

Communications of the Association for Information Systems

Volume 2

Article 13

September 1999

Recruiting IT Faculty

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Recommended Citation

Myers, Martha and Beise, Catherine (1999) "Recruiting IT Faculty," *Communications of the Association for Information Systems*: Vol. 2 , Article 13.

DOI: 10.17705/1CAIS.00213

Available at: <https://aisel.aisnet.org/cais/vol2/iss1/13>

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Communications of the **A**ssociation for **I**nformation **S**ystems

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TUTORIAL

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ABSTRACT

The current shortage of qualified IT professionals in industry now extends to academia. Academic departments need a systematic approach to recruit new IT faculty effectively. This process is hindered not only by the shortage of formally qualified PhDs, but also by the lack of consensus in the definition of "IT" and the competition with industry for skilled professionals, even at the PhD level. Another challenge is the gap between new PhDs seeking research positions and the shortage of qualified faculty in institutions for which teaching is a priority. This tutorial explores these and other issues related to IT faculty recruiting, and provides a systematic and practical methodology for pro-actively attracting the right people to the right places in academia. An effective recruiting process requires thoughtful problem definition, identification of appropriate sources of alternatives, consistency and fairness in selection using well-defined criteria, and aggressive closure.

Keywords: IT recruiting, IT personnel, IT workforce shortage.

"There is something that is much more scarce, something rarer than ability. It is the ability to recognize ability."

- Dennis Conner, America's Cup Winner

I. INTRODUCTION

The shortage of information technology (IT) professionals is significant. This shortage extends into the academic market for IT faculty, exemplified by the much greater number of positions than candidates in recent Information Systems placement databases. The current job market in both academia and industry indicates a need for proactive strategies for recruiting good candidates.

A thorough understanding of this problem is challenging for several reasons:

- The paucity of research in academic recruiting in general and in IT academic recruiting in particular.
- The difficulty of clearly defining "IT," which includes a range of IT-related fields, job types, and academic disciplines. The few studies of IT academic recruiting that do exist tend to focus only on computer science and on PhD-granting institutions.
- A lack of consensus on the role of academia in addressing the IT industry shortage.

This tutorial incorporates discussion of these issues as they relate to IT academic recruiting.

Understanding and improving the recruitment process has implications beyond simply new hires. Nelson [1997] expressed concern that the problems with tenure are rooted more in faulty recruiting processes than in the tenure process. Is the real problem with tenure "incompetent faculty hiring?" A recent request for information posted to the ISWorld listserv about data on the proportion of hired faculty who successfully gained tenure indicated that very little

data is available. Tenure-and-promotion practices are difficult to track, given the sensitive nature of the data.

The purpose of this tutorial is to provide systematic, decision-theory-based, practical suggestions for helping academic departments find the "best fit" candidates in a timely and objective manner. By putting what is known about the recruiting process in one place, we believe that this tutorial will be of interest not only to new recruiting committee chairs, department chairs, and deans, but also people experienced in IT faculty recruiting.

II. BACKGROUND AND JUSTIFICATION

The scarcity of IT professionals is widely acknowledged in industry [e.g., Stewart, 1998; Ferratt et al, 1999]. Less information is available regarding IT academic recruitment, although descriptive statistics from recent AIS placement databases indicate nearly a 2:1 ratio of positions to candidates [Myers & Beise, 1998]. For example, approximately 250 positions were advertised for 150 applicants during the 1997-98 recruitment season. Only about half of the offers extended by institutions led to acceptances by applicants [Galletta, 1998]. It appears that the ratio may have even worsened since April 1998. The shortage of IT faculty limits the ability of universities to provide new IT professionals to industry. Clearly there is a relationship between the two shortages (industry and academia) and a need to consider both.

A review of related literature indicates limited data and knowledge about academic recruiting in general. Furthermore, significant differences between IT disciplines and non-IT disciplines, especially in the area of recruiting, limit the applicability of the literature from other fields. The data in Table 1 regarding academic recruiting in more traditional disciplines illustrate this point [Magner, 1997].

Table 1. Recruiting Data for Non-IT fields

History	777 applicants for 220 positions
Mathematics	9.4% unemployment
Physics	Half take post-doc rather than teaching appointment

The Wall Street Journal recently stated broadly that there are “too many Ph.D.s and not enough jobs in research and teaching” [Lancaster, 1999]. However, the opposite is true in the IT discipline.

While there is much concern, there is very little published about the IT recruiting process in academia. Related IT studies focused exclusively on computer science, and include data from research institutions only [Kozen & Zweben, 1998]. Furthermore, the definition of "IT discipline" still remains fuzzy and lacks consensus, which makes the IT recruiting process even more complex to study, understand, and improve.

DEFINING INFORMATION TECHNOLOGY (IT).

Because the IT field of study is still relatively new, it is less well understood than older, more established fields such as mathematics, psychology, or management. In fact, the IT field forms a continuum that uses these fields and others as reference disciplines. The Computing Research Association (CRA) provides the following definition of IT: *IT refers to computer-based systems, including “computer hardware and software, as well as the peripheral devices most closely associated with computer-based systems.”* CRA examples span the IT spectrum from design of chips to creation of complex business applications. A distinction is made between IT workers and IT-enabled workers. The focus in this paper is on IT workers, rather than IT-enabled workers. Useful definitions illustrating the continuum included in IT [Computing Research Association, 1999] are shown in Table 2.

Reviews of the literature indicate that standard definitions were not employed in the past. Studies of IT academic personnel (and industry personnel) should acknowledge this range of possible populations and define the scope of

the studies accordingly. As the IT field matures, it becomes increasingly important to differentiate between two primary IT fields: computer science and information systems.

Table 2. Definitions of IT Subfields

Computer engineering	Graduates work primarily in computer hardware
Computer science & engineering	Graduates work primarily in hardware, firmware, and software
Computer science	Graduates work primarily in software design and implementation
Software engineering	Graduates work with the engineering of software, with special attention devoted to large and critical systems
Computer information science	Graduates work on the development of information systems, probably with more emphasis on information as an enterprise resource than is given in programs in computer science or software engineering
Information systems	Graduates design, develop, implement, and maintain business information systems
Management information systems	Graduates design, develop, implement, maintain, and manage information systems with a greater emphasis on the management of the systems than on the other aspects.
Information science	Graduates usually work in libraries or develop other facilities to provide information to users.

Source: Computer Research Association [1999]

Early reports of recruiting included information systems as a sub-discipline of either computer science or one of several business fields; for example management, management science/operations research, and accounting. Important information about the current market is lost without more discriminating definitions.

SHORTAGE OF IT PROFESSIONALS

Is there really an IT workforce problem? Much has been published recently about this shortage, especially in the popular press. Even those who question the extent of the problem, claiming it is exaggerated in order to allow more foreign workers, admit that the shortage is real [Garner & Weldon, 1998].

To evaluate supply and demand in IT fields, we examined data from several secondary sources. Precise numbers are simply unavailable. Even official reports from the Departments of Labor and Education lack clarity in

identifying IT numbers. For example, the National Center for Educational Statistics regularly tracks degrees conferred, and provides a specific category entitled "computer and information sciences." However, there is also another category called simply "business" [U.S. Department of Education, 1998]. It is not at all clear how degrees in information systems produced by business schools are captured. Combining the data from the two categories does not yield clear trends.

Most prior related research on IT academic recruitment focused on computer science rather than the broader spectrum, perhaps as a matter of convenience. Because CS is slightly older and more well-defined, statistics about CS are more readily available. These statistics led to assumptions about the generalizability of CS data to the broader IT field. However, important distinctions between CS and Information Systems call into question any conclusions drawn from CS-only data. Nevertheless, all related studies provide strong evidence for this paradox: The number of IT jobs is growing and will continue into the foreseeable future. The number of undergraduates entering IT degree programs is also growing [Papp, 1999; Computing Research Association, 1999]. The number of PhD's available to meet the needs of these future IT professionals is flat and may even be shrinking given industry demand for such PhDs [Beise & Myers, 1998; Papp, 1999; Computing Research Association, 1999; Maisel & Gaddy, 1998; Kozen & Morris, 1999].

Recruiting qualified IT faculty is difficult, not only because of the apparent shortage, but also because of obstacles to clear identification of the applicant pool. The following sections of this tutorial provide practical approaches to improving the recruitment process, based on a better understanding of the problem and on sound theoretical foundations.

THEORETICAL FOUNDATIONS.

Information Systems academics are well grounded in the concept of the system lifecycle for addressing the analysis, design, and implementation of information systems in organizational contexts. This approach derives from

systems theory [Churchman, 1968]. This tutorial views the recruitment process from a system life-cycle perspective.

An important part of the problem-solving process is to find alternative solutions (candidates) and define criteria and a process for selecting the best alternative. A rich array of research streams in management science, operations research, and decision science attempts to systematically find the best solution to a problem using a wide variety of quantitative and qualitative methods.

Simon's [1977] model included three phases of decision making: intelligence, design, and choice ("implementation" has since been acknowledged as a 4th phase in the model). Mintzberg [1979] expanded and enriched our understanding of the decision making process to include these three steps: (1) recognition and diagnosis, (2) search and design, and finally (3) screening, evaluation-choice, and authorization [Holsapple, 1996]. Dynamic programming principles, with decision stages, state variables, and interim decisions, are also applicable to the recruiting process. However, these approaches assume factors known with certainty, or a probability distribution. Perhaps more relevant is the application of just-in-time (JIT) inventory control to the recruiting process [Groebner & Shannon, 1992].

In applying these models to the problem of recruiting the best people for the appropriate jobs, the recruitment process described in this tutorial lends itself best to heuristic approaches and to finding satisficing, rather than optimal, solutions. Simon [1977] describes such an approach to problem solving, where one attempts to find a good fit (although perhaps not a perfect fit) between the alternatives available and the situation at hand. For example, one key heuristic for hiring academics is to hire only leaders. That is, every new faculty member hired should bring leadership to the department in a particular area.

III. OVERVIEW OF THE RECRUITMENT LIFE CYCLE

The recruiting life cycle can be mapped easily to Simon's and Mintzberg's models, as shown in Table 3.

Table 3 Recruitment Process Life Cycle Viewed In Terms of the Simon and Mintzberg Models

Recruitment Life Cycle Activities	Simon	Mintzberg
Strategic planning Identifying gaps Defining the position Announcing the position Forming the recruitment committee.	Intelligence	Recognition Diagnosis
Identifying candidates Attending conferences Interviewing candidates Screening for criteria	Design	Search Design
Prioritize and reduce alternatives In-depth interviews Campus visits Extending offers	Choice	Screening Evaluation- Choice Authorization

The initial identification of a need and gathering information for better understanding and defining the problem correspond to the intelligence phase. This phase includes department strategic planning, specifying the need in terms of identified gaps, defining and announcing the position, and forming the recruitment committee.

The search activities correspond to Simon's design phase. These activities include identifying alternatives (candidates) and criteria for assessing the alternatives. In this phase the recruitment committee members attend conferences to solicit and interview candidates as well as screen applications received in response to position announcements.

The selection phase of recruitment corresponds to Simon's choice phase. The alternatives are narrowed, interviews and campus visits are conducted, and

offers are made. Each of these phases and activities is described in more depth in the following sections.

DEFINING A NEW POSITION.

The first step in the recruitment life cycle is to define the position. This step is analogous to understanding the problem and defining specifications for the solution. When defining a new position, a number of factors should be considered prior to announcing the opening. Clearly, one of the primary tasks is to assess existing faculty expertise and to focus on gaps, as well as on potential research collaboration in growing areas. In the current recruitment environment there is intense competition for limited expertise in certain areas, such as telecommunications and electronic commerce. Given this situation, the announcement will need to convey unique characteristics of the department, the institution, and/or the location that might attract candidates with particular preferences.

The purpose of recruitment is to find a good match between candidate and institution. Achieving this match is particularly challenging in an institution where teaching is a higher priority than research. Newly-minted PhD's are best prepared and usually encouraged to enter careers at research institutions. PhD candidates with a primary interest in teaching are often discouraged from pursuing this interest. Speaking from the perspective of a research institution, Ralston [1996] states that while all institutions are interested in specific teaching expertise, none "really care about how you feel about teaching." Another complicating factor is that many institutions are in transition towards a greater research focus.

The situation is further exacerbated by many new IT PhDs entering private industry rather than academia¹. Clearly a candidate who wants to focus primarily on research will not be happy at an institution that puts more emphasis on teaching, nor vice-versa. Because the number of IT undergraduates entering the

¹ In computer science, more new PhD enter industry than academia [Maisel and Gaddy, 1998].

marketplace from second and third-tier institutions is much larger than that of the top research institutions, placement of qualified IT faculty into non-research institutions is equally if not more important in addressing the general IT industry shortage.

The recruiter needs to determine what to convey regarding the type of institution as a whole, as well as the relationship of the department to the institution. Demographic information regarding student attributes, curriculum, and expectations about the relative roles of research and teaching will attract the most interested candidates.

Position descriptions should always include:

- a description of the institution and department,
- a detailed description of the position including special areas of expertise sought,
- minority recruiting information, and
- procedures for submitting applications.

In addition to these specific factors, more qualitative factors should also be given consideration in any recruiting effort. Cascio [1989] describes this area as "personal chemistry". Here the focus is on department/institution culture, job fit, personality, interpersonal skills, and adaptability. Other factors might include geographic location, student characteristics, community or industrial opportunities, economic climate, or teaching opportunities in less common but desirable subjects. Although it may not be possible to specify these factors adequately in the position description, early discussion and understanding of these issues will prove valuable later in the process.

JOB ANNOUNCEMENTS

The job announcement specifies the requirements that were determined in defining the position. Many institutions have formal standards for job announcement format and outlets. Some, for example, begin with an announcement in the *Chronicle of Higher Education*. Some schools also advertise in journals specifically directed at minorities.

Subsequent to the initial announcement, a recruiter should consider developing more than one variation on the announcement. The basic components of the position announcement include:

- Type of institution
- Description of department (including its organizational placement)
- Expertise sought
- Teaching/scholarship balance
- Unique characteristics of this position, institution, or department

In a buyers' market, it is especially important to provide a description that accurately describes and distinguishes the position. In addition to the minimal list above, it may be helpful to explicitly include the teaching/research balance, existing programs and student attributes, existing faculty expertise and activities, and any extraordinary incentives. Because PhD candidates and other applicants in the job market consider many different openings, it is critical to all involved that the position description assist in the process. For example, in a research university, identification of the best teachers may not be as important as identification of the best scholars. However, in a four-year or masters' institution, the candidate's enthusiasm for teaching may be the most important attribute for recruiters.

Table 4 summarizes do's and don'ts for position announcements.

Table 4: Position Announcements

Do	Don't
Salary is competitive (if it is).	Salary range \$40,000-\$50,000
Include a cut-off date as a guideline to applicants.	Include a cut-off date that constrains your search too tightly.
Include minimum requirements such as a completed PhD.	Change the minimum requirements without proper processes.
Describe your institution and department accurately.	Over-emphasize research skills if teaching skills are more important, nor vice-versa.

Legal Perspective

National values and legal requirements are an important consideration in any job search. The U.S. Constitution provides general guidelines in the 5th and 14th amendments, which address due process of law and equal protection under the law, respectively. In addition Title VII of the Civil Rights Act prohibits discrimination on the basis of race, color, religion, gender, or national origin.

Some institutions establish an office of minority affairs with an affirmative action/equal employment officer that assists in meeting the legal and related requirements of a job search. EEOC personnel should review announcements prior to publication. One pro-active approach is to invite the EEOC officer to early recruiting meetings.

In addition to these formal provisions, a number of informal procedures can be employed to ensure due process and equal protection. For example, applications may be screened first by clerical staff who eliminate references to date of birth, race, and gender, as well as pictures that candidates may include in a vita.

New federal legislation opened the door much wider for hiring non-US citizens [*IT Recruiter*, 1998a]. Non-US citizens must have employment authorization to be employed in the United States. Applicants without employment authorization require sponsorship by the employing university via the H-1B visa. In fiscal year 1998, the maximum number of H-1B visas was 65,000. The number was raised to 115,000 for 1999, and will drop slightly to 107,500 in the year 2000, and then will drop back to 65,000 in 2001. These changes were fueled by the shortage of IT workers in the US, including IT academics. Qualifying is straightforward as long as the position requires at least a master's degree and pays more than \$60,000 per year. H-1B visas require about 90 days to process, a period of time that can be easily worked into the academic recruiting calendar of events. During the interview process (see below), there are also legal issues to consider in forming questions related to non-US citizens.

Temporary Positions

Due to budgetary and other constraints, many institutions do not obtain approval for a new position in time to recruit a desirable full-time tenure track faculty member. The shortest time from budget allocation to starting date is usually about 12 months. One strategy for holding the position once it is approved is to hire a temporary full-time instructor for the first year. A benefit of this strategy is that the institution does not have to make a long-term commitment to someone they are not sure about. Also funding may be sufficient to hire more than one temporary person with the funds allocated for the permanent tenure-track position. A disadvantage of this approach is that this same person is likely to have a high teaching load, to lack commitment to the department and to students, and to provide very limited, if any, contributions to service. It is important that the person hired into a temporary position clearly understands the terms of the contract and is aware that others will be recruited and considered for the permanent position that will be replacing the temporary one.

FORMING THE RECRUITING COMMITTEE

"Hiring faculty members is a very specialized task. It may well be that only a minority of faculty members is up to the job." [Gmelch, 1995]

The options for recruitment committee membership depend on the size of the department and on institutional custom. In small departments, it may make sense for everyone to be part of the recruitment committee. In larger departments, committee members may be elected, may rotate, or may be appointed by the Chair or the Dean. The last approach may often be the most effective in hiring the best candidate, particularly if one of the goals of recruitment is to facilitate change by increasing the quality and vitality of the department as a whole. The Chair or Dean can exercise leadership and facilitate change by appointing those members of the department who are most open and willing to move in the desired direction.

If the custom at the institution is to include someone from outside the Department on the recruitment committee, care should be taken that the person

selected agrees with the position description and understands the department's objectives and needs.

MARKETING THE POSITION

Marketing the position involves both interviews at conferences and advertisements in media.

Conferences

For Information Systems academics, the combined AIS/ICIS on-line placement service (<http://www.aisnet.org/placement>) is probably the most important marketing outlet. Since AMCIS (Americas Conference on Information Systems) is usually held in August, participation in recruitment at this conference requires a very early start on defining positions, forming a committee, developing announcements, and preparing purchase orders. However, this early date also gives some institutions an opportunity to hire someone for the current year at the last minute (see the discussion of Temporary Positions above).

The DSI (Decision Sciences Institute) conference, held just before Thanksgiving, is a traditional recruitment venue for Information Systems positions. ICIS (held in early December) and AMCIS are focused specifically on Information Systems, whereas the DSI conference includes a broader range of IT-related fields, such as management science, operations research, and decision sciences.

Advertisements

Another easy, quick, comprehensive, and inexpensive outlet for a position announcement is the ISWorld listserv. A position opening posted to this list goes immediately to over 1000 Information Systems academics throughout the world. More information about this can be found at <http://www.isworld.org/isworld.html>

Some institutions require posting of their positions in *The Chronicle of Higher Education* (<http://chronicle.com/>). The Chronicle is an opportunity to demonstrate efforts to recruit broadly. Advertising in publications aimed at

minorities can also be effective. Institutions wanting to recruit someone with a computer science background for a technically focused position can consider the *Communications of ACM*, <http://www.acm.org/cacm/> which is the primary outlet for posting computer science academic positions. Another good outlet for computer science and engineering positions is *Computer*, (<http://computer.org/computer/>) published by IEEE.

REVIEWING APPLICATIONS

Taking a systematic approach to recruitment increases consistency and objectivity in the decision-making process, as well as demonstrating this consistency and objectivity, should any questions arise. The following suggestions incorporate principles from the problem-solving processes in Section 2, and can help in achieving these objectives.

At the authors' institution, for example, an applicant is required to send a cover letter stating the intention to apply, a vita, graduate transcripts, and three letters of reference (not just a list of references). A student assistant or secretary can be assigned to handle the initial applications. As mentioned previously, they should be instructed to black out or otherwise remove any inappropriate information on the cover letter and vita, such as age, marital status, race, photo, etc. (The EEOC office can supply information on what is "inappropriate.") Then all the relevant material is placed in a folder. When items are received, they are checked off on a checklist. The folders are placed in a location accessible to the recruitment committee as well as to the other faculty (but not, of course, to the general public or students). Copies of all correspondence both to and from the candidate are stored in the folder, including significant e-mail correspondence. The recruitment committee members are then notified that a new application has arrived and must pro-actively review the application and record their initials and date of review.

When the deadline for application passes (or periodically, if no specific deadline is set), the recruitment committee schedules a meeting to review the applications as a group. One approach is to divide the folders initially into three

groups, such as definitely no, definitely yes, and maybe. Colored sticky dots can be used to indicate each member's opinion and how many members finished reviewing that application. Then the committee members can spend the bulk of their time reviewing and discussing only those folders with less than unanimous agreement on definitely yes and maybe.

Sample Review Criteria

Prior to group reviews of individual applications, a set of criteria is agreed upon based on the initial definition of the position. Setting criteria corresponds to Simon's design phase. The list of criteria is documented in a form that each committee member can check off or rate on a scale, which when completed corresponds to the choice phase. Figure 1 shows two examples of sample forms used by the committee members during resume reviews, discussions, and conference call interviews.

A single total number can be derived for each candidate to rank them. The criteria could also be weighted according to importance. The ranking is not intended as a hard and fast distinction, but rather to help the recruiters focus on the department needs, ask the same questions of each interviewee, and provide memory-jogging about particular individuals when candidates are being compared.

Reviews should focus on both quantitative and qualitative attributes of applicants. "Personal chemistry" issues can and should be a part of this review. However, focusing on more quantitative specific needs of the department requires more discipline and thus leads to the more systematic approach described in Figure 1. Of course, criteria such as "communication skills" and/or "collegiality" could be added to the lists below.

Candidate: Jane Doe	Reviewer: CB	Date: 2/15/00
<i>Rating Scale: 5 = very strong, 4 = strong, 3 = neutral, 2 = weak, 1 = N/A or can't tell</i>		
Database	5	
Telecommunications	2	
Programming	4	
Research	1	
Graduate Teaching	2	
Undergraduate Teaching	4	
Industry Experience	2	
Additional Strengths / Comments <i>Good communication skills in phone interview. Sense of humor.</i>	Total: 20	

a: Review Form – Candidate A

Candidate: John Smith	Reviewer: CB	Date: 2/25/00
<i>Rating Scale: 5 = very strong, 4 = strong, 3 = neutral, 2 = weak, 1 = N/A or can't tell</i>		
Database	2	
Telecommunications	5	
Programming	2	
Research	3	
Graduate Teaching	2	
Undergraduate Teaching	4	
Industry Experience	4	
Additional Strengths / Comments <i>Had not previously looked at department Web pages and courses.</i>	Total: 22	

b. Review Form – Candidate B

Figure 1. Typical Review Forms

Interviewing

After an initial screening of candidates, a smaller set of folders is again reviewed as potential candidates for a phone interview with the recruitment committee. Conference calls (and/or use of a speaker phone) provide an inexpensive and convenient way to gather significantly more information about the candidate, including communication skills, as well as an opportunity for them to ask questions. Even local candidates who could easily travel to campus should be initially screened via the phone interview to maintain fairness and consistency.

Sample Interview Script

Use of a consistent and documented script during the interview process assists in being as fair as possible to candidates, and, perhaps more importantly, to remember to gather all the necessary information. The content of the script should mirror the criteria previously specified in the position description and review checklists. This script can be used to document interviews held at conferences as well as a guide during the phone interviews. A sample script is shown in Figure 2.

- *Describe your current and previous positions.*
- *What are your research plans/goals for the next few years?*
- *What is your ideal teaching/research ratio?*
- *What are your teaching interest areas?*
- *Given the specific areas for which we are recruiting, how can you contribute to these areas?*
- *Why are you specifically interested in us?*
- *Is your application complete?*
- *Can we contact people other than those listed on your list of references?*

Figure 2. Sample Interview Script

Recruiters should be aware of legal pitfalls to avoid in interviewing non-US citizens. Recruiters may not ask directly if the applicant will need visa sponsorship, or if he/she can complete an I-9 form, which includes a statement that the applicant is a "US citizen or otherwise authorized by INS to work" in the US [*IT Recruiter*, 1998b]. Recruiters may inadvertently request too much information from such applicants, risking discrimination against people based on citizenship or national origin, a violation of the Immigration Reform and Control Act (IRCA) of 1986. It is acceptable to ask if the applicant is currently authorized to work in the US, but it is not acceptable to ask if he/she is a US citizen (Table 5).

Table 5 Interviewing Non-US Citizens

Do	Don't
Ask if the candidate is authorized to work in the US.	Ask if the candidate is a US citizen, or request to see a green card.

Reviewing Applicant References

A good time to follow-up on written references sent on a candidate's behalf is after a successful telephone interview. At this time, it is appropriate to ask the candidate if the people that sent reference letters may be contacted in person. Members of the recruiting committee may also wish to ask the candidate if they may contact others not on the candidate's list. E-mail has replaced many one-on-one phone conversations, and certainly led to increases in productivity. It is especially tempting to contact references over e-mail when they are located overseas. However, it is important to speak directly to at least some of the candidate's references. These conversations provide much richer insight into the potential job fit than an exchange of e-mail messages or just reading a reference letter.

As with telephone interviews with candidates, it is best to work from a script. By doing so, all members of the committee can participate without losing consistency and/ or compromising fairness.

First describe the position and the university culture to set the context for discussion. Then follow this description with a series of questions. A suggested list of questions to ask is shown in Figure 3.

- *How long and in what capacity have you known this candidate?*
- *What can you tell me about the candidate's teaching ability?*
- *What can you tell me about the candidate's research ability?*
- *What can you tell me about the candidate's interpersonal skills?*
- *What can you tell me about the candidate's ability to work on teams?*
- *Do you think that the candidate will be happy and productive in our environment? (assuming the environment has been described)*
- *Is there anything else you can tell me about the candidate that would help us in our decision making?*

Figure 3. Suggested Script for Telephone Reference Checks

Campus Visits

The official campus visit is an important discriminating factor in identifying and selecting the best candidates. The more traditional waterfall approach to recruiting requires that all top candidates be invited to campus before hiring decisions are made. As most experienced recruiters will admit, lengthy deliberations and costly analysis can lead to loss of the best candidates. This is especially true now that industry is competing for many of the same people. One strategy for addressing the current market is to apply just-in-time (JIT) techniques to campus visits in order to better satisfy recruiting needs. JIT processing centers on the answers to two questions:

Q1: How much do we order? (How many candidates do we bring in for campus visits?)

Q2: When do we order? (At what point in the process are offers made?)

JIT generally focuses on minimizing the on-hand inventory, and to order only and exactly when needed [Groebner & Shannon, 1992]. It is reasonable and wise to consider inviting candidates to campus only if the institution is virtually prepared to make the offer that day, even if other good candidates have not yet been interviewed. This approach can be justified by carefully investigating all available documentation and references (those provided by candidates and others), by conducting thorough telephone interviews, and by documenting all of the steps taken.

As with all other recruiting processes, the structure of the campus visit should be well organized and consistent from one candidate to the next. For example, the decision should be made early on whether candidates will make a presentation to classes or simply to faculty members in the department. This decision helps the candidate prepare for the appropriate audience. The order in which candidates visit with various entities on campus is not critical, but the visits should include basically the same individuals. Even the choice of restaurant for lunch should be consistent if possible. A brief suggested itinerary is shown in Figure 4.

Certainly if the campus visit yields unexpected results, the institution is under no obligation to extend an offer. But institutions that consider this alternative may achieve the best results in today's market, at a lower overall cost in time and money, by requiring good candidates to commit as early as possible.

8 AM MM to pick candidate up at airport/hotel and take him/her to breakfast.

10 AM Candidate to meet with Dean.

11 AM Candidate to make presentation to CSIS 2520 class.

Noon Candidate to go to lunch with recruiting committee.

1:30 PM Candidate to meet with CSIS faculty in small groups.

3:30 PM DG to take candidate on campus tour.

5 PM CB to take candidate to airport

Figure 4. Sample Campus Visit Itinerary

PACKAGING THE OFFER

The manner in which the offer is packaged no doubt affects the outcome. Top management involvement is as important to this activity as it is to any other strategic activity in an organization. Most campus interviews involve one or more visits with top institution administrators. It can be extremely helpful to have direct management involvement with the candidate at the time the offer is extended. For example, the department chair and the college dean may wish to orchestrate a pre-arranged conference call to the candidate to officially extend the offer and describe the details. Such arrangements give the candidate time to reflect on what is about to occur and to build anticipation.

The contents of the offer are also important to complete recruiting successfully. It is important to highlight all aspects of the offer that may set it apart from other offers. At the same time, do not dodge the "negatives" such as local and/or state taxes. An informed acceptance certainly serves the department longer and better than unmet expectations.

FOLLOW UP LETTERS AND DOCUMENTATION

After the candidate accepts the offer, it is often easy to forget the final stage of recruitment. All interested parties, but especially applicants who were not accepted, must be informed of the outcome of the search. Details of the

outcome need not, and probably should not, be shared. A short letter such as shown in Figure 5 informs the recipient politely and clearly. Candidates who visited campus or were on the "short" list may warrant a personal phone call in advance of the letter.

[University Letterhead]

March 3, 2000

Dear <applicant's name>,

The department of computer science and information systems (CSIS) at This State University completed the current recruiting cycle and all positions are filled. Thank you for your interest in TSU. We wish you the best in your future endeavors.

Kind regards,

J. Recruiter
Chair, CSIS Recruiting Committee 2000

Figure 5. Sample Follow-up Letter

IV. FUTURE RESEARCH AND CONCLUSIONS

Recent ISWorld list discussions indicate high interest in IT academic recruitment challenges. Several issues raised in this paper warrant further investigation. These include better definition and discrimination among the various IT-related fields in order to gather more accurate data about the IT job market. Another issue is the relationship between academic IT recruiting and the IT industry shortage. One question that arises is the extent to which today's PhD's in IT are prepared to support teaching institutions. The majority of IT

professionals are the product of non-research institutions and thus this consideration is important for those interested in the IT workforce problem.

Recruiters and applicants alike would benefit from more information about patterns of salaries, numbers of openings, numbers of applicants, numbers of offers, and areas of interest, over time. Based on the ISWorld discussion list, it appears that several different research projects are currently in progress, and we look forward to the results.

The fundamental principles in a systematic recruiting process involve thoughtful problem definition, identification of appropriate sources of alternatives, consistency and fairness in selection using well-defined criteria, and aggressive closure. The steps do not necessarily follow a waterfall model, and may be more effective if a JIT methodology is utilized.

In summary, first the position should be defined and the recruiting committee formed with strategic goals in mind. The announcement of the opening should be carefully crafted because it defines the position for the candidate and because it sets the criteria for the review process. Next, candidates should be identified and reviewed against these criteria. This third step involves recruiting at appropriate conferences, scripted telephone interviews, and calls to references. After prioritizing and selecting a short list of the best alternatives, campus visits should be arranged. This step should lead to rapid closure of the position, if the previous steps are conducted carefully. Fast turnaround is essential in today's job market. Finally, it is important to follow up with all applicants so that the search is closed in a professional manner.

Editor's Note: This article is based on a tutorial presented at the 1998 Americas AIS conference. A revised manuscript was received on August 22, 1999 and was published on September 12, 1999

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EDITOR'S NOTE: The following reference list contains hyperlinks to World Wide Web pages. Readers who have the ability to access the Web directly from their word processor or are reading the paper on the Web, can gain direct access to these linked references. Readers are warned, however, that

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