A CIS RETENTION SYSTEM MODEL TO ASSIST PROGRAM PLANNING

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ABSTRACT

The student's enrollments in the Computer Information Systems (CIS) programs in University and College have been increasing rapidly in the decade. However, there is only less than 65% students are able to successfully graduate within the regular academic years. Problems related to students dropped out in the middle from the program that must be addressed by CIS educators today have become increasingly complex, ambiguous, and interrelated. In order to more effectively understand the complexity of the real world, system styles that encourage scenario planning should be used. A generic CIS retention system model has a subtle role as an instrument to support strategic planning, course developments, and advising in CIS administration. In this respect, they are quite similar to qualitative problem structuring approaches used by student advisers and curriculum developers. The objective of this paper was to develop an integrated model of a CIS retention system. The relationships in the model are designed to be simple and do not necessarily represent any particular CIS system. It is meant to be a generic CIS retention system model with emphasis on implications for curriculum planning and program decision-making. It allows CIS administrators to move away from the persistent belief that there are elements as unilateral causation, independent and dependent variables. The interrelationships of five primary sectors that are at the foundation of CIS retention are presented in this paper. They include [1] economics, [2] family matters, [3] course contents, [4] job market, and [5] academic resources. There are interactions within each of these sectors depicted by feedback loops.

Keywords: CIS system, retention, programming planning, integrated model, interrelationships.

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INTRODUCTION

In the past five years, the demand for workers with skills in computer information systems has escalated faster than the supply of college graduates in these programs. The traditional four-year undergraduate programs produce a limited number of students that complete degrees in computer information systems and related disciplines. This shortage of degreed information systems professionals is projected to continue for the next ten years. Higher education institutions must address this issue in an era of constrained resources and high demand for computer information systems graduates. Although most CIS programs are ranked as the top three enrollments among all the colleges and universities, the drop rate is also on the top out of the academic units. According the Chronicle Higher Education 2000 report (9), there was only 65% CIS majored successfully completed the program. This is the premise for us to observe this problem and to build a framework with implication for CIS program decision maker.

PROBLEM STATEMENT

There are several issues that should be considered when investigating this dilemma. The most expeditious way to increase the number of computer information systems graduates is to increase retention in the programs and therefore improve the graduation rates. CIS programs while experiencing high enrollments often have mediocre graduation rates. The retention of students varies from program to program but there are common concerns that effect student success rates. There are factors effecting both students and academic units that contribute to student retention.

The potential problems for students include health issues, scholastic ability, family support, spouses, children, and job requirements. The average college student is a working adult with family and job responsibilities. There are numerous demands on their time and their education must integrate with the demands of their daily life. Many of these students are not familiar with the demands of the degree programs until after they have enrolled in courses and undertaken the degree.

Academic units face challenges in course and program development, student recruitment and advising, and student support services. What are the most effective teaching and learning strategies and how do they correspond to the student body in the program? Are advising procedures flexible and meeting the needs of the students? Is there meaningful interaction with the faculty and students? All of these factors can affect the persistence of students in the program.

Student retention issues include all the items identified for students and academic units. These items are interrelated and contribute to the success of the student in the program. The average student might be working a part-time job, supporting a spouse, and unable to meet the office hours for his advisor. There are numerous possible combinations of factors but it is unlikely that a single factor alone will significantly affect student success. The issue of retention requires a holistic viewpoint to observe the whole situation. This paper proposes a system model to be used as a tool for solving this problem.

OBJECTIVES OF THE STUDY

The intent of the study is to provide a framework for a CIS retention system to be used as a tool for program planning. The system model identifies five components used to explore the identified retention problems. The relationships between and among the components are identified and explained. The model will serve as the reference for policy decisions for a CIS retention system. Before discussing the objectives, the definition of retention must be established. For the purpose of this study, the definition of retention is the persistence of students in the program until successfully completing the curriculum and receiving a degree. There are four specific objectives of the study to complete the system model for CIS retention.

SYSTEM APPROACH

The useful of system approach is that it provides a much needed, objective frame of reference. Concepts such as system integration are invaluable as a tool in program planning. The system approach supplies a number of principles such as the one relating to the system elements. These principles will make analysis and problem solving easier and more effective because they fill the need of providing the basic and elemental ways of describing all retention potential problems, regardless of complexity or type (2).

The principles of system approach suggests that we can learn something about the way an effective social system should operate by using as a tool the analogy to a logically designed decision support system (1,6 ,7). System approach requires that the operations consist of a set of intimately related subsystems. The integration of subsystems is the key to effective and economic operation. In general, system approach can be divided into qualitative and quantitative system analysis. In this paper we adopted the qualitative approach to design a retention system based on the expert knowledge. The designed retention system serves as the foundation for CIS program planner and advisor.

CONCEPTUAL MODEL

The conceptual model for the retention system is based on five components and their interrelationships diagramed in Figure 1. These components include economic, family matters, course contents, job market, and the academic program. Economic factors include personal budget, educational investment, and economic changes. Family matters are defined as marriage, children, family support, and health issues. Course content refers to difficulty of the courses, scholastic preparation, and delivery methods. The job market includes current demand over supply and the number of prepared graduates reaching the job market. The factors defined in the academic unit are faculty interaction with students, advising, scheduling, course development, and student support services.

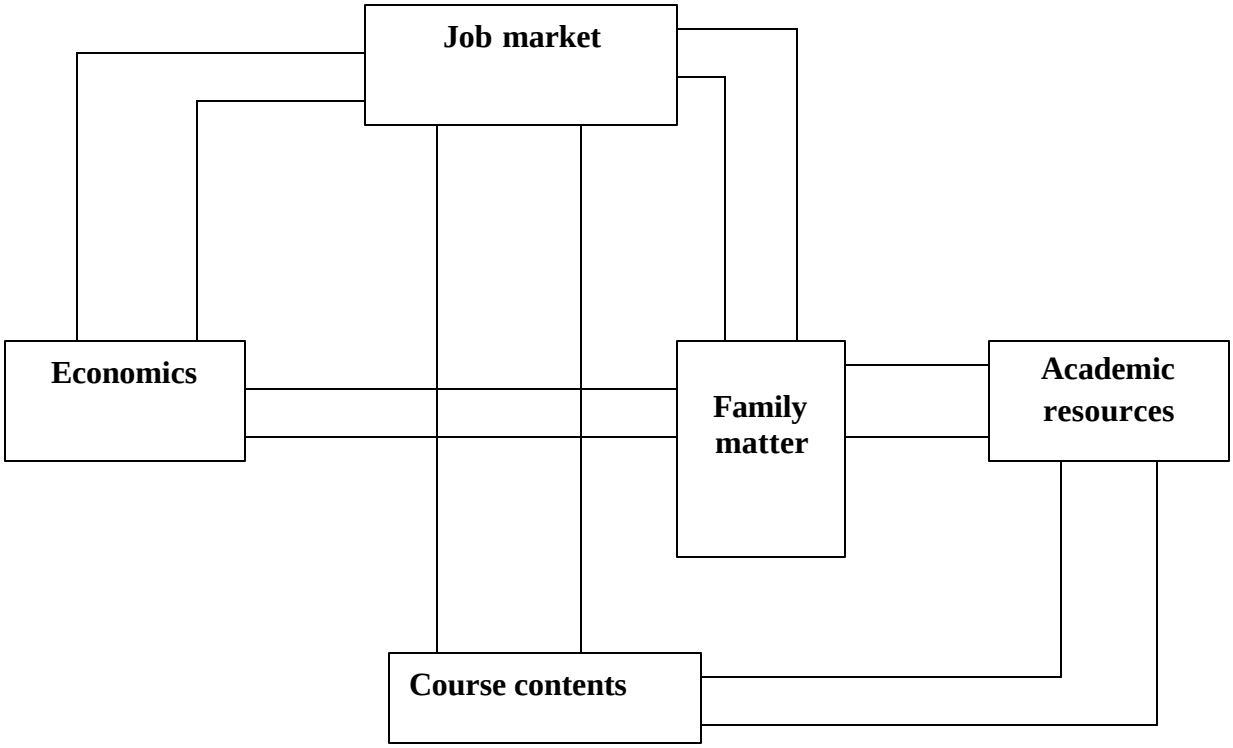

Figure 1 CIS Retention System

The interrelationships illustrated in Figure 1 are 1) job market to economics, 2) economics to family matters, 3) job market to course content, 4) course/program content to the academic resources, and 5) family matters to the academic resources.

The global and national economies and the job market directly affect the educational choices made by students. Students often choose to enter or leave school based on the job market. When the job market is decreasing, students often return to school to retrain in another field or to obtain a degree to increase their marketability. Conversely, when the job market is good, it is difficult to retain them in school. When the job market is strong, even if students persist in their education, they often drop from full-time status to part-time status.

The relationship between economics and family matters also influence students' persistence in CIS degree programs. A poor economy impacts student and family budgets. Students face choices of supporting their family or investing in education. This can affect whether they enter or choose to leave a program due to the financial requirements of their family. Examples include either a parent facing a reduction in wages that is supporting a child or children in college or an independent student with a family of their own to support.

The job market also influences course and program content in higher education. CIS units strive to provide the best and most marketable education for their graduates. In the information technology field, the subject matter evolves and changes rapidly. If a CIS program is teaching material that is outdated and not valued in the job market, students will choose to not enter or leave the program and seek a more updated curriculum. This affects both admissions rates and retention rates.

The relationship of course/program content to academic resources is important to both the student and the institution. It is important for students to know that changes in the courses/programs are conveyed to all appropriate university staff and that they will receive reliable and accurate advice based on the current status of the course or program. These people include: instructional designers, advisors, faculty, and student support staff.

The academic units often do not realize the major influence it has on family matters for students. Course scheduling and requirements sometimes impose unwarranted hardships on students. Students with employers imposing additional work hours or a family member that is ill often have difficulty meeting the traditional academic constraints. Flexibility in how the academic units approach these concerns can make a significant difference in retention rates.

These components and relationships are integral parts of the conceptual model and they are common factors for numerous students and academic institutions. The model was developed based on the experience of the authors as faculty members, advisors and academic administrators.

IMPLICATIONS

The model is a basis for the development of strategic planning for CIS retention. It is necessary to apply the system model to different institutional situations and observe the effectiveness. The model can be quantified as a simulation model for course planners and student advisors in academic units. The potential retention problems can be explored through scenario planning. This is a system approach to observe CIS retention problems and a tool to assist decision makers and planners. The conceptual system building process is based on expert knowledge and the academic unit's experience. Survey data will be collected in the future and applied to the model.

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