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ATTRITION RESEARCH: IMPLICATIONS FOR QUALITY IN COMMUNITY COLLEGE EDUCATION

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Increased quality in community college education has become a major issue in Canada. When measured in terms of educational outcomes rather than institutional reputation or inputs, the need for research on how colleges effect change in students becomes obvious. This article presents a model of how educational outcomes are achieved and the impact of student diversity. The implications of attrition research for improving the quality of community college education are discussed.

Considerable agreement exists regarding the need for increased quality in Canadian postsecondary education. National and provincial bodies have highlighted this need within a human resource development context (Economic Council of Canada, 1992; Employment and Immigration Canada, 1992; Ontario Council of Regents, 1992). Others have identified scientific and technological training as critical areas for Canadians adjusting to international economic competition (National Advisory Board on Science and Technology, 1991; Premier's Council on Economic Renewal, 1993; Porter, 1991).

Employer groups have also voiced their concern (Canadian Chamber of Commerce, 1989; Canadian Manufacturer's Association, 1990; Corporate-Higher Education Forum, 1993). Business leaders recognize that, along with the clear need for technological skills, their employees require flexibility to adjust to rapid job-related changes. Business leaders need graduates who are innovative, willing to create and pursue long-range company strategies, able to calculate and assume risk, and who have the interpersonal skills necessary for effective teamwork (Corporate Council on Education, 1992; Evers, Rush, Krmpotic, & Duncan-Robinson, 1993). There is a consensus that gains in quality are necessary.

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The need for quality assessment has been raised within the post-secondary system itself. In Canada, where many people are discouraged about public education (Boyle, 1992), educators often tie improved quality to increased funding. Such demands for additional financial support in the pursuit of educational excellence are, however, not likely to be met (Cutt & Dobell, 1990; Public Affairs Management Inc., 1991; Smith, 1991). As Cameron (1987, p. 11) has pointed out, it cannot be specified how funding cuts have affected quality "because we have very few and very weak indicators of performance in postsecondary education." More recently, it has been noted that the quality debate is characterized by "a remarkable absence of specifications of just what is meant by 'quality'" (W. G. Webster, 1990, p. 76). Systematic assessment of educational quality at all educational levels is in its infancy in Canada.

CONCEPTS OF QUALITY

Quality as a construct has been defined and measured in a variety of ways. The reputational or resource approach equates the presence of certain organizational inputs with quality. The accreditation process, in use in the United States since the early 1900s, is an example of this approach. Contemporary examples are *Maclean's* ("Ranking the Universities," 1991; "The Universities," 1993) ranking of Canadian universities and the *U.S. News and World Report* special edition "America's Best Colleges" (1993).

Bogue and Saunders (1992) have identified problems with the ranking approach. They noted that the temptation to fudge self-report data is intense, considering the effects the exercise has on applications and enrollment. In addition, they pointed to yearly variations in the rank order of institutions, a period far too short to suggest dramatic changes in quality. Indeed, Webster (1992) argued that changes in the *U.S. News and World Report* rankings result from methodological revisions.

It is also noted (Bogue & Saunders, 1992) that the evaluation of an institution's reputation is often influenced more by familiarity with the institution in question than by anything that happens to students while in the institution. Astin (1985) has indicated that raters view even poorly functioning departments in high-ranking colleges favorably because of the colleges' traditional reputation. This is what Astin described as the "halo effect" of American higher education folklore.

Astin (1985) questioned the resource view of quality in that resources can be used in ways that do not affect student learning and development. In addition, he noted that resources, reputation, and selectivity are mutually reinforcing. Reputation attracts resources and applications for

admission, which tend to force more stringent admission standards, which add to reputation, in a continuous spiral.

A comprehensive review of research on higher education processes has led Pascarella and Terenzini (1991) to conclude that any advantage offered by highly selective colleges is almost entirely dependent on the precollege characteristics of the students they enroll. Thus, it appears that reputation, resources, and selectivity correlate poorly with the actual changes students go through during and after college. The same limitations that U.S. researchers have attributed to media surveys apply in Canada.

A viewpoint gaining prominence is that selectivity, reputation, and resources are input measures that may in fact be barriers to effective educational practice (Bok, 1990). Astin (1985) and Gilbert (1989) insisted that some colleges deny opportunity to people who would benefit from a postsecondary education by restricting access to high-achieving high school graduates. In Astin's opinion, college entrance requirements indicate nothing about institutional processes that affect the development of talent in students, which for some may be a more appropriate measure of quality.

D. Webster (1992), however, recognized that widely publicized ratings, although deficient, have at least initiated discussion about how excellence in postsecondary education might better be defined. One of the effects of the *Macleans*' ("Ranking the Universities," 1991; "The Universities, 1993) ranking in Canada has been increased debate within higher education about providing the public with better performance measures (Lewington, 1992).

More recently, outcomes, value-added measures, or both have been advocated as more appropriate measures of quality (Astin, 1982, 1985). Many currently believe that educational quality, or the lack of it, can only be identified by measuring institutionally induced change exhibited by students (Bogue & Saunders, 1992; Evers & Gilbert, 1991; Gilbert, 1989; Nadeau, Donald, Konrad, Laveault, & Lavigne, 1992; Pascarella & Terenzini, 1991). The emphasis on outcomes reflects a movement toward focusing on what the student learns as a critical indicator of quality. This approach has particular import for community colleges and is also consistent with the perspective adopted by government and employers in their calls for increased quality.

THE HIGHER EDUCATION ENTERPRISE

A conceptual model of the community college enterprise can be of great value in assessing and improving quality (Dietsche, 1994). At the core of the community college industry is the principal function of educating

students (Bowen, 1977), in which education is defined as including both curricular and extracurricular influences. Its purpose is to change students in both the cognitive and the affective aspects of their personalities and to prepare them for employment. The focus, therefore, is on outcomes.

In performing its education function, colleges are engaged in the production of learning. Each college uses resources in the form of labor, land, durable capital, and services. These resources are deployed within the organization to “produce” learning through instruction. In this way, higher education “transforms” resources into the desired product. The quantity and quality of the product are determined by the amounts and kinds of resources used, and by the way they are used. Traditionally, the resources are referred to as inputs, the products as outputs, and the way in which they are used and organized as technology or processes. Learning emerges from this productive process and is available for consumption.

Within a community college, inputs are students, teachers, and physical plant. Processes consist of classroom teaching and learning and the environment or culture created by the interaction of individuals within the institution. Outputs are complex and varied, but for the purposes of this discussion are defined as student success and persistence. A critical task for organizational managers is deciding which processes will best achieve these desired outputs. Knowledge of inputs, as in the resource approach to quality, does not necessarily tell one anything about what outputs will be attained.

A college achieves its production by creating an environment calculated to change people—what Bloom (1976, p. 18) called “growth inducing climates.” This environment consists of several closely interrelated parts, one of which Bowen (1977) termed a *culture*. This consists, in part, of the prevailing technologies, administrative organization, degree requirements, curricula, methods of instruction, workloads, and extra-curricular activities. The culture also includes the common values, expectations, standards, assumptions, traditions, general atmosphere, and behavior patterns of the people involved (Peterson & Spencer, 1990).

The people and the culture interact in complex ways. For example, students each bring to their colleges a unique set of interests and traits, and they each interact with their fellow students, exerting influence on one another. Through such interplay a student subculture evolves that becomes an influential source of change for all individuals who are introduced to it. Similarly, individual faculty and staff bring to an institution their unique interests and traits. Individually and collectively they create a subculture that influences their own members and

also their students. The sum of the various subcultures, including the interactions among them, becomes a total campus culture.

The work of Pace and his colleagues (Pace, 1975; Pace & Friedlander, 1979) has documented the importance of this institutional culture in promoting student achievement. The effect of any given institutional environment may be quite different for students of varying entering characteristics. Moreover, each institution is unique and has a special environmental "press" that is "found in the characteristic pressures, stresses, and conformity demanding influences of the college culture" (Pace, 1975, p. 4). Thus, it may be expected that the outcomes for different students in the same institution will vary, as will the outcomes for comparable students in different institutions.

Bloom (1976) has argued that certain combinations of inputs (students) and processes (educational technology and culture) will be better than others in achieving the desired outputs (learning and persistence). In addition, no single process will produce a given output when inputs vary widely, as they will with a heterogeneous student population. The key to improving quality, therefore, is understanding which processes produce the desired outcomes for different types of institutions and students. The results of attrition research can make a significant contribution to this understanding.

IMPLICATIONS OF ATTRITION RESEARCH

Research on attrition in the 1980s has largely attempted to validate the person-environment fit model of attrition (Tinto, 1975, 1986) in different types of postsecondary institutions. This model focuses on the importance of the student-institution interaction in determining departure and is consistent with the description of the higher education enterprise presented above. Both conceptualizations emphasize the role of educational processes in determining outcomes.

A number of investigators (Dietsche, 1989, 1990; Pascarella & Chapman, 1983) have shown that the variables influencing attrition vary according to institution and student type. In commuter versus residential institutions a major difference is found in the relative contributions of Tinto's (1975) constructs of institutional and goal commitment. Institutional commitment, the degree to which a student desires to attend a specific college, has a much stronger direct effect than goal commitment in residential institutions. However, goal commitment, the degree to which a student wishes to complete a program, has a somewhat stronger direct effect than institutional commitment in commuter colleges, which includes most community colleges.

A second notable difference across institutions is in the role played by Tinto's (1975) central concepts of social and academic integration. The findings suggest that in nonresidential institutions, including community colleges, commitment to the institution at the end of the freshman year is defined largely by successful and personally satisfying interactions with the academic systems rather than the social systems of the institution. It may well be that in many commuter institutions the opportunities for social involvement are sufficiently few that the concept of social integration has little meaning in terms of bonds to the institution (Chickering, 1974).

The role of student background characteristics relative to those that reflect the nature of the student-institution interaction in influencing voluntary dropout also appear to differ in commuter and residential institutions. Several studies (Munro, 1981; Pascarella & Terenzini, 1983) have found that in residential institutions the influence of background characteristics is largely indirect, mediated by social integration, the commitment variables, or living on campus. Conversely, in commuter colleges the impact of background characteristics on persistence is not totally transmitted through the freshman year experience. Rather, high school achievement and affiliation needs have a direct effect on persistence.

Student Diversity in Higher Education

The heterogeneity of the North American college student population is well known (Dennison, 1974; Dennison & Gallagher, 1986). The classic literature on persistence and college performance has generally concluded that background characteristics are some of the most reliable predictors of success. High school grade point average (GPA), socioeconomic status, and parental education have continually emerged to predict persistence or college GPA (Astin, 1975; Pantages & Creedon, 1978). Although most of the early literature did not differentiate among campus groups, the assumption remained that background characteristics were the most salient factors in predicting a student's persistence in college. Recent research, however, has shown that this is not the case when comparing commuter and residential institutions. Two additional caveats may be noted. First, many of the early studies did not differentiate between voluntary departure and institutional dismissal. For the latter group, academic background can play a more significant role in determining the outcome it did than for the former (Dietsche, 1989). Second, although variables like high school GPA were often the largest

predictors of persistence, they typically accounted for only 10 to 12% of the variance in explaining persistence (Dietsche, 1989; Tinto, 1986).

Although recent studies still focus on traditional measures of academic preparation, a growing body of research has examined other factors associated with success and persistence. Much of this research is finding that measures of academic preparation continue to be important, but that other variables, particularly those that reflect the student-institution interaction, are also important (Astin, 1982; Bean & Metzner, 1985; Dietsche, 1994). The literature has indicated the importance of such factors as the commitment to academic or occupational goals and the student's academic behavior, confidence, and attitudinal characteristics (Astin, 1985; Pace, 1984).

Years of research on factors associated with persistence and performance have not clearly identified the role of background characteristics. A danger is present, however, that the role of traditional measures of preparation will continue to be overemphasized. This is inconsistent with current research that has highlighted the complex nature of the problem and ascribed an important role to the institution, the collegiate experience, and other noncognitive variables. In fact, educational background may not be nearly as important as the behavior resulting from a lack of self-confidence and nonsupportive learning environments (Nettles, 1988). Although traditional forms of academic preparation cannot be ignored, these elements play a greater role for some students than for others and in some institutional contexts than in others. In terms of the student's characteristics, other noncognitive factors need to be understood, considered, and emphasized. Moreover, the institutional responsibility for these issues cannot be ignored. The institution, the culture, and the student all play roles in determining success and persistence.

IMPLICATIONS FOR PRACTITIONERS

The implications of attrition research for improvements in the quality of community college education focus on the management of the higher education enterprise (Dietsche, 1994). Evidence has indicated the importance of understanding the productive process; different types of students in different institutions will respond differentially to various learning environments. Principles and practices that may improve student success and retention, indicators of quality from an outcomes perspective, also apply to improvements in quality more generally.

PRINCIPLES OF RETENTION

Strive for Educational Excellence

Given that one of the community college's principal functions is the development of its students, increased retention and graduation rates signify improved quality. Retention strategies, therefore, should be conceived and implemented within a context of educational excellence.

Create an Organizational Culture

A culture is defined by the shared values, beliefs, or ideologies that members have about their organization or its work (Peterson & Spencer, 1990). Valuing educational excellence, student satisfaction and development, and quality in services is the foundation of successful retention. Although these may be idealized in mission statements, it is more important that they be actualized within the organization. Presidents and vice presidents can play a critical role in this area.

Maximize Institutional Involvement

Involvement in several areas is critical to the success of retention efforts. Institutional research is the most important of these. Attrition studies have shown that the determinants of student departure vary with the characteristics of institutions and their clientele. In addition, departure is not a unitary phenomenon; students leave in different ways and for different reasons. The features of a retention strategy depend, therefore, on the type of institution and student. Community colleges need to collect information on (a) the nature and causes of student departure, (b) the nature of student educational outcomes more generally, and (c) the role of institutional processes (culture, structure, and function) in determining these outcomes.

Research results may then be used to create efficient and effective retention initiatives and, ultimately, to increase quality from an outcomes perspective.

Maximize Student Involvement

Just as organizational involvement improves institutional retention efforts, student involvement promotes persistence in college. Strategies that increase students' participation in the academic and social environments are desirable. Students who develop strong ties to an institution are more likely to stay.

Involvement is as multidimensional as the experience of college life. It includes the academic domain of faculty, courses, texts, tests, and grades. Also significant are students' perceptions of costs and benefits. When perceived costs exceed benefits, involvement will decrease. As perceptions are subjective, they are strongly influenced by students' affective responses to the academic domain. The more positive the orientation to program faculty, courses, material learned, and future payoff, the greater the involvement.

Involvement includes the social domain of friends, acquaintances, extracurricular activities, and interaction with college staff. Generally, the greater the social involvement, the higher the probability of persistence. However, once again students' affective responses to their degree of social involvement are important. Experiences of isolation and discrimination and a lack of peer support could lead to negative affect and departure from the institution.

Maximizing student involvement and persistence, therefore, requires a focus on more than the student's cognitive development traditionally measured through grades. Academic achievement and cognitive development are important, to be sure. So too, however, are the social domain and students' emotional responses to their community college experience in both areas. Attention to these issues is more likely to produce effective retention strategies.

PRACTICES FOR STUDENT RETENTION

Student-oriented data gathered by means of an integrated program of institutional research can serve as the foundation for improved retention and success. The creation of a computerized database with information on students' backgrounds, entry level, characteristics, interactions with the academic and social systems of the college, and outcomes provides the foundation for the delivery of quality education. Such systems have been developed and implemented by many community colleges (Roueché & Baker, 1987). One has been developed as part of a comprehensive study of freshman attrition in an Ontario community college (Dietsche, 1989). The student-oriented database may be used to describe and explain the production function within a college. This is accomplished by collecting data on student characteristics as students enter the college and integrating them with measurements of their collegiate experiences. This information may then be used to inform six specific activities designed to improve retention and success.

Freshman Profiles

Freshman profiles provide a description of the academic background, demographic characteristics, skill development needs, and attitudes of the new students in each program on a yearly basis. This information, collected for each student cohort, supports and facilitates the program planning and review function. Changes in the characteristics of students entering college programs over time may require changes to the curriculum or support services. In addition, profile data can provide program faculty with a better understanding of their students.

Early Warning System

A major problem in promoting retention within a context of financial constraint is the efficient use of finite resources. The ability to identify those students most likely to drop out can greatly improve the targeting of retention programs to those who need it most. For example, faculty advising programs have been shown to be very effective in promoting persistence (Beal & Noel, 1980; Noel, Levitz, & Kaufmann, 1982). An early warning system can be used to match advisors to students who could benefit most from such support.

Monitor Student Progress—Attitudes

During the course of the first term, information is collected on variables associated with departure, such as students' level of academic integration, intention to leave college, and confidence in success. At mid-semester, these data would be available to program staff who could then monitor students' progress and attitudes and intervene in cases where dropout was highly probable. The consequences of such action would be an improved integration of students into their program, the resolution of student problems and concerns before they precipitate a departure decision, and as a result, increased rates of academic success and retention. It is worth noting that grades, which are the traditional feedback measures regarding student progress, are not reliable predictors of voluntary withdrawal (Dietsche, 1990, Tinto, 1975).

Program Analysis

The integration of information on student background characteristics and college experiences, including achievement in each course, constitutes student outcomes data expressed as success versus failure and persistence versus departure. These data may be used for certain types

of program analysis. Specifically, a comparison of the course performance of persisters and dropouts by program will identify those courses that are problematic for the latter group. Often, one or two courses present difficulties of such magnitude that some students lose confidence, become discouraged, and drop out. Identification of these courses could lead to the development of support services targeted to these students, modification of the curriculum, or both. College programs have rarely been analyzed from this perspective (Hart, 1988). It is possible that small changes to the sequencing of courses could have a dramatic impact on attrition rates.

CONCLUSION

The implementation of a student-oriented institutional research program can provide community college administrators with valuable information that they presently do not possess—information on what is actually happening to students within their institution. The use of this information in planning and decision making could provide the means for reducing student attrition and failure. To achieve these goals, however, senior community college administrators must consider issues beyond the traditional areas of faculty, facilities, and finance and adopt specific policies and procedures dedicated to understanding the educational process. Ultimately, this could lead to an improvement in the quality of postsecondary education, where quality is defined in outcomes rather than input–resource terms.

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