Association for Institutional Research

In Their Own Words: Effectiveness in Institutional Research

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Abstract

This study sought to understand and improve effectiveness in institutional research (IR) by interviewing, observing, and analyzing resumes of IR practitioners who have been identified by their colleagues as particularly effective in having an impact on decision-making, planning, and policy formation. Ten themes for effectiveness in IR were identified, including understanding your institution, multiple perspectives of its constituents, and academe in general; engagement, visibility, relationships, and trust; helping leaders make meaning of IR findings and use of IR work in the institution; viewing IR as a means to a greater goal; professional colleagues and professional development; workload, time management, and tools; being self-reflective and proactive; attention to detail and quality control; personal and professional qualities; and technical competency. A model of the components of effectiveness in IR is provided.

In Their Own Words: Effectiveness in Institutional Research

Institutional research (IR) is viewed by a variety of constituencies as essential to allowing higher education to survive and thrive in the current environment. The funding crisis, competition from both traditional and nontraditional sectors, pressures to show effectiveness in student learning, contributions to economic development and community engagement, and the need for effective enrollment management are just a few examples of areas where IR has been called upon to contribute to decision-making and planning (Howard, 2001; Hutchings & Shulman, 2006; Kuh & Associates, 2005; Saupe, 1990).

As Peterson (1999) points out, the profession is fortunate in that it has a long history of self-reflection. Authors have pondered

topics such as what IR is (Dressel & Associates, 1971; Fincher, 1985; Lasher & Firnberg, 1983; Peterson & Corcoran, 1985; Saupe, 1990), how it should be organized (Presley, 1990), what skills and expertise it requires (Suslow, 1972; Terenzini, 1993), and what roles and activities practitioners should embrace (Billups & DeLucia, 1990; Chan, 1993; Chase, 1979; Gubasta, 1976; Hurst, Matier, & Sidle, 1998; Keller, 1995; Lohmann, 1998; Matier, Sidle, & Hurst, 1995; Sanford, 1983, 1995; Terenzini, 1995; Volkwein, 1990, 1999). Surveys (e.g., Lindquist, 1999; Muffo, 1999) have described the characteristics, settings, and activities of institutional researchers. Chambers and Gerek (2007) ask the questions "Are we doing things the right way?" and "Are we doing the right things?" Those authors also studied the Association for Institutional Research (AIR) *Code of Ethics* (AIR, 2001) and posited

> If the Code of Ethics is used as the foundation, institutional research can include any [activity] in which we have a competency, in which we have competent friends, or in which we can "acquire the necessary competency prior to doing the research. (Chambers and Gerek, 2007, p. 1)

Numerous professional development opportunities, including conferences, workshops, institutes, publications, graduate coursework and certification, grant programs, and professional organizations, exist to allow us to maintain and enhance our career effectiveness (Knight, 2003).

Some institutional researchers have studied the characteristics and experiences of their colleagues to learn how they can enhance effectiveness in their roles at their institutions or organizations. Augustine (2001) concluded that effective use of IR studies is associated with transmission of findings through multiple media, congruence in disciplinary backgrounds between the researcher and decision-makers, organizational placement of the IR office, frequent communication between researchers and decision-makers, use of qualitative methods, and provision of advice on use of research results. Clyburn (1991) found that many small, private colleges lacked an IR function and, where it did exist, it tended to suffer from lack of

coordination, commitment, and support. Delaney's (1997) survey of institutional researchers at New England colleges and universities revealed that the scope of the function, the reporting relationship, and the size and qualifications of the staff varied significantly with institutional size, level, and control. She also found that the likelihood of involvement of IR offices with research (as contrasted with reporting), planning, and policy development varied with institutional size, level, control, and staff size and qualifications. Delaney (2000) concluded that institutional researchers who perceived themselves to be more effective felt that they had more opportunities for autonomy and leadership and were more likely to have their work used in executive decision-making, include policy recommendations in reports, conduct follow-up studies on the impact of their work, have a doctorate, be part of a strong professional network, and describe their positions as challenging. Using a survey of institutional researchers in the Northeast, Delaney (2001) identified workload, limited opportunity for advancement, stress, lack of recognition, concern for producing quality work within time constraints, and the lack of financial and moral support as the most common challenges practitioners face to their engagement in policy. She concluded through the use of a path analysis model that practitioners who were in higher positions and who had more experience and higher education levels, a mentor, a strong professional network, and an independent job structure can more effectively meet such challenges and actively engage in policy development. Huntington and Clagett (1991) learned that the most prevalent problems experienced by institutional researchers include workload and staffing, perceptions of the function, access to institutional leaders, and access to and reliability of institutional information systems. Knight, Moore, and Coperthwaite (1997) sought to empirically validate Terenzini's (1993) thoughts on the knowledge and skills necessary for effective IR; they found that practitioners employed in the field for a greater number of years, those with doctoral degrees, those with the title of associate director, and those who reported directly to the

institution's president perceived themselves to be more effective. Storrar (1981) determined that institutional researchers at large, public universities experience role conflict that impinges upon their perceived effectiveness.

The IR profession has benefited from turning its analytic lens back upon itself. Some clear patterns have emerged about how practitioners can negotiate professional challenges and increase their effectiveness, which the literature has operationally defined as having a tangible impact on decision-making, planning, and policy formation. Still, more of the story remains to be told. Many of the suggestions for improving effectiveness made by IR theorists and practitioners, while based upon valuable lived experience, were not arrived at through empirical research. Further the research studies that have been carried out to determine correlates of effectiveness have been limited by the fact that the dependent variable is self-reported effectiveness. While not wishing to impugn the importance of this work or the responses of our colleagues, it does seem that validation of self-reported effectiveness, through such means as feedback from colleagues (Delaney, 2001) would add substance to this line of inquiry. Finally, the studies carried out thus far have all been within the objectivist, deductive, positivist paradigms, which assume that truth exists independently of experience, simply waiting to be discovered and having the same meaning for all (Crotty,1998). One of several alternative approaches to understanding IR effectiveness includes using a constructionist epistemology, a related theoretical perspective such as phenomenology, and methods such as interviews, document, analysis, and observation. Such an inductive approach holds that meaning is constructed by human beings as they engage with the world, that the possibility for new meaning emerges when we lay aside our prevailing understanding, and that depth and detail emerge when data collection and analysis are not limited to preexisting categories (Patton, 2002). The goal of this study is to use such an alternative approach to determine how institutional researchers who have been identified as effective by their colleagues view effectiveness in the profession.

Method

This study was carried out using qualitative research methods since the research questions are descriptive and open-ended in nature and require somewhat lengthy responses from a small group of persons with particular viewpoints (Bogdan & Biklen, 1998; Merriam, 1998). Techniques of naturalistic inquiry were employed, which affected sampling techniques, participant selection, research design, and data analysis (Erlandson, Harris, Skipper, & Allen, 1993; Lincoln & Guba, 1985; Miles & Huberman, 1994; Patton, 2002).

The initial pool of effective institutional researchers was established based upon nomination by colleagues throughout the country. E-mail messages asking practitioners to nominate colleagues were sent via the listprocs of AIR and several of its regional and state affiliates. Nominations were also solicited at the AIR national conference. These efforts yielded 26 nominations. The researcher then narrowed the list of candidates to a smaller number (eight) that provided for maximum variability in terms of the candidates' institutions, job titles, longevity in IR, and personal characteristics. This was important in order to determine how such characteristics might relate to effectiveness. Candidates were then contacted and asked if they were willing to participate in the study; all agreed.

Participants submitted copies of their resumes to the researcher and participated in individual on-site interviews (except for one interview that was carried out via telephone), which were tape-recorded and captured in written transcripts. The appropriateness of the questions was confirmed by a national panel of experts who provided feedback about both the interview questions as well as an overall proposal for the study. The researcher maintained a reflective journal to record observations made during the research process. The reflective journal, analysis of resumes, and analysis of interview transcripts served as methods of data triangulation of the results (Patton, 2002).

Data analysis yielded two types of findings: detailed descriptions of each case, which were used to document uniqueness, and shared patterns

that emerged across cases (Patton, 2002). Data analysis involved breaking material into small units of observation, developing initial themes or categories within the findings, and considering alternative interpretations that either confirmed the initial themes or lead to the creation of new ones. The researcher attempted to bracket his knowledge and presuppositions so as not to taint the findings (Crotty, 1998), but rather to focus on participants' perspectives (Bogdan & Biklen, 1998). Two peer debriefers tested themes and alternative conclusions by examining interview transcripts, field notes, and participant resumes and by suggesting theme independently of the researcher (Lincoln & Guba, 1985). Preliminary conclusions were shared with participants for their confirmation and elaboration; this constitutes a member check (Lincoln & Guba, 1985). An audit trail of study materials will serve to provide for dependability and confirmability. All names noted in the results are pseudonyms.

The researcher sought to confirm that the study's findings resulted from the participants' responses rather than his own preconceptions by situating his background and bracketing his assumptions. I am an IR professional with 16 years' experience and considerable involvement in professional development activities. I am greatly influenced by Terenzini's (1993) thoughts about IR effectiveness. I think that institutional researchers need to exhibit technical-analytical, issues, and contextual intelligence to be effective, but I also think that in other than one-person offices, the leader need not be cutting-edge on all three as long as the office as a whole is. I think the leader will be most effective if he or she is especially well versed in contextual and issues knowledge. I also feel very strongly that IR is only effective if it has a "seat at the table" in terms of access to management issues and decisions. I believe that effectiveness is highly contextual—what it takes to be effective in one institution at one time may be quite different from what it takes in other settings, or even in the same setting at a different point. It also seems reasonable to me that those with longer careers and those with greater tenure in a given setting will be more

effective. I think those who have had greater access to and taken greater advantage of professional development opportunities will be more effective; I think involvement in AIR is critical here.

Findings

Profiles of the Participants: Elizabeth, Frank, Henry, Kim, Linda, Marshall, Martha, and Susan

The analysis of resumes and office activities and characteristics may have served more to illustrate the diversity of the participants than to point to the common hallmarks of their effectiveness. Five were female and three were male. Seven were Caucasian and one was African American. Two were in their forties and six were in their fifties. Longevity in their current jobs ranged from 2 to 31 years and averaged 16. Participants' average years in IR were 18 with a range from 2 to 34. Total years of employment in higher education ranged from 9 to 36 with an average of 25. While Elizabeth had a staff of only herself and an administrative assistant, Susan's staff was 15 FTE; average IR staff size was 6 FTE. Six of the participants worked in public institutions and two in private. Six worked in four-year institutions and two in two-year. Four of the participants had doctoral degrees and two more were pursuing doctorates. The disciplines of participants' highest degrees included Educational Leadership (2), Higher Education (2), Accounting, Computer Science, Political Science, and Psychology. Supervisors included two presidents, three chief academic officers, a senior vice president, an associate provost, and a vice president for information technology. Participants were involved in a variety of professional organizations as members and leaders, including AIR and its regional and state affiliates and special interest groups, EDUCAUSE, the Society for College and University Planning, accrediting bodies, and other higher education professional associations. Several have done consulting, and some have directed grants. Many had an impressive array of publications and presentations. Most had received professional awards and recognitions.

Only two commonalities were evident from the analysis of resumes and from observations. First,

the magnitude and breadth of activities within all of the participants' offices was quite large. They did lots of work and lots of different work. Examples include coordination of university strategic planning and academic program review; administration of data warehouses and management information systems; response to internal and external data requests; state and federal reporting; administration of a broad program of surveys; coordination and consultation concerning assessment of student learning; research focusing upon enrollment management, financial issues, faculty workload, and faculty salaries; and coordination of accreditation activities.

"We do it all" was a phrase used several times to characterize their activities. Some of the participants even had responsibilities not generally associated with IR, such as managing information technology, overseeing a testing center, and serving as the president's chief of staff. Interestingly, although there might be some relationship to institutional size, two- and three-person offices seemed to be engaged in as wide an array of activities as those with much larger staffs. The other commonality was a large degree of experience among the office staff. For example, although Kim's professional experience in IR and in her current role specifically was relatively low as compared to most of the other participants, she noted that her colleagues have over 70 years of combined experience.

Themes

Understanding your institution, multiple perspectives of its constituents, and academe in general. A theme expressed by nearly all of the participants was that effective institutional researchers understand how their institutions work (i.e., institutional politics, priorities, culture, personalities, decision-making processes). Henry referred to this as "figuring out how things get done at the institution." He observed that new institutional researchers have great technical skills but don't have an appreciation for context or understand why it is important to have it. Some of the participants noted that this knowledge is critical in senior IR positions, and that it comes from experience.

A related idea is that it is important for institutional researchers to understand the multiple perspectives of different constituencies at their institutions. For example, the president, provost, chief financial officer, and faculty members may have very different perspectives on faculty salaries and may react differently to benchmarking with other institutions that is carried out by the IR office. Kim advised that institutional researchers "be flexible, recognize that multiple answers are possible." Marshall spoke of the need to understand how "information is used for decision-making, gathered, analyzed, conveyed, and considered." He also noted the importance of recognizing that "People don't always consider information in decision-making due to the press of time." Finally, he spoke of the importance of understanding how political dynamics change, for example, with the transition to a new president.

Frank and Susan attribute their decisions to become experts in certain management processes in higher education as contributing to their effectiveness. Frank's involvement in environmental scanning "improved his ability to relate to academic departments, this improved [his] effectiveness and garnered a certain level of respect." Susan's involvement in total quality management "helped clarify [her] thinking about institutional research and higher education in general." These participants' knowledge of their institutional cultures led them to realize that gaining this expertise would make them more effective in their roles.

Foundational to understanding one's own institution is understanding academe in general. Participants spoke of how the tradition of shared governance causes colleges and universities to act differently from for-profit or even other non-profit institutions when accountability and improvement information is considered. Frank says that he was helped by the fact that he is a "student of organizations."

Engagement, visibility, relationships and trust. Related to understanding institutional culture is

being engaged within the institution, being visible, establishing and maintaining relationships, and building trust. This was the only theme to which all of the participants spoke. These actions are necessary for institutional researchers' results to be used effectively. Marshall noted that "Building good relationships is absolutely essential for people to take to heart what the data say." Frank attributed his effectiveness to the fact that "I wheedle my way into everything." Elizabeth offered the following:

> Gauging how effective you are is [related to] how many people know about you. And I can tell you that everybody on this campus knows who I am. Why is that? It's because what we provide . . . is done in such a way that we end up serving everybody one way or another. . . . I am the type of person who is very outgoing. I know that some institutional research folks have the tendency to just sit in their offices and not interact too much, but the key is building relationships, and being out there, and being very responsive with quality stuff quickly. . . . I think effectiveness is related to being able to build relationships and gain trust, having your product on high demand and being used, and being able to make suggestions and being proactive rather than reactive, getting to know the operation of the college so well, and making suggestions in areas that people didn't think about.

Linda said that to be effective as an institutional researcher, "you must have your office be a player, be respected, [and] have your office taken seriously." She said you must "have the connections to get your results used." These connections include both formal and informal contacts with colleagues throughout the institution. Such contacts included colleagues in Admissions (Frank), information technology (Linda), academic affairs (Martha), and in the faculty, supervisors (Linda), spouses who are employed at the institution (Linda), and various social contacts (Linda). Susan noted:

> Related to that is it depends upon the person receiving the information. I have worked for eight academic officers at least

and I've worked from the extreme of "you do the analysis, but I want to get the data set" . . . to the other extreme of "give me the bottom line." So it's sizing up your particular administrator and developing your responses according to what they best need and how far they want to dig down.

Frank said that many of his best ideas have resulted from conversations during smoking breaks. Henry spoke about "find[ing] points of influence and chiseling away at them." He felt this is necessary for "getting the organization to be tough on itself." Elizabeth said "You get to be proactive by knowing people very well." She stated:

> Being part of the Cabinet makes me extremely effective because you know what is needed at the highest level and you understand what is expected. If you are at a lower level you may never know exactly what is needed. Reporting to the president is key and being part of Cabinet is tremendously helpful. It is also important to use this opportunity to contribute to show your value.

Similarly, Susan felt that the relationships she has established have helped her to function effectively as an intermediary among leaders and to carry bad news forward successfully. Susan stated:

> A term I like to use a lot is *fly below the radar*. It's times I know I have moved information from one end of the administration building to the other . . . in a non-threatening way. I know it sounds trite, but I work for the greater glory of [institution name]. I'm a [institution] alum, I care deeply about this place.

Susan spoke about the opportunity to learn from mentors:

> I've definitely been blessed by fabulous mentors. . . Several of them have gone on too and are presidents of different universities. . . . They were all fabulous men. They included me from the very beginning in meetings and discussions. I had to be part of the conversation so I understood the

thinking process. . . . So now I try to include my staff in conversations wherever I can because you have to be in the conversation to get how people think about things, to understand what the other tangential issues are that are not always easy to identify.

Participants also spoke about lack of engagement and trust and problems with relationships and their consequences for effectiveness in IR. Kim explained that institutional researchers should understand that people get defensive when IR is viewed as an interloper. Martha discussed getting caught in the middle between strong personalities. Linda's effectiveness was hampered by a prior provost's tendency towards secrecy and inclination to "shoot the messenger." Frank discussed the difficulties of working for a leader who didn't believe in using information to make decisions. Martha's problems with people asking her to do things that are beyond her capability and "offices not following standard reporting methodologies so that they look better" could be attributed to poor relationships and lack of trust. Henry noted that a barrier to having his office's work be used to a greater extent lay in the fact that the institution perceived itself as very successful and viewed IR as overly critical:

> I really think that successful institutions are the ones that have the hardest job making a change. This place has never been in a crisis. . . . We got 10 years of re-accreditation with a totally clean slate, we passed our levy with a (large) affirmative vote, and we were re-validated as a member of the League for Innovation in the Community College. Well, then, the [state] Performance Report came out and then they were like "what's IR trying to do here, throwing all this mud on our faces."

Other practitioners discussed the problems associated with IR having poor visibility on campus. Susan noted that institutional researchers need to be included in key discussions in order to be effective and recounted problems that she experienced when the physical location of the office was changed. The old adage *out of sight, out*

of mind came into play, and she found herself less likely to be included in important dialogues. She responded by finding ways to get herself and her colleagues into other locations frequently. She maintains a small secondary office in the campus' main administration building.

Susan also commented upon the fragility and precariousness of relationships that institutional researchers establish with others at their institutions. Trust is easily lost, and the work of building relationships is never finished. She posited the notion that it often takes considerable time for IR's benefit to be realized:

> I tell new staff when they come on board that you will see the impact of your work, but it may take a couple of years. The gestation period is quite lengthy. But if you stick around long enough, you'll see a particular analysis that you know has implications on how the University ought to think about creating new programs, eliminating new programs, or just helping them to chart their course. You'll see it. And that is probably what is most satisfying. I do think that for me that is the gauge of effectiveness.

She said that "IR is in a tremendous position to influence, but has no real power," and offered:

> The other thing that I always tell new staff is that we exist only because someone finds our work valuable. We are not paying people. We are not registering students. We are not paying the bills. We are not cleaning the offices. Our analytical work must be of a measure that people find valuable, or we don't exist.

Finally, she volunteered that the work necessary to develop relationships can lead to overload, therefore institutional researchers have to balance their interactions and other work.

Helping leaders make meaning of IR findings and use of IR work in the institution. A related but distinct theme was that successful institutional researchers, as Henry said, "do not just present numbers," but actively work with leaders to understand their relevance to institutional operations and planning.

of the barriers he has had to overcome in order to be effective is "lack of user sophistication . . . [you] first need to [have] the necessity to use information, then get decision-makers to understand how to take action based on information."   He felt strongly that "IR needs to take an educational approach," and offered that he does monthly seminars for department chairs to help them understand IR information and use it more effectively. He said that "with changes in technology, IR's role has shifted from providing information to educating users about it." Similarly, Susan said that the successful institutional researcher knows how to "size up what is pertinent and [not] bury people in data." She offered that she "does more advising to senior administration than anything else." Related to the earlier themes, Elizabeth stated that lack of utilization of IR information is most effectively overcome by "being out there and knowing the context, understanding what is useful."

Viewing IR as a means to a greater goal. Perhaps as a consequence of understanding context, becoming engaged, and developing trust, several of the participants spoke about the end goal of successful IR as not having one's information used but rather helping to make one's institution better. Martha, Frank, and Linda felt that helping students to succeed is an end product of IR that is particularly important and satisfying to them. Frank stated:

> Anybody can report anything effectively. Anybody can fill out IPEDS forms. What you need to ask yourself is if what you do makes a difference in the lives of the students and the campus. If you can answer yes to that, you are being effective. I'd die if all I did was fill out IPEDS forms, I'd literally die.

He said that IR is critical in helping the institution to answer the question "are we getting better?"

Professional colleagues and professional development. While developing relationships with people at one's institution was critically important for the participants, they also spoke to the importance of developing a network of colleagues outside of one's institution. The Association for Institutional Research was often noted as an important resource for developing a professional

network, as were state and regional AIR affiliates and data exchange groups. Linda said that this helps her keep aware of best practices, and Kim offered that this helps her and her office staff with developing specific skill sets. Martha spoke of "sharing what I do with others to get feedback." Frank tries to travel as much as he can to present and consult and noted that "the true benefit of consulting is seeing what others are doing." Henry noted that "good support for professional development" is extremely important, and Elizabeth valued having a budget to spend as she sees fit to promote professional development.

Workload, time management, and tools. Several of the participants discussed workload as a barrier to effectiveness and successful time management as a tool to overcome it. Elizabeth spoke about the importance of "learning how to say no when necessary" and Linda discussed being "judicious about committee memberships." Linda also talked about developing the discipline to force oneself to "get out of the office and focus on critical issues." Several participants spoke of finding what Martha termed "time to read and think." Kim said that an important strategy for effectiveness is "leveraging the tools you have available to get things done as effectively as possible" and noted that she is "always going after new technology" to help her do this.

Being self-reflective and proactive. The experiences of the participants suggest that the institutional researcher who understands the context of his or her work, is engaged with his or her institutional and professional communities, and who has successfully managed workload will be self-reflective and proactive. Most of the participants spoke about the importance of working at effectiveness every day, actively listening, being proactive, being able and willing to learn new things, and constantly analyzing IR's role in the institution. Linda noted that the effective institutional researcher understands the importance of and has the ability to constantly "translate campus discussions into research questions." Elizabeth noted the importance of doing systematic IR program reviews for facilitating self-reflection.

Attention to detail and quality control. A theme expressed by several of the participants that is related to self-reflection but nevertheless distinct is the need for institutional researchers to show attention to detail and exercise quality control. Martha discussed the need to "have a critical eye for data consistency and integrity." Henry felt strongly that "IR must have the final quality check," discussing this in the context of the institutional perception that "anything that comes out of the data warehouse is accurate." Susan stated:

> Your work needs to be reliable, be credible, you need to be consistent. Obviously we like to do things flawlessly, but that realistically isn't going to happen, but you need to minimize errors because once you have sent out a data set or an analysis you don't want to come back two days later [with problems]. So we have a lot of processes in place to try to minimize that, but sometimes things still do happen. You have to know enough to say "this doesn't pass the test of reasonableness."

Personal and professional qualities. Most of those interviewed listed key personal characteristics of effectiveness that might be considered traits of professionalism. These included being objective, creative, flexible, timely, accurate, logical, cooperative, and responsive; having a broad perspective; not sacrificing principles or ethical standards; being able to function under pressure; actively listening; knowing your own capabilities and biases; and being willing to embrace change. Several people also noted the importance of having a sense of humor; for example, Martha cited the need to smile when asked the same question the third time because the person has lost the information that she gave them before.

Technical competency. Only a few of the participants noted the importance of technical/analytical skills. Martha and Kim discussed the need to be able to work with various types of computer software; Elizabeth volunteered the importance of accessing, manipulating, and analyzing data without the support of information technology colleagues outside of the office; and Kim commented upon understanding the epistemological bases of research approaches and their corresponding methodologies. Several persons noted that not everyone in a multi-person IR office needs to have the full complement of technical/analytical skills as long as they are found overall among the staff.

Discussion

The participants provided information about effectiveness in IR and how that effectiveness, which may be similar to some of the existing literature, can be improved to be even richer and more nuanced. A heuristic model of the ten themes related to effectiveness is shown in Figure 1. Some of the themes could be clustered. For example, engagement, visibility, relationships and trust; helping leaders make meaning of IR findings and use of IR work in the institution; and viewing IR as a means to a greater goal might share the underlying concept of institutional engagement. Professional colleagues and professional development; workload, time management and tools; and being self-reflective and proactive might cluster around the common concept of planning and improvement. Finally, attention to detail and quality control; personal and professional qualities; and technical competency might be collectively construed as a personal and professional dimension of effectiveness in IR.

The results confirmed Terenzini's (1993) contention that contextual knowledge and skills (e.g., understanding of the institutional culture, history, politics, personalities) are critical for success in IR. Developing this set of knowledge and skills and cultivating relationships allows institutional researchers to establish and maintain trust. Important technical/analytical skills (Terenzini, 1993) were also noted, such as being able to work with various types of computer software and accessing, manipulating, and analyzing data independently.

As Delaney (2001) found, workload and lack of recognition served as barriers to effectiveness in IR. Other barriers included lack of utilization of the products and services provided by the IR office, lack of user sophistication, lack of data quality

from cooperating offices, and the presence of the IR office in a low visibility location on campus. Opportunities that effective IR practitioners took advantage of and supports that they proactively developed included access to resources for professional development, attendance at conferences, visits to other campuses, developing a strong professional network (also noted by Delaney, 2000), access to institutional leaders (Huntington & Clagett, 1991), mentoring (Delaney, 2001), becoming involved as members and leaders in campus groups and in professional organizations, and becoming experts in areas of specialization.

While the results of this study are not intended to generalize to all institutional researchers or even to all those deemed particularly effective, they nevertheless provide some implications for practitioners and for those who impact their professional preparation. Just as many years of research about the effect of college on students has clearly determined that "What students do during college counts more in terms of desired outcomes than who they are or even where they go to college" (Kuh, 2001, p. 1), this study suggests that what institutional researchers do in their jobs is more important than their backgrounds, institutional settings, and prescribed tasks. Effective institutional researchers develop a keen understanding of people and processes and use this understanding to tailor their activities and disseminate them effectively (Augustine, 2001). They are involved in an abundance of activities, interact with a diverse array of people, and cultivate the variety of professional characteristics listed above. They overcome barriers by taking advantage of opportunities provided to them and proactively cultivating others. Strategies for those facilitating the preparation of institutional researchers include articulating the characteristics of effective IR, pairing aspiring and new professionals with effective practitioners early and often, and assisting them with developing an ongoing capacity to gauge their own effectiveness.

Further research might involve quantitatively analyzing structural relationships between components of effectiveness in IR as measured by a survey. One of several potential structural models that could be evaluated is shown in Figure 2. A large-scale data collection could test the validity of the model posed here and ultimately provide useful information about employee selection, retention, and professional development needs in IR.
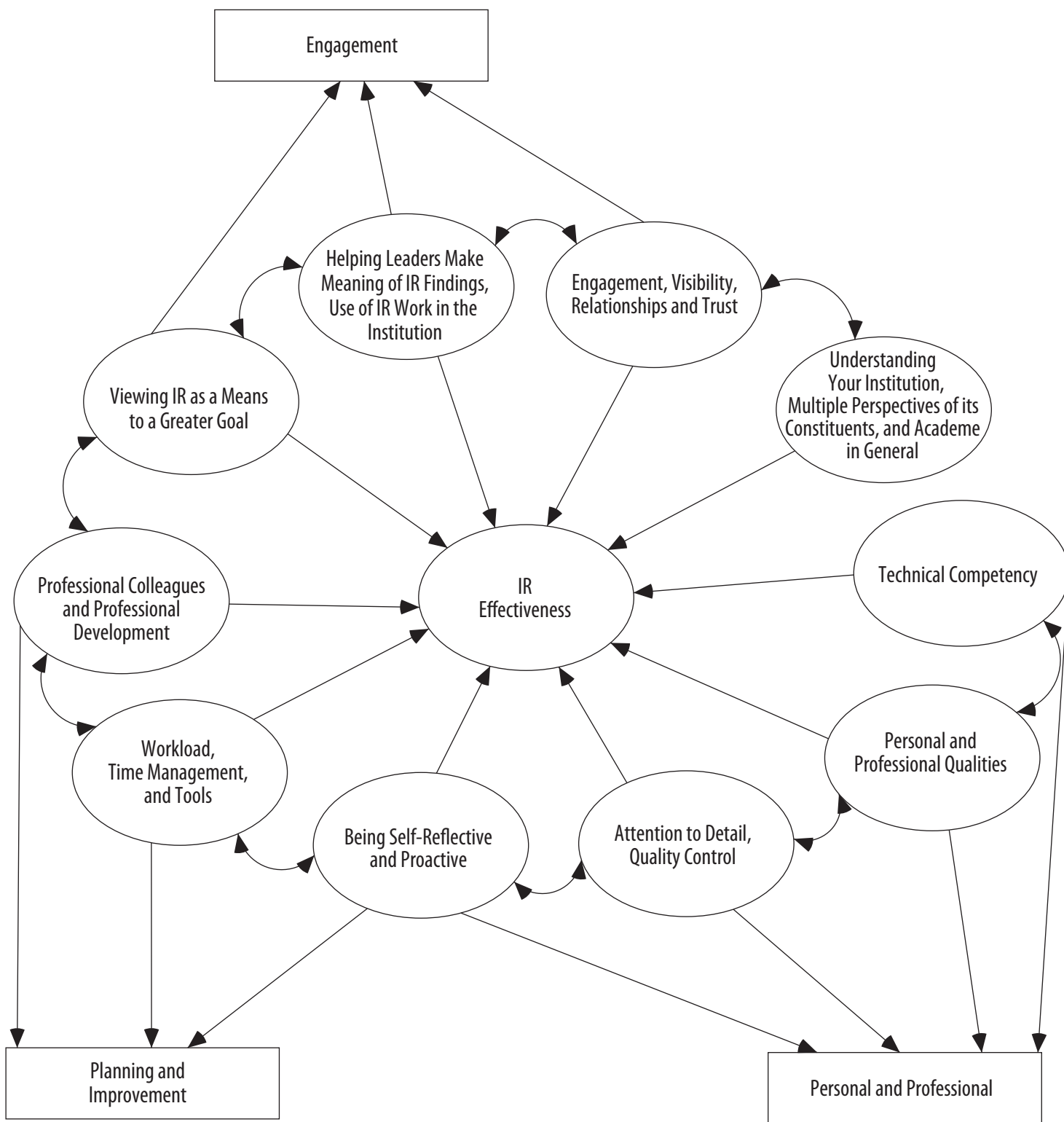
Figure 1. Heuristic model of effectiveness in institutional research.
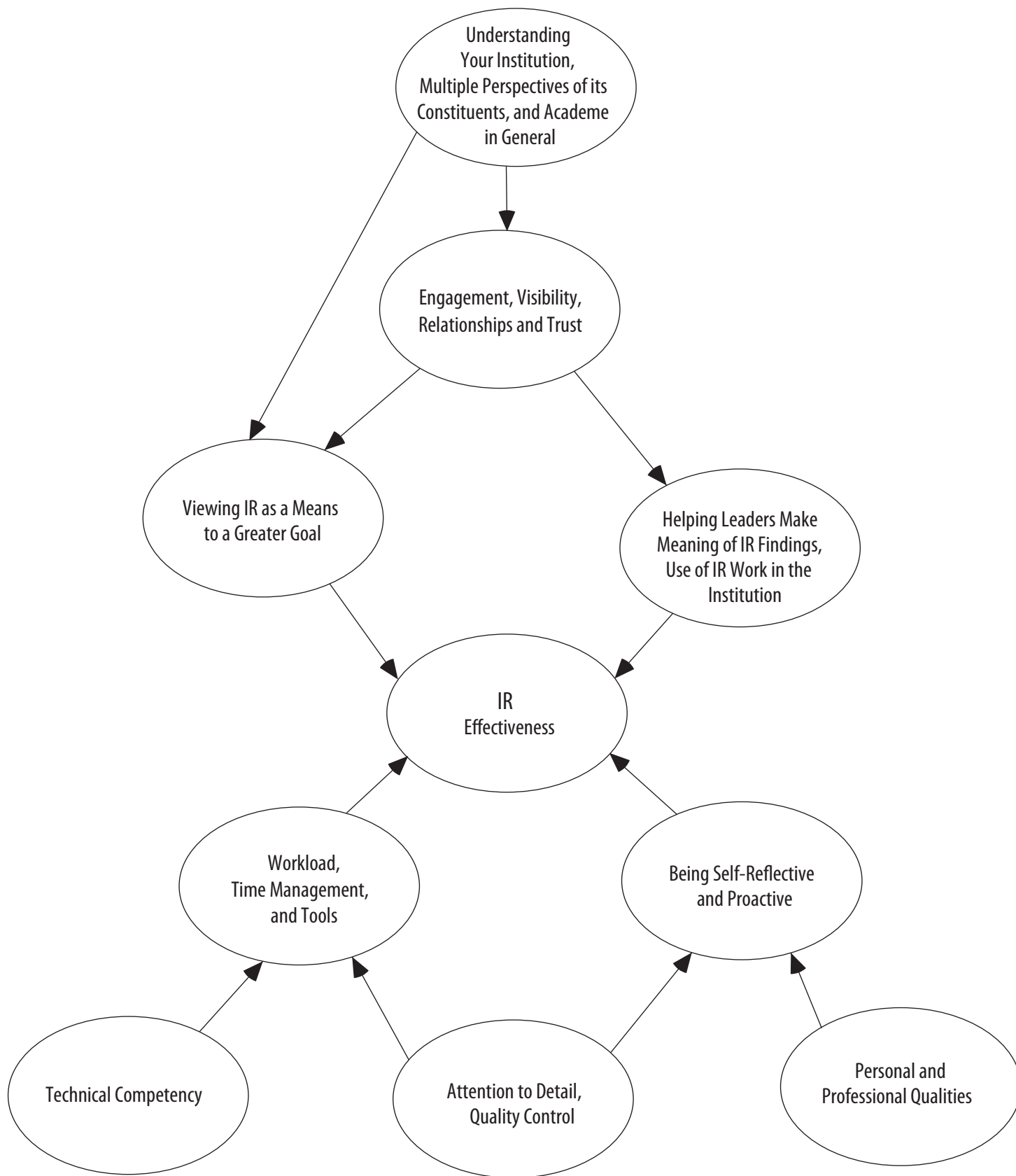
Figure 2. structural model of effectiveness in institutional research.

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