explicit about class resources. What seems perfectly obvious to mentors is often only vaguely familiar to students. For example, students do not typically know to value syllabi. Few secondary school teachers use them; therefore, students lack experience with this fundamental organizer. The way to emphasize the importance of the syllabus is to refer to it at the beginning of each session, each week, or each unit. Students will value resources to the extent that their mentors value the same resources.

Factor Two: Isolation

Many education leaders, including Tinto, deplore the lack of significant interpersonal relationships among students who attend college. As returning adult students attend college in increasing numbers, the institution becomes increasingly heterogeneous in nature. This is especially critical for two-year colleges. The institution must take proactive steps to provide an environment for development of community among today's students. Active learning, smaller classes, more interactions between the professor and students have been suggested as strategies to develop community (Tobias, 1992). In Astin's latest study on the impact of college, he concurred: ". . . [T]he student's peer group is the simply the most potent source of influence on growth and development during the undergraduate years" (Astin, 1993, p. 398).

Typically, student affairs professionals regard the co-curricular or extra-curricular activities on campus as the venue for countering alienation. SI, however, offers a curricular venue for the same purpose. In SI, the academic work of students becomes the nexus around which various personal bonds are built. SI brings students together in small groups for class study sessions. For

some of these students, this is their only time to interact with other classmates. With competing time commitments of work, family and commuting, many students no longer have the luxury of remaining on campus without a specific meeting or purpose in mind. Students develop a sense of common purpose during SI sessions.

May Garland, former national training director of SI, now directs the SI program at Linn-Benton Community College (Albany, OR). During the 1994 regular telephone interview survey conducted by the UMKC Supplemental Instruction research staff, Garland reported that the nursing faculty members are strongly supportive of SI since it provides structure for the creation of ongoing learning groups for their students that they believe is critical for persistence of these students through the rigorous curriculum. Shlipak (1988) found that collaborative learning groups are critical for females in science major coursework.

To help foster more collaborative learning and peer support at Onondaga Community College (Syracuse, NY), they have created what they call "SI-Plus," an adaption of the basic SI model. Barbara Risser provides leadership with the campus SI program. Risser, responding to the 1994 telephone survey, reported that SI-Plus provides an introduction to the study group experience for students who are just beginning to enroll in college level coursework. SI-Plus is meant as a bridge to help inexperienced students adjust to college level work. The regular SI program is reserved for the traditional high risk courses. Some students in succeeding semesters establish their own independent study groups if SI or SI-Plus is not available in the class. In these various fashions, SI serves to counter the isolation students often experience on the tertiary campus.

Factor Three: Difficulty

Tinto cites academic difficulty as a key factor in student attrition, inability to meet minimum standards, seeing inability to meet minimum standards of academic performance as the stimulus to voluntary withdrawal to some and the required departure of others. As first practiced, this was the issue SI was meant to address. The underlying assumption was that improving student academic performance would counter attrition, whether voluntary or enforced. Subsequent studies reinforced the negative connection between achievement and attrition.

To remain abreast of developments in the field of Supplemental Instruction, the faculty and staff of the SI program at the University of Missouri-Kansas City receive data from the many academic institutions using SI. Data analysis compares participating in SI and those electing not to participate. The independent variable is therefore the group. The dependent variable was the final course grade. Other studies have used various co-variables, e.g., level of motivation, prior academic achievement, gender, age, and ethnicity, in an effort to discern the degree to which SI overrides other factors as a determinant of student success. In each instance, results have shown that SI is strongly correlated with final course grade, controlling for these other variables (Martin et al., 1993). These many studies have been necessary to control for alternative explanations of the higher performance of students participating in SI. Had it been possible to assign students randomly to SI, these control studies and the many replication studies may not have been necessary. In this as in other

educational studies, however, randomization has not been possible. Nor, perhaps, would it be desirable.

Other studies have analyzed SI results longitudinally, within a single class offered by a single lecturer using a single text and a constant grading scale over several succeeding years. These have demonstrated the heightening effect of SI on total class performance over a multi-year span from the inception of the SI program (Blanc, DeBuhr, and Martin, 1983). The data presented here are drawn entirely from community college sources.

Participating Institutions: Since 1982, faculty and staff from 183 public and private two-year institutions have received formal training to implement the SI model on their campus. The following tables were compiled from 59 selected two-year public institutions that met the following criteria: (1) their data collection procedures conformed to recommendations of the UMKC staff; (2) they transmitted their data for inclusion in a timely fashion; (3) they broadly represented a geographically diverse area in the United States.

Only public two-year institutions were included in this study. Of the 496 two-year course reports in the national SI database that were available for analysis, 480 of the reports were from public institutions. While reports from the private two-year institutions were similar, the authors believed those data would not contribute to the validity of the study, nor would data from very few institutions permit generalization to the entire universe of private two-year institutions.

Some comparisons rely on grouping of final grades as "A/B" and "D/W/F." These comparisons have been useful. The former category represents "honor" grades; the latter, "unsuccessful enrollments." "Unsuccessful" in the sense that students receiving a grade at this level are not typically permitted to continue in their curricula. The goal of SI has been to reduce the numbers in the latter category, but an unexpected salutary side effect has been an increase in the numbers in the former category.

Data Analysis. Standard statistical methods were used in analysis of the data comparing student outcomes. The requisite level of significance was set at $p < .05$ to conform with standard practice in educational research. Independent t-tests were selected as most appropriate for comparing final course grades, despite lack of universal standards for such grading and the obvious fact that a grade may sometimes represent ordinal data in some instances and interval data in others. Chi square tests were used in comparing groups according to percentages of A and B final course grades and percentage of D and F final course grades and withdrawals.

Since SI participation stands as the key independent variable in the study, careful attention was given to the definition of "participation." Setting a minimum level of attendance higher than "one" offered the possible advantage of teasing out the impact of repeated attendance. That minimum seemed most appropriate, however, since those who withdrew from the courses were counted as "unsuccessful enrollments," and those who withdrew after attending even a single SI session should be counted as negative outcomes in the "participant" category. Conversely, a higher minimum was thought to interject bias in favor of SI by excluding as "SI participants" those students who withdrew from the course after participating in one or a few SI sessions. Therefore, the minimum

participation in a single SI session was deemed sufficient to classify a student as an "SI participant."

Academic Achievement for Two-Year Students Enrolled in SI Courses:

Table #1 presents data collected by UMKC from two-year institutions across the U.S. Differences were statistically significant in each instance with respect to both percent of unsuccessful enrollments and grade point average in targeted classes. In each instance, the difference favored the group that had participated in the SI program.

The data rarely showed more than an .5 grade point difference between SI participants and non-participants, and often this turned out to be the difference between low "C" and high "D." Lest the difference be minimized, the low "C" is a grade which permits students to continue in the institution and to graduate. A high "D" grade, if repeated with sufficient regularity, leads to probation and termination, either voluntary or mandatory. Students do not complete their curricula, whether with certification or degree, with high "D" grades.

Table #1
National SI Field Data: FY 1982-83 to 1992-93
(N=59 Two-Year Institutions; 480 Courses; 23,979 Students)

Student Grades	SI Participants	Non-SI Participants	p-value
Final Course Grade**	2.30	1.63	< 0.000
Percent A & B Final Course Grade*	50.58%	32.90%	< 0.007
Percent D, F & W Final Course Grade*	25.90%	46.25%	< 0.000

* Using chi-square test. ** Using independent t-test.

The survey of data from fifty-nine two-year public institutions permits separating SI by academic discipline in Table #2. There were clear differences among disciplines, with health sciences and technical/ vocational courses showing the highest percentage of honor grades and the lowest percentage of unsatisfactory enrollments. Mathematics showed the reverse with an overall lower percentage of honor grades and a greater percentage of unsuccessful enrollments.

Table #2
National SI Data: FY 1982-83 to 1992-93
(N=59 Two-Year Institutions; 480 Courses; 23,979 Students)
Data Separated by Broad Academic Disciplines

Types of Courses		Percent A & B**	Percent D, F & W**	Final Course Grade*
All Courses N = 480	SI	50.58%	25.90%	2.30
	Non-SI	32.90%	46.25%	1.63
	p-value	< 0.000	<0.007	< 0.000
Business N = 87	SI	51.23%	26.70%	2.27
	Non-SI	34.02%	47.80%	1.49
	p-value	n.s.	< 0.001	< 0.000
Health Science N = 22	SI	62.88%	20.56%	2.66
	Non-SI	50.79%	27.01%	2.07
	p-value	n.s.	n.s.	< 0.023
Mathematics N = 82	SI	42.19%	37.57%	1.90
	Non-SI	32.32%	53.14%	1.30
	p-value	n.s.	< 0.001	< 0.000
Natural Science N = 140	SI	50.43%	21.47%	2.39
	Non-SI	34.99%	38.43%	1.70
	p-value	< 0.005	< 0.001	< 0.000
Social Science/ Humanities N = 104	SI	52.19%	22.36%	2.39
	Non-SI	32.84%	42.31%	1.64
	p-value	< 0.001	< 0.001	< 0.000
Technical/ Vocational N = 27	SI	63.67%	20.81%	2.53
	Non-SI	41.10%	43.44%	1.78
	p-value	n.s.	n.s.	< 0.001

* Using independent t-test. ** Using chi-square test.

n.s. = not statistically significant.

Interpretation and Discussion of Results. The pattern of results clearly suggests a close relationship between SI participation and course achievement as measured by final course grades. The exact reasons for the relationship are more elusive. As previously indicated, other research has discounted the effects of competing variables, e.g., previous levels of academic achievement, standardized test scores, high school rank, ethnicity, motivation level. Thus researchers find no significant difference between the two groups in terms of what they bring to the classroom. In the data presented here, final course grades are used as the evaluation criteria for effectiveness. In four-year institutions, re-enrollment and graduation rates have been used as dependent variables, and differences favored the SI group. With respect to two-year

institutions, their special mission and their special constituency make these last mentioned factors of re-enrollment and graduation inappropriate evaluation criteria. Stopping-out rather than dropping-out, transfer, and non-degree enrollment goals make such evaluations particularly inappropriate.

While success varies among SI programs, we are not in possession of data that would suggest that SI has any major limitations. However, we do know that SI is more difficult in content areas where pre-requisite skills are a key variable. For example, if students do not remember any algebra, they will have a particularly difficult time in chemistry. SI can be and is effective in these areas, however. It just takes more time planning by the SI leader. The clearest evidence we have ever had of failure was in a college where SI was attached to remedial classes. Students refused to attend; the course was not considered demanding or high risk by students. After that experience, we made a point of stressing to adopting institutions that they choose courses that were considered by students and faculty to be high risk.

Factor Four: Incongruence

For proponents of SI, perhaps the most difficult of Tinto's factors to address has been the issue of incongruence. It has also been the most amorphous, rooted as it is in the student's dual perceptions, first of his needs and secondly of the "social and intellectual fabric of institutional life." Arguably, the student's perception of that fabric might be compared with the blind man's perception of the elephant when introduced to only a single anatomical element. Similarly the student may be generalizing to the entire institution based on very limited exposure. In this spirit, the proponents of SI argue that by providing students with peer (or near-peer) mentors beyond faculty and staff mentors, SI assures a broader view of the institution. Similarly, meeting and working with seeming random collections of peers in collaborative learning situations lends breadth to the student's contact with the institution. Finally, the academically successful student finds her or his way through the institution with greater confidence than does the marginal student. Tinto differentiates between incongruence and isolation by recognizing that incongruence is the result of unsatisfactory interaction whereas isolation is the result of no interaction. The present authors would argue at least the possibility that incongruence may be perceived rather than real and that it may be the consequence of too narrow a sampling of interaction.

Factor Five: Serendipity

Retrospective analysis of the benefits of SI to the two-year college suggests that there are three salutary effects that go beyond the analysis by Tinto of the factors that contribute to student departure from the institution: the student leadership and career development opportunities offered to the SI leaders, the faculty development opportunities that are the consequence of adoption of SI, and the cost effectiveness of the model.

Student Leadership and Career Development: Benefits for SI participants aside, SI offers tangible benefits for the SI leader. Victoria Anderson, Director of the Learning Assistance Center at Highland Community College (Freeport, IL) report in response to the annual telephone interview with directors of programs

which use SI that many of her SI leaders are using their time as a preteaching experience. Anderson believes that the instructors of SI-targeted courses influence several students each year to consider teaching careers. Often these students are selected as SI leaders. While not performing as a teacher but as a facilitator, the SI role allows the students to spend more time with the instructors and with the subject matter. Anderson has not had difficulty in recruiting candidates for SI leader positions.

Jenni Wallace of Kingston University (London) in telephone interview reported that the job market is sufficiently tight that any resume entry that differentiates among top graduates can be beneficial. SI leaders, therefore, appear to earn quicker entry into professional fields upon graduation.

SI leaders at the University of Missouri-Kansas City find ready admission to graduate study, in part because of their SI experience which faculty correctly perceive as preparation for graduate teaching assistantship.

Faculty Development. At Anne Arundel Community College (Arnold, MD) the SI program has been active since 1986 and is guided by Dr. Rosemary Wolfe, Chair of the Education Department. Faculty have several options to earn promotion credit for increased salary. Some are approved to earn "professional development credit" through service as SI supervisors (Wolfe, 1990).

An important feature of this activity is that the faculty members supervise SI leaders in areas outside their content specialty. The faculty members focus on general learning skills, and not on critiquing the content of the instructor for which the SI is being offered. These faculty mentors attend classes and SI sessions with student SI leaders for the first four weeks of the term. As students in a class that is outside their discipline, these faculty mentors have the opportunity to observe and learn different approaches and teaching techniques. They may also become a non-threatening resource to the class instructor for integrating study skills into course lectures, readings, and assignments as well as and providing helpful feedback upon request.

Changes by class instructors have been noted and reported in telephone interview by Marina England, campus SI supervisor at Lincoln Land Community College (Springfield, IL). After several science faculty members observed the work of SI in other classes, they decided to make several changes. Although their classes were not designated as "high risk," they organize their students into work teams that meet outside class. Regularly the faculty members visit the student-led study groups to observe and provide assistance.

Jean Jubelirer, campus SI director from Milwaukee Area Technical College (WI), responding to telephone inquiry, said that SI helps to form learning communities composed of the SI leader, participating students, and the classroom instructor. Strong bonds are formed among all three. Beyond quantifiable results of increased course grades and persistence, students frequently comment on the impact of the SI program with them personally. Faculty members often voice their appreciation of the support for their classes as SI leaders help students to process and learn the material presented in the class lectures.

Dr. Deborah Craig-Claar, Associate Dean of Instruction, worked with the financial aid advisor to obtain partial fee waivers for the SI leaders. Dr. Craig-Claar reported that a key to the success of their SI program has been the

flexibility of scheduling the SI sessions when students want to attend (Craig-Claar, 1994).

He or she facilitates a process of collaborative learning, an important strategy since it helps students to empower themselves rather than remain dependent as they might in traditional tutoring. Research suggests that tutoring relationships do not always promote transfer of needed academic skills (Blanc et al., 1983; Dimon, 1988; Keimig, 1983; Martin, et al., 1993, 1977; Maxwell, 1990).

Cost Effectiveness. SI is a cost-effective program both in comparison with one-on-one tutoring programs and increasing student persistence/graduation rates (Martin et al., 1993). The SI program at Sinclair Community College (Dayton, OH) has shown its cost effectiveness in comparison with individual tutoring since 1991. In telephone interview, Anna Mays, Director of Educational Support Services and the campus SI supervisor, reported the cost effectiveness of the program was critical in winning administrative support. Although cost-effectiveness is not easily assessed, the administration of the University of Missouri-Kansas City has undertaken such a study and is satisfied that the SI program returns to the University \$1.50 in revenue from retained students for every \$1 expended for the support service, with the inclusion of all program costs including administrative oversight.

Conclusion

In 1983, the Department of Education certified SI as a model retention program that the Department recommended for replication. Underlying that decision were data that demonstrated to the satisfaction of the panel that SI was successful in retaining students and could be transported to other venues where similar success might ensue. A decade of data collection has demonstrated the correctness of the panel's decision. Although much attention has focused on the effectiveness of SI in the four-year tertiary institutions, careful analysis of data suggest that the model has been similarly effective in the two-year tertiary institutions.

The reasons for the effectiveness of SI remain somewhat elusive. Achievement data support the inference that SI contributes to higher levels of student achievement and, therefore, to increased rates of persistence. As much as the difficulty of the curriculum inhibits student success, SI serves as an effective counter. Both subjective evaluation by SI supervisors and anecdotal evidence from participants bolster claims that SI counters the isolation that leads to a substantial number of voluntary withdrawals from tertiary institutions. A specific goal of SI programs, although not readily quantifiable, is the reduction of the level of perceived incongruence between institutions and individuals. Effective mentorship, a key component of the SI program, stands against abandonment of the pursuit of higher education by students who incorrectly assess the nature of the institution. To this extent, SI stands in the mainstream of curricular responses to Professor Tinto and other students of the problem of inappropriate student departure from the two-year tertiary institutions.

Further support for the SI program derives from what has been called the unintended, salutary side effects of the adoption of the model. Across a broad field, practitioners have noted that SI contributes significantly to the career

awareness and professional development of SI leaders. Institutional leaders have noted the faculty development aspect of the SI program. And, in a time of scarce economic resources, the cost effectiveness of the SI model emerges as a strong argument for its implementation.

In recent years, with heightened institutional awareness of the transitional risks that endanger first-year students in tertiary education, Tinto's research has become central to retention programs. The Freshman Year Experience has developed in the milieu of declining pools of potential students. Once the tertiary institutions have exhausted the declining clientele, they need to look to retain rather than to replace students who might depart the institution. SI offers a strong component to the choice of strategies the institutions can bring to bear on the problem.

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Biography

Deanna C. Martin, Ph.D., holds an academic appointment of Associate Professor in the School of Education, University of Missouri-Kansas City. She serves as director of the Center for Developmental Education. For the past two decades Martin has developed programs that use knowledge derived from research to solve learning problems in student academic achievement at both the secondary and post-secondary level. Some of these programs have been replicated at over 500 colleges in the U.S. and at institutions in six countries. In 1973 Martin created the Supplemental Instruction model on the UMKC campus.

Robert Blanc, Ph.D., holds an academic appointment of Associate Professor in the School of Medicine, University of Missouri, Kansas City. He serves as director of the Institute for Professional Preparation and, for the past thirteen years, as a member of the Council on Curriculum of the School of Medicine. Blanc has devoted his professional efforts for the past twenty years to promoting access and equity in professional education for under represented minority students.

David R. Arendale, Ed.S., serves as the Director of the Center for Supplemental Instruction housed at the University of Missouri-Kansas City. He also serves as the Associate Director of the Center for Developmental Education. Arendale is a frequent conference presenter and workshop facilitator.