

Elitism or Pragmatism? Faculty Hiring at Top Graduate Programs in Higher Education Administration

*Sydney Freeman, Jr.,
University of Idaho*

*David DiRamio
Auburn University*

Abstract: *This study is an examination of the hiring practices of top-ranked higher education administration graduate programs in the United States. A total of 39 program coordinators, department heads, and/or deans were asked using qualitative methods to address the phenomenon of faculty hiring, including why a majority of top-ranked programs preferred hiring faculty who have doctorates from other top programs. One of the findings indicates that top-programs indeed hire them for very practical reason as identified in the study. Findings from this study should inform the decision-making of higher education program coordinators, department heads, and deans as they conduct faculty searches.*

You go to college not only for the latest knowledge but also to meet people from different backgrounds. That's the genius of the American higher-education system compared with the Europeans'. We don't simply skim the elite.

*Donna Shalala
Professor of Political Science and
President of the University of Miami*

Sydney Freeman, Jr. is an Associate Professor of Higher Education in the Leadership and Counseling Department at the University of Idaho.

David DiRamio is an Associate Professor and Higher Education Program Coordinator in Educational Foundations, Leadership, and Technology at Auburn University.

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Introduction

Ask any undergraduate student studying economics in college and that student is likely be familiar with the neo-classical economic theory of Alfred Marshall and his view of firms as “profit-maximizers” (1890/2009). Interestingly, a corollary exists in higher education, as first noted by Bowen (1981), in which non-profit colleges and universities are “prestige-maximizers.” Some years later Winston (1999) compared the competitive process in higher education to an arms race. Part of this competitiveness phenomenon includes the hiring of faculty, particularly among elite schools and programs.

For example, DiRamio, Theroux, and Guarino (2009) found that 70% of faculty members at top-ranked higher education programs received their doctorate from another top-ranked school, which was ten points higher than a previous study of graduate programs in special education (Bair & Bair, 1998). Additional analysis by DiRamio and colleagues (2009) found a noteworthy social network, a statistical “clique,” in which the very top programs had closer network connections when compared with other programs and sources for faculty hiring. If a clique exists among the elite programs, what are the implications for diversity in graduate education?

Faculty Hiring by Top Programs

The practice by elite programs of hiring graduates from other elite programs is not a new phenomenon. This phenomenon occurs in the full spectrum of academic disciplines, including the physical and social sciences, humanities, and professional degree programs (Fabriani, 2011). However in some fields, such as information studies, institutional prestige is weighted heavier than program prestige when judging the quality of a graduate’s educational background (Wiggins, 2007). Capobianco (2009) found that there is a limited correlation between having high ranks from guides such as the *U.S. News and World Reports* rankings of colleges and universities and job attainment at the undergraduate level. In the field of higher education administration, research has shown that graduate programs that are perceived as prestigious by their academic peers are more likely to hire individuals from other top programs (DiRamio et al., 2009).

The maintenance and/or growth of prestige appears to be of paramount importance (Capobianco, 2009; Fabriani, 2011), but it is unclear if the prestige motive is the prime motivator for higher education administration programs. And, while the study by DiRamio and colleagues (2009) revealed statistically that close connections between elite programs existed, no study using qualitative methods has emerged to better describe the phenomenon and ask the question, “why?” One reason this question is important is the limited tenure-track positions available to higher education graduates. Moreover, as globalization continues to impact the field of higher education, it is important to ensure that a diversity of ideas are represented in the composition of all faculty rosters, not just those from prestigious programs (DiRamio et al., 2009).

The goal of this study was to use qualitative methods to investigate why top programs in higher education administration may prefer to hire faculty members from other top programs. This is a typical next step in a thread whereby the proverbial “why” question is used to investigate the quantitative results from the previous study, without *a priori* assumptions, and including the development of a conceptual framework for understanding the phenomenon under study (Maxwell, 2005). This study is a follow up examination of the hiring practices and “interconnected competitiveness” of top-ranked higher education administration graduate programs in the United States.

A total of 39 program coordinators, department heads, and deans were asked using qualitative methods to address the phenomenon of faculty hiring, including addressing the question of why a majority of top-ranked programs preferred hiring faculty who have doctorates from other top programs. The two guiding research questions for this study included: “Why do a majority of top-ranked higher education programs prefer hiring faculty who have doctorates from other top programs?” and “What suggestions do program coordinators, department heads, and/or deans have for improvements of developing a more diverse composition of future faculty?”

Findings from this study will inform higher education program coordinators, department heads, and deans as they consider and conduct faculty searches. Moreover, the findings and recommendations presented here will assist graduate students and aspiring faculty in identifying areas in which they can better prepare for future faculty positions. Finally,

insights gained from this study will provide greater understanding of the need for diversity within search pools in order to enhance their programs.

Review of Literature

Higher Education Graduate Programs

The field of higher education administration is considered to be more than a century old (Goodchild, 2002). However, it has only been within the last 40 years that graduate programs have been studied (Altbach, Bozeman, Janashia, & Rumbley, 2007; Barnett, 2007; Dressel & Mayhew, 1974; Fife & Goodchild, 1991; Kienle & Lloyd, 2005; Wright & Miller, 2007). Goodchild (2002) described the study of higher education as:

Sophisticated knowledge about and research on colleges, universities, and related postsecondary institutions, as well as the professional skills used by those persons who work in them [and] educate and train professionals for administrative, faculty, student life, and policy analyst positions in the country's approximately 4,000 postsecondary institutions and elsewhere. (p. 303)

Although there is limited literature describing the characteristics of faculty members serving specifically in higher education graduate programs, Harris (2007) and Wright (2007) have written about the need for a diverse composition of faculty within these programs. Harris' (2007) work suggested that it is important for higher education preparation programs to be composed of faculty from diverse professional backgrounds. He advised that a diverse set of faculty can expose students to both the theoretical and practical concepts that they will need to be effective in their future careers. Moreover, Harris (2007) noted that a diversity of instructor backgrounds, including full-time, adjunct, and emeriti faculty members, was common practice within higher education programs. Wright (2007) suggested that this arrangement gives students the opportunity to be exposed to new theoretical and research-based knowledge as well as the practical aspects of the higher education enterprise.

Faculty Hiring and Prestige

Tierney and Rhoads (1993) suggested, "One way of producing organizational change is to bring in new people with different values and orientations. Hiring new faculty represents an opportunity to reshape the organization . . ." (p. 35). However, when writing about hiring in his seminal report on faculty research performance, Creswell (1985) reported that colleges and universities often attempt to increase research productivity at their institutions by hiring graduates of top-ranked, prestigious graduate schools, which have the reputation of being highly productive. Interestingly, he found that the organizational culture of the hiring school did not substantively change for the better despite the influx of promising new faculty. In fact, over time the productivity of the new faculty dropped to the level of the older faculty. The culture of the organization did not change despite the influx of new faculty (Creswell, 1985).

If research productivity is not a wholly satisfying reason for explaining why elite institutions emphasize hiring from other top-ranked programs, then what is a better answer? It appears that the answer is rooted mostly in reputation and prestige. Lovett (2005) wrote of "the avid quest by institutions for places at the top of higher education's prestige pyramid" (p. B20). Interestingly, the quest for institutional prestige has done little to advance the reputations of many colleges, and it may be causing some of them to become less distinguishable from their competitors (Sweitzer & Volkwein, 2009). Moreover, in the study preceding the follow-up research presented here, DiRamio and colleagues (2009) noted that the pursuit of prestige may actually be causing a closed system to emerge, which is troublesome when considering that "these programs continue to move through an era of increased accountability, pursue new educational markets, and face globalization. Closed systems are not well suited to confront these challenges because of their inability to adapt to difficult situations and incorporate new ideas" (p. 158).

If new voices and fresh ideas, in the form of diverse faculty from an array of graduate programs in higher education, are not present in a hiring exchange of faculty among top programs, what are the broader implications? As American higher education grapples with rapid change and globalization, can replication of the status quo in graduate studies adequately prepare the next generation of scholars and practitioners to

meet that challenge? This study investigated the existence of a so-called clique in higher education graduate programs.

Method

A qualitative approach was utilized to investigate the findings such as examining why a majority of top-ranked programs preferred hiring faculty who have doctorates from other top programs. In order to collect initial demographic information and determine a sample group and the primary positions of that sample, an initial survey was sent to each faculty member, program coordinator, and/or dean that worked in the top 20 higher education programs ranked by *U.S. News & World Report Best College 2011 Edition*.

U.S. News & World Report uses seven criteria to rank each higher education administration program including tuition charged, enrollment, average GRE verbal and quantitative scores of entering doctoral students, average amount of externally funded research expenditure per faculty member, total amount of externally funded research conducted by the school, and doctoral programs acceptance rate.

Phase Population and Sample Selection

Participants were solicited via email. The email included an Internet link to an online survey website. A university institutional review board approved the link and survey for this study. This survey included one open-ended question, which asked, what strategy(ies) can students from unranked higher education administration programs employ to make them more competitive for a position at a top ranked institution? After which participants were asked if they would be willing to share their perspectives in a follow-up interview. Participants were able to confirm their desire to be interviewed by sending an email to a secure university email account. Through email exchanges times were scheduled to interview participants individually and over the phone. Prior to the interviews the informed consent forms were sent to the participants and signed. Interviews were completed over the phone and through an open-ended questionnaire using online data-collection software. Participants were able to withdraw at any time without question.

In light of the recommendation of Morse (1994) this study had a sample size of 39. Morse suggested that when conducting a phenomenological study, more than ten participants should be included. In-depth interviews were conducted via phone conversations with program coordinators, department heads, and deans to explore the phenomena of prestige in hiring, as well as the closed system, “clique-effect” that may exist among top-ranked higher education administration programs, as described by DiRamio and colleagues (2009).

The participant population was comprised of faculty members, program coordinators, department heads, and deans employed in the top 20 higher education programs ranked by *U.S News & World Report Best College 2011 Edition*. Deans, department heads, and faculty were chosen as the participant population because they are integral to the hiring process of new faculty within a department. The responses of deans in particular were sought, as they are generally the university authority within a college or school of education that provides direction regarding academic expectations for faculty. And they also are generally responsible for offering positions to new faculty and they determine the start-up packages and salary offered to faculty candidates (F. K. Kochan, personal communication, August 2012; F. Miller, personal communication, March 2013).

All groups represented in this study have the unique opportunity to influence the way the program is operated on a daily bases. This study enabled these leaders to have an opportunity to suggest ways of developing a more diverse composition of future faculty. The only demographic information sought for this study was the distinctions between the various primary positions of the participants. Thirty-four (87%) of the participants identified their primary position as either an assistant, associate, or full professor in the field of higher education. Both groups that had individuals that identified themselves as either program coordinators (5%) or deans (5%) had two persons to identify as such. One participant (3%) self-identified as an academic coordinator.

The population of programs from which the sample was drawn can be found in the *U.S News & World Report* (2011) listing of the top 20 higher education administration programs (Table 1). From that pool, the researchers contacted deans, department heads, and faculty. Each were sent an email, called by telephone, and invited to participate in the study.

Once the initial contact was made, a follow up email was sent and call by telephone was made to confirm the time of the interview with each participant. Ultimately a convenience sample of 39 individuals participated in this study.

Table 1

U.S News and World Report 2011: List of Top Higher Education Administration Programs

Rank	School Name
1	Penn State University
2	University of Michigan
3	University of California-Los Angeles
4	Michigan State University
5	University of Georgia
5	Indiana University-Bloomington
7	University of Southern California
8	University of Pennsylvania
9	Vanderbilt University
10	Stanford University
11	Harvard University
12	University of Maryland-College Park
13	Iowa State University
14	Teachers College, Columbia University
15	University of Iowa
16	University of Wisconsin-Madison
17	Ohio State University
18	University of Arizona
19	Boston College (Lynch)
20	University of Virginia (Curry)

Each interview was both audio recorded and transcribed. Instruments used to complete this project included the following: interview questions, email, paper, pens and audio recording devices. These six instruments were the only tools used to collect interview data and were essential to the data collection process. Detailed notes were taken while audio recording each interview. Five questions were asked in the interview phase of this study which included: (1) In a recent study, it was found

that seventy percent of faculty members at top ranked higher education programs earned their doctorate from a top ranked program. What are your thoughts about that?; (2) In the same study, data revealed the presence of a clique comprised of the top higher education programs indicating a closer connection between these programs vs. unranked programs. What are your thoughts about that finding?; (3) When considering the globalization of higher education and administration as well as the diversity of students and the settings, and their settings, do you have any concern about enough outside viewpoints being found in top higher education preparation programs?; (4) Do you feel that your department would be open to hiring higher education faculty from outside the top ranked programs?; and (5) What suggestions would you have for a student that has been trained in an unranked program who aspires to become a faculty member in a top ranked program?

Coding Process

All data from the participants' interviews and responses from the open-ended survey questions were used to create priori codes. There were a total of 20 *priori* codes that were found to be applicable to the study. These were numbered in accordance with the protocol recommended by Miles and Huberman (1994) and all instances were coded. A "start list" was compiled as suggested by Miles and Huberman (1994) and included: natural collaboration, reproductive cycle, sharing ideas, networking, publishing, presenting, research, teaching, and grants/external funding. As data were coded, the start list began to expand, much like Spradley's (1979) semantic data approach suggested. In addition to using the start list, the "incident-to-incident" coding approach advocated by Charmaz (2006) was implemented. This process allowed the researchers to compare similar responses by different participants.

Concerns for Validity and Reliability

After collecting the responses from the survey participants, all follow-up phone interviews were incorporated for purposes of member checking and data validation. Utilizing the member checking approach enabled the participants to review the information from the survey to ensure that they accurately reflected their feelings and responses (Creswell, 1998). The follow-up interviews also enabled additional questioning related to the study. Additionally, this study utilized two of Lincoln and Guba's (1985)

criteria for trustworthiness, which were external audits and credibility. The researchers allowed a respected colleague to examine the results of the study and to provide critical feedback regarding the quality of the inquiry process. We also were able to have a colleague outside of the field of higher education serve as a peer de-briefer, which helped establish additional credibility for the study.

Limitations

Due to the nature of qualitative research, there are certain limits to generalizability. Although the interviews yielded both “thick” and “rich” descriptive and narrative data, the limited sample size forces the restriction of the application of results to a limited population of coordinators, department heads, and deans who have served or are serving in top higher education administration programs. Additionally in a study such as this it is difficult to always detect or prevent researcher bias. And the subjectivity of the responses of the participants can prove challenging.

Findings

Four themes emerged from the interviews (Structural, Externalities, Prestige, and Research) and a graphical conceptual framework was developed as visual aid to better understand the findings (see Figure 1). Slone (2009) suggested the use of visualization tools to strengthen qualitative analysis. Moreover, the use of a graphical display of qualitative information addresses two other of the four criteria set out by Lincoln and Guba (1985), transferability and confirmability. Each of the four themes is comprised of two or more “inputs” or ideas that enable top programs to participate in the phenomenon of prestige and hiring. Referring to Figure 1, moving from left to right, the rectangular shapes labeled “Inputs” represent characteristics of the top programs themselves and are grouped by the four themes. The square shape notes the “Program Outcomes” resulting from the influence of the inputs. “Context” is depicted as circular and surrounding the outcomes. The context element represents the setting or environment in which the phenomenon under study can be better understood and assessed, including professional associations and an inexorable pressure to publish.

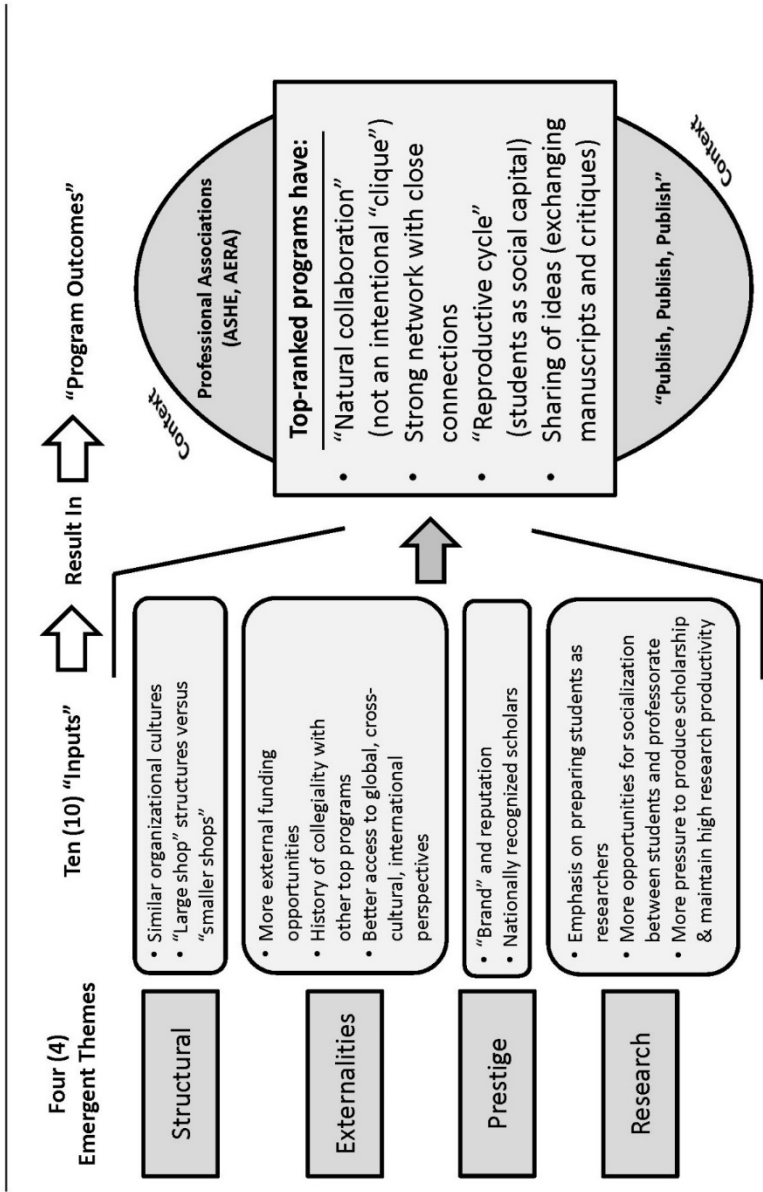
Readers should familiarize themselves with the four themes and the idea that all (or some) of the ten inputs, to a greater or lesser degree, are the influencers which result in the hiring of faculty by elite higher education programs from other elite programs. This will aid in a better understanding of the discussion to follow, including the implications for the higher education enterprise and for future research.

Theme One: Structural

Ideas about the cultural structures and sizes of higher education programs emerged from the data. Manning (2012) noted the important role of structure because "without knowledge of organizational structure, faculty are hard pressed to make policy decisions regarding curriculum and other issues" (p. 3). The structural similarity of top programs is an important factor for considering reasons why they might hire both recent graduates and established faculty members from each other.

Similar organizational cultures. A majority of respondents felt that one of the reasons graduates from top-ranked programs are routinely chosen over non-ranked graduates is due the fact that top programs have similar cultures. Schein (1992) defined organizational culture as "[A] pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration..." (p. 12). Clearly, culture plays a key role in shaping faculty members and the program structures they create (Bergquist & Pawlak, 2008). An assistant professor in the study who served on several search committees shared: "I think often times top ranked programs feel that they share a similar

Figure 1. Conceptual framework used for explaining and understanding the relationship of top-ranked graduate programs in higher education administration.



organizational culture within their program, and across other top ranked programs and so they hire from similar cultures to strengthen that culture within their own program.”

Another participant who served as both a chair and full professor seconds this sentiment when mentioning that the networking between top programs are so strong. He shared:

The people who are doing more research and producing publications are folks coming from some of these top programs and so they network pretty well with others who are doing research in that area and make connections and share ideas and probably exchange manuscripts or critique it before they submit it to a journal, for example.

In addition to addressing the role that networking plays between top programs, a former department chair and full professor explained how the characteristics of these types of institutions are similar:

They have some advantages because they usually have a full-time compliment of five or six really well known faculty who are either stars or emerging stars in the field of higher education. They're not dependent on the success of their program.

Interestingly, these responses coincide with the work of Toma, Dubrow, and Hartley (2005). There are real and perceived advantages that come from being associated with one of the elite institutions. Toma and colleagues (2005) described the phenomenon of elite schools and programs in this way:

In higher education, names like Harvard, Amherst, and Berkeley have a certain mystique in higher education as a result of their long traditions as market leaders, the perceived value that their degrees offer recipients in the marketplace, the resources they have available, and the attractiveness of their campus atmospheres. (p. 30)

“Large shop” structures versus “small shops.” The participants shared that although non-ranked and top ranked programs share similar characteristics one of the elements that distinguishes them

from one another is the sheer number of faculty dedicated to their program. In addition, participants share that the culture of the environments can be completely different. Graduates from non-ranked programs may not be prepared to be successful at top ranked programs because of this fact. For example, a program coordinator shared:

As someone that coordinates our higher education program it [hiring graduates of top ranked programs]becomes practical. If you have no remote idea of what it means to get tenure at a said (Top-Ranked) institution, you can't get hired, period. And, yes does that mean that certain viewpoints that are in certain spaces are left out, yeah. But, guess what, those viewpoints aren't valued in the tenure process at said institutions.

One of the study's faculty members also addressed the areas in which non-ranked programs are different than their top-ranked counterparts:

If you're at an institution that's not top ranked it's probably because you don't have that many faculty exclusively dedicated to those key themes, and those faculty that are dedicated may find that their isolation means that they're unable to successfully attract large federal and state and private grant support, and sponsored research support.

He went on to explain more about top ranked programs, especially the role that mentorship plays in the development of their students.

A more prestigious institution is going to have top ranked faculty with large research grants who can support the student to do research on the research grant that can align with opportunities for publication. They're also going to have a mentor who is committed to informing the field of practice and the knowledge base by doing top quality research.

Talent development is complex and there are various factors that play into whether a person is successful in their vocation (Henriksen, Stambulova, & Roessler, 2010). Another participant shared that he believed the curriculum at top ranked programs was different than at non-ranked programs: "I think the really strong programs have a more comprehensive curriculum, I think they prepare their students better in

areas of research methods and research design.” He went on to elaborate: “Many of the top programs, I believe, have some concentration in what they would call a minor area that helps to enhance the qualifications of the individuals that graduate from those programs.”

Not only is the curriculum at top ranked programs perceived as superior, but the image of the program can result in higher student academic performance. Polat (2011) notes that, “perceived organizational image is a factor that significantly affects students’ academic achievement” (p. 260). He found students’ academic achievement increases as their perceived organizational image increases.

Another participant shared that he believed that a top ranked program was in a better position to divide responsibilities among its faculty members because of their size. Larger shops have a critical mass of people who not only attract students but also allow for the diversification of the duties and responsibilities necessary for running a successful program.

Theme Two: Externalities

In the study of economics, an externality is a phenomenon in which an affected party is influenced by one or more activities under the control of others (Randall, 1983). In this study, the affected party is an unranked higher education program that is not part of the network of top programs, the “others” are the top programs themselves, and the activities are those identified in the interview data and listed below. These externalities are the side effects of a social market of prestige that exists in the higher education graduate program marketplace. Perhaps more so than any of the other themes that comprise the basis for the conceptual framework for this study—structural, prestige, research—the externalities that were revealed in this study are what fuel the belief, whether perceived or real, that top programs have formed a clique (DiRamio et al., 2009).

More external funding opportunities. An area in which participants felt that top ranked programs had an advantage was in the area of external funding. At least half of the participants believed that most of the opportunities to work on a large grant are garnered through working with well-known faculty at top programs. And as the expectations for tenure continue to rise, several participants believed that

faculty candidates would need to have experience with external funding. For example, one participant expressed it this way:

It's the grantsmanship piece, increasingly these type of (top-ranked) programs really want to know that you can bring in research and if you think about what it means to be a brand new faculty member and if you're just trying to figure out how to teach classes, usually the research piece, which is the point of priority is a major emphasis in time consumption. Now if you've never done grantsmanship and you've never been on a funded project there is, it's almost impossible to add that component to the table because you're coming in and you're doing all these brand new things at a very high level and it's very difficult to learn something on the job.

A faculty member adds to this notion that external funding seems to be emphasized at top ranked programs: "I think that there are assumptions about top ranked programs that publication production and external funding production is generally more valued and so they want to sustain those activities and those resources."

The responses of participants in this study align with the literature (Barnett, Danowski, Feeley, & Stalker, 2011; Hevenstone, 2008; Laudel, 2005). The importance placed on external funding is very strong and the majority of these research dollars are awarded to the top programs. Laudel (2005) wrote:

External funding is used at the individual level as a criterion in academic job decisions; for example, in tenure track decisions in the United States, applicants must list the grants they won in the last couple of years or during their whole research career. Usually, the source of the grant is taken into consideration; highly competitive grants from funding sources with a rigorous peer review system (e.g. grants from the National Science Foundation) are weighted higher than others. (p. 28)

History of collegiality with other top programs. The brand and reputation of top ranked programs extends to the way in which admiration is shown in the form of collegiality. Over seventy percent of the participants mentioned that collegiality was an important part of the

relationships within the top ranked programs. One participant suggested that collegiality among these programs is less intentional and more predicated on similar interest and dependability when participating in collaborative projects: “The top researchers tend to work with other top researchers and you get known for quality and so you tend to work with those people who you know can deliver.”

He goes on to suggest that the preferences that develop can go afoul when those same preferences are used in the faculty selection process:

Some of the positive things are that you have a bit of assurance I guess, and perhaps more built in collegiality. I think some of the negatives things are that it really disenfranchises some pretty amazing candidates out there and it creates an elite hierarchical structure across our higher education preparation programs that perhaps provides a disservice to the field as a whole.

Another participant seems to agree with these statements with respect to the nature of the closeness of the top ranked programs. Below he acknowledges that this does play a role in the faculty selection process:

I do think that there’s probably a cultural relationship among scholars in top ranked programs. I think that every time a position opens up especially a position at the senior level, among senior faculty members, I think that there’s probably that like hidden handshake, nudge, nudge thing going on where you can ask another faculty member from another top ranked program, hey, are you happy there, you know we’re looking for somebody, how would you like to come over here. I think that happens probably more frequently within the top ranked programs than it does in other programs.

In summary, when considering collegiality among top programs, one faculty member in the study stated it best when he shared that faculty at top ranked programs speak among themselves first when searching for candidates for a faculty position:

I will say that in the preliminary phase of a search for a new faculty member, the faculty at a top ranked institution are very likely to have a network of colleagues who are at other top

ranked programs as a function of the fact that they share the same professional associations and memberships and have met each other before. As a consequence, you're going to probably make more contacts with faculty at the leading institutions and they're more likely to submit the names of candidates from their institutions.

Better access to global, cross-cultural, and international perspectives. The notion of globalization and the importance of diversity have grown since the 1970's when American Higher Education began a concerted effort to focus on these areas (Hutcheson, 2011). Understanding the role that higher education plays around the world is of vital importance. Svensson and Wihlborg (2010) indicated, "internationalization of higher education is a strategic theme in the current research on higher education and in policy debates. Both at national and institutional levels, in many countries, internationalization is stated to be an educational goal" (p. 595). At least one-third of the participants believed that because of the nature and characteristics of top programs, they are able to attract students from other countries outside of the United States. One participant in particular shared how his program facilitates cross-cultural conversations:

There's also a lot of reaching out to some of the higher education programs in Europe and in other countries, in Australia for example. And so there are some connections being made across those kinds of programs. Our program tends to get a lot of international students and those international students go back to their countries and then maintain contacts with our faculty and because of that I think there is a lot of diversity of ideas involved. I don't think that there's a limitation in, where people will look to find their research.

Although his program has in its mission to ensure diversity in the classroom, another participant makes a salient point below as he emphasizes the invaluable role that diversifying the faculty will play in addressing issues that affect higher education across the world:

I think that as the world is shrinking it's going to be more and more important to have scholars who can come in to speak to the imperative higher education issues across the globe; I also think it's going to

become increasingly important to have faculty members who represent diverse perspectives on a variety of issues. Yes, I do think that's going to become increasingly important and I think the standards for how we look at candidates is going to have to change as a result.

Theme Three: Prestige

It is no secret that prestige plays a prominent role in higher education (Brown, 2010; Lovett, 2005; Sweitzer & Volkwein, 2009) and two concepts related to prestige were found in this study. As the editor-at-large of *The Chronicle of Higher Education*, Jeffrey Selingo (2013) noted, "Prestige in higher education is like profit is to a corporation" (p. 12). However, an overemphasis of the prestige motive can be detrimental because, according to Newman, Courtier, and Scurry (2004), an unhealthy pursuit in American higher education has led to an increase of unneeded, low-quality graduate programs.

Brand and reputation. More than half of the participants shared that the brand and reputation of the institution from which a faculty candidate is affiliated does indeed play a factor in the selection process. This is also confirmed by Toma et al. (2005) when they wrote that, "In higher education, strong brands are also linked to institutions having clear values that they articulate through a variety of forms. These institutions have distinctive identities—norms, values, and beliefs that they continually announce and reinforce through symbols, language, narratives, and practices" (p. 34). In addition, one faculty member expressed that the various aspects of a faculty candidate's portfolio that a search committee would place emphasis on would generally look different for graduates from non-ranked programs: "The networking is not going to be quite the same, the sponsorship is not going to be the same, the placement of possible journals aren't going to be the same." This happens because the brand and reputation of a graduate's institution signals to a search committee that the candidate likely has access to an influential network and has been trained to publish in top tier periodicals.

One participant who identified himself as a former chair, associate dean, and full professor also noted that top ranked programs generally are known by several characteristics. He shared, "Top ranked programs tend to produce the most scholarship and they tend to have people who are extremely well known in the profession."

Another participant confirmed this idea that the distinctive brand differentiation of top ranked programs are their reputation for producing high-impact scholarship: “The reason why there are some close connections between people in some of the top programs is because many of the people that are doing the significant research are coming from these top programs.” Another assistant professor articulated this theme succinctly when noting, “I think the brand of certain institutions is certainly something that’s still a major power player in decision making for search committees all over the country.”

To maintain the brand identity of a top-ranked institution, search committees generally want to hire individuals who come from institutions which have identities comparable to or stronger than their own. Again, Toma et al. (2005) explained:

Institutions use these ties and stress their distinctiveness when attempting to appeal to the important constituents that provide them the support that enables institutions to not only survive but also to thrive and build. In furthering community, institutional culture adds distinctiveness to otherwise similar large and impersonal institutions. (p. 74)

Nationally recognized scholars. Not surprisingly, another area that emerged as a general characteristic of top ranked programs is that they usually have nationally recognized scholars on their faculty. Melguizo and Strober (2007) found in their research that “institutional and professional incentives move faculty to concentrate on research in order to maximize their own and their institution’s prestige” (p. 665). In this study we learned that those highly recognized scholars networked with one another. One participant characterized the phenomenon in this way: “They tend to have people who are extremely well known in the profession.” Another faculty member acknowledged that prominent faculty in top ranked programs network with each other and this is most evident in the faculty selection process: “Faculty in top ranked programs reach out to other prominent faculty across the country and they do that, because they know them from professional association meetings, from publications and their scholarship, that builds a network of people.”

Although a candidate for hire can solicit a letter from a faculty member who does not have a nationally recognized record of scholarship, another

participant suggested that receiving a letter of support from a prominent faculty member from a top ranked institution would help in the faculty selection process:

I would think that if a student were from a non-ranked program competing against a student who had a prominent mentor in higher education and that mentor had written that person a letter of support, I think the individual who had the prominent higher education faculty member would have a leg up, because in a search committee or another context, if you know you are getting a letter from somebody that you know in the field, who's very prolific and that letter is glowing about a certain person, that's going to carry more weight than a letter that comes from somebody you don't know, even though they may be prolific in another area.

Theme Four: Research

The final of the four themes identified in this study is research and it was not surprising that the data supported the perception that top programs emphasize research and policy studies, while unranked programs tend to emphasize administration and leadership. Bok (2003) described the emphasis on research and the role it plays for the top institutions when writing:

The best young scholars and scientists usually go to institutions that already have strong faculties. Foundations and government funding agencies also give the bulk of their support to universities with the best-known professors. The ablest students likewise gravitate to universities with established reputations. (p. 104)

Washburn (2005) quoted one graduate student as saying, "If you want to succeed as an in academic, he said, what matters are publications, prestige, and grant money" (p. xiv). Therefore, as described by participants in the interview data, top programs do indeed stress preparing researchers, use research as a vehicle to increase interactions between professors and students, and place an emphasis on research productivity and scholarship.

Emphasis on preparing students as researchers. Half of the participants believed that top programs place a strong emphasis on preparing students as researchers. This is an important point to consider, especially because graduate programs are often judged based on their research reputation and output. One participant who is an associate professor and program coordinator believed that top ranked programs not only prepared their students to be researchers, but also ensured that they published before they completed their programs. He noted,

I think select programs do have a culture, set of program courses, and formal and informal practices for preparing their students for the professoriate through opportunities. The days of getting a faculty job with no publications, that day is over, that's gone.

Results from this study also suggest that some search committees believe that graduates who have attended top ranked programs are trained to serve as faculty. One participant, in particular shares his perspective on the assumptions that some search committees make when evaluating the background of a faculty candidate. He explains:

I think there's an assumption that students at top ranked programs are more interested in participating in faculty research; that students at top ranked programs are more interested in participating in academic life as a future faculty member.

Not only can top ranked programs overlook candidates because they perceive they lack the research background, it is sometimes also assumed that students from non-ranked programs will not have exposure to compete for external funding. Smaller institutions generally gain less external funding through research than their research university counterparts (Campbell, 1998).

More opportunities for socialization between students and the professorate. At least half of the participants in the study believed that top ranked programs provided more opportunities for their students to be socialized into the professoriate. One participant espoused this notion. He shared:

It's kind of like a reproductive cycle, the highest ranked institutions in higher education for example, will be able to

attract the most prolific faculty and so if you are in the hiring process and you know that a graduate student is graduating from our program, and has worked with one of these prolific faculty members, you would hope that the training they received in that mentoring experience would be enough to, give you some insight or to help you know, that these people that you are going to hire are going to be very successful and self-directed scholars when you actually get or recruit them as faculty members.

There are very few higher education institutions that have intentional programs that formally socialize their faculty beyond their university teaching and learning centers. Individual colleges and academic department generally lack programs that provide new faculty with formal training on how to improve in their new role (Hamilton, 2006). So it is important that candidates develop and hone academic skills prior to being hired.

More pressure to produce scholarship and maintain high research productivity. Another characteristic that participants believe differentiated top ranked programs was the amount of scholarship that is produced from its faculty. One particular participant stated this concisely and emphatically: “Top ranked programs tend to produce the most scholarship!”

The participants attributed this characteristic to the expectations placed on them by external constituencies such as the institutions they serve. One faculty member in the study explained the phenomenon best: “I think that there are assumptions about top ranked programs that publication production and external funding production is generally more valued and so they want to sustain those activities and those resources.”

Preference for top-ranked graduates. The evidence provided in the four themes and associated ten inputs (Figure 1) makes it reasonably clear that top-ranked higher education graduate programs do indeed prefer to hire faculty members who have doctorates from other top programs. To further investigate this phenomenon, a section of the interview script was designed to capture the overall sentiment of the participants and the response listed below is representative, particularly for students who have aspirations of serving at a top-ranked program:

It's less likely that faculty at a less prestigious institution are going to enjoy large grants to support doctoral research. So, to overcome that the student in the less prestigious institution needs to do research and publish on topics of interest to higher education that are congruent, that are aligned with their areas of interest. If you're into student development theory and you're thinking about developing a dissertation in that field, you should be reading the literature in that field, you should be thinking about what kind of pilot studies could I do that would contribute to the development of my dissertation and that might end up being publishable work that would help me demonstrate before I actually start applying for jobs that I'm a competent researcher, and that I have experience in writing publications.

It is particularly challenging for regional institutions, along with others whose mission is primarily teaching, to provide their faculty members with the time and resources to conduct research on a scale that the flagship research universities do (Li-Ping & Chamberlain, 2003).

Program Outcomes

Conceptually, as depicted in Figure 1, the four emergent themes and their manifestation in the ten inputs leads to several outcomes. For example, we found that there exists a natural collaboration among the top programs rather than an intentional clique. In other words, this is an organic occurrence in social networks and not a conspiracy to ensure that the top programs remain elite and others are shut out. Moreover, these natural collaborations produce strong networks over time and the connections between top program networks continue to strengthen. One participant remarked, "There are some close connections between people in some of the top programs because...my knowledge of the field of higher education administration is that many of the people that are doing significant research are coming from these top programs." Faculty colleagues from the top programs produce their own doctoral graduates as part of a reproductive cycle and, in a sense, the students themselves represent social capital in the network, which is analogous to the ideas of Bourdieu (1988) in his seminal work, *Homo Academicus*. Another participant provides an example of his personal experience with this phenomenon:

I graduated from a top ranked program and I'm now working in a top ranked program and it was no accident that there were people here who also graduated from my top ranked program years earlier and knew some of the same faculty that I had...I think that network is strong across top programs because...it's much easier for me to hire somebody from my alma mater because I know what that alma mater produces and I keep in touch with people from there and...I think it's a list of reproduction of social capital.

One of the strengths of the network of top program faculty is the exchange of ideas that occurs in the form of formal and informal critiques of each other's work, including research projects and manuscripts. All of this occurs in the context of the professional associations, where network participants often gather and exchange ideas, and the ethos of publish or perish permeates the profession.

Discussion

This study is one of a few studies that utilized the *US News and World Report* rankings as a variable to gauge the extent of the role prestige plays in academic programs and institutions (Bedeian, Cavazos, Hunt, & Jauch, 2010; Capobianco, 2009; Wiggins, 2007). However, contrary to the findings in this study, Capobianco (2009) found little relationship between the rankings of academic departments and graduate employment. One of Capobianco's main findings was that previous work experience played the largest role in hiring decisions. Interestingly, this study and the Capobianco study found agreement regarding degree field and employee referral.

Although Capobianco (2009) did not find that the prestige associated with an academic program played a role in the hiring practices of most graduates, a more recent study by Bedeian and colleagues (2010) found that the status and prestige of doctoral programs in business management did have an effect on graduate hiring. It appears that higher education administration doctoral programs and graduate programs in criminal justice have similar prestige networks, as well (Fabianic, 2011). Moreover, these similarities include the fact that each of these fields—higher education administration, business management, and criminal justice—have barriers that persist that do not allow for upward mobility

and inclusion (Weakliem, Gauchat, & Wright, 2011). Other factors identified included program faculty size, diversity of course offerings, and number of specializations (Barnett & Feely, 2011). Another challenge that persists is the stagnancy of academic rankings and resistance against status elevation, primarily due to top researchers rarely moving to less prestigious academic institutions or programs (Hevenstone, 2008). These research “superstars” are, of course, more likely to move laterally to an institution that is considered to be the same tier as their current institution or move up to an institution with higher perceived prestige. Reason for leaving could include financial mobility, higher status, and/or professional growth.

Generalizability concerns notwithstanding, this study confirmed the finding from previous work by DiRamio and colleagues (2009) that faculty in top programs are more likely to be graduates of other top programs. This coincides with the findings of Xuhong (2011) who found a correlation between the prestige of an academic department and the research production of its faculty. This is important as outside constituencies seek to find ways in which to gauge the quality of academic programs. Barnett and Feeley (2011) concluded that program placement is a legitimate measure of program quality. They also found that to be the case when investigating the role of faculty hiring network methods in doctoral programs in communication. So, how can deans, department heads, program coordinators and interested faculty members at higher education administration programs, both ranked and unranked, use the findings of this study?

Based on the themes and results of this study, three recommendations for both policy and practice have emerged. These suggestions are primarily addressed to higher education programs that are seeking to enhance the quality of their students’ academic marketability. The recommendations are: (1) Students should be encouraged to collaborate with faculty on grants from their institution and outside of their institution. (2) Students should be directed to attend professional meetings within their field, reach out and meet faculty and peers from other institutions, and begin developing their professional network, and (3) Students should strive to author or coauthor a paper (or papers) since publishing research is so much a part of the fabric of the phenomenon described in this study, both inside and outside the network of top programs.

Implications for Future Research

Because this study included only program coordinators, department heads, and deans who served in higher education programs ranked 20 or higher by *U.S News & World Report*, it may be wise to explore the perspectives of coordinators, department heads, and deans from non-ranked programs. These participants could share their ways of preparing students for faculty positions in higher education programs. Of course, this would provide useful data that could be compared with the results of this study. Another suggestion for future research includes surveying the perspectives of first year doctoral students within higher education graduate programs, perhaps from both top programs and programs not ranked. A study of this type could explore students expectations related to career outcomes based on the impact of earning their doctoral degrees and the prestige of their programs. In a larger sense, findings from such a study could provide higher education administration program faculty and curriculum developers with information to use to enhance the quality of their own graduate programs.

Conclusion

Can graduates from non-ranked higher education programs gain the opportunities to serve as faculty in top ranked programs in the future? The answer is clearly “yes,” with no evidence of a glass ceiling or exclusionary wall found in this study. However, because of effects of the economy on higher education and the dearth of professorial opportunities to teach in the field of higher education administration, it is less likely that someone who does not have the academic pedigree of an elite institution will garner such a position, although not impossible. Higher education programs ranked by US News and World Report can be viewed as what Daloz (2011) describes as political elites. Political elites in this context can be viewed as representing the best of a larger group. As an emerging field, some look to those programs as standard bearers for the field at-large (Freeman Hagedorn, Goodchild, & Wright, 2014). So, perhaps it is important that the “elites,” the top programs, hire those that can best represent the field. This is particularly evident as some foreign institutions are hiring top researchers to increase their global academic standing (Bhattacharjee, 2011)

Although this paper discusses themes related to why top-ranked higher education administration programs generally prefer to hire graduates from other top programs, higher education programs of all types can learn from these findings. Of particular importance is the notion that a diverse faculty, in both thought and background, is critical for enhancing all higher education programs in the future. Specific attention should be paid to international diversity. Our world is becoming increasingly global and higher education program faculty need to be able to address the needs of graduate students from diverse backgrounds, both domestic and international.

Graduates from non-ranked programs may have a keen sensitivity to higher education problems experienced by the non-elite institutions, which constitute the majority of institutions of higher learning around the world. The authors see this study as an important and useful first step in broadening the discussion regarding how higher education programs can ensure that they remain responsive to the needs of diverse students. Continued dialogue in this area will provide an opportunity for scholars of all backgrounds to better serve their institutions and share resources that support research addressing a broader range of issues affecting the field of higher education.

References

- Altbach, P. G., Bozeman, L. A., Janashia, N., & Rumbley, L. E. (Eds.). (2007). *Higher education: A worldwide inventory of centers and programs* (Rev. ed.). Rotterdam, The Netherlands: Sense Publishers.
- Bair, J. H., & Bair, R. K. (1998). Linkages among top-ranked graduate programs in special education: A brief report. *Mental Retardation*, *36*(1), 52-54.
- Barnett, N. (2007). Higher education as a field of study at Historically Black Colleges and Universities (unpublished doctoral dissertation). Ball State University, Muncie, IN. Retrieved from *Dissertations & Theses: A&I*. (Publication No. AAT 3288300)
- Barnett, G., Danowski, J., Feeley, T., & Stalker, J. (2011). Measuring quality in communication doctoral education using network analysis of faculty-hiring patterns. *Journal of Communication*, *60*(2), 388-411.
- Barnett, G., & Feeley, T. (2011). Comparing the NRC and the faculty hiring network methods of ranking doctoral programs in communication. *Communication Education*, *60*(3), 362-370.
- Bedeian, A., Cavazos, D., Hunt, J., & Jauch, L. (2010). Doctoral degree prestige and the academic marketplace: A study of career mobility within the management discipline. *Academy of Management Learning and Education*, *9*(1), 11-25.
- Bergquist, W.H., & Pawlak, K. (2008). *Engaging the six cultures of the academy*. San Francisco, CA: Jossey-Bass.
- Bhattacharjee, Y. (2011). Saudi universities offer cash in exchange for academic prestige. *Science*, *334* (6061), 1344-1345.
- Bok, D. (2003). *Universities in the marketplace: The commercialization of higher education*. Princeton, NJ: Princeton University Press.
- Bourdieu, P. (1988). *Homo academicus*. Stanford, CA: Stanford University Press.

- Bowen, H. (1981). Observations on the costs of higher education. *Quarterly Review of Economics and Business*, 21(1), 47-57.
- Brown, R. (2010). *Higher education and the market*. London, England: Routledge.
- Campbell, W. E. (1998). Writing proposals with faculty: A strategy for increasing external funding at small undergraduate teaching institutions. *SRA Journal*, 30(1 & 2), 63-68.
- Capobianco, F. (2009). *Reputation versus reality: The impact of US News and World Report rankings and education branding on hiring decisions in the job market* (unpublished doctoral dissertation). Pepperdine University, Santa Clara, CA.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London, England: Sage.
- Creswell, J. W. (1985). Faculty research performance: Lessons from the sciences and the social sciences. *ASHE-ERIC Higher Education Report*, No. 4. Washington, DC: ASHE.
- Creswell, J. W. (1998). *Qualitative inquiry and research design choosing among five traditions*. Thousand Oaks, CA: Sage Publications.
- Daloz, J. (2011). The distinction of social and political elites. *Comparative Sociology*, 10(4), 443-455.
- DiRamio, D., Theroux, R., & Guarino, A.J. (2009). Faculty hiring at top-ranked higher education administration programs: An examination using social network analysis. *Innovative Higher Education*, 34(3), 149-159.
- Dressel, P.L., & Mayhew, L.B. (1974). *Higher education as a field of study*. San Francisco, CA: Jossey-Bass.
- Fabianic, D. (2011). PhD program prestige and faculty location in criminal justice and sociology programs. *Journal of Criminal Justice Education*, 22(4), 562-577.

Fife, J. D., & Goodchild, L. F. (Eds.). (1991). *Administration as a profession*. San Francisco, CA: Jossey-Bass.

Freeman, S., Jr., Hagedorn, L. S., Goodchild, L. F., & Wright, D. A. (Eds.). (2014). *Advancing higher education as a field of study: In quest of doctoral degree guidelines – Commemorating 120 years of excellence*. Sterling, VA: Stylus Publishing.

Goodchild, L. F. (2002). Higher education as a field of study. In J. J. F. Forest & K. Kinser (Eds.), *Higher education in the United States: An Encyclopedia* (pp. 303–309). Santa Barbara, CA: ABC-CLIO.

Hamilton, N. (2006). Faculty professionalism: Failures of socialization and the road to loss of professional autonomy. *Liberal Education*, 96(4), 14-21.

Harris, M. S. (2007). The current status of higher education programs. In D. Wright & M. Miller (Eds.), *Training higher education policymakers and leaders: A graduate perspective*. Charlotte, NC: Information Age Publishing

Henriksen, K., Stambulova, N., & Roessler, K. K. (2010). Successful talent development in track and field: Considering the role of environment. *Scandinavian Journal of Medicine & Science in Sports*, 20(Suppl 2), 122-132.

Hevenstone, D. (2008). Academic employment networks & departmental prestige. In T. Friemel (Ed.), *Why context matters: Applications of social network analysis* (pp. 119-140). Wiesbaden, Germany: VS-Verlag.

Hutcheson, P. (2011) Goals for United States higher education: From democracy to globalisation, *History of Education*, 40(1), 45–57.

Jackson, J. (2004). The story is not in the numbers: Academic socialization and diversifying the faculty. *National Women's Studies Association Journal*, 16(1), 172-185.

Kienle, A. W., & Lloyd, N. L. (2005). Globalization and the emergence of supranational organizations: Implications for graduate programs in

higher education administration. *College Student Journal*, 39(3), 580–587.

Laudel, G. (2005). Is external research funding a valid indicator for research performance? *Research Evaluation*, 14(1), 27-34.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Li-Ping, T., & Chamberlain, M. (2003). Effects of rank, tenure, length of service, and institution on faculty attitudes toward research and teaching: The case of regional state universities. *Journal of Education for Business*, 79(2), 103-110.

Lovett, C. M. (2005, January 21). The Perils of pursuing prestige. *The Chronicle of Higher Education*, 51, B20. Retrieved from <http://chronicle.com/weekly/v51/i20/20b02001.htm>

Manning, K. (2012). *Organizational theory in higher education*. New York, NY: Routledge.

Marshall, A. (2009). *Principles of economics* (8th ed.). New York, NY: Cosimo, Inc., (first published in 1890).

Maxwell, J. A. (2005). *Qualitative research design: An interactive approach*. Thousand Oaks, CA: Sage.

Melguizo, T., & Strober, M. H. (2007). Faculty salaries and the maximization of prestige. *Research in Higher Education*, 48(6), 633–668.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage.

Morse, J. M. (1994). Designing funded qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 220-235). Thousand Oaks, CA: Sage.

Newman, F., Courtier, L., & Scurry, J. (2004). *The future of higher education: Rhetoric, reality, and the risks of the market*. San Francisco, CA: Jossey-Bass.

Polat, S. (2011). The relationship between university students' academic achievement and perceived organizational image. *Educational Sciences: Theory and Practice, 11*(1), 257-263.

Randall, A. (1983). The problem of market failure. *Natural Resources Journal, 23*(1), 131-148.

Schein, E. (1992). *Organizational culture and leadership* (2nd ed.). San Francisco, CA: Jossey-Bass.

Selingo, J. (2013). *College (un)bound: The future of higher education and what it means for students*. New York, NY: New Harvest.

Slone, D. J. (2009). Visualizing qualitative information. *The Qualitative Report, 14*(3), 489-497.

Spradley, J. (1979). *The ethnographic interview*. New York, NY: Holt, Rinehart, and Winston.

Sweitzer, K., & Volkwein, J. F. (2009). Prestige among graduate and professional schools: Comparing the U.S. News' graduate school reputation ratings between disciplines. *Research in Higher Education, 50*, 812-836.

Svensson, L., & Wihlborg, M. (2010). Internationalising the content of higher education. The need for a curriculum perspective. *Higher Education, 60*(6), 595-613.

Tierney, W. G., & Rhoads, R. A. (1993). Enhancing promotion, tenure and beyond: Faculty socialization as a cultural process. *ASHE-ERIC Higher Education Report, No.6*. Washington, DC: ASHE.

Toma, J. D., Dubrow, G., & Hartley, M. (2005). The uses of institutional culture: Strengthening identification and building brand equity in higher education. *ASHE Higher Education Reports, 31*(3). San Francisco: Jossey-Bass.

U. S. News (2011). America's best graduate schools: Higher education administration. Retrieved from *U.S. News and World Report* website: www.usnews.com/usnews/edu/grad/rankings/rankindex_brief.php

Washburn, J. (2005). *University, Inc.: The corporate corruption of higher education*. New York, NY: Basic Books.

Weakliem, D., Gauchat, G., & Wright, B. (2011). Sociological stratification: Change and continuity in the distribution of departmental prestige, 1965–2007. *The American Sociologist*, 18(42), 1-18.

Wiggins, A. (2007). *Exploring peer prestige in academic hiring networks* (unpublished master's thesis). University of Michigan, Ann Arbor, MI.

Winston, G. C. (1999). Subsidies, hierarchies and peers: The awkward economics of higher education. *Journal of Economic Perspectives*, 13(1), 13-36.

Wright, D. (2007). Progress in the development of higher education as a specialized field of study. In D. Wright & M. Miller (Eds.), *Training higher education policymakers and leaders: A graduate program perspective* (pp. 17-32). Charlotte, NC: Information Age Publishing.

Wright, D., & Miller, M. (Eds.). (2007). *Training higher education policymakers and leaders: A graduate perspective*. Charlotte, NC: Information Age Publishing.

Xuhong, S. (2011). Postdoctoral training, departmental prestige and scientists' research productivity. *The Journal of Technology Transfer*, 36(3), 275-291.