Review of Successful Practices in Teaching and Learning

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I. Introduction

A. Active Learning

"Tell me, and I forget, show me, and I remember,
Involve me, and I understand."-- Chinese Proverb

Maturity Continuum
Dependent ➔➔ Independent ➔➔ Interdependent
-- Dr. Steven Covey, Seven Habits of Highly Effective People

"Key features of cooperative learning are very consistent with the basic tenets of adult learning theory (andragogy), namely: adults learn best through active, experiential techniques involving discussion and problem solving which allows them to draw on their backlog of personal and professional experiences (Knowles, 1984)."--Cuseo, "Cooperative learning," 1992, p. 2.

New Emphasis in Higher Education

Old Model		New Model
Teacher-centered	➪	Learning-centered
Transmission of increasing quantity	➪	Efficiency & effectiveness of learning
Traditional exam and verify methods	➪	Continuous classroom assessment
Traditional views of students	➪	Understand needs of today's students

B. Planning Assumptions for the Future

Developed by the National Association for Developmental Education in March 1997 to guide NADE members as they redesign their academic assistance programs for the future.

NADE Planning Assumptions: 1996-2003

A. Political Trends:

1. Most political and policy battles concerning developmental education will occur at institutional and state levels.
2. Policy makers are more interested in developmental education when the emphasis is placed upon the two million postsecondary students served annually rather than concern over the future jobs of the 50,000 members of the profession.
3. Policy makers can best be influenced by a combination of both quantitative research (regarding student outcome variables -- e.g., grades, retention, graduation rates) -- and qualitative studies (e.g., success stories of individual developmental education students).
4. Policy makers and the general public will increasingly demand accountability regarding college budget expenditures and college student outcome measures (e.g., testing of all incoming college students, content mastery within the college major upon graduation, graduation rates, length of time taken to graduate, readiness for work).
5. Due to decisions by state-level policy makers, more states will legislate that developmental education courses in public four-year institutions be decreased or eliminated. Some of these institutions will subcontract to provide needed developmental courses/programs; other institutions may provide different types of academic assistance for their students. While the academic needs will remain, the forms of service to students may change.
6. Policy makers expect research-based solutions for pressing academic problems and issues.
7. There is a false impression held by an increasing number of policy makers that more stringent high school graduation requirements and more demanding college entrance requirements will eliminate the need for academic assistance and developmental education at the college level. Rising expectation levels by campus educators often accompany this false impression, therefore negating the expected effect of reducing the need for academic assistance.

B. Student Trends:

1. More students with special needs will be enrolled in postsecondary education (e.g., attention deficit, learning disability, physically challenged, ESL).
2. There will be a temporary increase in number of 18 to 22 year old college students, then a decrease after 2002.
3. An increasing proportion of college students will be part-time and returning adult.
4. Learning style diversity of students will increase.

C. Institutional Trends:

1. Increasing recognition by institutional leaders and faculty members that students from all levels of academic preparation need learning assistance in one or more of their courses each academic term. About one-third of all entering students need to enroll in one or more developmental education credit courses.
2. Institutions will provide more services for students with special needs.
3. The institution will increasingly address ethnic and learning style diversity.
4. Except for highly selective admission institutions, the freshmen to sophomore persistence rates continue to decrease. The dropout rate ranges from 46 percent for

open admissions institutions to 9 percent for highly selective institutions. Though the dropout rate decreases as the admissions selectivity increases, the financial impact of dropouts is notable since higher tuition accompanies elevated admissions selectivity.

D. Economic Trends:

1. Diminishing federal financial support for higher education will continue regardless of majority party.
2. Most states will decrease the percent of annual appropriations for higher education. Many states will increase the percent of annual appropriations for elementary and secondary education, prisons, and law enforcement.
3. Increasing numbers of institutions will implement fee-based academic support program activities for both students and academic departments (e.g., students pay for academic tutoring and advisement; students pay a surcharge for developmental courses that may or may not be returned to the learning assistance department; students pay higher tuition for developmental education courses).
4. Effective developmental education and learning assistance centers that have research-based evidence of positive student outcomes are viewed by many policy makers as important components of enrollment management and student retention programs.
5. Stable or increasing financial support for developmental education departments with both empirical studies and student interviews that document increased student academic performance.
6. Business and union leaders link economic development and an educated work force.

E. Instructional Trends:

1. Regardless of the academic preparation level of incoming students, a proportion of them will need academic assistance.
2. Research-based instructional improvements will increase student success.
3. The professional field will continue to develop and disseminate standards of practice. Some of these standards will be used to credential programs and individuals in the professional field.
4. More developmental education departments will develop into full service learning centers that help all students -- regardless of their previous levels of academic performance or preparation -- to learn more, earn higher grades, and graduate at higher rates.
5. Many institutions are establishing learning- and teaching-effectiveness centers to assist with faculty development and to increase the efficiency and effectiveness of student learning. Some are an outgrowth of current learning assistance centers.
6. More institutions will become partners with local business and industry in developing customized instructional programs. Learning assistance centers have expertise needed by local employers regarding workplace learning needs.
7. Services will more often be bundled to increase their synergistic impact on improving student academic success (e.g., programs that involve academic advisement, tutoring, orientation courses, high school/college bridge programs, Supplemental Instruction, developmental courses).
8. Linked courses (e.g., a content course and a learning strategy course that use material from the content course) are increasing.
9. Increasing use of emerging technologies for instructional delivery, learning assessment, and communication.
10. Increasing recognition that high potential and students enrolled in graduate and professional schools need academic assistance.
11. Increasing number of articulation agreements and bridge programs between high schools and postsecondary institutions.

Based on the NADE Strategic Plan, the following is a vision statement for what NADE should look like in the near future. Parts of the vision statement have already been accomplished. Others will take more time. "By 2003, NADE will be a nationally recognized association of professionals with expertise to help students academically succeed throughout the entire educational experience from high school through college and graduate/professional school."

Additional documents of interest: NADE strategic plan http://www.umkc.edu/cad/nade/nadedocs/straplan.htm

C. Statistics about Students

Table #1: National Dropout Rates: Freshman to Sophomore Year by Institution Type

Degree Level/Control	Mean Percent
Two-year Public	47.5%
Two-year Private	30.1%
BA/BS Public	33.3%
BA/BS Private	28.6%
MA/1st Prof'l Public	30.5%
MA/1st Prof'l Private	24.0%
PhD Public	23.5%

PhD Private	16.4%
Total	32.6%

The American College Testing Program. (1999). ACT Institutional Data File. [N of institutions = 2,514]

Table #2: National Dropout Rates: Freshman to Sophomore by Admissions Selectivity

Selectivity	Average Composite ACT Score	Average Composite SAT Score	Mean Percent
Highly	Above 26	Above 1219	8.4%
Selective	22 to 27	1030 to 1220	18.3%
Traditional	20 to 23	950 to 1070	27.1%
Liberal	18 to 21	870 to 990	35.2%
Open	17 to 20	830 to 950	45.7%

The American College Testing Program. (1999). ACT Institutional Data File. [N of institutions = 2,515]

Table #3: Dropouts and Persisters: Separated by Cumulative College Grade Point Avg.

Grade Point Average Range	Dropouts [N = 1,060]	Persisters [N = 2,814]
Below 2.00	42.1%	15.8%
2.00 to 2.49	18.9%	24.9%
2.50 to 2.99	19.6%	26.2%
3.00 to 4.00	19.1%	33.1%

Schreiner. (1990). [N of institutions = 43; N of students = 3,874]

Table #4: Change in Freshman-to-Sophomore Persistence Rates by Institutional Level and Control: 1985 to 1995

Degree Level/Control	Mean Percent Change
Two-year Public	negative 0.7%
Two-year Private	positive 1.1%
BA/BS Public	negative 2.1%
BA/BS Private	negative 2.3%
MA/1st Prof'l Public	positive 0.5%
MA/1st Prof'l Private	negative 2.0%
PhD Public	positive 1.6%
PhD Private	negative 1.0%

The American College Testing Program. (1995). ACT Institutional Data File. [N of institutions = 2,583]

Table #5: Change in Freshman-to-Sophomore Persistence Rates by Institutional Academic Selectivity: 1988 to 1998

Selectivity	Mean Percent Change
Highly	negative 0.7%
Selective	negative 1.4%
Traditional	negative 2.1%
Liberal	negative 1.7%
Open	negative 2.0%

The American College Testing Program. (1998). ACT Institutional Data File. [N of institutions = 2,600]

"Of the nearly 2.4 million students who in 1993 entered higher education for the first time, over 1.5 million will leave their first institution without receiving a degree. Of those, approximately 1.1 million will leave higher education altogether without ever completing either a 2- or 4-year degree program."-- Tinto, Leaving college, 1993, p. 1.

Table #6: National Graduation Rates by Type of Institution [3 Years for Associate; 5 Years for BA/BS]

Degree Level/Control	Mean Percent
Two-year Public	33.5%
Two-year Private	60.7%
BA/BS Public	43.1%
BA/BS Private	53.9%
MA/1st Prof'l Public	38.7%
MA/1st Prof'l Private	54.8%
PhD Public	46.4%
PhD Private	63.5%

The American College Testing Program. (1999). ACT Institutional Data File. [N of institutions = 2,363]

Table #7: Institutional Graduation Rates For Bachelor's Degrees in Five Years by Academic Selectivity for Institutions			
Selectivity	All Institutions	Public Institutions	Private Institutions
Highly	78.2%	70.3%	81.8%
Selective	59.8%	70.2%	65.6%
Traditional	48.9%	41.7%	52.7%
Liberal	40.1%	39.4%	41.2%
Open	37.1%	25.6%	39.0%

The American College Testing Program. (1998). ACT Institutional Data File. [N of institutions = 451]

Table #8: Rates of Degree Completion Six Years After High School Among Students Who Entered by 1986, by Gender and Ethnicity				
Category	Percent Going to College	Percent Degrees Earned	AA Degrees or Less	BA/BS Degrees
Total	70.8%	44.2%	17.7%	26.5%
Male	60.1%	42.3%	15.7%	26.6%
Female	72.4%	45.9%	19.4%	26.5%
Hispanic	61.1%	35.0%	24.0%	11.0%
Black	68.3%	30.1%	15.3%	14.8%
White	71.4%	46.7%	17.6%	29.1%

Eagle and Carroll, Postsecondary enrollment, persistence, and attainment for 1972, 1980, and 1982 high school graduates, 1988, pp 29-31, tables 2a & 2b

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Table #9: 6-Year Persistence for Students Entering 4-Year Colleges Full-Time Immed. After High School, by Ability					
Status	All Students	Lowest Quartile	Second Quartile	Third Quartile	Highest Quartile
Completer	45.7%	17.6%	33.4%	41.2%	57.5%
Persisters	12.3%	16.3%	11.2%	14.3%	11.5%
Departers	42.0%	66.1%	55.4%	44.5%	31.0%

Porter, 1990, Undergraduate completion and persistence at 4-year colleges and universities: Detailed findings, table A-23.

Table #10: Change in Institutional Graduation Rates in Institutions by Level and Selectivity: 1988 to 1998		
Selectivity	Public Institutions	Private Institutions
Open BA	negative 15.1%	negative 3.5%
Open MA	negative 5.8%	negative 6.9%
Open PhD	negative 10.2%	negative 2.8%
Liberal BA	negative 6.0%	negative 5.3%
Liberal MA	negative 8.2%	negative 7.5%
Liberal PhD	negative 6.1%	negative 1.8%
Traditional BA	negative 10.7%	negative 2.9%
Traditional MA	negative 9.5%	negative 3.5%
Traditional PhD	negative 7.0%	negative 13.3%
Selective BA	positive 15.4%	negative 0.8%
Selective MA	negative 3.1%	negative 1.9%
Selective PhD	negative 4.1%	negative 0.4%
Highly Sel BA	positive 8.9%	negative 0.2%
Highly Sel MA	positive 8.6%	positive 0/8%
Highly Sel PhD	positive 6.9%	negative 1.5%

The American College Testing Program. (1998). ACT Institutional Data File. [N of institutions = 1,456]

"African-American children are twice as likely to drop out of school as White children. At ages 18 and 19, African-American students drop out of high school at rates 33% higher than Whites in those age groups. In many inner city high schools, the drop out rate for African-Americans is six times the drop out rate of surrounding suburban predominantly White high schools. African-American students as a group lag about two years behind national norms, particularly in reading, vocabulary, and more challenging subjects such as mathematics and science. In 1986, 47% of all African-American 17 year olds were functionally illiterate and unable to make their way as responsible, productive adults in this high tech society (Edwards, 1986). Today this figure stands at over 50% if projected rates of increase have held."-- Edwards, "Democratic pluralism", 1991, p. 53.

"In 1993 13.24 percent of the black population ages 25 to 29 had completed their baccalaureate degree, compared to 24.74 percent for whites. Their ratio -- 53.4 percent -- represents a black's chances compared to those of a white

for holding a bachelor's degree."--Postsecondary Education Opportunity, Nov. 1993, p 2.

"According to the American Council on Education (ACE), African Americans represented 9.2 percent of all 1986 undergraduates, but earned only 5.7 percent of bachelor's degrees awarded in 1987. Whites, on the other hand, represented 79.2 percent of undergraduates, but earned 87.5 percent of bachelor's degrees. ACE's most recent figures reveal a 13 percent difference in the retention rate of African Americans and whites who enter college right out of high school. For 1980 high school graduates who entered four-year colleges full-time, 43.5 percent of Blacks and 42 percent of Hispanics were still in college four years later. This compares to 61 percent of Asian Americans, 56 percent of whites, and 54 percent of Native Americans." -- Conciatore, "Recruitment and retention", 1991, p. 40.

"African-American access to some high prestige occupational roles has been particularly hampered by traditions of discrimination limiting African-American capacities to compete relative to acquiring mandatory credentials. So, African-Americans represent only 1.8% of medical students and fewer than 3.0% of America's doctors; fewer than 5.0% of all dental students and only 2.5% of all dentists; 4.2% of all law students and only about 1.0% of all lawyers; 5.9% of all graduate students and fewer than 2.0% of all college faculty teaching outside of traditionally African-American colleges and universities. And, finally, there are fewer than 250 African-American optometrists in the entire nation. Similar patterns prevail in the fields of pharmacy, engineering, and architecture."-- Edwards, "Democratic pluralism", 1991, p. 69.

D. Multicultural Education in the School

Multicultural Education: Two Approaches

- Curriculum-based (e.g., enroll in ethnic history courses; infuse curriculum with ethnic contributions)
- Process-based (e.g., students talk from their own perspectives; students work with others from different backgrounds)

"The primary goal of a pluralistic curriculum process is to present a truthful and meaningful rendition of the whole human experience. This is not a matter of ethnic quotas in the curriculum for "balance"; it is purely and simply a question of validity. Ultimately, if the curriculum is centered in truth, it will be pluralistic, for the simple fact is that human culture is the product of the struggles of all humanity, not the possession of a single racial or ethnic group."-- Hilliard, "Why we must pluralize," 1991, p. 13.

"Patterns of resegregation have also emerged within integrated schools and districts. Ability groupings and similar techniques have often resulted in the separation of students by race and class within the integrated school. Feeder school networks and the control of student transfers have contributed substantially to resegregation at the level of the school district."-- Edwards, "Democratic pluralism", 1991, p. 52.

"If our nation's campuses are to become truly reflective of the pluralism of American life, then we must examine our assumptions, structures, and priorities. It is not enough to welcome minority individuals. We need to change the culture of our majority institutions so that all members of the community contribute and honor each other's differences. As it now stands, Blacks, Hispanics, Asian-Americans and American Indians bear the entire burden of adaption to the majority culture on campus. On a truly pluralistic campus, the burden and the rewards are equally shared. -- Judith Eaton, President, Community College of Philadelphia."-- Green, 1989, Minorities on campus, p. viii.

"Multicultural and multiracial universities include the contributions of blacks, Hispanics, and other minorities throughout the curriculum (Beckham, 1987/1988). Curriculum content can easily be infused with their writings, traditions, histories, religions, music, and arts without establishing new ethnic study programs."-- Brown, "Increasing minority access", 1991, p. 226.

"The teacher should focus on instructional strategies that allow cultural differences to emerge naturally in the classroom and that encourage students to share aspects of their culture as a part of the lesson rather than "now we are going to have a lecture on different cultures." Increasing evidence shows that matching cultural practices with educational activities effectively promotes academic achievement."-- Dash, "Preparing teachers", p. 19

Current debates about higher education have produced an array of proposals about the skills or abilities students ought to possess -- math and computer skills, writing and general literacy skills, understanding cultural heritage, and critical thinking skills. To these skills we must now add those that our students will need in order to live in the new society of the twenty-first century. These would include:

- Interdependence: an awareness of reciprocity in relationships and social processes.
- Collaboration: the ability to work together across cultures, classes, disciplines and professions.
- Holistic vision: the ability to see things in their totality, to connect parts.

- Cross-cultural communication: the ability to function, through writing, speaking and small group interactions, in
- multicultural settings.
- Bilingualism and multilingualism: fluency in several languages."-- Morris, "A multicultural society" 1990, p. 3

"In the words of Peter Adler of the East-West Center, multicultural persons have 'psychologically and socially comes to grips with a multiplicity of realities.' They recognize the importance of cultural context and accept the fact that 'reality' differs from culture to culture."-- Morris, "A multicultural society", 1990, p. 4.

II. Overview of Retention Research

A. Requires Improvement of the Entire Institution

"A concerted effort to increase student retention will force the institution to examine itself closely, and what is observed will not always be easy to accept."-- American College Testing Program.

The improvement of instruction is the most urgent need in colleges and universities today.-- Carnegie Council 1979, 1980; Carnegie Foundation 1977; Levine 1980.

"For most institutions, increased student retention will require significant improvement in their programs and services in the classroom and elsewhere."-- American College Testing Program.

"Successful institutions know that ultimately student retention is a by-product of student success and satisfaction."-- Noel, Levitz, & Saluri, Increasing student retention, 1985, p. xiii.

"The more students learn, the more they sense they are finding and developing a talent, the more likely they are to persist; and when we get students' success, satisfaction, and learning together, persistence is the outcome. Reenrollment or retention is not then the goal; retention is the result or by-product of improved programs and services in our classrooms and elsewhere on campus that contribute to student success."-- Noel, Increasing student retention, 1985, p. 1.

B. Different Factors Influencing Student Persistence

Basic Principles of Retention:
1. Attrition should not be accepted passively as a natural phenomenon.
2. Attrition can be predicted and prevented.
3. Retention is enhanced by making changes in the overall campus environment.-- American College Testing Program.

Types of Attrition:
1. Natural: Institution has only limited control. (Marriage, illness, job offer, change career, mobility)
2. Stop-Outs: May be legitimate since students plan to return. Institution should not maintain a "captive audience."
3. Unnecessary: Institution has control over students experiencing academic, financial, and social adjustment problems.-- American College Testing Program, Inc.

Types of Attrition:	
Voluntary Desirable Completed Objective	Voluntary Undesirable Academic Frustration
Involuntary Desirable Social Dismissal	Involuntary Undesirable Academic Dismissal

-- Noel/Levitz Centers, Inc.

Themes of Attrition:
- Academic boredom and uncertainty
- Transition/adjustment difficulties
- Limited or unrealistic expectations of college
- Academic underpreparedness
- Incompatibility
- Irrelevancy-- Noel, Increasing student retention, 1985, pp. 10-15.

Forces of attrition for students:
1. Internal forces (Individual experiences with the institution
   which affect departure)
- adjustment,
- difficulty,
- incongruence, and
- isolation."

2. External forces
- Obligations to external communities (e.g., family, friends)
- Finances-- Tinto, Leaving college, 1993, p. 37-38.

"[Urban] students tend to come with a pattern of 'sitting back and making people believe that they know something'

and they operate on that assumption, rather than speaking up and saying, 'I need some help here.' Collaborative group learning was suggested as a solution to this problem."-- Hamlen, "Teaching urban students", 1989, pp. 6-7.

"College success depends, on the other hand, on skills to manipulate the educational environment to one's advantage, including asking for help, studying and working with peers, and identifying and acknowledging academic confusion."-- Hamlen, "Preparing urban students", 1989, p. 4.

C. Characteristics of a Staying Environment

A Staying Environment that Encourages Retention

- Academic (Curriculum, Instruction): progress toward educational career goal; academic success; program options clear; and advising and support services
- Social/Psychological (Faculty, Peers, Environment): feeling of belonging; social integration; personal involvement; positive identity; and high self-esteem -- American College Testing Program.

"If we want to create a staying environment, this responsiveness to student needs must extend to everyone on campus -- the telephone operator, the receptionist, the clerk at the cashier's window....In short, we need people working in front line positions on our campuses who have a mission, a burning desire, to help students become all that they can become. Further, we need people who have a tremendous drive to establish rapport with students, people who are able to woo students, who make them feel that they are the most important people on campus -- not the interruption of their work, but the purpose of it."-- Noel, Increasing student retention, 1985, pp. 17-18.

Persistence Factors

Institutional Characteristics: selectivity; control; and type (4 year vs. 2 year)

Experiential Factors: grade point average; extracurricular participation; employment; housing; and support services utilization -- American College Testing Program, Inc.

D. Models for Understanding Student Departure

1. John Gardener and Associates

"All freshmen, regardless of background and experience, must develop an interpersonal support system with their fellow students. They must find friends and participate in activities that require cooperation and good interpersonal skills."-- Upcraft & Gardener, "A comprehensive approach to enhancing freshman success", 1989, p. 2.

"We believe freshmen succeed when they make progress toward fulfilling their educational and personal goals:

- developing academic and intellectual competence;
- establishing and maintaining interpersonal relationships;
- developing an identity;
- deciding on a career and life-style; and
- developing an integrated philosophy of life." -- Upcraft & Gardener, "A comprehensive approach to enhancing freshman success", 1989, p. 2.

2. Lee Noel, Randi Levitz and Associates

"Because the most dependent learners are those at the point of entry into college, academic and student support services should be concentrated most heavily in the freshmen year. Intrusive, proactive strategies must be used to reach freshmen with these services before they have an opportunity to experience feelings of failure, disappointment, and confusion." -- Levitz & Noel, "Connecting students to institutions", 1989, p. 73.

"To make the freshman connection, institutions must adopt the concept of 'front loading': putting the strongest, most student-centered people, programs, and services in the freshman year. We must put freshmen in direct contact with the institutional resources that are most effective in promoting personal, social, and academic adjustment."-- Levitz & Noel, "Connecting students to institutions", 1989, p. 79.

"We see the highly successful campuses of tomorrow putting students' needs and interests squarely at the center of their organizations today. They are wrapping programs and services around the student, rather than requiring that an individual student's needs be manipulated so that they might fit the system."-- Noel, Levitz, & Saluri, Increasing student retention, 1985, p. xiv.

3. Vincent Tinto and Academic/Social Integration

"Drawn from the work of Emile Durkheim and Arnold Van Gennep, this [retention] theory will argue that colleges and universities are like other human communities; that student departure, like departure from human communities generally, necessarily reflects both the attributes and actions of the individual and those of the other members of the community in which that person resides. Decisions to withdraw are more a function of what occurs after entry than of what precedes it. They are reflections of the dynamic nature of the social and intellectual life of the communities which are housed in the institution, in

particular of the daily interaction which occurs among its members. Student departure may then serve as a barometer of the social and intellectual health of institutional life as much as of the experiences of students in the institution."-- Tinto, Leaving college, 1993, p. 5.

"Effective [retention] programs commonly stress the manner in which their actions serve to integrate individuals into the mainstream of the social and intellectual life of the institution and into the communities of people which make up that life. They consciously reach out and make contact with students in order to establish personal bonds among and between students, faculty, and staff."-- Tinto in Spann, "Student retention", 1990, p. 19.

E. Student Departure Models for Student Populations from Various Cultural and Ethnic Groups

"The major constructs of Tinto's model have largely withstood the test of time. Within this theoretical framework, minority students are at especially high risk of 'malintegration' to academic and social systems. For students in general, separation from past communities and memberships, and an often bewildering transition to college life, can set the stage for departure during the first year. For many minority students at predominantly white institutions, the necessary social, cultural, and mental adjustments are simply insurmountable."-- Cibik and Chambers, "Similarities and differences", 1991, p. 130.

"Relative to education, under democratic pluralism the commitment is to develop African-American educational institutions from pre-school through the professional and postgraduate level. This development can only be predicted upon a commitment to academic excellence, competence, and freedom of choice. But democratic pluralism mandates also that African-American children must be educated and educated effectively wherever they are toward the end of full and productive participation in both African-American society and national life. Democratic pluralism eschews radical integrationist prescriptions (called for such regimens as bussing for integration purposes) as well as Jim Crow nationalist sentiments making education at Black institutions obligatory. To reintegrate W.E.B. DuBois's point cited earlier, what African-Americans need is neither integration nor separation. What African-Americans need is competent and effective education."-- Edwards, "Democratic pluralism", 1991, p. 84.

"Earlier, it was stated that the educational process moves forward on four legs (the home, the community, the school, and the receptive mind of the student) and that the crippling of any of these legs cripples the educational process. Therefore, in the normal course of events, educational outcomes are never the product of any single component of education -- not even the school classroom (Cummins, 1990)."--Edwards, "Democratic pluralism", 1991, p. 49.

Among the items mentioned on a checklist for improving minority student retention: peer study groups; peer tutoring; student/faculty contact; high expectations/ assumption all student can achieve; mentoring; social and cultural activities to increase sensitivity and cross-cultural awareness.-- Conciatore, "Recruitment and retention", 1991, pp. 41-42.

This 1990 study surveys 731 students at 5 colleges in New York. Among the conclusions:

- student success was positively correlated with a hospitable and accepting academic environment created by caring faculty, with departmental concern for students;
- connecting with the institution through faculty, staff, or peer groups cultivated sense of belonging which was itself positively related to favorable GPA.-- Fadale, Factors related to retention, 1990.

"It is not necessarily possible for each instructor to be knowledgeable of the nuances of all of the cultural diversity present in each teaching situation. However, it is possible, and critical, for instructors to be sensitive to cultural differences and not impose their own cultural orientation as a yardstick by which to measure the learners. And it is critical that they understand their own cultural norms, values, and assumptions and how these affect and are central to their educational practice."-- Knott, "Working with culturally diverse learners", 1991, p. 18.

"Creating learning situations in which students draw on what they already know as a vehicle for reaching new learning is vital if students are to develop the confidence they need to succeed in college."-- Claxton, "Learning styles, minority students", 1990, p. 6.

"Collaborative learning approaches can also become powerful techniques when incorporated into educational systems which have always stressed competition and "doing your own work" to the detriment of some learners."-- Knott, "Working with culturally diverse learners", 1991, p. 18.

"As a whole, appropriate curriculum for nontraditional students should demonstrate sensitivity toward and recognition of the historical and cultural contexts which these students bring with them. Classroom relevance is not

too much to expect for any student, and the trend popularized by writers like Hirsch and Bloom defining cultural literacy in the narrow terms of the dominant group is excluding and contrary to the experience of this increasingly significant clientele. Academic integration should not mean and cannot occur as -- immersion of ethnically diverse students in the knowledge bases and value systems of the dominant culture only."-- Miller, "Minority student achievement", 1990, p. 8

F. Challenges for Isolated Study Skills Instruction

1. Often unable to transfer and apply specific learning strategies to individual classes.
2. Learning strategies not embedded in classes that students receive content grade.
3. Real college courses that carry graduation credit increase student motivation.
4. Without modeling and support, students tend to revert back to old unsuccessful habits.

"Students need to learn more than how to develop and when to employ the [learning] strategies, however. They also need to learn how to transfer specific strategies to the particular academic literacy demands of each course. Indeed, without effective training for transfer, college reading and learning courses face the very real danger of standing in isolation from the academic disciplines and of remaining mired in the deficit model. Strategy transfer occurs more naturally when students have a chance to practice the newly learned strategies on their own texts and with tasks perceived to be 'real'."--Stahl, et al., "Ten recommendations from research for teaching high-risk college students", 1992, p. 3.

Some researchers have found that enrollment in challenging college-level courses had a more positive impact on improved academic performance in other courses in the same discipline than enrollment in remedial courses.--Bohr, "Courses associated with freshman learning", 1993.

"We became aware of the differentiation between 'detached' and 'embedded' programs in the teaching of study skills or strategies. The more traditional approach of 'detached' programs involves the presentation of study techniques in isolation: 'Since detached programs tend to treat content as tangential to study skills, students are unable to make applications to specific content and little transference or generalization occurs' (Rafoth and DeFabo, 1990, pp. 75). In contrast, 'embedded' programs present learning and study strategies within the context of specific content and are more likely to result in regular use."--Kerr, "Content specific study strategies: A repertoire of approaches", 1993, p. 38.

"Success in remedial course work does not readily transfer to traditional academic disciplines. Away from the remedial instructor's influence and back in the traditional academic environment, students revert to their old habits."--Keimig, Raising academic standards: A guide to learning improvement, 1983, pp. 16-17.

III. Overview of Different Types of Collaborative Learning

A. Modifications to the Traditional In-Class Learning Environment

1. Learning Community Models: Changes in Instructional Content

a. "Linked courses"-pairing of two courses and listing them in the class schedule so that a specific cohort of students co-register for them. Syllabi and assignments are coordinated.

b. "Learning clusters"-three or more courses in a given term are linked together. Faculty teach the clustered courses as discrete courses, but for students, the clustered courses are a substantial portion of their academic load.

c. "Freshman interest groups (FIG)"-three courses are linked together. A cohort of 25 students enroll together in the three courses. This model links courses around pre-major topics and has a peer advising component. Syllabi are not necessarily coordinated. The peer advisor convenes the cohort of 25 students on a weekly basis. Issues discussed at the weekly meetings include student life and academic assistance in the courses.

d. "Federated learning communities"-three courses are linked together. In addition, students enroll in a three-credit program seminar, a discussion section related to all three courses and led by a Master Learner(ML). The ML is a teacher from a discipline outside the federated courses. The ML learns the course material along with the students and acts as a mentor. Faculty development of the ML is a side benefit of the program.

e. "Coordinated studies"-these programs are team-taught by three to five faculty members and involve sixteen credits per quarter. Typical programs involve a mix of plenary lecture sessions and small-group work.--Gabelnick, et al., Learning community models, 1990; The Washington Center

for Improving the Quality of Undergraduate Education, "Learning communities taking root", 1994.

2. Cooperative Learning: Changes in Instructional Delivery and Development of Social Skills

Basic principles of formal cooperative learning groups
1) Positive interdependence
   - mutual goals-learn the material and social skill
   - shared resources-students teach each other
   - joint rewards-when all group members exceed standard
   - assigned complementary roles by teacher
2) Face-to-face promotive interaction
   - students follow lesson structure developed by instructor
   - students help each other
   - exchange needed information
   - process information more quickly in group than alone
   - provide feedback to each other
   - encourage deeper thought by all members
3) Individual accountability and personal responsibility
   - keep group small to maximize individual participation
   - give individual test to each student
   - have random oral examination of students
   - observe small group and log each person's interaction
4) Interpersonal and small group skills development
   - decision making
   - communication
   - conflict management
5) Group processing of small group activities
   - Social skill and course content mastery
   - Small group and large group

--See Cooper, Johnson, Slavin, Smith, and others

Basic procedures of formal cooperative learning groups
1. Assign subject matter and the lesson objectives
2. Assign social skill and what it looks and sounds like.
3. Students work in groups assigned by instructor. Roles assigned by the instructor.
4. Teacher observes the small groups and collects data. Interventionist takes control of the group and solves problems and the Interactionist facilitates the group as they solve their own problems
5. Process social skill behavior
6. Process subject matter knowledge

Sample types of activities
- Coop-Coop - student selects mini-topic, research alone, shares with small, then large group
- Jigsaw - student assigned mini-topic, research with others from other groups, then share with group
- Checking homework
- Cooperative learning and testing - student takes test individually, group study, then take as part of group
- Structured academic controversies
- Focused discussions before and after lecture ("bookends")
- Simultaneous explanation pairs
- STAD (Student Teams-Achievement Division) - students receive information, assigned to four person team, work collaboratively to complete assignment, and then tested individually

B. Addition of Outside-of-Class Collaborative Learning Activities

Two categories of peer collaborative learning groups
1. "Near-Peer", a group which is facilitated by a peer teacher who is more academically advanced than the other students.

Three types of near-peer teachers:
a. Undergraduate teaching assistants: these students were recently successful in the target course and generally provide supplemental discussion groups for the currently enrolled students in that course.

b. Tutors: like the undergraduate teaching assistants, they were previously successful in the target course. The only difference is that they provide academic assistance in a one-on-one setting.

c. Counselors: rather than focusing on the specific course content, they emphasize generic study skills and strategies to abate anxiety that may cause difficulty for the student.

2. "Co-Peer", a group which is facilitated by members of the same class who are academically equal to the other members.
Two types of co-peer groups:
a. Partnerships: one-on-one relationships in which two students are paired for the term. Throughout the term they alternate roles of teacher and learner between themselves.

b. Work Group: student group shares a common task and must work together to accomplish. Sometimes with this arrangement, the grade for each individual student is determined by the grade given to the entire group.
-- Whitman, Peer teaching, 1988, pp. 13-32.

"The purpose of all five types of peer teaching [Undergraduate Teaching Assistants, Tutors, Counselors, Partnerships, and Work Groups] is to satisfy needs that much traditional schooling leaves unfilled, rather than promote the agenda of traditional schooling. Peer teaching assumes that what students should learn includes effective interdependence and social maturity, and it postulates that social maturity and intellectual maturity are inseparable."-- Whitman, Peer teaching, 1988, p. 32.

C. Institutional Outcomes from Students Working in Peer Groups

1. Increased involvement with the institution;
2. Increased student satisfaction with the institution;
3. Underrepresented populations are more successful;
4. Informal multi-cultural education;
5. Peer leaders consider teaching careers;
6. Increased persistence in college; and
7. Increased persistence in "hard" majors (e.g., math, engineering, science).

D. Student Outcomes from Peer Groups

1. More helpful learning environment for some students: Field-sensitive; Kinaesthetic; Dependent; Adult; and others
2. Grow the most academically;
3. Develop social skills;
4. Increased critical thinking skills;
5. Increased satisfaction with the institution;
6. Persist longer in college;
7. Persist in "hard" majors (e.g., math, engineering, science);
8. Create social support network;
9. View students as helpers, not competitors;
10. Less likely to hesitate to seek help;
11. Increased self-esteem;
12. Peer leaders develop closer ties to faculty; and
13. Peer leaders learn more.

"Peer group social economic status produced twenty-one significant direct effects on student outcomes, more than any other peer group or faculty measure."-- Astin, What matters in college: Four critical years revisited, 1993, p.352.

"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, p. 363.

Positive effects of student peer group involvement: degree aspiration, college grade point average, graduating with honors, scholarship (intellectual self-esteem), analytical and problem-solving skills, critical thinking skills, and overall academic development.-- Astin, What matters in college: Four critical years revisited, 1993, pp. 384-385.

"Viewed as a whole, the many empirical findings from this study seem to warrant the following general conclusion: 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, p. 398.

"What does seem just possible to accomplish is for people to reacculturate themselves by working together....What we have to do, it appears, is to organize or join a temporary transition or support group on the way to our goal, as we undergo the trials of changing allegiance from one community to another. The agenda of this transition group is to provide an arena for conversation and to sustain us while we learn the language, mores, and values of the community we are trying to join."--Bruffee, Collaborative learning: Higher education, interdependence, and the authority of knowledge, 1993, p. 20

In research with children of various cultural backgrounds, Ramirez and Castaneda (1974) discovered that European American students tend to be most field-independent learners. Mexican American, American Indian, and African American students, in contrast, tend to be closer to field sensitive, with Mexican Americans closest to this pole. Exactly how culture influences learning is not clear. Ramirez and Castaneda believe that a major goal of what they call culturally democratic education should be bicognitive development. That is, all children should be exposed to and become adept at both styles of learning.-- Nieto, Affirming diversity,: The sociopolitical context of multicultural education, 1992, pp. 111-112.

"All the specific findings point to, and illustrate, one main idea. It is that students who get the most out of college, who grow the most academically, and who are happiest, organize their time to include interpersonal activities with faculty members, or with fellow students, built around substantive, academic work."--Light, Harvard assessment seminars, 1992, p. 6.

"In every comparison of how much students learn when they work in small groups with how much they learn either in large groups or when they work alone, small groups show the best outcomes."-- Light, Harvard assessment seminars, 1990, p. 10.

"[Students] point out that the process of working in a group, in a supervised setting, teaches them crucial skills.

The skills...include how to move a group forward, how to disagree without being destructive or stifling new ideas, and how to include all members in a discussion. Few students, if any, have these skills when they arrive at college."-- Light, Harvard assessment seminars, 1990, pp. 70-71.

"The many men and few women who form study groups report that they both enjoy their work more, and feel they learn more, because of the academic discussions within these groups. A side benefit is that for many students a study group also becomes, over time, something of a social support network."-- Light, Harvard assessment seminars, 1990, p. 18.

"[S]tudents overwhelmingly report that the single most important ingredient for making a course effective is getting rapid response on assignments and quizzes. This makes each assignment a genuine learning experience, rather than simply an obligation to complete toward a final course grade."-- Light, Harvard assessment seminars, 1990, p. 31.

"At the Higher Education Research Institute, we recently reviewed this literature and found that collaborative approaches produce better learning in the vast majority of studies; the method is highly cost-effective and helps solve two of our most vexing pedagogical problems: large class size and gross differences in educational preparation."
-- Astin, "Competition or cooperation?", 1987, p. 17.

"[T]he most important thing about collaborative learning is that it facilitates the development of teamwork skills and encourages the individual student to view each classmate as a potential helper rather than as a competitor. Under it, students learn to work together toward common goals."-- Astin, "Competition or cooperation?", 1987, p. 17.

"Those who stay in science tell of small, student-organized study groups. They meet outside of formal classes. They describe enjoying intense and often personal interaction with a good lab instructor. In contrast, those who switch away from the sciences rarely join a study group. They rarely work together with others. They describe class sections and lab instructors as dry, and above all, impersonal."--Light, Harvard assessment seminars, 1992, p. 10.

"[W]hile the advantages of study groups are widespread, there is one group of students for whom they seem especially important: young women concentrating in the physical sciences. In her undergraduate honors thesis, Andrea Shlipak (1988) finds that women who concentrate in physics and engineering consider these small working groups a crucial part of their learning activities....Women who join a small study group are far more likely to persist as science concentrators than those who always or nearly always study alone."--Light, Harvard assessment seminars, 1992, p. 54.

"The interviews of sophomores by Constance Buchanan and her faculty colleagues show that isolation is the biggest threat to students who are not as productive as they want in their coursework. They also find that students who begin having trouble are likely to drift into even deeper trouble if they simply keep to themselves, working alone in their rooms hour after hour. Such students often have a difficult time putting their trouble in a context, seeing if from a perspective that will enable them to get help, or to help themselves. Not only do students who work in small study groups outside of class commit more time to their coursework, feel more challenged by their work, and express a much higher level of personal interest in their work - they are also much less likely to hesitate to seek help. (Buchanan et al., 1990)."--Light, Harvard assessment seminars, 1992, pp. 53-54.

E. Factors that Make Peer Collaborative Groups Effective

1. Academic tasks help to focus group efforts;
2. Peer support in learning the content material;
3. Development of social support networks provides additional resources for learning;
4. Non-threatening environment since it is informal, non-graded, and surrounded with peer support;
5. All students are active participants & contributors to the task;
6. Students receive immediate non-threatening feedback on academic performance; and
7. Students receive a comprehensive checkpoint on their own comprehension level of the material.

"From the perspective of the individual, a peer group is a collection of individuals with whom the individual identifies and affiliates and from whom the individual seeks acceptance and approval."-- Astin, What matters in college: Four critical years revisited, 1993, p. 400.

"Viewed from a collective or sociological perspective, a peer group would be defined as any group of individuals in which the members identify, affiliate with, and seek acceptance and approval from each other."-- Astin, What matters in college: Four critical years revisited, 1993, p. 401.

"The impact of the peer group will be proportional to the extent to which the individual seeks acceptance and approval from that group. The magnitude of any peer group effect will be proportional to the individual's frequency and intensity or affiliation or interaction with that group."--

Astin, What matters in college: Four critical years revisited, 1993, p. 402.

Institutional actions to facilitate formation of peer groups:
- Find a common group on which identification can occur (e.g., career interests, curricular interests, avocational interests)
- Provide opportunities to interact on a sustained basis.--Astin, What matters in college: Four critical years revisited, 1993, p. 423.

"The most important tool that college and university teachers have at hand to help students reacculturate themselves into the knowledge communities they aspire to join is transition communities. Transition communities are small, new, temporary communities made up of people who want to make the same change....They organize students into social relationships involving a 'temporary fusion of interests' that allow them to relinquish dependence on their fluency in one community--constituting language (their "old" one) and acquire fluency in the language that constitutes the community of which they are now becoming members (their "new" one). Enrolled in transition communities, students have a chance to learn and practice, relative to substantive issues, linguistic improvisation...."--Bruffee, Collaborative learning: Higher education, interdependence, and the authority of knowledge, 1993, p. 75.

"The growth in knowledge and ability that each participant could experience while working with a group...has five sources:
- each person's existing skill and knowledge, brought out and guided by focused conversation, that is, the influence of the group...,
- the willingness of group members to submit their presuppositions and biases--their individual registration of experience--to the examination and influence of peers;
- the experience of guiding, teaching, and influencing peers:
- the confidence gained as each member of the community, with the support of other members, experiences and survives the risk-taking transitions involved in learning, and
- the stress each group member experiences under the pressure of having to evaluate the work of other members of the group."--Bruffee, Collaborative learning: Higher education, interdependence, and the authority of knowledge, 1993, p. 108.

"Nearly without exception, these [successful] students have at least one, and often more than one, intense relationship built around academic work with other people. Some have it with a professor. Others have it with an advisor. Some build it with a group of fellow students outside of the classroom. The critical point is that this relationship is not merely social. It is organized to accomplish some work - a substantive exploration that student describe as 'stretching' them. And nearly without exception, students who feel they have not net found themselves, or fully hit their stride, report that they have not developed such relationships. Any college can take several concrete and low-cost steps to help students work more collegially."--Light, Harvard assessment seminars, 1992, p 8

"By virtue of the social context, the group goal, and the semi-independence of each group, affective growth in collaborative learning situations develops differently than in traditional classroom. These three characteristics do not exist in classrooms in which the teacher delivers knowledge to silent students. Therefore, collaborative learning enhances student motivation, academic involvement, self-esteem, and interpersonal relations in a manner unavailable to lecture-based learning."-- Sandberg, "Affective and cognitive features of collaborative learning", 1990, p. 2.

"According to Johnson and Johnson (1986), there is conclusive evidence that cooperative teams achieve at higher levels of thought and retain information longer than students who work quietly as individuals. This kind of shared learning, therefore, gives students an opportunity to engage in discussion, take responsibility for their own learning, and thus become critical thinkers."-- Smith, "Shared learning promotes critical reading", 1989, p. 76.

"The Johnsons and their associates postulate four general guidelines for successful [peer collaborative] practice: positive interdependence among group members, face-to-face interaction, individual accountability, and appropriate use of social skills (Johnson et al, 1984). Recently, Slavin (1988) stressed the paramount importance of two conditions for achievement gains: individual accountability and group goals."-- Sandberg, "Affective and cognitive features of collaborative learning", 1990, p. 1.

"With collaborative learning, students not only learn the complexities of true problems, but they have both the emotional and the academic support of peers while they do it. This peer sustenance is missing in the traditional lecture courses that often prove to be unrewarding for students lower on the developmental ladder."-- Sandberg, Affective & cognitive features of collaborative learning", 1990, p. 2.

"Current research suggests that high-risk students, particularly returning women (Belenky, Clinchy, Goldberger, & Tarule, 1986), best develop affectively and cognitively with support of peers (Brookfield, 1987, p. 232; Johnson et al., 1984; Resnick, 1987; Slavin, 1983, 1988)."--

Sandberg, "Affective and cognitive features of collaborative learning", 1990, p. 2.

"Another important affective benefit of collaborative learning is students' enhanced self-esteem. Considerable evidence shows a collaborative environment will elevate a person's feelings of self-worth more than a competitive one (Aronson, 1978; Belenky et al., 1986; Johnson et al., 1984; Johnson & Johnson 1987; Slavin, 1983). Each group member fulfills an important and unique role in the collaborative process. Also the teacher is no longer the focus of the classroom; students must rely primarily on themselves and peers to solve the problem."-- Sandberg, Affective and cognitive features of collaborative learning", 1990, p. 2.

"Collaborative learning has as its main feature a structure that allows for student talk: students are supposed to talk with each other....and it is in this talking that much of the learning occurs." -- Golub, Focus on collaborative learning, 1988.

"Seven recommendations are warranted by the literature.

- Student peer groups are such a potent force in student development, that, even if not always well understood, the curriculum should be organized to make use of them.
- Although, traditionally, students are expected to do their own work individually, learning also may occur when students work cooperatively.
- Both peer teachers and peer learners learn.
- Involving students in the planning of peer teaching programs helps to develop future college teachers.
- Students like to become peer teachers because they seek closer relationships with faculty.
- Learning may increase with a blend of situations in which professors are present and are not present.
- Allowing, or even contriving, situations in which students teach each other may be one of the most important services a teacher can render his, or her, students."-- Whitman, Peer teaching, 1988, pp. 60-61.

"One way of integrating all students is to make sure our learning communities are open communities. We must make sure that the classroom does not disenfranchise or isolate students by their structure or by their content. We have to be concerned about the classroom experience as a liberating, integrative experience for all, not just some, students. We also have to think about the ways in which the classroom experience can lead students to develop supportive, rather than competitive, peer relationships, that is, we must seek ways to integrate, not isolate, the academic and social experiences of students. To have one without the other is a mistake."-- Tinto in Spann, "Student retention", 1990, p. 22.

F. Educational Psychology Need for Peer Collaborative Learning Groups: Constructivism

In recent years 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 (ages 0-2), preoperational stage (ages 2-7), concrete operations stage (ages 7-11), and formal operations stage (ages 11 and up).

"Many modern researchers share several core assumptions about learning. First, learning is an active process of knowledge construction and sense-making by the student. Second, knowledge is a cultural artifact of human beings: we produce it, share it, and transform it as individuals and as groups. Third, knowledge is distributed among members of a group, and this distributed knowledge is greater than the knowledge possessed by any single member."--Leinhardt, "What research on learning tells us about teaching," 1992, p. 23.

"If learning is a social act, more akin to the process of socialization than instruction (Resnick 1990), the criteria for judging teacher effectiveness shifts from that of delivering good lessons to that of being able to build or create a classroom 'learning community.'"--Prawat, "From individual differences to learning communities-our changing focus,"1992, p. 12.

"Constructivists make a distinction between information and knowledge. Information can be 'given' or easily transmitted through telling and information is all that is necessary to achieve correct performance. Thus, when the purpose of instruction is to transmit information and to get correct performance, explanations do nicely. On the other hand, knowledge is something that cannot be simply transmitted or given. Gaining knowledge means gaining expertise. Constructivists take the position that explanation will not help transform a novice into an expert. In fact, explanations very often serve to perpetuate remedial processing tendencies."--Blais, "Constructivism: a theoretical revolution in teaching," 1988, pp. 3-4.

"[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.

"But in a heterogeneous group that includes diverse experience, talent, and ability, people's 'zones of proximal development' overlap. The distance between what the group as a whole already knows and what its members as a whole can't make sense of for love nor money--the area of what as a whole they can learn next--is likely to be fairly broad. As a result, I may be ready to understand a good deal more as a member of a working group than I would be ready to understand by myself alone."--Bruffee, Collaborative learning: Higher education, interdependence, and the authority of knowledge, 1993, p. 39.

"What the child can do in cooperation today he can do alone tomorrow. Therefore, the only good kind of instruction is that which marches ahead of development and leads it...."--Vygotsky, Thought and language,1962, p. 104.

"Collaborative learning assumes instead that knowledge is a consensus among the members of a community of knowledgeable peers -- something people construct by talking together and reaching agreement. This is the understanding of knowledge that Thomas Kuhn describes on the final page of his seminal book The Structure of Scientific Revolutions, when he says that knowledge is 'intrinsically the common property of a group or else nothing at all.' Understanding knowledge in this way goes by an ungainly name: nonfoundational social construction."--Bruffee, Collaborative learning: Higher education, interdependence, and the authority of knowledge, 1993, p. 3.

"College and university teachers are likely to be successful in organizing collaborative learning to the degree that they understand the three kinds of negotiation that occur in the nonfoundational social construction of knowledge: negotiation among the members of a community of knowledgeable peers, negotiation at the boundaries among knowledge communities, and negotiation at the boundaries between knowledge communities and outsiders who want to join them."--Bruffee, Collaborative learning: Higher education, interdependence, and the authority of knowledge, 1993, p. 63.

G. Academic Enrichment for All Students

Ten Principles About Learning:

1. Learning is fundamentally about making and maintaining connections.
2. Learning is enhanced by taking place in the context of a compelling situation that balance challenge and opportunity.
3. Learning is an active search for meaning by the learner - constructing knowledge rather than passively receiving it, shaping as well as being shaped by experiences.
4. Learning is developmental, a cumulative process involving the whole person.
5. Learning is done by individuals who are intrinsically tied to others as social beings.
6. Learning is strongly affected by the educational climate in which it takes place.
7. Learning requires frequent feedback if it is to be sustained, practice if it is to be nourished, and opportunities to use what has been learned.
8. Much learning takes place informally and incidentally, beyond explicit teaching or the classroom in casual contacts.
9. Learning is grounded in particular contexts and individual experiences, requiring effort to transfer specific knowledge and skills to other circumstances.
10. Learning involves the ability of individuals to monitor their own learning, to understand how knowledge is acquired, to develop strategies for learning based on discerning their capacities and limitations, and to be aware of their own ways of knowing in approaching new bodies of knowledge and disciplinary frameworks.

–American Association for Higher Education, American College Personnel Association, & National Association of Student Personnel Administrators, Powerful partnerships, 1998

Principles of Good Practice for Student Affairs:

1. Engages students in active learning.
2. Helps students develop coherent values and ethical standards.
3. Sets and communicates high expectations for student learning.
4. Uses systematic inquiry to improve student and institutional performance.
5. Uses resources effectively to achieve institutional missions and goals.
6. Forges educational partnerships that advance student learning.
7. Builds supportive and inclusive communities.

-- ACPA and NASPA, Principles of good practice for student affairs: Statement and inventories, 1997.

Seven Principles for Good Practice in Undergraduate Education:

1. Good practice encourage student-faculty contact.
2. Good practice encourages cooperation among students.
3. Good practice encourages active learning.
4. Good practice gives prompt feedback.

5. Good practice emphasizes time on task.
6. Good practice communicates high expectations.
7. Good practice respects diverse talents and ways of learning.

– Chickering & Gamson, "Seven principles for good practice in undergraduate education," 1987.

IV. Learning Assistance Center Design

Ruth Talbott Keimig. (1983). Raising academic standards: A guide to learning improvement. ASHE-ERIC Higher Education Report No. 4. Washington, D.C.: Association for the Study of Higher Education.

"Successful learning improvement programs are broadly described as having two dimensions: comprehensiveness and institutionalization." (p. 3)

"Successful programs are integrated into the academic and social mainstream, avoiding the punitive, low-status overtones and the 'you cure them' mentality connoted by isolation within a separate remedial component." (p. 15)

"In the Hierarchy of Learning Improvement Programs, four basic program types are described and ranked, differentiated by the extent to which they are comprehensive in response to the various needs of students and institutionalized into the academic mainstream.

- Level I: Isolated courses in remedial skills.
- Level II: Learning assistance to individual students.
- Level III: Provides course-related supplementary learning activities for some objectives.
- Level IV: Comprehensive learning system in the course." (p. 4)

A. Level I Programs

"It is increasingly recognized that generalized approaches to remedial and tutorial assistance are less likely to be effective than those targeted at specific aspects of learning within the academic courses in which the need for the knowledge or skill becomes apparent (Gordon 1975)." (p. 21)

"Separate remedial, basic skills courses are at the lowest level in the Hierarchy because they are the least likely to effect long-term academic achievement and persistence and because they tend not to foster the shared problem solving (with other faculty and counselors) that leads to providing improved and responsive learning environments in the regular academic program." (pp. 21-22)

B. Level II Programs

"Learning assistance to individuals [Level II] is not effective as a total program, however. Tutorial assistance to individuals, when it is the only service, is the least successful for students' overall success because it fails to address students' very real weaknesses in knowledge and skills (Cross 1976). Such informal or "walk-in" learning assistance has several major disadvantages:

- it is not systematic;
- it tends to be used too little, too late;
- it happens after a failure has occurred rather than earlier to prevent the failure (Grant and Hoeber 1978); and
- it usually is avoided by the students who need it most." (pp. 22-23)

C. Level III Programs

"Systematic coordination of developmental objectives and activities into academic course assignments distinguishes the Level III programs from the lower level programs. All the students within a given class or course have the opportunity to participate in the supplementary activities." (p. 23)

"The feature that distinguishes Level III from Level II learning centers is the link of services to specific academic courses in Level III. Through this link, faculty receive help both for students with needs that faculty are ill-equipped to handle and with the extremes of diversity that have increased the instructor's workload (Cross 1976)." (pp. 23-24)

"The assumption in Level III programs is that the college must provide whatever extra instruction is necessary to bridge the gap between students' skills and knowledge at entry and those required to master the material." (p. 23)

"[With Level III] students' learning needs are presented as being necessary because of the nature of the objectives and content of the course rather than because of students' deficiencies. Therefore, all students have access to supplementary...instructional experiences, which benefit nonremedial students as well (Gordon 1975)." (p. 23)

"In a Level III program, adjunct learning experiences for review, reinforcement, and/or reteaching of selected requisite topics are integrated into the ongoing requirement for the course." (p. 23)

"Through a variety of assignments, including media, tutorial, and small-group learning experiences, students [in Level III programs] receive additional directed instructional time with important course content. They may have to demonstrate competency as well." (p. 23)

"Mastery learning technology, in which students practice and restudy until they demonstrate mastery, is particularly suited to Level III programs. It is the most effective of single developmental components for achieving academic

success for the underprepared student (Cross 1976)." (p. 23)

D. Level IV Programs

"In Level IV programs, the assumption is that the total educational experience within the course should be systematically designed according to the principles of learning theory. The student's overall developmental needs are provided for, including interpersonal and affective needs and cognitive and requisite skills. The instructor monitors students' responses (including learning) and adjusts teaching strategies and learning experiences individually." (p. 24)

"Comprehensive programs [Level IV] represent the highest level in the Hierarchy of Learning Improvement Programs because they are most likely to improve students' learning and to effect change in academic instruction." (p. 25)

"Comprehensive systems are best evolved out of the experiences derived from lower level programs for three reasons: (1) the lower level support components must be in place to provide auxiliary learning experiences for the courses; (2) the experience that developmental and regular instructors obtain in implementing lower level services provides planners with the knowledge and confidence they need to establish comprehensive systems; (3) continued, quiet, incremental change is more likely to occur and be accepted than massive reforms undertaken all at once (Levine 1978)." (pp. 25-26)

V. 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

VI. 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"

7. International dissemination to over 620 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 because that perspective puts the burden of responsibility on the service providers. 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. Robert Blanc, Ph.D., is to be credited with anchoring SI in a developmental framework and for designing the original research studies.

1. Constructivism
In recent years 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.

"[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.

2. 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."

3. Vincent Tinto and 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.

4. Claire Weinstein and 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 seems 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 Institutions 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 good 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.

5. Cost effectiveness of SI
   a. Comparison to one-on-one tutoring costs
   b. Additional revenue due to increased reenrollment and graduation rates of SI participants.

VII. Summary Comments

"We must find ways of teaching students how to: analyze facts; generate and organize ideas; defend opinions; make comparisons; draw inferences; evaluate arguments; and solve problems."-- Paul Chance, 1985.

Principles of Effective Retention

- Effective retention programs are committed to the students they serve. They put student welfare ahead of other institutional goals.
- Effective retention programs are first and foremost committed to the education of all, not just some, of their students.
- Effective retention programs are committed to the development of supportive social and educational communities in which all students are integrated as competent members. -- Tinto, Leaving college, 1993, pp. 146-147

Seven action principles for successful implementation of retention programs:

- Institutions should provide resources for program development and incentives for program participation that reach out to faculty and staff alike.
- Institutions should commit themselves to a long-term process of program development.
- Institutions should place ownership for institutional change in the hands of those across the campus who have to implement that change.
- Institutional actions should be coordinated in a collaborative fashion to insure a systematic, campus-wide approach to student retention.
- Institutions should act to insure that faculty and staff possess the skills needed to assist and educate their students.
- Institutions should frontload their efforts on behalf of student retention.
- Institutions and programs should continually assess their actions with an eye toward improvement.-- Tinto, Leaving college, 1993, pp. 148-153.

"[R]etention should not be the ultimate goal of institutional action. Though it may be a desirable outcome of institutional efforts, retention alone should not be the long-term object of those efforts. Instead, institutions and students would be better served if a concern for the education of students, their social and intellectual growth, were the guiding principle of institutional action. When that goal is achieved, enhanced student retention will naturally follow."-- Tinto, Leaving college, 1993, p. 4.

"Overall thought tends to lead to attempts at overall action, but overall action tends to lead to overall resistance. Piecemeal action tends to follow piecemeal thought. The difficult task is to get overall thought and then to have the patience and the persistence to carry out its conclusions one at a time."-- President Lowell of Harvard University in Missions of the college curriculum, 1938.

"The difference between heaven and hell is that in hell people are mournfully sitting around a magnificent feast with three-foot chopsticks manacled to their wrists, not knowing how to get food into their mouths. In heaven they feed each other."-- Chinese Proverb

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Other Resources of Possible Interest

Collaboration in Undergraduate Education (CUE), Robert Matthews, Associate Dean for Academic Affairs, LaGuardia Community College, 31-10 Thomson Avenue, Long Island City, NY 11101 (718) 482-5405
The Cooperation Company, P.O. Box 422, Deer Park, CA 94576 (707) 963-5689
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Cooperative Learning Center (David & Roger Johnson), 202 Pattee Hall, 150 Pillsbury Drive, SE Minneapolis, MN 55455 (612) 624-7031
Cooperative Learning Magazine, International Association for the Study of Cooperation in Education, Box 1582, Santa Cruz, CA 95061-1582 (408) 426-7926
National Center on Postsecondary Teaching, Learning, and Assessment (NCTLA). The Pennsylvania State University, 403 South Allen Street, Suite 104, University Park, PA 16801-5252 (814) 865-5917
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For more information on this topic contact:

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