BRINGING HR INTO THE INFORMATION AGE:
WHY THE STATUS QUO ISN'T GOING TO GET US THERE

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ABSTRACT

We surveyed practitioners about the use of HR technology in their organizations and expectations for future changes. We then surveyed faculty about the coverage of HR technology in their curriculum. While most practitioners reported they use technology primarily for administrative purposes, fully 82% felt their companies would be migrating in the next five years toward greater use of HRIS. By contrast, HR curricula are focused primarily on teaching one or two specific HRIS packages or general concepts related to selection and implementation of HRIS. These findings provide a wake-up call to HR educators with respect to educating future HR managers.

INTRODUCTION

While the technological advances in data management over the past 15 years have been steady and significant, we are only just beginning to understand the full impact of these advances on the practice of human resources. Once reserved primarily for large organizations, Schramm (2006) pointed out that HR technology has begun to infiltrate organizations of all sizes. One only needs to look at the myriad of software packages available to see that HR technology has infiltrated every function of HR, from recruitment to strategic management.

It is inevitable that changes in the *way* organizations administer the various functions via the use of technology will ultimately result in changes in the scope and tasks of the function itself. For example, availability of applicant tracking data allows organizations to ask questions they may never have considered before such as, which of our recruitment methods ultimately yields the best leaders in our organization? Asking and answering questions like these become tasks for the recruitment function, requiring a new set of competencies and knowledge.

Four levels of use for HR technology have been identified (Grossman, 2000; Becker, Huselid, & Ulrich, 2001) administrative, efficiency, strategic planning, and return on investment (ROI). Companies that use HRIS for administrative purposes are primarily using it to process HR paperwork (e.g., to facilitate payroll). Those looking for efficiency gains focus on problems such as analyzing their wage and hour data to identify possible misallocations of labor by shift. Companies that use HRIS in strategic planning ask long-range questions such as how much labor will be needed to staff a new product line under consideration. Finally, companies that use HRIS in analyzing ROI are concerned with bottom line impact and may, for example, estimate the impact on firm profits expected from implementation of a new incentive program.

We know from prior research that in companies of all sizes, strategic use of HRIS is on the rise (Zahid, Wallace, & Cornelius, 2007; Florkowski & Olivas-Luján, 2006). But we are curious about where organizations lie in this hierarchy of HRIS integration, the changes they have seen in traditional HR functions, and associated competencies. We then explore what educators are currently doing to address HRIS competencies by looking at the courses, content, and delivery methods for this new material. Thus, this paper is aimed at identifying changes in the HR function as practiced, understanding how HR programs are currently addressing HRIS content in their programs, identifying problems with teaching HRIS, and discussing implications for HR curricula.

METHOD

### The Survey of Practitioners

In April, 2008, we sent email letters to approximately 417 graduates of an HR undergraduate program at a mid-sized Midwestern university. It was unfortunately impossible to tell exactly how many had taken positions in the field of HR since many were double majors. However, of the 397 for which we had job titles, 159 had job titles that were clearly in the HR field. Among other things, we asked about the level of HRIS integration into the HR function at their organization, the ways in which the HR function has changed as a result of HRIS integration, and how skills needed by HR professionals have changed.

We received 78 responses with 73% currently working in HR. Thus, the overall response rate was 18.7% while the response rate among the known HR job titles was 35.8%. The typical respondent was either a mid-level (45%) or upper level (11%) manager with the rest either entry level or not in management. The average number of employees was 42,627 (median = 700; sd = 242,817), ranging between three and 2,000,000 employees. There were seventeen companies with 5,000 or more employees. Company age was evenly distributed across a range from 9 years to 163 years. Service (38%), manufacturing (28%), financial institutions (17%), and mining/construction (11%) were the most frequently represented industries.

Figure 1 shows the respondents' assessments of the level at which their organizations are currently utilizing HR technology in the HR function along with their projections for the future. Of the 71 organization responding to this question, 50 (70.42%) use HRIS to administer some or most of the HR function but have not yet made the leap to integrating it into their strategic HR planning. Only 12 organizations (16.90%) indicated that HR is an integral part of operations and used to support HR and business strategy. Five organizations (7.04%) indicated they use HRIS to estimate ROI of HR initiatives. A small number of companies (four) indicated that they do not have an HRIS but are using Excel spreadsheets to track certain HR data such as turnover.

These figures are in sharp contrast to how these respondents see their organizations using HRIS in the next five years. Of the 64 responses to this question, 29 organizations (45.31%) anticipated doing strategic planning and nine organizations (14.06%) anticipated using HRIS to estimate ROI of HR expenses. If the anticipated changes occur, the number of organizations that will be using HRIS for strategic planning and estimating ROI in HR will double in the next five years.

Figure 1. Use of HRIS in Organizations
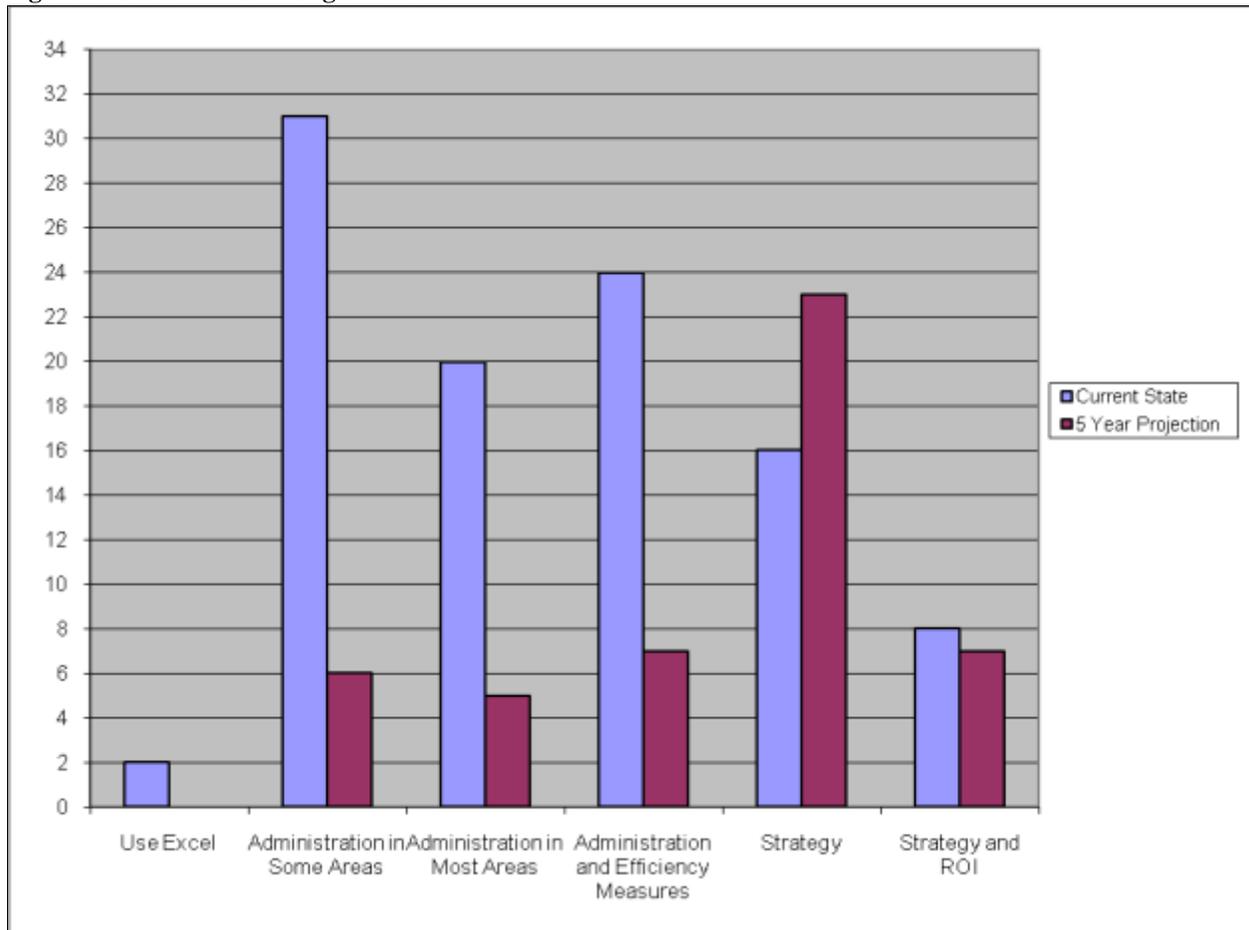
Note: Figure shows total number of respondents at each level.

When asked to what extent the implementation of HRIS had influenced the way the human resources function was managed at their organization, Table 1 shows the most frequent response was "Some Influence" (36%) while 33% of respondents indicated that there had been "Significant Influence" or "Great Influence". Similarly, 52% said HRIS had "Some Influence" on the skills required to do their jobs but only 20% indicated a "Significant Influence" had been felt on skill requirements. When asked specifically about the influence of HRIS on data management skills, only 30% responded that there had been a "Significant Influence" while 36% said there had been "Some Influence" on the need for data management skills.

Table 1
Influence of HR Technology on HR

	Influence on HRM	Influence on Skill Requirements	Influence on Data Management Skills
No real influence	0.12	0.14	0.09
Limited influence	0.16	0.14	0.23
Some influence	0.36	0.52	0.36
Significant Influence	0.33	0.20	0.30
Great Influence	0.03	0	0.02
N	69	64	66

Figure 2. Influence of HR Technology on HR Functions
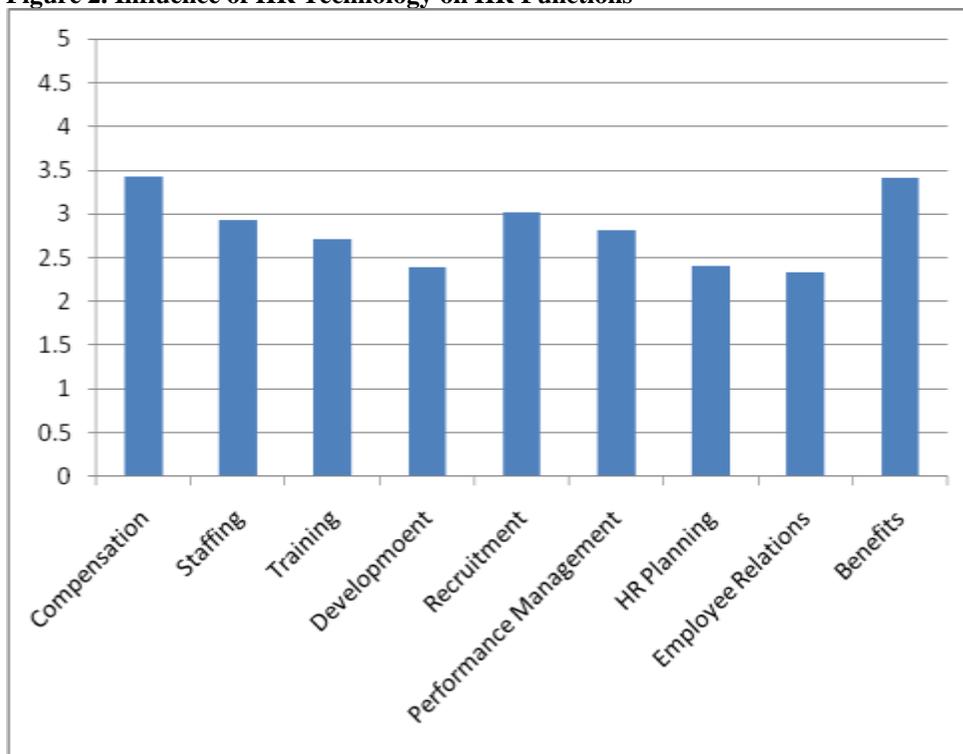
Note: Figure shows average rating on a 5-point Likert scale.

Finally, when asked to what extent HR technology had changed the way their organizations administered various HR functions (5 point Likert with 1=not at all, 2=very limited extent, 3=limited extent, 4=significant extent, and 5=very significant extent), respondents indicated the greatest influence was in the areas of compensation (m=3.43; sd=.98) and benefits (m=3.42; sd=1.11) followed by recruitment (m=3.01; sd=1.09) staffing (m=2.936; sd=1.08), performance management (m=2.82; sd=1.46), training (m=2.71; sd=1.32), HR planning (m=2.41; sd=1.24), career development (m=2.39; sd=1.16) and finally labor relations (m=2.33; sd=1.13). Verbal descriptions of some of the changes experienced by these organizations can be obtained from the authors. These results are shown in Figure 2.

Summary of Practitioner Survey

While all respondents reported having HRIS systems, the majority do not use their HRIS for higher level analysis but rather just for administration of their HR function. However, the majority plan to start using their HRIS for higher level functions in the next 5 years. Currently, the impact on the HR function and the skill needs of the HR department are reported to be fairly low. The majority said HRIS had, at most, some impact on how they manage. Only 20% indicated HRIS has had a significant impact on skill requirements and only about 30% indicated a significant increase in data management skill needs. However, with the projected doubling of the use of HRIS systems for more sophisticated purposes, the impact of HRIS on skill requirements will dramatically increase.

The greatest impact of HR technology was in the areas of compensation and benefits. For all the other HR functions, the majority of respondents indicated the impact was "limited", "very limited" or "none". The opened ended question revealed some interesting trends. Almost none of the respondents actually talked about writing and using reports drawn from their HRIS to manage the organization. The primary skill areas mentioned were computer skills and general comfort with computers. These results are consistent with their assessment that organizations are not using the HRIS for higher level strategic analysis and indicative of the gap in skills that needs to be bridged to move toward that goal.

Thus, overall the results of the practitioner survey indicate that while there is not much impact on the HR function now, if the desired changes occur in the next 5 years as expected, the increase in skills needed will be significant. Merely being comfortable using the computer, having data entry skills, and running reports will not be sufficient to move the organization to a higher level of HR technology integration in five years time. This suggests that academic programs in HR should, right now, be graduating students ready to both make these transitions occur and to function effectively in the anticipated future environment. Courses that focus primarily on the function of a particular HRIS system, computer literacy, and data entry/management are not sufficient to meet future needs.

THE SURVEY OF ACADEME

In March, 2008 we sent letters and surveys to 137 universities believed to have undergraduate or graduate level IR/HR majors/concentrations. The sample was chosen by examining the list of HR programs from the Society for Human Resource Management (SHRM) Foundation and from the listed compiled by LERA. We also posted our survey to the HRDIV Net (the listserve of the Academy of Management's HR Division). Because of this sampling technique, the exact number of institutions we reached with our survey is unknown. We received a total of 49 responses. Of those, 31 reported having either a major or minor in HR at either the graduate or undergraduate level (with another eight having only a concentration in HR). Among other things, we asked whether these programs offered courses in HR technology and, if so, to answer a few questions about the courses they offered.

HR Technology Courses

Respondents were asked to list any courses offered in their programs that related to the use of technology in managing HR. Six or fewer respondents indicated that *HRIS, HR Management Systems, Enterprise Resource Planning,* or *HR Metrics/Measurement* were required courses. (See Table 2). The most common elective course offered was *HRIS*. Between 15 and 19 respondents indicated they did not require any of these courses.

Table 2
HR Technology Courses Offered

	HRIS	HR Metrics	HR Management Systems	Enterprise Resource Planning
Not offered	15	11	19	19
Covered in another course	7	16	7	4
Elective	8	0	0	1
Required	6	5	5	5
N	36	32	31	29

The respondents next answered some questions about the structure of their primary HR technology course. Responses indicated that most were three credit courses that met 15 to 16 weeks for three hours per week. Annual enrollments ranged from 15-60 students per year with most having around 30 students. Only eleven of the primary HR technology courses listed *Introduction to HRM* as a prerequisite, eight listed *Statistics*, and there were none that listed *Research Methods* as a prerequisite.

When asked how much time was spent in a computer lab when teaching the primary HR technology course, three respondents indicated that 100% of class time was spent in a computer lab, two indicated about 50% of the time, and almost all of the rest either did not answer the question or clearly indicated no time was spent in the computer lab. Results were similar for the question asking how much time was spent in software instruction.

We then asked about the degree to which various software packages were covered in the primary HR technology course; only six respondents indicated any HRIS software package was integral to their primary HR technology course. Finally, the distribution of topics covered in the primary technology courses is shown in Figure 3. It is interesting to note that providing an overview of specialty products (e.g., software specifically designed to manage applicant tracking, payroll, performance management or some other function of HR) was mentioned by only four of the respondents. The most frequently covered topics included systems concepts, an overview of general HRIS product options, and HRIS applications.

Figure 3. Topics Covered in Primary HR Technology Course
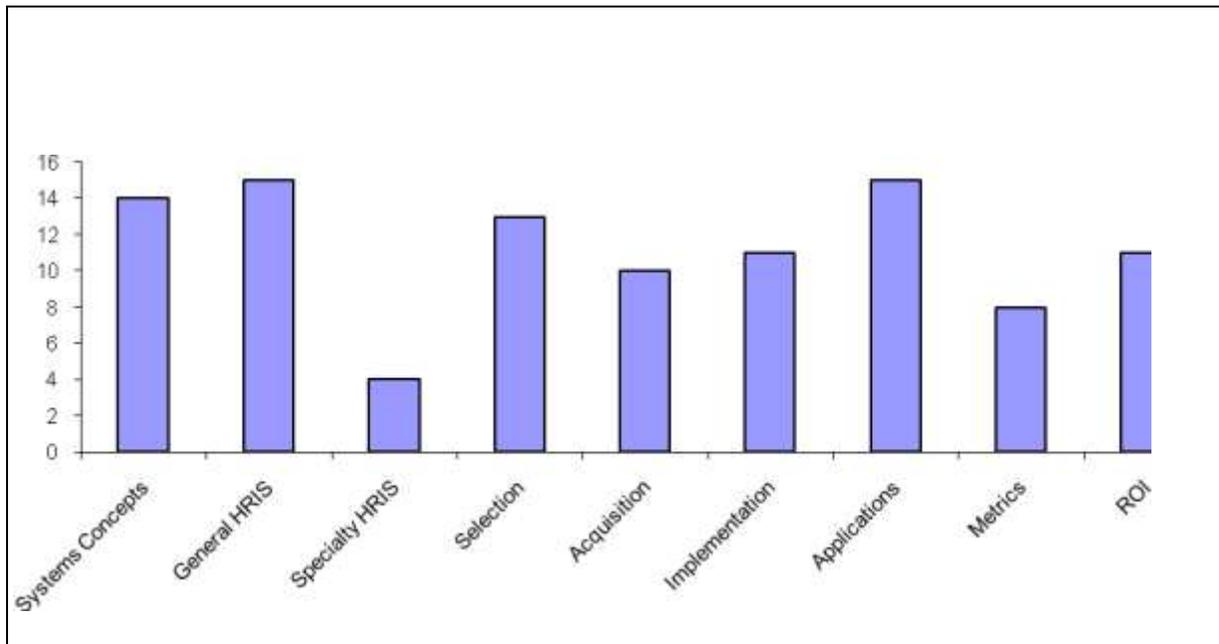
Teaching Methods

We next asked respondents who were currently teaching an HR technology course about their pedagogy. Twenty-one respondents indicated on a 5-point Likert scale (1=Not at all to 5=a great deal), the degree to which various teaching methods were used in teaching their primary HR technology course. Lecture (m=3.57; sd=0.75), discussion (m=3.57; sd=0.68), and hands on learning (m=3.57; sd=0.98) were all used to the same degree while the use of computer lab (m=2.71; sd=1.62) and simulations (m=2.14; sd=1.24) were less popular. When asked if they use a common database that simulates data from an actual organization to teach across the core courses (e.g., compensation, staffing), only eight respondents indicated "Yes."

Finally, we asked how the availability of HR technology had changed the way typical core HR courses were taught. The results are shown in Table 3 and indicate that few changes are being made to core courses in response to HR technology. Most instructors indicated they were making mention of software in their classes but typically less than 10% of respondents said they were doing any of the following: a) having students do exercises or projects with an HRIS, b) teaching new theories or concepts, or c) integrating topics across courses more now than before the availability of HR technology.

Table 3
Changes to Core Curriculum Due to HR Technology

	Staffing	Comp	Empl. Rlns.	Benefits	Perf. Mgmt.	T&D
No change	0.21	0.17	0.48	0.26	0.26	0.23
I refer to software options in lectures	0.31	0.25	0.19	0.29	0.26	0.31
I show software related to topic in class	0.13	0.17	0.06	0.13	0.15	0.14
Students do exercises using HRIS	0.03	0.11	0.03	0.03	0.06	0.03
I require data analysis exercises	0.18	0.17	0.06	0.13	0.06	0.11
I am teaching new concepts or theories	0.10	0.06	0.06	0.06	0.12	0.11
I integrate concepts across courses	0.05	0.083	0.10	0.10	0.09	0.06
N	39	36	31	31	34	35

Note: Numbers reported as a percentage of total responding to the item.

Barriers to HR Technology Integration

Our survey of academe also asked about various barriers encountered by professors in their efforts to teach students about HR technology. Using a 5-point Likert scale (1=not at all, 5=a great deal), we started with a general question about the extent to which various factors created barriers to integrating HR technology into the HR curriculum. The results are shown in Figure 4. No faculty interest in teaching the course was "somewhat" of a barrier (m=2.93; sd=1.21) along with lack of perceived need for the course by administrators (m=2.97; sd=1.4). Barriers rated between "somewhat" and "quite a bit" included no money for additional credits in the program (m=3.55; sd=1.59), no money for the technology (m=3.48; sd=1.52), limited faculty expertise (m=3.44; sd=1.27), and no room for credits in the program (m=3.23; sd=1.67). Other barriers mentioned by respondents included insufficient time to develop the course or for "retooling" faculty who have expertise in other areas but are interested in teaching HRIS.

We next asked about barriers to providing in depth knowledge of at least one software package in the primary HR technology course. Figure 5 shows the results for these questions and indicates that the biggest barrier is that "the products change too quickly and it is difficult to keep up" and "the focus of the course is theoretical in nature". Other barriers to covering at least one software package in depth included lack of support, lack of faculty training, cost, complexity, lack of in house support, and it simply not been seriously considered.

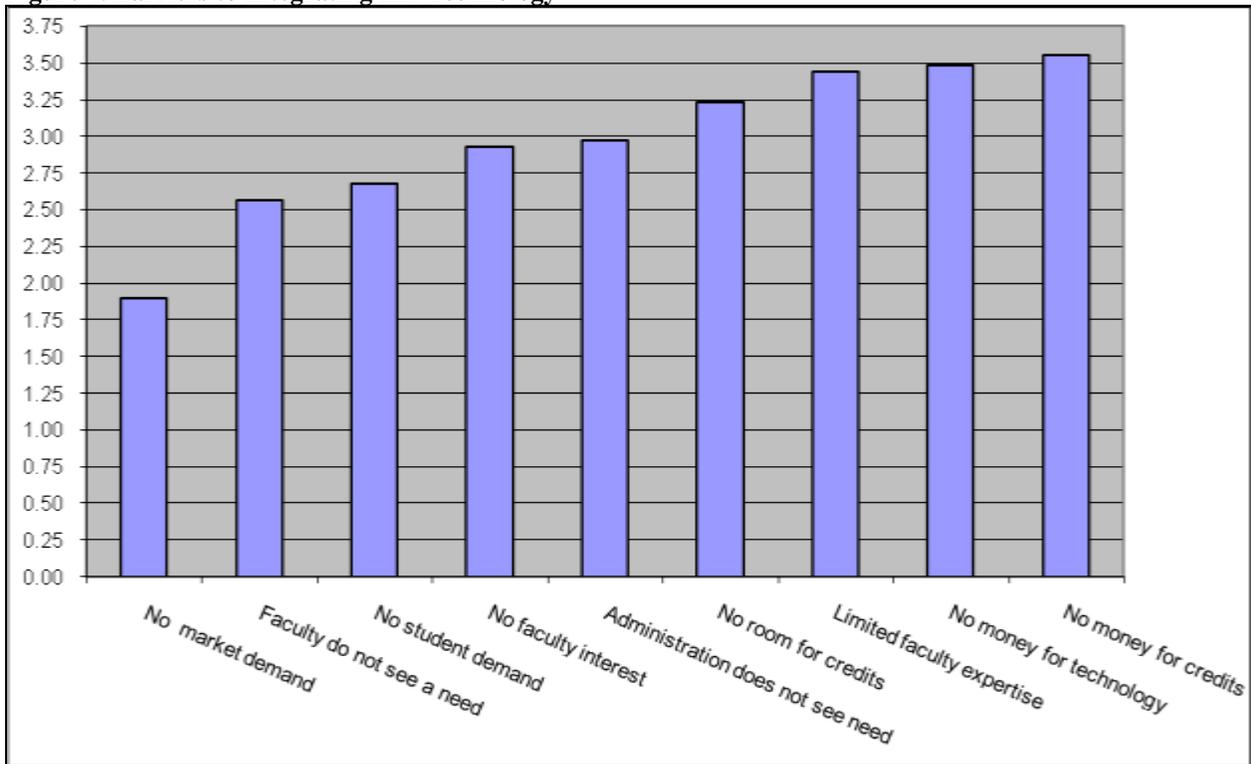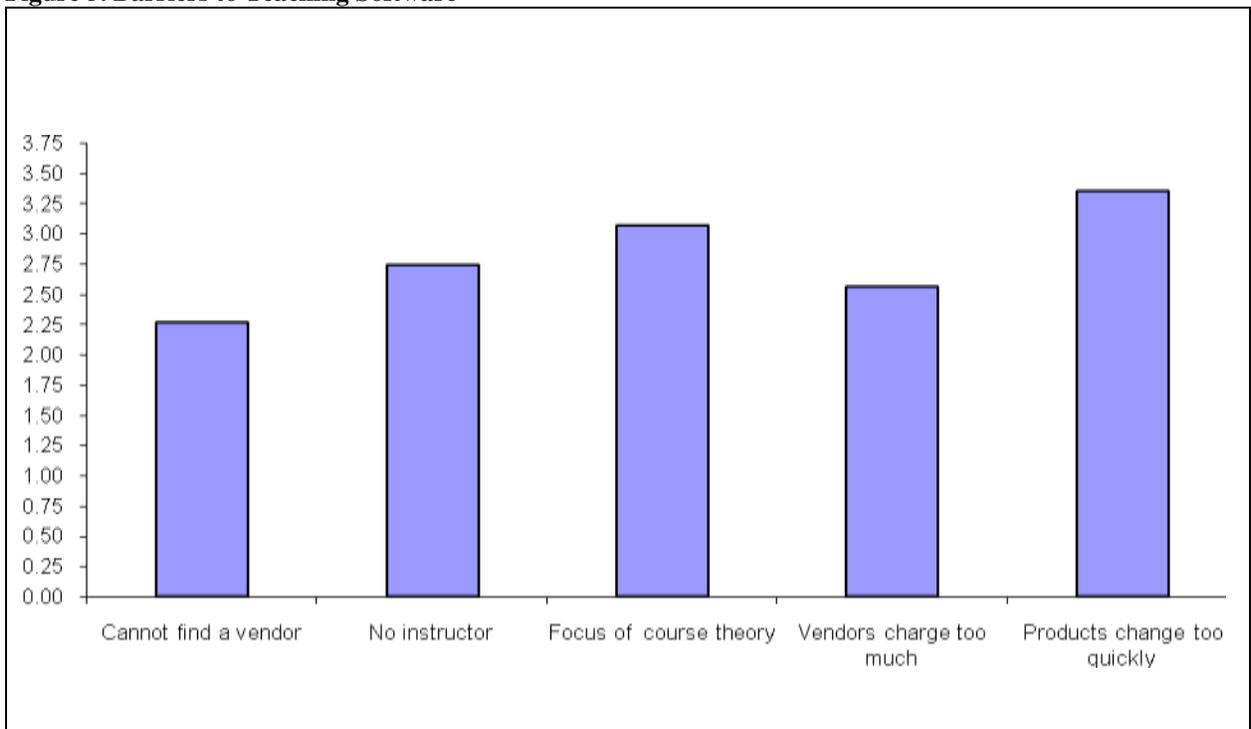**Figure 4. Barriers to Integrating HR Technology**

Figure 5. Barriers to Teaching Software

Finally, we asked about general barriers to teaching the primary HR technology course. Figure 6 shows that limited access to textbooks (m=3.43, sd=1.29) and instructional materials (3.43, sd=1.33) were rated between "somewhat" and "quite a bit" while willingness of software companies to provide software (m=2.27; sd=1.35) and student preparation (m=2.29, sd=1.19) were less problematic. A lack of clear curriculum (m=3.23, sd=1.07), limited opportunities for practical experience (m=3.35, sd=1.19), and limited opportunities for instructor training (m=3.17, sd=1.19) were "somewhat" of a barrier to teaching the course.

Figure 6. Barriers to Teaching HRIS
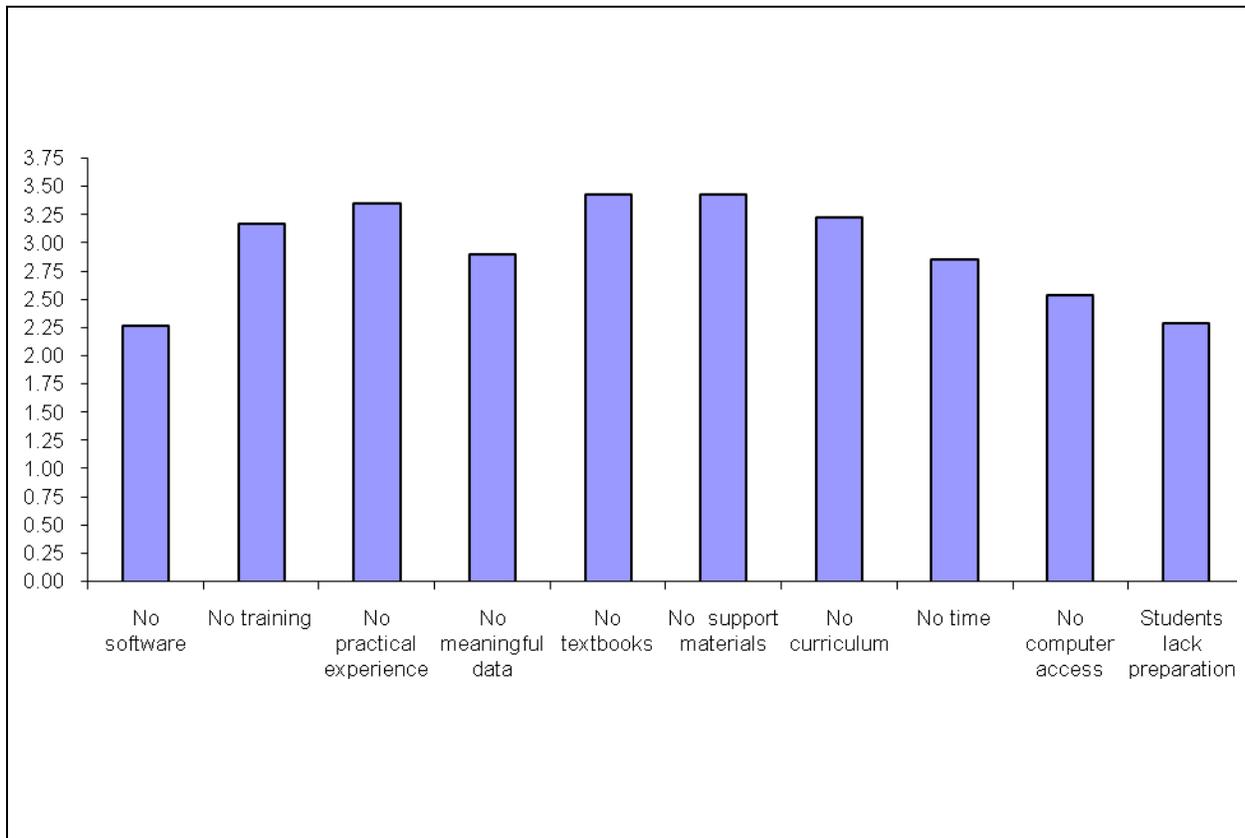
CONCLUSION

According to the 2003 SHRM Undergraduate Curriculum Study (SHRM, 2003) and the SHRM HR Curriculum Guidebook (SHRM 2008), HR programs should cover HRIS to teach: 1) how technology can support decision-making, and 2) how HRIS can streamline the administrative functions of HR. We explored practitioner perceptions of how HR technology has changed the HR function in their organizations and how they expect it will change the function in the future. Broadly speaking, our results suggest that companies of all sizes will be looking to significantly enhance the sophistication of their HRIS utilization over the next five years.

For HR academicians, this means several things. First and foremost, we need to be developing HR graduates who have the skills to transition to new roles in the next five years and can help organizations transition to new HR systems. This will require graduates who can manage the logistics of the transition (e.g., change management, project management) and also conceptualize the new roles of HR through the use of HR technology. Our survey of academicians suggests that most HR technology courses are not currently designed to fill the gap. Many programs focus on theoretical concepts (e.g., how to select a system, how to design a RFP) rather than on the more practical question of what you do with the data once you have a system in place. Few courses incorporate hands-on exercises that help students to use the HRIS.

We were also somewhat surprised at the extent to which courses are not using computers in teaching HRIS and other HR technology courses. While we agree with the comments of some respondents that these courses should not be about learning a particular software package, it is important that students have exposure to at least one HRIS. HR data are complex and familiarity with typical storage organization and retrieval is useful for more than simply learning the software. It helps students to visualize and understand connections among data within the system. More importantly, however, students need to understand how to retrieve the "right" data to address the kinds of real world problems they are likely to encounter (e.g., costing absenteeism, costing turnover, tracking recruitment success) through report generating, synthesizing data, and preparing management reports and presentations from their analyses. Hands-on application of these concepts should help to reinforce the theory behind the problems, as well as teach them about the features of an HRIS that are desirable for addressing a myriad of HR problems.

Although not an explicit finding here, we are concerned that some courses are focusing heavily on theoretical concepts because of the difficulty in finding resources to support computer applications (e.g., a meaningful data base within a user-friendly HRIS). There was considerable interest in free software that included realistic data simulating an actual organization when respondents were explicitly asked this question. This suggests that a) educators are not aware of what is available, or b) the software available for instruction is not meeting educator needs. SAP has a populated data base but its complexity makes it difficult to in a shortened course (e.g., 6-7 week course) or where the software is not the primary focus of the course. While PeopleTrak has allowed faculty to use their software to support a course, they do not have extensive databases with which to work. This is good for demonstrating how to enter data and where to find various data fields but our courses need to do much more than this. To illustrate more complex problems the ideal database would simulate a larger organization, over more than one year, in an easy-to-learn HRIS, and could be reset each semester. HR faculty should encourage software companies to develop educational versions of their software for classroom use.

Also with regard to pedagogy, it would seem that we should be spending more time thinking about how the role of HR can be expanded with the availability of HRIS in each of the functional areas. In other words, we need to seriously consider how the content of our core courses should change to reflect the increased sophistication of HRM made possible with HR technology. At the same time, we need to encourage our students to think about this as they prepare to advance in their careers. Finally, an issue that was identified from the survey has to do

with the training and retooling of HR faculty in preparation for instruction. The lack of both formal training and training through practical experience with HRIS was noted.

Although we did not address other aspects of HR programs in our survey, we note that the increased demand for students who are well-trained in HR technology places some additional pressures on HR programs. For example, program admissions need to place heavier emphasis on quantitative and technical skills than has perhaps been done historically. The content and pedagogy of our HR courses will need to reinforce these skills and either "weed out" students who cannot demonstrate competency or direct them to those areas of HR where quantitative and technical skills are of lesser importance (e.g., recruitment). Creating a culture shift like this will require HR faculty to work with student advisors at both the high school and college levels to "reinvent" the profile of the ideal HR student.

Beyond what we are doing in the classroom and our programs, academics can support the evolution of the use of HRIS in organizations by conducting relevant research and translating this research for the practitioner. For example, Wilson-Evered & Härtel (2009) examined psychological factors predicting the adoption of HRIS. Their work highlighted the importance of interpersonal communication (addressing the particular needs, concerns, and opinions of staff and line managers) in the diffusion of HRIS. It suggests that academicians need to help organizations understand and address these concerns. Similar research is needed that will help organizations to understand implementation issues, envision the possible "new" roles for HRIS, assist in managing the change to the new uses of HRIS, and identify skill areas needed to manage the new expectations.

Assuming a rich body of academic research exists, academicians must then be proactive in translating this work for the professional. For example, currently the majority of practitioners see "some" or "limited" influence on their skill requirements. Given the magnitude of the changes that full utilization of HRIS will create, the limited increases in skill requirements that practitioners are envisioning will not be sufficient to meet future needs. Academics may be able to help practitioners to understand how skill needs will change with transitions to greater utilization of HRIS. Professional development opportunities (e.g., seminars, certifications, and mini-courses) to improve required skill sets may be needed. Practitioner-oriented journal articles that focus on translating research would also be helpful. Finally, encouraging practitioner involvement in "support groups" to guide changes would allow for learning through the experiences of others.

Motivating change in the HR curriculum to embrace technology and all it has to offer for HR management will not be easy. Respondents to our academic survey pointed to numerous barriers that will need to be overcome, including funding needs, administration's misperceptions about the importance of change, a shortage of training and development opportunities for faculty, and the simple question of where to add HR technology into a curriculum that is already bursting at the seams. However, if academe is to be a driving force in moving the human resources function toward a strategic partnership, one that is capable of demonstrating ROI in the organization's human capital, it is critical that we take a lead role by embracing HR technology in our programs.

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