Integrating Experiential HRIS Training into Undergraduate Curricula
for the development of HR Professionals

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Abstract

North American HR practitioners are concerned that the way in which human resource information systems (HRIS) training is imparted by universities is inadequately experiential to serve the real-world technological and decision-making obligations of future HR professionals (HRPA, 2011; SHRM, 2004). This paper begins by exploring the manner in which four undergraduate HR programs use training design principles (specifically, high fidelity and space training) to promote the positive transfer of future HR professionals’ HRIS knowledge and behavioural competencies from the classroom to the work context. It then incorporate literature on the adoption of information systems to identify the challenges to more theoretically sound integration of experiential HRIS training into HR business education. It proposes a two-part model to illustrate these challenges, guide future research, and inform practice.
When the HR function positions itself as a strategic partner of the organization, it can help to achieve strategic organizational goals (Becker & Huselid, 1999; Fitzenz & Phillips, 1998; Ulrich, 1997). Indeed, organizations that manage their human capital effectively are estimated to outperform organizations that do not by 30-40% (Pfeffer, 1998). One of the ways in which the HR function can accomplish this is by an informed use of Human Resources Information Systems software (i.e., an HRIS).

HRIS technology can simplify HR activity across the entire employment cycle, including functions such as strategic human resource planning (i.e., forecasting and planning HR requirements), staffing, performance management and compensation, training and career development, health and safety, and employee relations (De Alwis, 2010). An HRIS can do this by automating burdensome administrative tasks (e.g., employee record-keeping to facilitate legal compliance), and facilitating analyses that support decision-making about an organization’s human resources (Bulmash, 2006).

Until recently, the use of HR technology was concentrated in larger organizations (Schramm, 2006). However, when an HRIS system is designed in a way that permits non-HR managers and employees to access the system and analyze data pertinent to their own decision needs, it can create efficiencies by allowing HR professionals to focus on their strategic contribution (Bulmash, 2006). Thus, the strategic value of HRIS technologies has now come to be appreciated by organizations of all sizes across the globe (Schramm, 2006; Varma, 2011).

The Society for Human Resource Management (SHRM) in the United States has confirmed that when HR professionals take this strategic approach to their use of a HRIS, it lowers HR costs and administrative burdens, enhances a company’s long-term productivity and profitability, and transforms the HR function into a more strategic partner for business (SHRM, 2010). Human Resource professional associations in Canada and elsewhere concur that HR professionals must be capable of
strategically aligning their HR activities with their organization’s strategic objectives, but that, in order to do so, they must possess technological HRIS competencies (Bart, 2012; Bernacki, 2011; HRPA, 2011).

In North America, university business programs are the primary venue for the formal training of new HR professionals. Unfortunately, North American HR practitioners are concerned by the way in which HRIS training is imparted by universities. American practitioners believe that the HRIS training is inadequately experiential to serve the real-world technological obligations of future HR professionals (SHRM, 2004). The Human Resource Professionals Association of Ontario (HRPA) in Canada perceive similar limitations (HRPA, 2011). Although employers and professional associations clearly also have roles to play in providing forums for HR professionals to learn technology, these North American practitioners nevertheless argue that universities need to do a better job of educating new HR professionals on how to best select such technology, operate it, and use it in a way that offers strategic value (SHRM, 2004; HRPA, 2011). Several researchers and think-tanks have expressed similar concerns with the lack of integration of HRIS technology in the formal education of future HR professionals (Alsaady, 2007; Gartner, 1999; HRPA, 2011; Pincus, 1997). However, little research exists to guide the integration of HRIS technology into HR undergraduate programs.

**Critical Elements for Effective Transfer of Training:**

**Fidelity and Spacing in Experiential Learning**

How might HR undergraduate programs integrate HRIS technology so as to effectively train future HR professionals with both technological and strategic competencies? Let us first consider the criterion of interest: training effectiveness. Research indicates that the effectiveness of a training program can be evaluated according to four levels (Kirkpatrick, 1994): Trainee reactions, trainee learning (e.g., knowledge), trainee behaviour (e.g., an indication of skills acquired, as displayed in a
post-training simulation or as measured via a performance appraisal) and results (e.g., impact on the organization’s bottom line). In this paper, we are particularly concerned with inculcating the second and third levels of learning outcomes (i.e., trainee learning of knowledge and behaviours) because those are the learning outcomes that need to be transferred from the classroom to the work context.

Next, we need to consider the antecedent design elements of a training program that promote the effective transfer of training. Research on transfer of training emphasizes the importance of “fidelity” of training for skill development (Berkowitz & Donnerstein, 1982) and the use of spaced practice sessions (as opposed to mass ‘cramming’ sessions) (Naylor & Briggs, 1963). The applicability of each of these design elements will be reviewed, in turn, below.

Fidelity refers to the similarity between the training context and the work context in terms of stimuli present and responses required. That is, it refers to the degree of realism in the experiential training provided. Higher fidelity training contexts are said to increase the probability of a positive transfer of training (DeSimone & Harris, 1998). The merits of high fidelity training are supported by Bandura’s (1986) Social Learning Theory, which explains that enactive mastery experiences (e.g., hands-on experiences with an HRIS, as in a simulation) are more effective than less experiential, behavioural modelling methods (e.g., video demonstrations) due to their relatively greater impact on trainee self-efficacy. Self-efficacy is important because it prompts learners to persevere with skill acquisition in the face of obstacles. However, as DeSimone & Harris (1998, p.70) caution, “increasing fidelity often involves increasing complexity and costs, which can strain a limited HRD budget”.

Similarly, spaced sessions, which permit rest and reflection between the sessions, are preferable because they contribute to longer retention of acquired knowledge (Naylor & Briggs, 1963). However, the question of how to interpret the imperative for spaced over massed approaches to training in the context of undergraduate HR programs is somewhat vague. Holding (1965) found that an initial
massed training session can be effective if followed by spaced practice sessions. But does this mean that HRIS training needs to be integrated intensively into one HR course, and then revisited in several HR courses? Or, might it be just as effective (from a learning and/or cost perspective) to integrate HRIS training into only one HR course, but offer subsequent spaced practice sessions throughout that single course which make use of high fidelity learning systems?

Unfortunately, research is lacking on these issues. A useful first step might be to explore the question of how universities have attempted to integrate key training principles such as fidelity and spacing/massing of training into their HRIS training and how they have evaluated learning outcomes (if HRIS training is provided). A useful follow-up step might be to identify the challenges to theoretically sound integration of experiential HRIS training, in order to identify how those challenges might be circumvented.

**Research Questions and Structure of this Paper**

Accordingly, the purpose of this paper is to address the following questions:

1. How has HRIS technology been integrated into HR business education at universities to date? (including, how has it been evaluated?)

2. What are the challenges to theoretically sound integration of experiential HRIS training into HR business education?

The paper investigates these questions in two stages. First, it explores how post-secondary educational establishments have risen to the need to inculcate HRIS competencies into future HR professionals. Second, we identify the challenges involved in creating greater HRIS integration in university HR programs. In this second section, we investigate these challenges from several perspectives, including economic constraints, human resource constraints, and technological constraints (e.g., compatibility with the trend toward e-learning) (Roffe, 2002; HRE Online Research
Projects, 2006), with a view to developing practical suggestions for effective integration of an HRIS into HR undergraduate curricula.

**How has HRIS Technology been integrated into HR Business Education?**

Several universities have incorporated Enterprise Resource Planning (ERP) products, such as SAP R/3, into their business school curricula (Rienzo, 2007). ERP systems are an advanced type of information system that has significantly impacted how organisations conduct business process integration, and their pedagogical value is well recognized. ERPs have been integrated into curricula on logistics, marketing, accounting, e-business and sport management in order to develop more process-oriented thinking for students exposed to a primarily functional, discipline-based education (Rienzo, 2007).

Nevertheless, despite this recognition, universities are still generally criticised for lagging behind business in the adoption of such technologies into their curricula (Lowry & Turner, 2007). According to Ball (2005), the vast majority of colleges and schools of business mainly use such technology in stand-alone computer skills courses in information systems, and/or for course delivery purposes (e.g., the use of distance education and computer presentation systems). The gap between formal education and practice is particularly noticeable in relation to the integration of HR technology into undergraduate HR management education.

According to Alsaady (2007), technological learning has not really been integrated with HR learning. Ample recognition exists among educational institutions for the need to update HR education on information systems, but there has been only modest effort in universities and colleges to integrate such technologies into their HR curriculum (Bedell, et al, 2007). Moreover, little research has been done on how to do so (Bedell, et al, 2007). This section summarizes the few studies that have been published on the efforts of university business schools to incorporate
experiential HRIS training into their HR management courses. Our examples are drawn from case studies conducted at four universities, including California State University at Bakersfield (CSUB) (Bedell, Floyd, Kay, & Ellis, 2007), California Polytechnic State University in San Luis Obispo (Cal Poly) (Bedell, et al., 2007), Manchester Metropolitan University (MMU) (Shaw, 1994), and Virginia Tech University (Brown, 2013; Carlson, 2013).

**California State University at Bakersfield (CSUB)**

Our first case study, presented by Bedell et al (2007), is that of California State University at Bakersfield (CSUB). The goal at CSUB was to integrate HRIS technology into their HR curriculum in order to develop HR generalists who can work effectively in their respective HR positions (in all HR areas) from their first day on the job. However, at CSUB, the curriculum emphasized developing individuals’ competencies at the functional applications of HRIS technology, with less focus on cross-functional (process-oriented) skill development for strategic HR application areas (e.g., HR performance metrics or the management of change).

Thus, the approach taken there was curriculum-wide, integrating HRIS concepts into the introductory HR course, and PeopleSoft software (now acquired by Oracle) into each of the advanced HR functional area courses. Specific courses where this HRIS technology was integrated into the HRM curriculum included (a) compensation and benefits; (b) staffing; and (c) training and development.

CSUB had technologically skilled HR faculty members, one of whom received HRIS training from the PeopleSoft Academic Alliance. Nevertheless, they also receive ongoing assistance from a “sponsor” within PeopleSoft to integrate the technology as well as help of one Informational Technology support person from the university who was provided on an "as needed basis."
support person performed installations and assisted with troubleshooting. Evaluation was assessed at the level of reactions (e.g., student evaluations).

In summary, CSUB adopted a high fidelity approach and the spacing approach was spacing across diverse courses. However, competency development was oriented toward competencies in specific HR functions, whereas strategic HR decision making also needs to be cross-functional in nature. This deficit was noted in the student reactions, and future plans were established to work toward creation of a stand alone HRIS course.

**The California Polytechnic State University in San Luis Obispo (Cal Poly)**

The second case study, also from Bedell et al (2007), is that of the California Polytechnic State University in San Luis Obispo (Cal Poly). As with CSUB, the ultimate goal at Cal Poly was to introduce the concept of using an HRIS in functional HR areas, and to enable HR students to develop their skills at using one of the more popular HRIS products (PeopleSoft).

The implementation approach for the functional courses was to focus on developing students’ knowledge about the merits of an HRIS for functional HR tasks. Thus, HRIS concepts were integrated into HRM courses on (a) Introduction to HR and (b) Training and development. However, the skill development component (i.e., actual use of the HRIS) was restricted to a course that focused on making strategic cross-functional workforce decisions. Cal Poly developed a separate HRIS course to provide students with the experiential learning about how to use an HRIS to enhance decision making. This HRIS course used PeopleSoft as its HRIS product.

Cal Poly did not have any technologically proficient HR faculty members. Therefore, the HR faculty members received four kinds of support from their institution: First, they received support via collaboration with two MIS faculty members who were requested to team-teach the HRIS course. Second, they received course releases to attend the PeopleSoft training. The HR and MIS faculty
members both received training from PeopleSoft’s Academic Alliance, and also received assistance from a sponsor from the HRIS vendor. Third, the university allocated two technical people who installed the software on each of the student computers in a computer lab. The system was rebuilt each time the course was offered by reinstalling the PeopleSoft image on each machine prior to the first day of class. Finally, the faculty members also received help from two institutional administrators at CalPoly who participated in the course alongside students and enriched students’ learning by sharing their experiences with the institutional version of PeopleSoft.

In summary, Cal Poly adopted a high fidelity approach (albeit only in the HRIS course) and a spaced approach (albeit across sessions within the HRIS course, rather than across diverse HR courses). Subsequent assessments indicated that the addition of an HRIS course enhanced competency development among HR students. However, technical support for installation and subsequent maintenance was clearly extensive.

**Manchester Metropolitan University (MMU)**

The third example is Shaw’s (1994) study of Manchester Metropolitan University (MMU) (Shaw, 1994). MMU integrated HR technology into three functional courses in HR: (1) Employee Resourcing (staffing, HR planning and budgeting); (2) Employee Development (e.g., skills audits), and (3) Employee Relations (e.g., materials for negotiation exercises). In each course, integration was achieved in two stages: First, by reviewing pertinent introductory material on IT; and second, by familiarizing students with a specific HRIS. The selected HRIS was PERCOM, rather than the more popular (and more expensive) PeopleSoft software.

In summary, MMU attempted to adopt a high fidelity widely spaced approach (i.e., enactive-mastery “hands on” HRIS training across multiple HR courses). However, the university was not completely satisfied with the effectiveness of the selected software package mainly because it was
perceived that the database was technologically complex to manage, yet simplistic from the perspective of offering truly high fidelity HR decision-making exercises. Eventually, this resulted in a number of tensions which impeded the university’s ability to eventually deliver the HRIS training at the intended strategic level. Information is not available regarding the number of support people engaged at MMU.

**Virginia Tech University (VTU)**

Our fourth example is Virginia Tech University (Carlson, 2013). Instead of integrating technology in a high fidelity manner across a variety of HR courses, in 1999 Virginia Tech University adopted Cal Poly’s approach of developing highly experiential HRIS content for use in only one course: a stand-alone course on HRIS, which they called “Applied Human Resource Information Systems”. The objective was the development of both conceptual knowledge and skills at strategic HR decision making.

However, by 2003, the university concluded that the costs of time and effort required to keep the system up to date and functional exceeded the incremental learning value that was being provided to students. As a result, the university decided to focus instead on teaching students about how such systems worked, and about the functionality that they had, rather than teach them via the highest fidelity experiential methods. However, they continue to use moderate fidelity methods such as behavioural modeling, facilitated by video tutorials (i.e., demonstrations of the software) that are freely available on vendor websites. They also occasionally bring vendors into the classroom to talk about (and demonstrate) system functionality.

In summary, VTU uses only a moderate fidelity approach to HRIS training. It is massed (as opposed to spaced) in one HRIS course, but is spaced across the sessions of that course. Information was unavailable on how VTU evaluated students’ competency development.
Cross-Case Analysis

In summary, as per Table 1, all four universities integrated high fidelity HRIS technology into their HR curricula to some degree. Apparently, the goals of the HRIS integration were not to teach any particular product per se (e.g., PeopleSoft), but rather to use the HRIS as a learning tool to provide greater fidelity to real-world HR work contexts (i.e., to make the HR curriculum, and the opportunities for strategic HR decision-making, more realistic). However, it is noteworthy that the one university (MMU) that adopted the less popular, less user friendly software regretted it. And, although it is unclear what was the specific product used at VTU, the enactive mastery approach was abandoned there as well due to maintenance burdens. This led VTU to resort to a more moderate fidelity approach (behavioural modeling). Whereas the stand-alone courses in HRIS directly tested students’ behavioural skills in the use of the HRIS, behavioural evaluation (of HRIS skills) was not evidently assessed in the courses which used the more moderately experiential behavioural modelling approach (or the least experiential verbal instruction approach).

[Insert Table 1 here]

Regarding the spaced versus massed element of the training, two of the four university examples (i.e., CSUB and MMU) spaced the high fidelity HRIS instruction across multiple HR courses. By contrast, the other two universities (i.e., Cal Poly and Virginia Tech University) spaced their high fidelity HRIS training across several weeks of a single integrative HR course (e.g., an HRIS course). Complicating any systemic evaluation of the relative effectiveness of the diverse approaches to spacing the training is that all course evaluations were university-specific.

An additional, surprising observation worth noting is that none of these universities appeared to explore how high fidelity HRIS training might be delivered via the internet. E-learning technologies are increasingly being adopted by universities (HRE Online Research Projects, 2006), but only a few
studies on e-learning in higher education have been conducted (HRE Online Research Projects, 2006). Moreover, most of that research has focused on graduate degrees, not undergraduate or HR education. Thus, there is little empirical research on how high fidelity HRIS simulations can be transitioned from on-campus classroom settings to online virtual campus settings (Chu, 2007), or whether doing so could achieve any cost savings. On a related note, despite the fact that maintenance of the HRIS technology typically required the support of one or two IT people, none of the universities appear to have explored whether these support costs could have been reduced by outsourcing the high fidelity HRIS simulation to an internet-based HRIS service provider.

The Challenges to Theoretically Sound Integration of Experiential HRIS Training

This section reviews conceptual research on the challenges of integrating an HRIS into HR curricula. To frame the review, we base our challenges on Shilpa & Gopal’s (2011) work on the factors influencing MIS adoption, which addresses strategic fit with business needs, usability issues (human resource constraints), cost & ROI issues (economic constraints), and technological constraints (including the need for secure and strategic compatibility with the organization’s existing technological needs). However, we note that Shilpa & Gopal’s (2011) work was based on the integration of MIS into private sector firms, not into undergraduate business programs. Therefore, within this framework, we also incorporate Corbett & Mensching’s (2000) observations about the challenges of introducing technology into undergraduate business programs in general, as well as key observations from our preceding review of the university cases in HRIS integration. We also address the issue of compatibility with the growing trend toward e-learning in higher education (Roffe, 2002; HRE Online Research Projects, 2006). Each influencing factor is discussed in terms of its potential implications for the selection of a high fidelity and/or spaced approach to HRIS training. The ultimate objective of this section is to develop a model which identifies the factors influencing a theoretically
sound (high fidelity, spaced) approach to the adoption of an HRIS into the undergraduate training of new HR professionals.

**Strategic fit with business needs**

According to Shilpa & Gopal (2011), it is often strategically advantageous for organizations to gradually integrate business activities with other organizations in the value chain (e.g., suppliers, business partners and customers). However, organizations that do so need an information system that permits growth via addition of modules.

To a lesser but nonetheless similar extent, in the case of undergraduate HR programs, it can also be strategically valuable for a business school to align its program’s objectives with those of organizations that are further down the value chain in the development of HR professionals (e.g., professional HR associations). As previously noted, the HR professional associations believe it is imperative for HR professionals to become capable of using an HRIS to make cross-functional HR managerial decisions, and not merely to perform functional HR operational tasks.

Accordingly, the need to fit strategically with the “business” needs of the HR program represents an antecedent influence mainly on the training design element of the spacing of the HRIS training. Although a high fidelity HRIS could conceivably be integrated into multiple HR functional courses (e.g., staffing, training, etc), the HRIS could not be said to have high fidelity to the work demands of complex cross-functional HR decision-making if it merely included modules from a variety of HR functions that did not connect with one another. The HRIS would also need to permit students to perform higher level cross-functional HR process analyses. Thus, whether or not the HRIS is also spaced across multiple HR courses, a key “business fit” challenge would be to ensure that the HRIS is massed within at least one integrative HR course which engages multiple modules to address cross-functional decisions (although it could be spaced across the sessions of that course).
Usability (Human Resource Implications)

According to Shilpa & Gopal (2011), user-friendliness is one of the key determinants of the effectiveness of an MIS system. It refers to the system’s user interface and ease of navigation (intuitive navigation), and is critical for the successful adoption and utilization of an MIS in organizations.

Similarly, human resource constraints are a key reason that integrating software into any business school curricula has been considered difficult and challenging. According to Corbitt & Mensching (2000), it is easier to form a faculty team that will appreciate the need for integration of such technology than it is to motivate the faculty to agree to actually form an integration project team and integrate ERP technologies into their curriculum to enhance the student learning experience. It is a particular challenge for non-technologically-oriented faculty to adopt, fully use, and maintain the technology.

As the VTU case illustrated, this maintenance burden eventually led VTU to use a strictly behavioural modelling approach (videos and live vendor demos) to teach students how the systems worked and what functionality they had, rather than to continue to use the more experiential simulation approach to teach about the software. As the MMU case illustrated, it was problematic when short term purchase economies were prioritized over more costly but user friendlier technologies. At several of the universities, a number of IT support personnel had to be engaged to compensate for this technological limitation on the part of the HR faculty members.

Thus, usability becomes particularly critical in the absence of HRIS competencies among the HR faculty, posing potential challenges for both of the design elements that are important for the transfer of training (i.e., both the adoption of a high fidelity approach and the approach to spacing). Even with a highly usable product, integration of enactive mastery activities into an HR course would seem less likely in the absence of IT support personnel and/or MIS faculty members who could co-teach the
course. In such cases, experiential HRIS training may be limited to more moderately experiential activities in the form of online tutorials from the vendor. Spacing would also likely be affected, with the experiential activity more likely to be confined to one course taught by an HR faculty member who has been designated to receive advanced training.

**Secure Fit with the Organization’s Technological Needs (Technological Constraints)**

According to Shilpa & Gopal (2011), organizations need to recognize that one of the challenges is to select an HRIS that fits with the firm’s existing technology and has potential to meet the organization’s technological growth needs. Shilpa & Gopal (2011) emphasize that this fit should not come at the expense of the security of the system. Organizations will need to ensure confidentiality by ensuring that outsiders or competitors cannot have access to key information.

In the case of an educational HRIS, the issue of technological fit means that an HRIS adopted for the purpose of experiential training must be adaptable for online delivery. This is because e-learning, which augments traditional classroom offerings by offering learning opportunities to greater numbers of students (Spender, 2001), is one of the fastest growing delivery approaches in higher education. In addition, the institution must ensure that the interface between the HRIS and existing e-learning technologies is secure. This means that the system must have the potential to protect proprietary course learning material. It must also be able to prevent inadvertent disruption of other students’ databases. As Bedell et al (2007, p.53) observed, “A major issue in any ERP classroom technical environment is providing an accompanying database for the students to save their changes without being overwritten by another student”. Finally, it must also be able to protect student submissions from students or other hackers who may willfully attempt to commit plagiarism.

To better understand the potential significance of this technological fit issue for the key design elements (i.e., spacing and high fidelity) of HRIS training in university undergraduate programs, this
section will now draw from Roffe (2002) and HRE Online Research Projects (2006) to provide a brief overview of e-learning in higher education. E-learning is typically delivered by course management systems, which are software applications that are supported via computer networks, intranets, satellite broadcast, audio/video tape, interactive TV, CD-ROM, and internet/web-based technology (Roffe, 2002). Three of the most popular forms of course management systems used to support e-learning are Blackboard, Moodle and MOOCS (Brown, 2013).

The Blackboard Learning System allows instructors to create online courses, deliver classroom material, manage them (i.e., administer student grades, document and track deliverables, and report results), and create effective learning communities. The Moodle course management system (Modular Object-Oriented Dynamic Learning Environment) provides educators the tools to augment face-to-face courses (known as blended learning), or to manage and promote learning via fully online courses. The term “MOOCS” refers to Massive Open Online Courses (Ryan, 2013), which are free online courses that cover a growing range of topics delivered by qualified lecturers around the world. It provides learning and development opportunities at anytime, and anywhere in the world, to anyone with internet access. Collaborative learning tools, which are facilitated in an online context by the advent of Web 2.0 and various social networking tools (such as blogs and wikis, and online social gathering websites), now form part of these popular course management systems.

The significance of this technological fit issue for the design element of high fidelity is as follows: Collaborative (student to student) e-learning has been shown to enhance and facilitate learning outcomes by promoting higher levels of engagement and increasing student motivation to persist in learning (Jones, 2008). Collaborative e-learning also promises greater fidelity to the HR work context in particular for two reasons. First, in the workplace, many strategic HR decisions are made via web-based platforms that provide online real-time HRIS functionality services for an organization’s HR
staff, who need to collaborate with their HR colleagues working in other functional areas of HR. Second, collaborative e-learning can also simulate real-time HRM services provided to managers and employees located outside the HR department, who may be situated at a geographical distance as well (De Alwis & A.C., 2010; Prasad, 2003). Therefore, it would offer considerable high fidelity to ensure that a university’s adopted HRIS simulation would be compatible within the university’s existing e-learning approach(es), and, in particular, designed to be compatible with these collaborative forms of e-learning.

**Cost & anticipated ROI (Economic Considerations)**

As Shilpa & Gopal (2011) observed, organizations must ensure that their costs are minimized and kept proportional to their business requirements. Thus, with regard to MIS adoption, companies must e-enable only those modules that are vital, essential or desirable from the organization’s strategic perspective. This will help to ensure that technological modules are selected only if the project return on investment (ROI) can be demonstrated.

Similarly, economic challenges will also necessarily influence the nature of the investment in an HRIS. The dramatic pace of technological change means that ongoing maintenance of the system will pose economic challenges (Corbitt & Mensching, 2000). Those charged with the design and development of undergraduate business curricula must continuously review their curricular offerings to ensure that the technology remains current and pertinent enough to prepare their graduates for successful careers in their field. Unfortunately, universities can struggle not only to acquire adequate financial resources to integrate the HRIS into the curriculum, but also to maintain it.

As some of the university cases illustrated, incentives (e.g., course releases) may be required to encourage faculty members (who have received the bulk of their training non-technological disciplinary knowledge) to develop and apply their limited technological competencies to this course
development task. The alternative to making this part of the HR professor’s teaching task (and providing course releases for HR faculty if HRIS training is needed for them) is to engage an IT professional. Either way, greater costs are clearly more likely to be incurred when the system is less user friendly and/or is integrated across multiple courses. More specifically, the significance of these economic challenges for the design elements of the HRIS training sessions is twofold:

First, it has spacing implications. To offer a high degree of experiential learning for prospective HR professionals without imposing an undue maintenance burden, the HRIS might be more economically integrated into at most one cross-functional (or “capstone”) HR course, rather than spaced across diverse courses which would require considerably more time and effort to upgrade as the software upgrades.

Second, these economic challenges also hold significance for the design element of high fidelity. Economic constraints may even influence the extent to which cross-functional HR decision making is permitted within the sessions of that single course, as it may constrain the diversity and number of HR modules that are activated in the HRIS product. Lower fidelity training approaches are less costly to introduce, and less maintenance intensive.

A final economic consideration pertains to the choice between two main types of HRIS products available in the market: the ERP software described earlier (e.g., People Soft), which include Oracle (which purchased People Soft in 2004 (CNN Money, 2004)), SAP (SAP, 2013), and Microsoft Dynamics (Microsoft Dynamics, 2013), or the open source systems (also known as open source technologies), which include OpenERP, OrangeHRM, BambooHR, and Halogen software. Both would be potentially technologically compatible with the collaborative e-learning course management technologies described earlier.
The more comprehensive ERP systems tend to be more costly than the OSS’s, the latter of which tend to be either free or considerably less expensive (Bhat, 2013). For this reason, OSS’s for HR purposes have received significant interest from research communities and enterprise practitioners, notably in the small business sector, where, in contrast to the more expensive ERP products, OSS can meet a small business’ organizational needs while accommodating their financial and human capital constraints (Berger, 2009). Indeed, a 2010 study of 300 US and UK companies conducted by Accenture, 69% of respondents indicated that they expect to increase investments in open-source solutions and further companies are presenting viable options for those that are interested (HRlab, 2013). However, the reason that OSS’s are initially be the more affordable option is that OSS’s are distributed under a license which allows public users to share and /or change the software (Skiba, 2005, P. 184). Thus, one of the strengths of an OSS HRIS, its adaptability, also poses hidden costs. Considerable costly customization would typically be needed to enhance the fidelity of the system to the HR work context, as well as to enhance its user friendliness.

Summary of Challenges

In summary, integrating technology into the curriculum of an undergraduate business program is fraught with many challenges. To be effective, an information system must offer learning benefits for students, provide ease of implementation, use, and maintenance from a faculty perspective, and do so in a manner that is cost effective and fits securely with existing technology. The challenges that are pertinent to the selection of high fidelity training are depicted in Figure 1. The challenges that are pertinent to the spacing of training are depicted in Figure 2. Taken together, these two figures underscore the challenges that HR programs will need to address when seeking to integrate an HRIS system that will promote a positive transfer of training for new HR professionals.

[Insert Figures 1 & 2 here]
Conclusions: Implications for Theory and Practice

Despite the clear need for HRIS training to enable HR professionals to perform in their vocation, relatively little research has been done on the integration of HRIS technology into HR curricula in academia (Bedell, Floyd, Kay, & Ellis, 2007). In terms of theoretical implications, therefore, our paper has argued for greater research attention to the massing/spacing of HRIS training in a manner that is compatible with the institution’s capacity to adopt, and then maintain, high fidelity HRIS training. It makes a further theoretical contribution by presenting a two-part model of factors that pose potential challenges for the effective integration of these two training design elements into HRIS training.

However, this model also has certain limitations which point to directions for further empirical investigation. First, Holding (1965) found that an initial massed training session can be effective if followed by spaced practice sessions. This paper did not investigate whether HRIS training is as effective (from a learning and/or cost perspective) when the high fidelity form of it is spaced across the sessions of only one integrative HR course versus across multiple HR courses, and/or when the more moderate fidelity forms of it (i.e., behavioural modeling) are spaced throughout other HR courses. Given that Social Learning Theory (Bandura, 1986) suggests that the more rigorously experiential simulation (enactive mastery) approach would be more effective for trainees’ self-efficacy (Bandura, 1986), reliance on an exclusively behavioural modelling approach may problematically position the limited technological capabilities (and time) of faculty members against the technological learning needs of students. Research should therefore engage national professional HR associations to develop a uniform skills assessment against which different program approaches could be compared. Second, further research might also explore the utility of outsourcing HRIS simulations online, via strategic alliances among universities and HR professional associations, which could create economies of scale.
In terms of practical implications, the proposed model offers an overview of the questions that business schools may want to consider when undertaking HRIS integration. For example, it calls for recognition of the tradeoff between e-learning compatible HRIS technologies that may be free but not user friendly without further costly customization (e.g., OSS’s) and those that may be initially less expensive but offer a friendlier user interface. In revealing the potential challenges faced by business schools, it also underscores the need for HR professional associations to play a more proactive role in collaborating with business schools in the inculcation and assessment of HRIS competencies.

For example, one thing that the model does not address is that one cannot predict the kind or size of organization in which HR graduates will eventually work. All companies have HR-related information needs, but not all companies’ have a need for the most advanced technology. As De Alwis & A.C. (2010) note, a small company may use a simple Microsoft Word or Microsoft Excel file to keep basic employee data, whereas a company with 3000 + employees may be more likely to use high end ERP systems in order to store the data, retrieve it, and thus manage the data more efficiently. Business schools would therefore want to consult with HR professional associations to agree on a conservative approach to training future HR professionals, which may imply preparing new HR professionals for the most complicated and sophisticated organizational HRIS context.
References


Bart, C. (2012). The role of HR in Innovation: time for more structure? Believing innovators occur by simply relaxing a company’s formula system of rules, policies and procedures or bureaucracy is a mistake. HR professional, the role of HR in innovation, Volume 29 (6), 24-25


Bernacki, E. (2011), Light the spark-Creating and shopping more innovative HR services. *HR professional, Higher learning – A premier on HR education,* Volume 29 (2), 26-27


Table 1. Comparison among Approaches to University Integration of HRIS in HR curricula

<table>
<thead>
<tr>
<th>HR Functional areas integrated in universities</th>
<th>California State University, Bakersfield (CSUB)</th>
<th>California Polytechnic State University, San Luis Obispo (Cal Poly) – Manchester Metropolitan University, UK</th>
<th>Virginia Tech University, VA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technologies used</td>
<td>ERP s/w - PeopleSoft</td>
<td>ERP s/w - PeopleSoft</td>
<td>Freely available Software on vendor websites</td>
</tr>
<tr>
<td>HR Functional areas:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic HR</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>(Job descriptions)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Recruitment</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Selection</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Training</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Career Development</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Performance Management and Appraisals (rewards)</td>
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<td></td>
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<tr>
<td>Compensation and Benefits</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Health and Safety</td>
<td></td>
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<td></td>
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<tr>
<td>Industrial/Labor Relations</td>
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<tr>
<td>International</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>HR HRIS (Separate course on HRIS)</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Figure 1. Influences on the Approach to High Fidelity HRIS training (& HRIS product type)

- **Usability:** HR Faculty members’ HRIS competence
  - LOW
  - HIGH

- **Cost & ROI:** IT support available for co-teaching?
  - NO
  - YES

- **Approach to High Fidelity HRIS training:**
  - Behavioural Modeling approach
  - Enactive Mastery approach

- **Secure Technological Fit:**
  - (Note: Security aspect only pertinent if enactive mastery approach is used)
  - Both ERPs & OSSs are potentially securely compatible with E-Learning Systems, but OSSs need more customization.

- **Cost & ROI:** Significant IT support available for customization?
  - NO
  - YES

- **ERPs**
- **OSSs**
Figure 2. Influences on the Approach to the Spacing of HRIS training

- **Strategic Fit with Business Needs**: HR Faculty members’ HRIS competence
  - **Usability**: HR Profession needs
  - **Cost & ROI**: Technical/MIS support available for co-teaching/maintenance?

  - **LOW** → Spaced across multiple HR courses
  - **HIGH** → Spaced across ONE integrative HR course
  - **X-Functional HR Managerial decision-making skills**
  - **Functional HRIS skills**

Spacing of HRIS training