Systems in the Foundations of Information Systems Course to Retain Students and to Support the IS 2010 Model Curricula

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Abstract

Systems in the Foundations of Information Systems course can be used to connect with students in computer information systems programs; a systematic approach to beginning student relationship management in this course is helpful. The authors suggest that four systems be created in the Foundations Course. These theoretical systems include an overall student relationship management system with subsystems including a personal response system, a student mentoring system, and a knowledge management system. Each proposed system is briefly described with its potential benefits, specific examples of support for the IS 2010 Model Curricula, possible costs or issues, and suggestions on how to begin.

Keywords: IS 2010 Model Curricula, Student Relationship Management (SRM), Personal Response System (PRS), Clickers, Student Mentoring, Knowledge Management Systems (KMS), Foundations of Information Systems Course

1. INTRODUCTION

Undergraduate information systems faculty who wish their programs to remain current and relevant will want to consider the IS 2010 report. As budgets decrease, it behooves every program to find ways to recruit and retain students. Following a national curricula model can be a selling point. Further, it becomes increasingly valuable for faculty in information systems programs to "exploit opportunities created by technology innovations" (Topi, Valacich, Wright, Kaiser, Nunamaker Jr, Sipior and deVreede, 2010, p. 362) while supporting program objectives and working on comprehensive student relationship management.

While many systematic methods could be pursued, four proposed systems could be particularly relevant to initiate in the Foundations of Information Systems course. This course literally provides a foundation for the other courses in the curriculum which then may be taken in a variety of sequences, and not necessarily in a particular order. Consequently,

systems initiated here may be used throughout the information systems program in a variety of ways. The four suggested systems to implement in the Foundations course include an overall Student Relationship Management System (SRMS), a Personal Response System (PRS) also called clickers, a Student Mentoring System – particularly one that uses emerging technologies, and a Knowledge Management System (KMS). The latter three systems would feed data into and interface with the comprehensive student relationship management system.

The purposes of the proposed systems go beyond being part of the SRM in that they can provide specific support for various of the guidelines listed in the IS 2010 Model Curricula. These systems could also be used as part of a larger departmental effort to document retention efforts in order to obtain new or ongoing resources.

2. IS 2010 MODEL CURRICULA GUIDELINES

Revisions to the IS 2010 Model Curricula have been made through a "combined effort of numerous individuals and reflects the interests of thousands of faculty and practitioners. It is grounded in the expected requirements of industry and …is supported by …IS-related organizations." (Topi, et al., 2010, p.361) With this sort of support behind it, the IS 2010 guidelines provide valuable information for faculty endeavoring to make their Information Systems (IS) programs as relevant and up-to-to date as possible. Flexibility and agility have been built into the model when possible and a variety of programs will be able to shape their programs within it. Systems that can be used to support both the Model Curricula guidelines and additional program retention efforts are doubly valuable.

Role of the Foundations Course

Within the revised Model Curricula, the Foundations of Information Systems Course (IS 2010.1) serves to provide all students with a fundamental understanding of how information systems are designed and administered and how they benefit organizations. It is the first of the core IS courses. After taking this class, students may choose alternative sequences or electives. This class provides the initial point for building relationships with students and therefore provides the perfect place to initiate systems that may be used anywhere else in the program.

3. STUDENT RELATIONSHIP MANAGEMENT

As department and program budgets diminish, student retention becomes increasingly critical. Programs must fill classes and find resources. In some cases they must document how they are attempting to retain students. Customer Relationship Management (CRM) systems are common in business these days. Although the well-researched argument has been made that the "principles of an efficient CRM can be applied to the sector of higher education" (Hilbert, Schonbrunn and Schmode , 2007, p. 209), most Student Relationship Management Systems are not designed as comprehensively as a CRM. Effective CRM systems endeavor to track all interactions with the customer. (Kroenke, 2011) (Laudon & Laudon, 2011). SRM systems tend to be mostly focused on student admissions and registration rather than the support of academic activities within a department. (Piedade, 2008, p.1)

An SRM that is set up as an umbrella system that manages a multi-faceted strategic approach to interactions with students will contain a number of subsystems such as those described in this paper. Such a system would collect the data from these subsystems into a data warehouse and provide the analytical tools and processes to use the data effectively to enhance student relations and to document interactions. Each of the three systems initiated in the Foundations of IS Course would interface with a larger SRM.

4. PERSONAL RESPONSE MANAGEMENT SYSTEM

System Description

The first system to implement in the Foundations Course and hence the program, and perhaps the easiest to begin, is a Personal Response System (PRS) or clickers. A PRS requires wireless transmitter devices about the size of remote controls which are readily available, a receiver unit, and software. If the program's institution does not provide the receiver units, they may be obtained and carried to class by instructors. These systems allow for immediate feedback from an entire roomful of students, with each student's responses being captured and tallied. Visual feedback is also available so that graphs can be easily produced showing results of surveys or answers to questions. Students can purchase the clickers or it might be possible for the instructor to carry enough for a group. Maintenance of the clickers

primarily requires occasional battery replacement.

Values and Benefits

A PRS can be useful in a variety of ways and the system can provide immediate feedback. Several schools have found PRS beneficial for student performance within their programs. (Bruff, 2008) (Mula & Kavanagh, 2009) The rates of student participation have been shown to be significantly increased. (Stowell & Nelson, 2007) One of the authors has used clickers to enhance classroom interactions by creating games that use their capabilities. They can be used to poll students and increase understanding. (Caldwell, 2007) In at least one study reported in the *Journal of Information Systems Education*, students indicated that they perceived that they participated more in classes and attended more often when the class used clickers. (Nelson & Hauck, 2008) Additionally they capture data easily for a larger SRM.

Students who become accustomed to the PRS in the Foundations course would then be comfortable using it to answer survey questions in other classes throughout the program. Furthermore, they could use their same clickers throughout their program.

Specific Support for IS 2010 Model

The PRS provides specific support for several of the Foundations of IS Course learning objectives listed in the IS 2010 Model Curricula guidelines. (Topi, et al., 2010) Here are a few examples.

First a behind-the-scenes approach may be easily used for the system to readily demonstrate information system components: hardware, software, data, and network elements. This understanding particularly supports Learning Objective 6. Students can begin to learn to recognize an information system and to "understand how…(it can)… provide the information needed to gain business intelligence…" which is part of Learning Objective 10 for the IS 2010.1 course. Additionally, as students are polled and the results displayed and adaptations to the course are made as a response to the feedback, students can be shown how the system is useful as a way to "foster stronger relationships with customers", part of Learning Objective 11. Limitations of systems and Garbage In Garbage Out issues involving data can be easily shown with a PRS by using poorly constructed questions.

Costs and Issues

Hardware and software costs to the students and faculty are quite minimal. Once purchased for a nominal price clickers can be used for as many years as necessary and afterwards could be returned, sold, given or traded to others. Perhaps the largest cost for faculty would come in terms of time spent getting questions organized. Any decent quiz or survey question, regardless of whether clickers will be used, takes time to create. PowerPoint can be used to display the questions, and the system captures the question and the answers. Sometimes systems must be set up to work on varied frequencies for each room if numerous classes are using clickers. Security is not a huge issue with a PRS as data can be aggregated anonymously and pulled into the SRM without student identifying data.

Getting Started

Check to see if the institution housing the program supports clickers by offering the software to download, receivers in the rooms, and training. Some institutions may offer prepared clicker rosters for easy setup. Some campus bookstores offer clickers for sale or rent. Publishers sometimes offer clickers as part of book packages.

If the institution does not, sites such as www.iclicker.com offer instructions on getting clickers and getting students in the class registered.

5. STUDENT MENTORING SYSTEM

System description

A student mentoring system often pairs upperclassmen with lower with the intention of building relationships that give students reasons to stay in a program. It might also be possible to create a student mentoring system that partners alumni or business mentors with students. Technology based mentoring could be part of either sort of system (Pamuk & Thompson, 2009) and social networking sites could provide mentoring tools as well. A computerized system can be used to store, pair and perhaps even evaluate applications and document mentoring interactions. A Student Mentoring System that focuses on bringing in emerging technologies can be particularly beneficial to students in the Foundations of IS Course.

One approach might be to allow students who wish to mentor or be mentored to go through an application process, and those who wish to be mentors must meet certain criteria and participate in some sort of training. Student organizations such as the student chapters of the Association of Information Technology Professionals (AITP) may provide a source for mentors, and may facilitate group events for students to interact. One of the valuable traits of a student mentor, according to the research, is being in the same program of study as the mentee. (Terrion & Lennox, 2007)

Values and Benefits

A student mentoring program, set up in a systematic way and well documented can be quite effective. (Marable, 1999); (Pisimisi & Ioannides, 2005) At least one study has shown that the experience of a student mentor provides as much value for the mentor as the mentee in retaining students. (Amaral & Vala, 2009)

Specific Support for IS 2010 Model

If designed to use emerging technologies in the mentoring process, the student mentoring system can be used to support Learning Objective 9 from the IS 2010 Model Curricula guidelines in helping students become "aware of emerging technologies that enable new forms of communication, collaboration, and partnering." (Topi, et al., 2010, p. 391) Even if emerging technologies were not a part of the student mentoring system, it could be used to support Learning Objective 11 as it assists in understanding how systems can be used to enhance relationships with customers and enforce organizational processes. Additionally, the mentoring system helps stress the need for interpersonal communication skills that are to be discussed in this course. (Topi, et al., 2010)

Costs and Issues

One issue regarding the creation and maintenance of a Student Mentoring System that pairs students up is attempting to provide screening for problematic situations. Automated screening may not be particularly effective. Beyond initial screening and matching issues, someone must be available to deal with mentor/mentee issues that arise. Perhaps less of a one-on-one approach would be preferable. In other words, have a group of mentors (perhaps the AITP club) for a group of Fundamentals students. Other issues involve protecting the privacy and providing security for the information collected on the mentoring applications.

Getting Started

The student mentoring program really needs to begin with students in the Foundations of IS course at the point when students are not completely sure that they will remain in a program. A beginning point is to create a database that tracks events that provide opportunities for mentoring. For example, have the AITP Members provide a party early in the Fall (perhaps as late as Halloween) specifically for the Foundations of IS Students as a way of initiating contacts between upperclassmen and lower while hopefully sparking interest in joining AITP early in the program.

6. KNOWLEDGE MANAGEMENT SYSTEM

System Description

A knowledge management system (KMS) can be used to enhance the sense of community and allow multiple entities to share their knowledge. (Mancilla-Amaya, Sanin & Szerbicki, 2010) The idea behind creating a KMS to use initially with Foundations of IS students would be to provide a sense of community by building a knowledge based platform, perhaps by merely using a list of categories with contact information for those considering themselves to have some expertise in given areas, and to bring in not only new students in the Foundations of IS course but also faculty, advisors, emeriti, alumni, administrators, etc. The knowledge management system could be categorized by academic and departmental or program subjects, but also by other areas of expertise. Hopefully students coming into the program would be willing to allow themselves to become a contact regarding an area in which they have expertise, particularly if the contact information contains only a student's email address on campus which is already widely available. For example a student who excels in creating animated films could be listed as a contact for those interested in that topic.

Naturally, part of the KMS could be used to provide answers and contact information regarding program requirements, course descriptions, or internships. Students who are seniors might be contacts for freshmen who are wondering about the major. Even community members who are willing to answer questions about their careers could be included. AITP

members could be contacted regarding a variety of topics and events.

A wiki might be part of this KMS – providing places where questions could be answered by multiple people on an ongoing basis. Departmental oversight and maintenance of the wiki would be necessary to make it effective.

Values and Benefits

The use of the KMS in the Foundations of IS Course would be multifaceted: help them to be included in the community in some fashion, help them to see the KMS as a resource to answer their questions, and to give them a larger perspective by exposing them to the wider view of a program through alumni and community inputs. A benefit of a KMS includes "forming relationships and knowing whom to contact for help". (Santo, 2005, p.42) A student who is listed as a potential contact for an area of expertise, be it repairing mountain bikes or writing Excel macros, will feel a part of a community in a way that a student without that listing cannot. The KMS can be used to share internal and external knowledge.

The KMS can also benefit the department: "The purpose of having knowledge-based systems is to be able to make more informed, research-driven policies and procedures that improve program and service delivery to students…" (Petrides, 2002, p. 72)

Specific Support for IS 2010 Model

The KMS as described can be used to support nearly every one of the fourteen learning objectives described in the IS 2010 Model Curricula, particularly if students are allowed to see the back end of the KMS. Especially relevant are Learning Objectives #8, #9, and #10 as they stress emerging technologies and various types of systems used for decision making. (Topi, et al., 2010)

Costs and Issues

Resources must be found to design and initiate the system. Additionally faculty teaching each of the Foundations of IS classes must find a way to get students involved with the KMS.

One potential issue for such a system might be the likelihood of some students using the KMS as a means to attempt to advertise or sell a product or service. What problems this behavior might cause must be considered prior to developing the system. If selling is not to occur, system participants must be made aware of that prohibition in advance of participating. This situation can be dealt with as it is not unlike allowing students to set up web pages under the auspices of the college web site. It may be more difficult to have community members, business owners, and alumni participating without getting into selling.

Getting Started

Perhaps an upper-division class such as Systems Analysis and Design or a Knowledge Management course such as that described in the IS 2010 Model (Topi, et al., 2010) could initiate the KMS… perhaps other program participants could become involved in managing and maintaining it.

7. CONCLUSIONS

An undergraduate information systems program that is based on the IS 2010 Model Curricula, sound educational practices, and emerging technologies will be up-to-date, relevant and provide ways to retain students. Updating the Foundations of IS Course can be particularly important as it provides the initial contacts that start relationships with program students. Initiating a Student Relationship Management System with Personal Response Systems, Student Mentoring Systems, and Knowledge Management Systems in the Foundations course and then using them throughout the program may enhance the effectiveness of the program, help support the learning objectives for the course, and assist in student retention.

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