

Human Resource Information System Courses: An Examination of Instructional Methods

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ABSTRACT

This study examines to what degree and with what method human resource information systems (HRIS) concepts and techniques are being taught at colleges and universities in the United States. Forty-three course descriptions for graduate or undergraduate courses in HRIS, human resource management systems (HRMS), or a specialty human resource (HR) course that specifically covers HRIS or HRMS, were analyzed. Results of this analysis provide benchmarks for developing collegiate HRIS courses. A discussion is given on various teaching methods, objectives, focuses, and topics.

Keywords: Human Resource Information Systems, Human Resource Management Systems, Instructional Methods.

1. INTRODUCTION

A human resource information system (HRIS) is a systematic procedure for collecting, storing, maintaining, retrieving, and validating data needed by an organization about its human resources (HR), personnel activities, and organization unit characteristics (Walker 1982). While Kovach and Cathcart (1999) correctly point out that an HRIS (also known as a human resource management system, or HRMS) can be as informal as the payroll records and time cards of a small business, for the vast majority of organizations, corporate success will increasingly depend on the coordinated, strategic management and integration of the organization's human resources and information technology (Valaskakis, Coull, & Clermont 1991). Achieving this strategic coordination requires those responsible for developing, implementing, operating, and maintaining an HRIS to have a broad knowledge of the organization's human resource programs, the relationship between human resource programs and overall strategic planning, and the potential inherent in computer and data technology (Rampton, Turnbull, & Doran 1999). The goal of this research is to discover to what degree HRIS techniques and concepts are being taught at the graduate and undergraduate collegiate levels.

Unlike the mainframe era, HR professionals today are more comfortable using computers for HR functions, a shift resulting from increasingly user-friendly applications (Roberts 1999a). Training on HRIS, or more specifically the gaps between job requirements and employees' abilities to utilize HRIS technologies, was cited by Roberts as a main reason that technology is under-utilized for HR functions. Not surprisingly, Elliot and Tevavichulada (1999) raise the issue that, while a high percentage of private and non-profit organizations offer computer training (95% public sector and 82% private sector), only 40 percent of public sector and 30 percent of private sector organizations offer training on a regular basis. In addition, their study found that private and non-profit organizations integrate software and human resource management (HRM) functions in low numbers.

In the 1990's, HR technology users shifted from HR-specific systems to those that integrated their companies' enterprise resource planning (ERP) systems (Alsop 1998). Large, integrated ERP solutions allowed for HRIS applications to be built around a single database and a common workflow model. Since then, demands for specialized data, variances in systems among operating partners, and diversity of available applications have made it impossible to manage business

processes with a single software package (Vander Hey 2000). Complications can arise when integrating legacy systems with new Internet applications based on Java and XML (Extensible Markup Language). Because Java and XML are meta-languages, their interpretive abilities of other programming languages facilitate the integration of a plethora of software and web-based applications. These advances suggest that HR technology users will need not only technical training in new systems use, but also the conceptual knowledge to select, manage, and evolve with new technology.

College and university settings can be a key source for acquiring both conceptual and technical knowledge. Given this, it is not surprising that textbooks on HRIS have recently been written with a post-secondary audience in mind or have been designed with a format applicable to a college course (e.g., Rampton, Turnbull, & Doran 1999; Ceriello & Freeman 1998). While books of this nature can certainly provide the needed concepts about HRIS, no book can substitute for exposure to actual HRIS technologies. A curriculum development issue then becomes whether to focus on concepts or applications, and how and why such knowledge and experiences should be integrated into existing educational programs.

Floyd, Bedell, Webster, and Conway (2002) discuss the California State University–Bakersfield experience that integrated HRIS technology into many of the University's existing HR courses, fundamental through advanced. This approach was developed to work with current education methods and textbooks, maintain classroom flexibility, and reduce the current technology skills gap by developing students' knowledge and skills identified as important in the workplace. This multiple-class HRIS integration approach allowed Cal State–Bakersfield to both provide students with a foundation of technology skills as they progressed into upper division HR courses and allow faculty to identify pitfalls that would be common to new academic uses. Multiple-class HRIS integration requires that critical success factors be met that are not common to every university, especially across class, section, and instructional coordination and integration.

When HRIS technology can not be integrated into existing HR courses, the other alternative is to introduce HRIS technologies through a dedicated HRIS course. This method would reduce constraints on faculty skills and investment in technology at a level to support all HR majors at a given institution. Roberts (1999b) reports that the general consensus on HRIS skills is that they would ideally include a working knowledge of information systems (IS) and of all HR functions and skills in process improvement and project management. In other words, upon completing the course, students should be aware of the "functional issues" of HR and how to apply technology to them. Ideally, students entering an HRIS course should understand most, if not all, of the HR functions, at least from a basic definitional perspective. The best place to start an HRIS course, then, would be through the two general purposes of such systems: to eliminate costs and reduce processing time and to support decisions with computer applications. As Kovach and Cathcart (1999) point out, the focus for HR professionals is

to use an HRIS to make better HR decisions. If a given HRIS is to have any value at all to HR then information should be based on two factors: how many decisions will be improved by the HRIS and how much value will each improved decision produce. Understanding these two factors is tantamount to any HRIS course.

Do colleges and universities offer such stand-alone courses? If they do, what are they addressing in those courses? Are they being taught at the graduate or undergraduate level, and is a distinction between the focus and function of courses at the different levels made? This article seeks to address these questions through an analysis of existing catalog and course descriptions.

2. METHOD/RESULTS

Internet search engines were used to locate the universities or colleges that offered such courses. The terms "Human Resource Information System", "Human Resource Management System", "HRMS", "HRIS", and "Course" were initially searched to identify as many courses as possible. Also, "Enterprise Resource Planning" and "ERP" were also searched to try to identify additional Universities, Colleges, Schools or Departments. In some cases, these search engine results led to web pages suggesting that a course of this nature was offered at a particular institution. College or university search engines were then used to locate the actual course descriptions. Colleges and universities that were traditionally strong in information systems were searched within their sites and related departments.

All course descriptions were taken directly from the Internet and are not necessarily the actual course descriptions from a college or university catalog (for most schools, but not all, the on-line description is the same as the printed catalog). College catalog descriptions are considered the official statement about course content, which allows comparison of that content across colleges and universities, as opposed to individual course syllabi or outlines, which would have forced the level of analysis to a course by course comparison. Analysis at the course level may have found variance within colleges, which would have made generalizations across schools and about overall content impossible.

Forty-three college and university course descriptions for graduate or undergraduate courses in HRIS, HRMS, or a specialty HR course that specifically covers HRIS or HRMS were analyzed. Twenty-two undergraduate courses and twenty-one graduate courses were found. With one exception, all colleges and universities were U.S. schools. Table 1 identifies the courses and their sponsoring university or college.

Three common managerial skills emerged from the course descriptions. As shown in Table 2, these skills were categorized either as decision analysis, system selection, or strategy. Decision analysis skills were those involving the use of an HRIS to make HR decisions; system selection reflected choosing among various hardware and software alternatives in developing an HRIS; and the strategy

College or University	Undergraduate Course	or	Graduate	Taught As a Course or Within a Course
American University	Graduate			Within
Auburn University	Undergraduate			Class
Bentley College	Graduate			Class
Brock University	Undergraduate			Class
Cal State, Chico	Undergraduate			Class
California State - Bakersfield	Undergraduate			Class
Carlow College	Undergraduate			Class
Clarkson University	Undergraduate			Class
Cleveland State University	Graduate			Class
CUNY	Undergraduate			Class
Farleigh Dickinson University	Graduate			Class
George Washington	Undergraduate			Class
Golden Gate University	Undergraduate			Class
Johns Hopkins	Graduate			Class
Lesley University	Graduate			Class
Marymount, VA	Graduate			Class
Michigan State University	Graduate			Within
NC State	Undergraduate			Class
Northeastern University	Undergraduate			Class
Ohio State	Graduate			Class
Polytechnic University Long Island	Graduate			Class
PSU—Great Valley	Graduate			Class
Rutgers	Undergraduate			Class
Saint Ambrose University	Graduate			Within
San Francisco State	Graduate			Class
San Jose State University	Undergraduate			Class
Sheridan College	Undergraduate			Class
St. Paul Technical College	Undergraduate			Class
St. Thomas	Graduate			Class
SUNY Albany	Undergraduate			Class

College or University	Undergraduate Course	or	Graduate	Taught As a Course or Within a Course
SUNY Binghamton	Undergraduate			Class
SUNY Institute of Technology	Graduate			Class
Trivecca Nazarene University	Graduate			Within
UC - San Diego	Undergraduate			Within
University of Colorado - Boulder	Graduate			Within
University of Detroit - Mercy	Undergraduate			Within
University of Houston - Clear Lake	Undergraduate			Class
University of Illinois - Urbana Champaign	Undergraduate			Class
University of Maryland, University College	Graduate			Class
University of Minnesota	Graduate			Class
University of Nebraska - Lincoln	Graduate			Within
University of Texas	Graduate			Within
Virginia Tech	Undergraduate			Class

Table 1. Colleges and Universities, Grade Level, and Course Type

		Undergraduate		Graduate		Total	
		Percentage	n	Percentage	n	Percentage	n
Decision Analysis	Included	72.7	16	76.2	16	74.4	32
	Not Included	27.3	6	23.8	5	25.6	11
System Selection	Included	31.8	7	42.9	9	37.2	16
	Not Included	68.2	15	57.1	12	62.8	27
Strategy	Included	31.8	7	47.6	10	39.5	17
	Not Included	68.2	15	52.4	11	60.5	26

Table 2. Decision-Making, System Selection, and Strategic Implications

component reflected the use of an HRIS to meet strategic business goals. The majority of schools described their HRIS courses as decision analysis skill courses, with 72.7 percent of undergraduate and 76.2 percent of graduate courses reporting this usage. System selection was the focus of 37.2 percent of undergraduate and graduate courses combined and strategy had a combined focus of 39.5 percent. Graduate courses more often discussed system selection (57.1%) and strategy (47.6%) than did undergraduate courses (31.8% for system selection and 31.8% for strategy).

Also identified in the course descriptions were specific HR topics. The topics can be readily grouped into four categories: staffing issues, legal issues, compensation and benefit issues, and career management/job-fit analysis/employee monitoring. These results appear in Table 3. While staffing issues were discussed in only 19 percent of graduate courses, staffing was discussed in 27.3 percent of undergraduate courses. Legal issues were included in only 9.5 percent of graduate courses but were found in 86.4 percent of undergraduate courses. Compensation and benefit issues were found in 14.3 percent of graduate courses and

18.2 percent of undergraduate courses. Course descriptions reporting career management/job-fit analysis/employee monitoring topics were found in 14.3 percent of the graduate courses and 27.3 percent of the undergraduate courses.

Because HRIS combines two disciplines, human resources and information systems, the overall course focus and instructional objective were analyzed based on whether the description contained HR topics, technological topics, best practice topics, or a combination thereof. Discussion of HR topics related HR issues to an HRIS; technological topics included hardware, software, and languages, while best practices discussed how particular companies have successfully used an HRIS. These results appear in Table 4. The majority of courses (67.5% of both undergraduate and graduate courses) focused on the combination of HR topics and technologies, with 78.9 percent of the undergraduate level having this focus and 57.1 percent at the graduate level. HR topics were the sole focus in 5.3 percent of undergraduate courses and 14.3 percent of graduate courses. Technologies were the sole focus in 15.8 percent of undergraduate courses but only 9.5 percent of graduate

		Undergraduate		Graduate		Total	
		Percentage	n	Percentage	n	Percentage	n
Staffing Issues	Included	27.3	6	19	4	23.3	10
	Not Included	72.7	16	81	17	76.7	33
Legal Issues	Included	86.4	19	9.5	2	11.6	5
	Not Included	13.6	3	90.5	19	88.4	38
Compensation and Benefit Issues	Included	18.2	4	14.3	3	16.3	7
	Not Included	81.8	18	85.7	18	83.7	36
Career Management / Job Fit / Employee Tracking Issues	Included	27.3	6	14.3	3	20.9	9
	Not Included	72.7	16	85.7	18	79.1	34

Table 3. HR Functions Discussed in Course

		Undergraduate		Graduate		Total	
		Percentage	n	Percentage	n	Percentage	n
HR Topics		5.3	1	14.3	3	10	4
Technologies		15.8	3	9.5	2	12.5	5
HR Topics and Technologies		78.9	15	57.1	12	67.5	27
HR Topics and Best Practices		0	0	4.8	1	2.5	1
Technologies and Best Practices		0	0	9.5	2	5	2
HR Topics, Technologies, and Best Practices		0	0	4.8	1	2.5	1

Table 4. Course Focus

courses. Best practices alone were not the focus of any course description. The remaining focuses were evidenced only in graduate courses with HR topics and best practices at 4.8 percent, technologies and best practices at 9.5 percent, and HR topics, technologies, and best practices at 4.8 percent.

Three trends emerged from the course descriptions as to whether instruction consisted mostly of conceptual, applied, or a combination of conceptual and applied techniques. Conceptual courses were defined as those focusing on theories and definitions rather than a “hands-on” experience with technology. Applied courses were those instructing the use of a particular HRIS software program (e.g., entering payroll data into PeopleSoft). Combined courses instructed concepts and theories but included manipulation of a software program. As can be seen in Table 5, the majority of courses were described as conceptual at 62.5 percent, with 52.6 percent of undergraduate courses defined conceptual as opposed to 71.4 percent of graduate courses. Only 15.8 percent of undergraduate and 9.5 percent of graduate courses were defined as being applied. Courses using both techniques were 31.6 percent of undergraduate and 19 percent of graduate.

Depending on the IT capabilities of a given class, using actual class time to “walk through” database calculations may not be necessary at all. HRIS at the University of Illinois, Urbana Champaign (UIUC) (Lawler 2001) incorporates relevant HRIS modules as out-of-class exercises. This method naturally follows the selection of required reading for the course, *Human Resource Management Systems: A Practical Approach* (Rampton, Turnbull, & Doran 1999). This text is a valid selection for an

HRIS course as, currently, it is commonly used to train HRIS professionals in the field (Roberts 1999a). Ceriello and Freeman’s *Human Resource Management Systems* (1998), a supplement to UIUC’s HRIS course, is another widely available text applicable to a college or university course. This text tilts toward the conceptual side, which might make it a better supplement in a graduate course, although parts of the text are somewhat dated. Faculty well-versed or well-experienced in HRIS, such as the University of St. Thomas’ Cottrell, might find a more specific and recent text like Walker’s *Web-Based Human Resources* (2001) as a way to discuss cutting-edge HR technologies while lecturing from personal HRIS experience.

As shown in Table 5, the vast majority of courses did not incorporate best practice issues into their curriculum. One possible method for inclusion of best practices is the use of cases. While cases are normally used in many MBA programs, the availability of HRIS cases is limited. At least two cases are available in the literature on HRIS (Burdette 1997; Koven 2002). Burdette (1997) discusses how a public sector organization updated its HRIS into a singular system that integrated all of its former HR functions. Koven (2002) discusses a supermarket that successfully used web-based applications to encourage employee self-service with benefits.

Given the distinctions between the integration of “best of breed” applications versus a complete ERP, vendor selection might be supplemented with relevant selections from recent literature. *HR Focus* (2002) offers a list of helpful questions to ask before outsourcing, including contingency planning, that offers worthwhile discussion topics. Recent reports from the Institute of Management Administration (IOMA)

	Undergraduate		Graduate		Total	
	Percentage	n	Percentage	n	Percentage	n
Conceptual	52.6	10	71.4	15	62.5	25
Applied	15.8	3	9.5	2	12.5	5
Both	31.6	6	19	4	25	10

Table 5. Class Technique: Conceptual, Applied, Both

are well-suited to exploring HRIS planning. IOMA’s “Report on Benefits Management” (2002b) offers insightful questions directed at hidden vendor costs, a topic often ignored in HRIS literature but strategically relevant. Another IOMA publication (2002a), introduces components of HRIS selection teams in multi-million dollar corporations, as well as designing teams to minimize conflicts. Certainly, implementation should not ignore standard concepts of integration and flexibility. Emerging implementation topics not yet discussed in current applicable texts might be supplemented; these include enterprise application integration (EAI) and mergers and acquisitions (for example, see Vander Hey 2000; “Mergers and Acquisitions” 2002).

It is possible to further refine the applied course concept. Some course descriptions indicated that specific software was in use, usually a major program supplied by a vendor

(such as SAP or PeopleSoft). Table 6 shows that, of those undergraduate courses using an applied approach, 26.3 percent incorporated a major vendor HRIS, whereas only 19 percent of graduate courses used such programs.

Many factors affect the choice of course content, focus and approach. It is expected that undergraduate classes will differ from graduate classes on these areas. These results, their implications, and other pedagogical issues, will be examined in the discussion, which follows.

3. DISCUSSION

These findings can serve as benchmark data for instructors at universities and colleges developing an HRIS course. By no means are the findings meant to define an ideal course. Because a dedicated HRIS survey course is not the same as

including HRIS into a total HRM curriculum, HRIS course development might best be tackled as a series of "trade-offs" among producing graduates with the skills deemed necessary by HR or HRIS professionals, the current job-market conditions, the availability of campus resources, the capabilities of instructors, and the time necessary to transfer such skills. Most importantly, the data imply that an HRIS course might include software, textual materials, and some choice of focus between the two. Given the heterogeneity of current course descriptions, the data suggest that developing a single, all-encompassing course may not be the best strategy available to colleges and universities.

3.1 What to Focus on?

HR topics and technologies, a combined category, was overwhelmingly represented in HRIS courses (Table 4). This focus usually included planning, design, and implementation, HR-specific applications, and current trends. Using Ceriello and Freeman (1998) or Rampton, Turnbull, and Doran (1999) as a platform, planning, design, and implementation are first introduced, focusing on such concepts as specifying system requirements, especially the target users and the decisions the system is designed to support. Having provided students with early exposure to decision analysis and database manipulations, topics to be included later range from hardware/software, utility analysis, and validity and reliability of the system and system tools. Make or buy decisions and vendor selection could certainly be included. Table 3 lists the frequencies of HR functions discussed in HRIS courses. That the vast majority of courses in this survey included HR topics, it seems to suggest that these courses are being taught by HR faculty. While important HR topics should not be ignored, emphasis on selected HR topics must be weighed in relation to students' exposure to HR topics and instructors' experience with these topics. More specifically, is the HRIS class being taught by IS faculty or

HR faculty, and is it being offered to HR or IS students? In any scenario, current legal issues should be included, as changes in this area can affect the dynamics of the workplace and the operation of the HRIS itself. Table 3 indicates that legal issues were discussed in only a tenth of the graduate classes. Table 7 gives a list of legal articles that can supplement this area.

3.2 Software Considerations

Ideally, access to major HRIS software would be beneficial in an HRIS course. As Connell (1995) indicates, a working knowledge of one or more commercial products and an understanding of database structure and reporting are preferred. This component should not be ignored, even if access to such specialized software is unavailable. As found in Table 5, only 12.5 percent of the 43 courses, or roughly five courses, were focused solely on such applied techniques. As Turnbull (1998) points out, HRIS failure rarely has to do with the core software, but rather with the users or the design of the HRIS itself. Yet, Table 2 shows that system selection is the least system-specific topic covered.

As seen in Table 6, most courses do not use major HRIS software. Nonetheless, many HRIS concepts can be sufficiently explored with Microsoft Access. Fitz-Enz (1998), founder of the renowned Saratoga Institute, offers a list of the top ten calculations for an HRIS. These include: healthcare cost per employee, pay and benefits as a percentage of operating expenses, cost per hire, return on training, volunteer turnover rate, turnover cost, time to fill jobs, return on human capital invested, and human-value added, all of which could be calculated rather easily. A logical place to begin HRIS instruction might be with such basic database calculations. In so doing, students can begin to link HR topics with technology, with later course topics building upon these basic database manipulations. This skill

		Undergraduate		Graduate		Total	
		Percentage	n	Percentage	n	Percentage	n
Major Software Used?	Yes	26.3	5	19	4	22.5	9
	No	73.7	14	81	17	77.5	31

Table 6. HRIS Program

TOPICS	Author(s)	SOURCE
Employee Privacy	Scott Hays.	<u>Work Force</u> , 78(10), 136-137. (1999).
Employee Privacy	Samuel Greengard.	<u>Workforce</u> , 78(10), 120-122. (1999).
Employee Privacy	Julie Cook.	<u>Office Systems</u> , 16(8), 43-45. (1999).
Ethics/ Legal	Joan C. Hubbard, Karen A. Focht, Daphne S. Thomas.	<u>Journal of Business Ethics</u> , 17(12), 1319-1323. (1998).
General Legal	Dan Briody.	<u>InfoWorld</u> , 21(36), 69-70. (1999).
Company Policies	Erik R. Eddy, Dianna L. Stone, Eugene F Stone-Romero.	<u>Personnel Psychology</u> , 52(2), 335-358. (1999).
Drug Testing	Gillian Flynn.	<u>Workforce</u> , 78(1), 107-109. (1999).

Table 7. Sources of Legal Issues: General, Procedural, and Ethics

becomes even more valuable as a pedagogical issue, in light of the fact that very few classes currently have large ERP or HRIS software systems available to them

The fact that so many colleges and universities have not integrated a software package into their HR or HRIS courses seems unusual, especially when companies like SAP offer their software at a drastically reduced rate to schools. The SAP university consortium comprised of colleges and universities that have access to the program, has more than 100 participating members. The HR aspects are available in the basic installation provided by SAP, and so they are available if the schools chose to use them. Another indicator of this disparity is the fact that, as of Fall 2004, only a single university accessing SAP through Drexel University's hosting solution was actively using the HR module. No other school being hosted by Drexel had accessed that area of the program. While this may be due to a lack of faculty training, or even the basic knowledge that such aspects are available, the fact remains that very few schools are taking advantage of their access to such a powerful HRIS teaching tool.

4. CONCLUSION

With only 43 colleges and universities offering a specific HRIS or HRMS course, the conclusions that can be drawn are limited; however, as the use of ERPs in companies becomes more prevalent, the degree to which the human resource function integrates its own activities into such a system will undoubtedly grow. Understanding the purpose and techniques of human resource information will become a critical skill for HR practitioners.

Analyzing the current state of HRIS/HRMS education provides insight into the possible development of pedagogical issues. One point that will receive constant attention will be the degree to which such education should focus on conceptual, theoretical issues or the technical, applied aspects. Should the how and why of information systems and data collection be the focus of future courses? Or should the direction be toward the skills necessary to work with specific application packages? Parts of this debate will be constrained by technology: not all campuses will have access to the software major vendors supply to top corporations. In addition, other resource limitations will prevent faculty from fully developing the detailed knowledge to teach application-specific courses.

Faculty training would be required where expertise is not available in HRIS technologies. This training is not always possible, especially at business schools facing faculty or financial constraints. Another hurdle is the availability of major HRIS software programs for "hands-on learning." Investing financially in HRIS integration into HR classes, including acquisition costs of technology and training for faculty, presents a challenge to institutions already struggling with diminishing budgets.

This study is the starting point for further analysis. It is hoped that a more detailed study can use a survey instrument developed from the results found here. Understanding how to teach HRIS is becoming more important, as organizations will require their employees to have such skills. In order to remain competitive, it will be the charge of colleges and universities to supply graduates well-versed in HRIS concepts and applications.

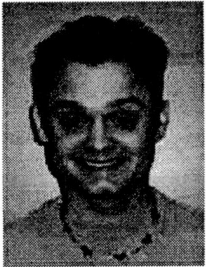
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