

PEER GROUP ANALYSIS: FOR ADMINISTRATORS ONLY?

by

Tara R. Warne, Associate Research Analyst, Institutional Research and Planning, University of Missouri System, 573-884-6674, warnetr@umsystem.edu

Kathy Schmidtke, Graduate Assistant, Institutional Research and Planning, University of Missouri System, 573-884-2241, schmidtkek@missouri.edu

D. Lanette Vaughn, Associate Research Analyst, Institutional Research and Planning, University of Missouri System, 573-884-9201, vaughnla@umsystem.edu

Kathleen Leonard-Getty, Institutional Research Assistant, Institutional Research, University of Missouri-Columbia, 573-882-4078, gettymk@missouri.edu

Study submitted for presentation at the Association for Institutional Research
International Forum, San Diego, California
3:20 Monday, May 30, 2005

Abstract

This case study of a large Midwestern public research university utilizes organizational theory and the political and learning organization frames to examine the uses of peer analyses and information flow throughout the institution. Data collected from interviews with ten upper, middle, and lower administrators were analyzed to determine to what extent peer group analyses contributed to organizational learning. It was found that the information gleaned from group peer analysis by different individuals includes 1) the level of teaching, research, and service; 2) support for greater resource allocations; and 3) effectiveness and productivity. In order for peer group analyses to contribute to organizational learning, institutional researchers must collect data and transform this data into information more relevant to the appropriateness of accepted operating norms.

Introduction

Demonstrating an institution's accountability has increasingly become a principal responsibility of institutional researchers. Peer group analysis is one of the most accepted methods of establishing accountability. This methodology has become so pervasive that the National Center of Educational Statistics (NCES) has made peer group analysis possible with the simple press of a button through the online Integrated Postsecondary Education Data System (IPEDS). Although peer group analysis is being used to compare institutions externally with one another, is it being utilized by stakeholders within the institution? This study highlights our interest in the ways peer analyses are used to promote organizational learning within public research universities. Using organizational theory and the political and learning organization frames we ask, do we expect peer analyses to contribute to organizational learning? If so, how does this learning occur? More specifically, what do we want comparative data to tell us? Do peer analyses drive institutional change processes? Should they? With these theoretical questions in mind we explored the practices of a large Midwestern public research university regarding the uses of peer analyses and information flow throughout the institution. We examined the kinds of peer analyses conducted, and the decision situations in which they are deployed. Moreover, we attempted to discover which kinds of comparative data permeate the institution beyond the upper level administration. Finally, we asked how differing approaches and uses of peer analyses impact organizational learning.

Literature Review

Comparative analysis was developed in its present guise by Terenzini et al (1980). Arguing against the weaknesses of the threshold analysis common in the 1970s, Terenzini and his colleagues suggested a different, less subjective, method of generating comparative data.

Specifically, they applied a factor and cluster analysis methodology that set a standard for peer selection still in use today. Since that time a small but robust literature emerged to address the issue of peer selection. This section will briefly address the main concerns advanced within this body of work and highlight some areas in need of further development.

Comparative analysis became a relatively standard practice in the 1980s when the pressure to use external information to justify institutional actions became more intense (Teeter & Christal, 1987). Because there are relatively few good measures of performance in higher education, comparative analyses attempt to create better measures that are useful for strategic decision making (Teeter, 1983; Teeter & Brinkman, 1992). In early efforts data collected from peer institutions contributed primarily to resource allocation decisions (Teeter, 1983, Rawson, Hoyt & Teeter, 1983). More recently, colleges and universities expanded their use of comparative data to include analyses about a wide variety of institutional performance indicators (Weeks, Puckett, & Daron, 2000). The data used for peer selection ranges from nationally available IPEDS and HEGIS data, data gathered through voluntary accrediting or professional associations, surveys, and local institutional data (Ingram, 1995; Zhao & Dean, 1995). Institutions frequently develop different sets of peer institutions for different purposes. Teeter & Brinkman (1992) described them as aspirational, competitor, peer, and predetermined peer groups.

Scholars working in this area note that comparative data are subject to a number of important limitations. First, as Ingram (1995) suggests, descriptive comparative data do not provide sufficient insight. Rather, he suggests ratios should be developed to permit meaningful comparisons across the institutions selected. Second, institutions frequently use different definitions of students, faculty, and different accounting standards creating validity and

reliability problems in the data (Ingram, 1995; Gater, 2003). Third, Terenzini et al. worry that the use of peer institutions exerts a leveling tendency in resource allocation and may constrain institutional flexibility and creativity. Fourth, sets of peer institutions can be selected for a wide variety of purposes. While having multiple peer sets available for answering a diverse array of questions provides a great deal of flexibility, Whiteley and Stage (1987) contend that comparative analysis only rarely takes place in the context of a larger coherent planning process. Their use in an ad hoc fashion diminishes both the credibility of comparative analysis and the likelihood that they will meaningfully inform decision making.

The literature regarding peer groups provides a rich resource for practitioners seeking to develop a set of peer institutions for use on their campus or in their multi-campus system. But little has been done since Whitely and Stage's admonitions to explore the ways in which such analyses are actually put to use. In the research cited above the purpose for which comparative analysis will be used is largely taken for granted. Moreover, in most of the projects discussed, both the selection of peer groups and the use of the ensuing analysis were limited to campus level administrators. Indeed, Ingram (1995) cautions against over-involving faculty in such initiatives unless the questions directly impact faculty work.

Theoretical Framework

Just like any profession, institutional research is evolving in this age of information and accountability. To demonstrate the mission shifts within the profession, two perspectives of institutional research will be offered. One is that of Joe Saupe (1990), a founding member of the Association of Institutional Research. His article, "The Functions of Institutional Research", discusses the different roles institutional researchers play within their institution. The other perspective that will be offered is that of J. Fredericks Volkwein (1999), who discusses his view

of the underlying values that drive the issues with which institutional researchers must concern themselves.

Saupe (1990) describes institutional research as “objective, systematic, and thorough” (p.2). The purpose of analyzing data is to provide information to the institutional stakeholders. It is the “wisdom, integrity, and courage possessed by those who share the responsibilities of governance” that determine “the soundness of plans, the appropriateness of policies, and the correctness of decisions” (p. 16). It is the responsibility of the institutional researcher to provide decision makers with the most accurate and exhaustive information while remaining detached from the overall decision making process. At times, the institutional history and culture will influence the work of the institutional researcher. Saupe suggests the institutional researcher should be aware of these forces, but that they should not drive the analyses.

In addition, Volkwein (1999) discusses certain values which exist in higher education that influence institutional research. He discusses these values in terms of three dualities: a) internal versus external, b) academic versus administrative, c) institutional (teaching) versus professional (scholarship). These dualities are created by five public concerns of cost, productivity, access, effectiveness, and accountability. These concerns have driven the need for peer group analysis. However, the institutional researcher may find themselves in the middle of the internal and external duality because departments and colleges may need information from the comparative peer analysis that is not consistent with what is shared with the external public. Saupe (1990) suggests the importance of consistent definitions and variables. He also states the two purposes of peer group analysis are for reporting to governmental entities and to enlighten institutional planning and decision making. A challenge for institutional researchers is to

determine if it is possible to have consistent definitions and variables, and provide information both externally and internally.

This study will also look at peer group analysis and its role in the institution as an organization. Organizational theory is utilized to describe the institution and its functioning as an organization. Based on initial findings from the interviews, the institution under study began to emerge in the frames as a political organization and a learning organization. As a result, this study also looks at how the stakeholders utilize comparative peer analysis in the institution from the political perspective and the learning organization perspective.

The political frame from Bolman and Deal (2003) describes an organization as political based on five assumptions. These assumptions are:

- 1) Organizations are *coalitions* of diverse individuals and interest groups.
- 2) There are *enduring differences* among coalition members and values, beliefs, information, interest, and perceptions of reality.
- 3) Most important decisions evolve allocating *scarce resources* - who gets what.
- 4) Scarce resources and enduring differences make *conflict*, the central to organizational dynamics and underline *power* as the most important asset.
- 5) Goals and decisions are merged from *bargaining, negotiation, and jockeying for position* among competing stakeholders (p. 186).

The institution under study fits these assumptions in many ways. The departments and colleges that make up the institution are extremely diverse. The departments and colleges make up one set of coalitions, and the faculty, students, and administrators make up another. These coalitions differ from one another on many different levels, from the types of research they conduct to their

desired emphasis for the institution. Decisions about money and space are made throughout each academic year and there is undeniable competition for these scarce resources.

Another frame through which to view organizations is that of the learning organization, or as Morgan (1997) explains it through the metaphor of organizations as brains. As “brains” organizations must deal with paradoxes, similar to Volkwein’s (1999) dualities. These paradoxes include “how logical reduction and creative expansiveness may be elements of the same process; how high degrees of specialization and distributed function can coexist; how high degrees of randomness and variety can produce a coherent pattern; how enormous redundancy and overlap can provide the basis for efficient operation; and how the most highly coordinated and intelligent system of which we are aware has no predetermined or explicit design” (p. 76). Many of these paradoxes exist within the institution. For example, one paradox being high degrees of specialization and distributed function, the institution is comprised of specialized units and departments which all provide similar services for our students, particularly when it comes to providing the general education core.

One explanation of how organizations learn is through negative feedback. We learn how to do things by avoiding not doing them. An example of negative feedback would be learning how to ride a bike by learning how not to fall off. This could apply to the institution in that we learn to be accountable by finding ways to not be unaccountable. Chris Argyris and Donald Schön (1978) state that the ability to learn comes from the ability to establish double-loop learning. Single-loop learning is the ability to detect and correct error in relation to a given set of norms, whereas double-loop learning incorporates the questioning of the relevance of the operating norms. Is the institution currently evolving through single-loop or double-loop

learning? If the institution and its stakeholders utilize more single-loop learning, what is preventing them from using double-loop learning?

Chris Argyris (1991) discusses why it may be difficult for smart people to learn. Smart people are accustomed to succeeding, thus when they detect failure, they employ defensive reasoning to protect themselves. It would be difficult to argue that the postsecondary education workforce is not a group of highly intelligent and successful people, thus this group may be susceptible to defensive reasoning to protect themselves from failure. One of the reasons people become defensive is because they do not see, or will not admit, the difference between their “espoused” theory of action, and their actual theory of action (p. 103). Are the decision makers at various levels throughout the institution operating under this defensive reasoning? If so, is peer group analysis being utilized to support an “espoused” theory of action, or does it illuminate the actual theory of action?

Mark Bagshaw (1999) describes the role of institutional research within the “learning inhibited” institution. He states that colleges and universities are “*learning inhibited*, as a direct result of their dedication to producing, disseminating, and preserving knowledge” (p. 73). One method Bagshaw suggests for institutional researchers to employ is to plant structure. To describe what he means, Bagshaw cites Cleveland (1985, p. 21-23) and Johnson and Christal (1985, p. 5) and asks institutional researchers to:

familiarize your institution with the institutional research process whereby, as a result of observation and measurement, an institutional researcher transforms phenomena into *data*, interprets these data and creates *information*, and in exercising judgment about the meaning of this information for the institution, adds to the institution’s possibilities for *knowledge* about itself (p. 78).

Institutional researchers are successful at turning phenomena into data and data into information. How good are we at turning information into knowledge? How can peer group analysis be developed to turn data into pertinent information and information into knowledge that is used to drive organizational learning?

Throughout our review of the theory, several questions arose. In general, we would like to know if peer group analysis contributes to institutional learning. The overall research questions for this study are:

- 1) What do we want comparative data to tell us?
- 2) Do peer analyses drive institutional change processes, in particular, organizational learning? Why or why not?

Methodology

In order to gain a deeper understanding of the use of peer group analysis at this large Midwestern public research university, we initiated a case study approach based in grounded theory (Bogdon & Biklen, 2003). We interviewed ten upper, middle, and lower level administrators. The middle and lower level administrators were selected from eight different units on the campus. For anonymity purposes, the titles and departments of these administrators will not be disclosed and all identifying information was destroyed. All administrators were purposefully selected based on whether or not utilizing peer group analysis was typically required of a person in their position. The interviews were divided among the researchers; however the same protocol was used for each interview. The questions, consent forms, and IRB approval forms were emailed to the interviewees prior to the in-person interviews. Each interview was at least thirty minutes in length. The interviews were tape recorded and transcribed by the researchers. The transcribed interviews comprised our set of data. The initial interviews

were coded using various organizational frames and emerging themes. The same themes and our theoretical perspective were utilized to code and analyze the remaining transcripts. The limitations of this study include the need to be aware of the use of generalizations regarding the findings outside of a large Midwestern university. Also important is the need to be aware that this study was conducted from an institutional research perspective and others may interpret the data in another way.

Findings

Initially, we asked middle and senior level administrators about their use of comparative data. We then discovered that the academic units at this institution were required by the senior level administration to compile and submit reports comparing their respective units with “peer” institutions. The senior administration selected several institutions that all units were to use, unless there were compelling reasons to omit an institution as a peer. The academic units were then advised to select several additional peers to complement the analysis and criteria for selection and measures of comparison were left to the units’ discretion. As one administrator described it, the units typically use the data to tell a story about their activities. This observation was echoed in the middle level administrators’ depiction of their reports. All indicated they used the reports to highlight their strengths and to demonstrate the need for maintained and/or increased levels of funding. It was rare for an administrator to mention weakness within their unit or the institution as a whole.

Initially, the requirement for submission of peer analysis reports stemmed from a resource allocation committee resolution establishing guidelines for the allocation of funds among the academic divisions partially based on the reports. While the original allocation model has been abandoned, the aim is for the reports to be used in the setting of priorities and for the

allocation of new funding within the divisions. Budgetary pressures stemming from a sharp decline in state appropriations have made the use of the comparative reports problematic for budgetary purposes.

Units take a widely divergent approach to the use of institutional data in their units, ranging from ad hoc to highly systematic. Some of the units indicated that they viewed the use of comparative data as essential to their planning and decision-making processes. These units were also the most likely to have a quantitative methodology for selecting peers to use in comparative peer analysis that was agreed upon by members of the unit as whole. In other units, the comparisons were primarily created for the upper administration with other analyses being conducted on an as needed and question driven basis. For these situations, the divisions in question would develop new sets of peers and there tended to be less of an overt structure for selecting peer institutions for comparison. The peers selected were chosen based on the division's needs.

There were three consistent threads of comments which emerged from our interviews with middle and upper level administrators at the university. First, administrators view institutional data in broader terms than our initial interest in specifically comparative data anticipated. Second, administrators hold a wide variety of expectations both realized and desired for the application of comparative data. Finally, the administrators we interviewed expressed a variety of perspectives regarding the contribution of comparative data and institutional data toward organizational change processes.

A Broad View of Institutional Data

The administrators participating in our study all took a broader view of relevant comparative data than we originally anticipated.

- Administrators emphasize comparative data.
 - Comparative data are used primarily because of the mandate from upper level administration.
 - Administrators in some units find the comparative data useful, while others view them primarily as a reporting type of requirement.
- Mid-level administrators view comparative data as nested within a larger set of relevant institutional data.
 - Use data from a wide variety of sources
 - Accrediting, professional associations or government agencies
 - Provided by institutional research office, admissions, registrar, and etcetera.
 - Directly collected by the academic unit
 - Data from other sharing consortia or external sources
 - Few administrators mentioned IPEDS state level data
 - A few administrators mentioned some of the voluntary surveys such as the Delaware Study and National Survey of Student Engagement (NSSE).
 - Institutional data is used for a variety of comparisons
 - Internal against self
 - Internal against other units within the institution
 - External against other institutions
 - Do these data permit qualitatively different types of comparisons in the administrators' opinions?

- This group of administrators finds different data provide different kinds of relevant information about their academic units. These administrators found little overt value in the data they provide to the upper level administration beyond protecting their existing resources and advocating for more. Other data seemed to be more relevant for making decisions about staffing and unit performance.

Use of data

All of the administrators with whom we spoke whether lower, middle or upper level made a distinction, although in some cases the distinction was more implied than explicit, between the ways in which data are actually used and the ways in which they, the administrators would like to use institutional data.

- Establishing the contribution of the department to the campus
 - The upper administration seemed to take more of a stewardship or custodial role vis á vis the use of comparative data compiled and analyzed by the academic units. One upper level administrator commented that they wanted to see that the divisions were doing the kinds of things they were supposed to be doing. This was conceived of in fairly broad terms—lots of teaching, lots of research, lots of service relative to similar units at the comparator institutions.
- Resource allocation
 - This issue was a point of contention both among the units and between the units and upper level administration.

- Some mid-level administrators thought the data would be used as a component of a resource allocation process and had not seen much evidence of that occurring.
 - Others indicated they thought the reports were used in setting priorities.
 - Several mid-level administrators said they felt that reports were irrelevant and went unused at the upper echelons of the university.
 - The upper level administrators expressed frustration with the lack of opportunity to put the reports to their intended use. State budgetary limitations precluded their extensive use in resource allocation.
 - The upper level administration thought the units adapted the original intent of the reports to their own internal uses.
- Mid-level and lower level administrators all used comparative data to provide evidence for specific funding requests such as additional funds for faculty salaries.
- Internal goal setting and evaluation
 - Some units used comparative data extensively in setting priorities and in both financial and academic planning. These units tended to be those who had access to a rich set of comparative data available to them from IPEDS, institutional and associational sources.
 - Most units used comparative data on a more ad hoc basis or only for reporting to upper level administration.
- Desired uses
 - Use for internal and external comparisons

- Several mid and lower level administrators spoke quite eloquently about the need for more and better data designed to answer the questions they have about institutional performance at their level.
- This group was most concerned to develop good data with which to make internal comparisons over time and across units and departments before moving onto comparisons with other institutions.
- Challenges associated with institutional data and specifically with comparative data
 - Lower-level administrators expressed frustration with the lack of access to data.
 - This group also expressed frustration at their lack of understanding of the data.
 - Trustworthiness of both internally and externally generated data.
 - Comparing apples to apples is problematic because not all institutions use similar definitions
 - Getting buy-in on “touchy-feely” data
 - Need for the development of an assessment framework
 - Some disagreement about whether being data driven means being driven by data—perhaps over a cliff.

Organizational Change

There seem to be contradictory sentiments regarding the use of institutional data to fuel organizational change.

- Fiscal exigencies outweigh concerns with institutional performance.

- o Indeed in some instances there was an explicit link made between faculty salaries and institutional performance. It seemed like performance was understood in three ways:
 - Faculty retention
 - Research production
 - Lots of teaching, research and service.
 - o There was not a sense that the institution needed to be doing anything differently. It just needed additional resources to do what it already does well better.
 - o Not all administrators agreed with this sentiment.
 - A small group felt that there was a need for the institution to become more reflective about its teaching and learning practices.
 - This group felt that comparative data both internal and external were essential for moving these kinds of processes forward.
 - These administrators tended to be more interested in assessment issues and had less involvement with research.
- Internal competition for resources is a key issue
 - o All mentioned that they felt they competed with each other for resources and prestige.
 - o While several of our respondents mentioned that they thought it was human nature to compare and evaluate oneself against others doing similar activities, only one mentioned that the results of the evaluation should be used to enhance performance.

- Leadership
 - The upper level administrators we spoke with indicated that they didn't really think the information gathered through comparative analysis was used to drive organizational change.
 - It was argued that the decline in state resources had tied the hands of the institution in efforts at change.

Conclusions and Implications

The findings clearly indicate that group peer analysis is a relevant topic for lower, middle, and upper administrators at this institution. Though all of the administrators with whom we spoke discussed their use of comparison to other departments, units, and institutions, there were differences among these administrators as to the extent of comparison, as well as what variables are most beneficial to them in the decisions they make in their particular position. Overall we found that the information gleaned from group peer analysis by different individuals includes 1) the level of teaching, research, and service; 2) support for greater resource allocations; and 3) effectiveness and productivity. All three of these types of information contribute to the overall knowledge of the institution. However, these types of information also feed the competition which sustains the political organization. This same competition may hinder the collaborative atmosphere, or safe environment, necessary for organizational learning to occur.

It is questionable whether the institution as an organization learns from the knowledge generated by the three types of information gleaned from group analysis data. Applying Argyris' and Schön's (1978) double-loop learning theory, we conclude that the information gathered from group peer analysis is not used to determine if the institution's operating norms are relevant.

This may be due to the defensive reasoning mentioned by Argyris (1991). The defensive reasoning may be attributed to administrators, faculty, or the institutional researchers. The administrators' defensive reasoning materialized as a distrust for external data. If the administrator was not a part of defining variables or collecting data, they were very uneasy about any decisions that would be based on the external data. This distrust inhibits organizational learning.

We, as institutional researchers, also want to defend ourselves and the data we collect and analyze for the administrators. According to Bagshaw (1999), organizational knowledge stems from first transforming phenomena into data, data into information, and then transforming this information into organizational knowledge. Transforming data into information is a fairly objective process, however determining the original phenomena that will be transformed into these data is not. The phenomena we do choose may not be the phenomena which define the institution's operating norms. Thus, any information shaped by the data may be inappropriate to determining the relevancy of the institution's operating norms.

This study suggests several implications for us as institutional researchers. First, we are the liaison between the different levels of administrators. It is important for us to be aware of the dualities that exist between the different levels, in particular, Volkwein's (1999) institutional duality of the internal versus the external. As institutional researchers we must find ways to meet the external accountability needs while also meeting the internal organizational learning needs.

Secondly, institutional researchers must be aware of the defensive reasoning that may be present and find ways to create a safe learning environment. One way to establish this secure environment is to be explicitly clear about variable definitions and sources of data. Another way

is to incorporate administrators into the data collections process when feasible. If they are a part of the process, they will be more willing to accept the outcomes.

Lastly, if institutional researchers want to be a part of institutional learning, we must look at the type of data the institution is collecting and determine if it is providing the institution with the type of information we need to determine the relevancy of the operating norms. As far as group peer analysis, we need to look at the feasibility of connecting student learning and engagement data to faculty workload data to resource allocation data. For internal comparisons, qualitative studies may provide the data for phenomena that are unable to be described through quantitative data. From these studies, we may be able to best determine the phenomena which, in the end, will provide us with the richest knowledge.

Further research should focus on the relevancy of particular phenomena to organizational learning. Also, further research could focus more narrowly on the differences in the types of group peer analysis utilized between different types of disciplines. For example, the intricacies of group peer analysis utilized in the liberal arts as opposed to those in the professional schools.

Accountability, IPEDS, and compliance reporting will always be a part of external group peer analysis. If organizational learning is to occur within an institution we as institutional researchers must place a greater emphasis on internal group peer analysis and meeting the needs of our internal stakeholders.

References

- Argyris, C. (1991). Teaching smart people how to learn. *Harvard Business Review*, 69(3), 90-109.
- Argyris, C., & Schön, D. A. (1978). *Organizational learning: A theory of action perspective*. Reading, Mass.: Addison-Wesley.
- Bagshaw, M. (1999). Teaching institutional research to the learning-inhibited institution. In J. F. Volkwein (Ed.), *What is institutional research all about? A critical and comprehensive assessment of the profession* (pp. 9-19). *New directions for institutional research* No. 104. San Francisco: Jossey-Bass Publishers.
- Bogdon, R. C., & Biklen, S. K. (2003). *Qualitative research for education: An introduction to theories and methods* (4th ed.). Boston: Allyn and Bacon.
- Bolman, L. G., & Deal, T. E. (2003). *Reframing organizations: Artistry, choice, and leadership* (3rd ed.). San Francisco: Jossey-Bass.
- Cleveland, H. (1985). *The knowledge executive: Leadership in an information society*. New York: Truman Talley Books. as cited in Bagshaw (1999).
- Gater, D. S. (June, 2003). Using national data in university rankings and comparisons. Report Prepared for The Center, <http://thecenterufl.edu>.
- Ingram, J. A. (1995, May). *Using IPEDS data for selecting peer institutions*. Presented at the Annual Forum of the Association for Institutional Research, Boston, MA: Eric HE 028-591.
- Johnson, F. C., & Christal, M. E. (1985). Preparing for self-study. *The AIR Professional file*, 22, 1-12. as cited in Bagshaw (1999).

- McCoy, M. (1987). Inter-institutional analysis at the system and state level. In P. T. Brinkman (Ed.), *New directions for institutional research* (pp. 73-81). *New directions for institutional research*. San Francisco: Jossey-Bass Publishers.
- Morgan, G. (1997). *Images of organizations* (2nd ed.). Thousand Oaks, CA: Sage.
- Rawson, T. M., Hoyt, D. P., & Teeter, D. J. (1983). Identifying "comparable" institutions. *Research in Higher Education*, 18(3), 299-310.
- Saupe, J. L. (1990). *The functions of institutional research* (2nd ed.). Tallahassee, FL: The Association of Institutional Research.
- Teeter, D. J. (1983). The politics of comparing data with other institutions. In J. W. Firnberg & W. F. Lasher (Eds.), *The politics and pragmatics of institutional research* (pp. 39-48). San Francisco: Jossey-Bass Publishers.
- Teeter, D. J., & Brinkman, P. T. (1992). *The primer for institutional research*. Tallahassee: Association for Institutional Research.
- Teeter, D. J., & Christal, M. E. (1987). Establishing peer groups: A comparison of methodologies. *Planning for Higher Education*, 15(2), 8-17.
- Terenzini, P. T., Hartmark, L., Lorang, W. G., & Shirley, R. C. (1980). A conceptual and methodological approach to the identification of peer institutions. *Research in Higher Education*, 12(4), 347-364.
- Volkwein, J. F. (1999). The four faces of institutional research. In J. F. Volkwein (Ed.), *What is institutional research all about? A critical and comprehensive assessment of the profession* (pp. 9-19). *New directions for institutional research No. 104*. San Francisco: Jossey-Bass Publishers.

Weeks, S. F., Puckett, D., & Daron, R. (2000). Developing peer groups for the Oregon University System from politics to analysis (and back). *Research in Higher Education*, 41(1), 1-20.

Whiteley, M. A., & Stage, F. K. (1987). Institutional uses of comparative data. In P. T. Brinkman (Ed.), *New directions for institutional research* (pp. 59-72). *New directions for institutional research*, 53. San Francisco: Jossey-Bass Publishers.

Zhao, J., & Dean, D. C. (1997, 18/May). *Selecting peer institutions: A hybrid approach*. Presented at the Annual Forum of the Association for Institutional Research, Orlando.