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In this issue:

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Information Technology for Good (IT4G): Merging Information Technology with Social Responsibility

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Abstract

A case is made for a new approach to higher education in the 21st century, an approach in which the traditional majors are extended beyond their usual boundaries by applying one's education to address the public good. The LEAP initiative and the Learning Paradigm College are advanced as exemplars of effective 21st century educational practices, and it is shown that these two concepts are consistent with both employer expectations of college/university graduates and the expectations of both school and program accrediting agencies. The Information Technology for Good (IT4G) initiative is advanced as an exemplar of using Information Systems/Technology education to advance the public good. Examples of IT4G in action are presented, and an invitation is extended to other information systems academic programs to join the Computer Information Systems program at Quinnipiac University in this endeavor.

Keywords: Information Technology for Good (IT4G), Essential Learning Outcomes (ELO's), Liberal Education and America's Promise (LEAP), Learning Paradigm, Program Educational Objectives (PEO's).

1. HIGHER EDUCATION IN THE 21st CENTURY

Today's world is being dramatically reshaped by a number of forces; scientific and technological innovations, global interdependence, cross cultural encounters, and changes in the balance of economic and political power are all changing the context in which today's students will make choices and compose lives. The speed and magnitude of these changes is ever increasing thereby creating a volatile context of disruption rather than certainty, and of interdependence rather than insularity. This volatility also applies to careers. According to a recent study by the Bureau of Labor Statistics (2010), most Americans change jobs at least ten times in the two decades after they turn eighteen, with such changes even more frequent for younger workers.

Given these developments, and informed by both evolving professional standards and the views of employers, a consensus is emerging among educators and professionals about what types of learning Americans need from college. Almost all agree that there is a need to "practice what we teach"; i.e., to move education from a "behind the scenes" analysis of the world to an education that involves actively applying the principles studied by addressing public priorities (Sullivan, 2008).

What Matters in College? College and university students already know that they want a degree. The challenge is to help students become self-directed learners who are much more intentional about the forms of learning and the accomplishments that their degree should represent. The National Leadership Council for

Liberal Education and America's Promise (LEAP) (2007) calls on American society to give new priority to a set of educational outcomes that all students need from higher learning, outcomes that are closely calibrated with the challenges of living and working in an increasingly complex and volatile world. Keyed to work, life, and citizenship, LEAP's Essential Learning Outcomes (ELO's) (2007) are important for all students and should be fostered and developed both (1) across the students' entire educational experience, and (2) in the context of students' major fields of study. The ELO's provide a framework to guide students' cumulative progress—as well as curricular alignment—from high school through their entire undergraduate college education. The LEAP initiative does not call for a "one-size-fits-all" curriculum. Rather, it recommends that the ELO's can and should be achieved through many different programs of study and in all types of collegiate institutions, including universities, colleges, community colleges and technical institutes, both public and private.

The LEAP initiative recommends an education that intentionally fosters a wide range of knowledge of science, cultures, and society; high-level intellectual and practical skills; an active commitment to personal and social responsibility; and the demonstrated ability to apply learning to complex problems and challenges. It calls on educators to help students become "intentional learners" who focus on achieving the ELO's no matter what their chosen field of study. But to help students do this, educational communities will have to become far more intentional themselves—both about the kinds of learning students need, and about effective educational practices that help students learn to integrate and apply their learning.

The diversity that characterizes American higher education remains a source of vitality and strength. Yet all educational institutions and all fields of study also share in a common obligation to prepare their graduates as fully as possible for the real-world demands of work, citizenship, and life in a complex and rapidly changing society. Highlighting these shared responsibilities, LEAP (2007) urges the adoption of a new compact between educators and American society to both implement and achieve new Principles of Excellence. Informed by scholarly research on effective practices in teaching, learning, and curriculum (Kuh 2007,

2010), the Principles of Excellence offer both challenging standards and flexible guidance for an era of educational reform and renewal. These principles underscore the need to teach students how to integrate and apply their learning across multiple levels of schooling and across disparate fields of study and call for a far-reaching shift in the focus of schooling from accumulating course credits to building real-world capabilities.

2. THE QUINNIPIAC UNIVERSITY LEARNING PARADIGM

Quinnipiac University is in the midst of an institutional transformation that will benefit every member of our community. The transformation involves our commitment to continuous improvement and our ongoing development as a learning paradigm institution (Tagg, 2003). In this paradigm, learning, as opposed to instruction, is central to the mission of the University. In this context each member of the community fully accepts responsibility for student learning; everyone's effort and all institutional decisions support learning as the primary goal. It means our effectiveness is measured on student learning outcomes rather than inputs or instructional processes.

Our transformation to a learning paradigm exemplar is grounded in the adoption of the Essential Learning Outcomes (ELO's). Preparing our students to meet these employer expectations requires the adoption of High Impact Practices (Kuh, 2008; Brownell 2010)) to provide them with the ELO's for the 21st century. While no one department is responsible for providing their students/majors with all of the ELO's, the curriculum when taken as a whole should insure that each student is provided with the complete educational experience.

Essential to the adoption of the ELO's is the commitment to provide each student with an education in *Personal and Social Responsibility* anchored through active involvement with diverse communities and real-world challenges. At Quinnipiac University this has been interpreted to mean that beginning as early as the university admissions process, and continuing at successively higher levels across their college studies, students should prepare for twenty-first-century challenges by obtaining civic knowledge and engagement at the local and global levels, intercultural knowledge and competence, ethical reasoning and action, and

foundational skills for lifelong learning. Indeed, as Thompson (2011) eloquently points out:

- In a democracy that is diverse, globally engaged, and dependent on citizen responsibility, all students need an informed concern for the larger good because nothing less will renew our fractured and diminished commons;
- In a world of daunting complexity, all students need practice in integrating and applying their learning to challenging questions and real-world problems;
- In a period of relentless change, all students need the kind of education that leads them to ask not just "how do we get this done?" but also "what is most worth doing?"

With organizations constantly reinventing their products and their processes, and with questions about public and life choices more complex than ever, the world itself is setting higher expectations for knowledge and skill. The Essential Learning Outcomes respond to this reality.

3. EXPECTATIONS OF EMPLOYERS

Integral to the task of justifying the transition to a Learning Paradigm institution and the adoption of the Essential Learning Outcomes is verifying that the ELO's are consistent with expectations of the employers of our graduates. Zinn (2010), employing market demand data for the ELO's from the U.S. Department of Labor's *O*Net Online* database (http://www.onetonline.org/), verified that that the ELO's are exactly what they claim to be—"important skills valued by employers." Zinn's study further verified that each of the ELO's is relevant to every one of the distinct 854 occupations identified by the U.S. Department of Labor.

The *O*NET database* (National Center for O*NET Development, 2011) is perhaps the most comprehensive and authoritative source available on occupational requirements. Since many employers use the O*NET occupational requirements data in crafting job descriptions and evaluating work performance, the occupation-specific market demand data for the ELO's can significantly contribute to student success by clarifying exactly what knowledge and skills students need to know/possess and market to employers in order to compete for highly competitive jobs and advance in their careers. The ELO's are indeed "essential" as they capture and combine what among the multitude of potential occupational requirements identified by the U.S. Department of Labor appear to be not only in demand for every occupation, but also the most prominent requirements for 21st century occupations, particularly those requiring a Bachelor's degree or more. As Zinn points out, "The O*NET data also contains for every occupation an assessment of the strength of market demand for each ELO. That is, since each O*NET descriptor is ranked according to one or more dimensions (e.g.; importance, achievement level), it is possible to know for each occupation how "important" each outcome is for the given occupation, as well as the "level" of achievement in that outcome that is necessary for the given occupation."

With this information illustrating the ELO's specific to particular occupations, students can see more clearly the relevance of the ELO's to career preparation in general (through the corresponding transferable detailed work activities), as well as to their occupations of interest (through the corresponding occupation-specific tasks). Additionally, students can gain detailed meaningful insight on both (1) occupation-specific and transferable experiences and (2) meaningful artifacts gained through internships and other professional projects (e.g. research and selected classroom and co-curricular activities) that they can use to demonstrate possession of the ELO's. Thus, a course of study grounded in the ELO's, being both geared towards specific occupations and applicable to a wide set of entry-level and advanced occupations, is simultaneously tailored to students' immediate specific career interests as well as solid preparation for long-term employment in a changing economy where occupational flexibility is vital for career success.

4. CORPORATE SOCIAL RESPONSIBILITY

Gone are the days when a company's "bottom line" consisted solely of its fiscal achievements. Today, large and small businesses alike are more focused on a triple-bottom-line of people, planet, and profit (Colby, Ehrlich, Beaumont, Stephens, 2010). Increasingly, organizations are looking to the post-secondary educational sector to supply the next generation of business leaders to help them make this change. As such, colleges and universities are feeling external pressure from the business community

to shift their course offerings and student extracurricular activities accordingly (Sullivan & Rosen, 2008).

The term *Corporate Social Responsibility* (CSR) encompasses activities that a business voluntarily adopts in order to minimize possible negative impacts of its operations on the environment or other human beings. CSR integrates the tenants of social responsibility into the corporation's business model; the adoption of CSR thus functions as a self-regulating mechanism through which a business continuously monitors its active compliance with the spirit of the law, ethical standards, and international norms. The goal of CSR is to embrace responsibility for the company's actions and encourage through its activities a positive impact on the environment, consumers, employees, communities, direct stakeholders and all other members of the public who may also be considered as stakeholders.

There is no clear-cut definition of what CSR comprises. While individual companies may have different operational CSR objectives, their main motives are the same as the stake holders of every company are increasingly taking an interest in how the activities of the company are impacting both the environment and society. Many critics of CSR (Friedman, 1970; Sullivan & Schiafo, 2005) argue that CSR distracts from the fundamental economic role of businesses; others argue that it is nothing more than superficial window-dressing; others argue that it is an attempt to pre-empt the role of governments as a watchdog over powerful corporations. But there is no systematic research evidence to support any of these criticisms. A significant number of studies (e.g.; Fields, 2002; Roux, 2007) have shown no negative influence on shareholder results from CSR, but rather a slightly positive correlation with improved shareholder returns. Indeed, even beyond the intrinsic value of educating students in this type of self-regulation, the adoption of CSR by businesses can have a major impact on corporate recruitment, retention, and ultimately, revenue. Indeed, it has been posited that socially responsible organizations make more money that those that do not actively engage CSR as a corporate value.

5. CSR IN BUSINESS AND INFORMATION SYSTEMS ACCREDITATION

Consistent with the LEAP initiative and the expectations of employers of our graduates, Quinnipiac University has adopted the ELO's as university-wide student outcomes, and has consequently committed to providing every graduate of the university with an education in *Personal and Social Responsibility* anchored through active involvement with diverse communities and real-world challenges.

The Associate to Advance Collegiate Schools of Business (AACSB) (AACSB International, 2011) expects that we will adopt business school learning outcomes that are both consistent with institutional mission and demonstrable to our various publics. Thus, demonstrable attention to personal and social responsibility at the corporate level is fundamental to our business school maintenance of accreditation. While most business schools address this issue at the graduate level, we do so at the undergraduate level through the inclusion of both *SB 211 Ethics and Diversity* and *SB 450 Strategic Management Seminar* as core requirements for all of our business school students.

We are an Information Systems program that is accredited by the Computing Accreditation Commission (CAC) of ABET, Inc. (ABET, 2011) located within an AACSB accredited School of Business. We have formally adopted the IS 2010 Model Curriculum standards (Topi, Valacich, Wright, Kaiser, Nunamaker, Sipior, & Vreede, 2010), and subscribe to the ABET-accreditation criteria. We have formally adopted ten (10) student learning outcomes (LO's) in support of our PEO's, two of which relate directly to the tenants of Corporate Social Responsibility: (1) an understanding of professional, ethical, legal, and security issues and responsibilities, and (2) an ability to analyze the local and global impact of computing on individuals, organizations, and societies.

The CIS department does not have a separate social responsibility course, but we do treat the issue of social responsibility as part of our "understanding of professional, ethical, legal, security and social issues and responsibilities" student learning outcome in many of our courses. The problem was how to effectively reinforce the tenants taught in both SB 211 and SB 450 and also addressed in many CIS courses; i.e., how to make the issues come alive

for both students by directly/actively exposing them to CSR tenants in action. For just like raising a child, students learn not what we say, but what we do. The solution: in the spring of 2011 we formally adopted the *Information Technology for Good* (IT4G) initiative.

6. THE INFORMATION TECHNOLOGY FOR GOOD (IT4G) INITIATIVE

Today's economic reality has brought about a renewed focus on helping others, and the academic arena is following suit by linking individual education with the ability to affect the greater good. In this spirit, information technology and social responsibility are merging together at Quinnipiac University's Department of Computer Information Systems (CIS) in an effort called *Information Technology for Good* (IT4G). Inspired initially by the Georgia Tech College of Computing's *Computing for Good* (C4G) course (Zagura, 2011) which has been offered as a capstone for Georgia Tech's undergraduate Computer Science majors each fall semester since 2007, Quinnipiac University's IT4G initiative is much more than a single course; rather it is a significant driver for student course projects, faculty research, and student club activities.

In the field, computing has the ability to advance the human condition. In the classroom, IT4G has the ability to enhance the learning experiences and enrich the lives of tomorrow's technology leaders. IT4G goes well beyond a single classroom; rather, it is an emerging value system for the department around which student projects, faculty research, and student club activities have coalesced. We would like all faculty and all students to consider the power they have as seasoned or emerging information systems professionals to make positive changes in the lives of people who struggle to help themselves.

Technology has been changing the world at a rapid pace for decades, and now a major promise of computer information systems is to improve the human condition and facilitate the progress of communities and the advancement of societies. IT4G centers on the concept of applying information technology to social causes and improving the quality of life. Indeed, one person or group of people can make a difference. IT4G draws on the altruistic side of both students and faculty by presenting CIS as a cutting-edge discipline that empowers them to solve problems of personal interest as well as problems important to society at large.

Computer Information Systems are becoming increasingly global, human-centered and focused on solving problems. IT4G combines all those elements and allows students to work for causes they really care about. The faculty and students of the department feel that IT4G has the potential to both reinvigorate the discipline as it emerges from a decade long enrollment slump and attract a new generation of students to the field. Many of today's incoming college students don't really know what computer professionals actually do, or how a degree in computer information systems will help them. IT4G paints a powerful picture for these students. They may arrive without a background in information systems, but when they see the positive impact they can have by applying information systems to social problems they are suddenly able to picture themselves majoring in computer information systems.

Current students also can benefit from approaching their work in the context of using information systems to promote social change. When students create practical solutions for socially relevant problems, they feel more enthusiastic about and committed to their work because they can actually see the impact of what they are doing. They become socially active citizens of the world through the application of computer information systems.

7. IT4G IN ACTION

The IT4G impact at Quinnipiac University has been immediate and real. Faculty and students throughout the department have/continue to work on class projects, research, and extracurricular activities that have positively impacted the lives of others. For example:

Curriculum:

- Our *Introduction to Information Systems* course is based on developing mobile apps to solve problems that are of real interest to the students. While admittedly a bit self-focused, many of the student developed applications do address social issues both on campus and in the immediately surrounding community;
- Our *Systems Analysis and Design* class is project based, focusing on developing real

solutions to problems/issues faced by local not-for-profit corporations;

- Professor Ceccucci has traveled and continues to travel with groups of M.B.A. students to Nicaragua and Professor McCarthy has traveled and continues to travel with groups of M.B.A. students to China to provide business computing consulting expertise to developing rural economies.

Research and Faculty Development:

- Professor Subramanian serves as a visiting faculty fellow at the Yale Law School Information Society Project, an intellectual center addressing the implications of the Internet and new information technologies for law and society, guided by the values of democracy, human development, and social justice;
- Professor Subramanian also spent a year as a Fulbright Senior Researcher at the Indian Institute of Technology in Madras, India focusing on the development of telecommunications and wireless technologies in developing rural economies;
- Professor Saulnier, along with colleagues from three other universities, published a paper which addressed how the use of "green technology" might be integrated into the undergraduate information systems curriculum.

Extracurricular Activities:

- The CIS Society (our student club) recently ran a Facebook for Seniors project in which club members traveled to a local senior center to teach senior citizens how to use both Skype and Facebook to more effectively communicate with their families via social media;
- The CIS Society is offering and managing a free peer tutoring program for CIS majors and minors in which students who have successfully completed major courses with outstanding grades make themselves available to other students currently taking those courses;
- The CIS faculty have adopted the use of iPads and have placed all course documents in the university's Blackboard course management system, in part to promote the decreased use of paper

products consistent with Quinnipiac University's focus on sustainability;
- Our IT4G initiative is still early in its development, but both students and faculty feel a renewed sense of direction as they see first-hand the results of using their CIS skills to substantively contribute to the well-being of others.

8. CONCLUSIONS/RECOMMENDATIONS

Following a somewhat slow start, the IT4G initiative is gaining momentum and is being enthusiastically embraced by faculty and students alike. Substantive direct benefits resulting from the adoption of the initiative include:

- The IT4G initiative has assisted in moving students perceptions of CIS as a major for "geeks", an image that has been reinforced by popular culture (e.g.; "Geeks to Go", movies, television commercials) to a cutting-edge discipline leading to high demand and lucrative career employment options that can substantively contribute to society; as such,
- The IT4G initiative has assisted in raising the number of CIS majors as the number of previously undeclared students who have declared CIS as their major has doubled compared to the prior year; and,
- The IT4G initiative has reinforced a more business professional perception of the department among both faculty and students of other departments, both in the school of business and across campus.

We are most pleased to extend an invitation to other academic IT, IS and CIS departments across the country to join us in working together to use IT to improve the common good. Who knows; it's even possible that we could start a national movement as we broaden our professional responsibilities as information systems educators and business professionals to use our discipline and skills to improve the common good.

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