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The impact of a community of practice on the development of the three tiers of organizational intelligence in the institutional research professional

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THE IMPACT OF A COMMUNITY OF PRACTICE ON THE DEVELOPMENT OF THE THREE TIERS OF ORGANIZATIONAL INTELLIGENCE IN THE INSTITUTIONAL RESEARCH PROFESSIONAL

by

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Dedications

I dedicate this dissertation to my husband, Matthew. Your support, sacrifice, and love made it possible for me to take this journey. To my son, Ian, even though you were but a small seed in my womb, when this manuscript began to take shape, you were my motivation and inspiration to follow through. Never give up on your dreams. Stay the course and you will find joy in the journey.

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Abstract

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The demands and expectations on Institutional Research (IR) have continued to expand over the years, yet there have been no studies on cost effective ways to develop and maintain the knowledge and skills needed by professionals in the field. This quantitative study supplemented with limited qualitative data explored the impact of participating in an Institutional Research (IR) affinity group on the development of the three tiers of organizational intelligence and the strength and nature of the social network that exists among the participants. Surveys were collected from members of a community college IR affinity group in New Jersey along with minutes from the IR affinity group meetings and postings on the IR affinity group listserv. Data were analyzed using SPSS for the quantitative analysis and Node XL for the social network analysis. The findings suggest that communities of practice, such as the IR affinity group, can aid the development and maintenance of some of the skills and knowledge related to the three tiers of organizational intelligence in the field of IR. These results also support King and Bouchard's (2011) assertion that professional development efforts need to establish clear learning goals that are coordinated, directed, and supported by distributed leadership to build capacity.

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Chapter 1

Introduction

Collecting data is only the first step toward wisdom, but sharing data is the first step toward community. - Henry Louis Gates, Jr

Prior to the 1950's, Institutional Research (IR) was not viewed as a profession within higher education, but rather consisted of loosely organized attempts by specific institutions to gather relevant information to better understand the organization's needs (Reichard, 2012). These early IR studies often focused on the information needs of a single institution led by an administrator or faculty member charged with conducting a self-study. On occasion, a special ad hoc committee was formed to explore ongoing topics of interest to the institution but no formal Office of Institutional Research existed until the 1950's and then only sparsely. It is estimated that there were less than 10 universities/colleges with offices dedicated to institutional research prior to 1955 (Reichard, 2012). Over time the field has evolved. In the past fifty years, the practice of IR has advanced from mere ad hoc studies conducted on the whim of administrators or faculty into a recognized profession within higher education (Howard, McLaughlin, & Knight, 2012).

Institutional Research Defined

Numerous definitions of IR have been offered and opinions on the scope and role of IR have varied over the years. Saupe (1990) provided a widely accepted and concise description which defines institutional research as "research conducted within an institution of higher education to provide information which supports institutional planning, policy formation and decision making" (p.1). Volkwein (1999) expanded on

this description and defined the "four faces" or roles of the IR professional: (a). information authority; (b). policy analyst; (c). spin doctor; (d). scholar and researcher. As the information authority, the IR professional is responsible for reporting the official institutional data including enrollment numbers, faculty demographics, and degrees awarded. As the policy analyst, the IR professional acts as an analyst or consultant by providing the leadership with information to inform policy, planning, budget allocation, and by conducting more advanced studies to advise the top levels of management. In the role of spin doctor, the IR professional must act ethically and responsibly to use data to portray a positive image for the institution. Finally as a scholar and researcher, the IR professional conducts studies to analyze the institution's effectiveness and to provide impartial, unbiased evidence to external agencies. In 2002, Serban added a fifth role for the institutional researcher as that of a knowledge manager. In this capacity, the IR professional is responsible for gathering information and transforming it into organizational intelligence that can be used by the institution to gain a competitive edge and to increase its effectiveness.

In more recent years, others have added student learning outcomes assessment, program review, accountability, and accreditation to the growing list of responsibilities that fall within the realm of the skills and knowledge an IR professional should possess (Volkwein, Liu, & Woodell, 2012). These new analytic functions and areas of expertise expected of IR professionals have been described by Volkwein, Liu and Woodell (2012) as the "golden triangle of institutional research" (p.23). The three broad areas of expertise include: (a). institutional research and policy analysis; (b). planning, enrollment and

financial management; and (c). assessment, program review, institutional effectiveness, accountability, and accreditation.

The knowledge and skills needed to be an effective IR professional were described by Terenzini (1993, 2013) as the three tiers of organizational intelligence: Technical and Analytical, Issues, and Contextual intelligences. The first tier includes factual knowledge, expertise in research methodology, and an understanding of computing technology and software. The second tier consists of an understanding of issues facing higher education, an extensive knowledge of one's institution and campus politics, and a strong grasp on interpersonal relationships in order to accomplish goals. The third tier is an understanding of the culture of higher education and the institution, respect for all constituents, and knowing how business is done at one's institution. In summation, Knight (2010) described an effective IR professional as one that has a "tangible impact on decision making, planning, and policy formation" (p.3).

Changing Demands on Institutional Research

As the field has changed and expanded, so has the need to enhance the skills and knowledge of the IR professional. At the same time, the importance of the role of the IR professional in higher education has also increased (Calderon & Mathies, 2013). The stakes are high as institutions face growing pressure from consumers and lawmakers to be held accountable for soaring costs and lackluster outcomes (Morley, 2003; Selingo, 2013; Slaughter & Rhoades, 2005). These factors have resulted in an increase in regulations and a resurgence in performance funding (CCRC, 2015; Jenkins, 2011). In addition, there is growing competition for scarce resources promulgated by the forces of

privatization, marketization, and globalization of higher education (Kezar, 2004; Levin, 2001).

This increased scrutiny from consumers and lawmakers has forced institutions of higher education to be more strategic and conservative in the use of resources. In turn, this shift has resulted in the need for increasingly large amounts of data to be analyzed and synthesized to help inform the decision-making process of educational leaders in the use of resources, strategic planning, and institutional effectiveness (Chaplot, Johnstone, & Booth, 2012; Ewell, 2008; Head & Johnson, 2011; Morest, 2009; Morest & Jenkins, 2007; Volkwein, Liu, & Woodell, 2012). According to Musoba, Gross, and Hossler (2008), IR departments not only provide data to support existing policy but also play an active role in identifying new areas for policy improvement. As the push for more data informed decision-making has dominated the discussions in accreditation and accountability in higher education in recent years, so has the pressure increased on IR professionals to provide this information quickly and efficiently.

In addition, the Association for Institutional Research (AIR), recently released a report on a new aspirational vision for institutional research, which expanded the definition of "decision makers" to include, not only the top leadership, but also added students, faculty, and staff (Swing & Ross, 2016). This new shift increases both the demand and the scope of the work that the IR professional must now accomplish through more sophisticated data analytics, all of which need to be transparent, easily accessible, and student-focused.

These demands from internal and external constituents have placed a burden on IR offices, which are often understaffed and underprepared, to produce more and more

data in an effort to substantiate claims of efficiency and effectiveness at the institution (Morest & Jenkins, 2007; Glover 2009). According to a recent AIR survey, most IR offices have 3 full-time equivalent (FTE) staff members or less, which is small in comparison to other administrative offices within higher education (Swing, Jones, & Ross, 2016). With the growing push for accountability and the national pressure to increase college success, community colleges in particular are relying heavily upon the often small and understaffed IR office to provide the evidence that new initiatives are effective and worth the investment. (Morest & Jenkins, 2007).

According to Morest and Jenkins (2007), roughly "…one fifth of colleges have little or no IR capacity beyond very rudimentary reporting functions due to limited staff (often less than one full-time person) and, in some cases, a lack of training and experience on the part of IR staff" (p 12). This is particularly a challenge when the IR office is small (1 or less full-time IR member) and in some cases those in charge of the IR office have a master's degree or less (Glover, 2009; Morest & Jenkins, 2007; Volkwein, Liu, & Woodell, 2012). In a recent survey, Swing, Jones, and Ross (2016), noted that increased reporting demands in the face of stagnant growth in IR office size, will likely put even greater limitations on the IR staff's availability to do IR functions beyond just meeting the basic state and federal reporting requirements.

Preparation for a Career in Institutional Research

Although there are a few more degree and certificate programs today to specifically prepare an individual for a career in IR than there were ten years ago, professionals in the field still tend to have a wide variety of training from and experiences in various occupations before coming to work in an institutional research office. Over

60% of those who head the IR department received their training from the social sciences or education field. The remaining 40% come from the Science, Technology, Engineering, and Math (STEM), Business, Accounting, and Humanities arenas. In addition to the lack of specialized training in the field of Institutional Research, many IR professionals lack training in more advanced statistical analysis techniques. Morest and Jenkins (2007) found that over half of the IR professionals they surveyed had three or fewer quantitative methods courses as part of their formal degree program training. This could potentially have an impact on the IR professional's effectiveness because of the shift in the field of IR from the basic reporting of numbers and descriptive statistics to the need for the IR professional to be skilled in multivariate analysis and modeling (Volkwein, Liu, & Woodell, 2012).

Institutional Research Capacity

The demand on IR and the need for knowledge of more sophisticated research methodology have increased; however, institutions in higher education have struggled to build adequate capacity in the area of institutional research to meet this increase in data consumption and the need for more sophisticated research methodology. Several studies found that the IR offices in many institutions lacked capacity in the following: (a) the IR staff lacked credentials and training in the field of institutional research; (b) the IR staff were deficient in the knowledge needed for more advanced statistical analysis; and (c) the offices were understaffed (Morest & Jenkins, 2007; Glover, 2009; Knight 2010; Volkwein, Liu, & Woodell, 2012).

Institutional researchers' credentials and sources of influence. Without the proper credentials and training, the head of an IR department may lack the power needed

to be able to influence decision-making on his or her campus. Northouse (2012) defined power as the ability to influence or impact others. French and Raven (1959) identified five bases of social power: Legitimate power, Reward power, Coercive power, Referent power, and Expert power. In 1965, Raven added a sixth base of power: information. Legitimate power is granted based on a person's position and title, such as the power granted to a judge or the president of a college. Reward and Coercive powers are derived from the ability to benefit or punish others, such as being in a supervisory position where one can offer a bonus or withhold a wage increase. The next two bases of power are referent and expert power. Referent power is based on respect and admiration for an individual. According to French and Raven, it has the broadest range of impact. Expert power is based on the perception of the individual's competence and expertise in a specific domain. Referent and expert power can be combined to strengthen one's range of power, or work against each other, such as when an individual who is considered an expert in his area is also disliked widely by his colleagues. Finally, information power comes from having information that others want or need. It is the most fleeting type of power since its strength dissipates rapidly once the information is revealed.

Understanding the different bases of power is important to the IR professional who relies primarily on referent and expert power as the foundation for the ability to influence decision-making. According to Volkwein, Liu, and Woodell (2012), the degree attainment of IR professionals is modest and this lack of credentials does not give the IR office an air of legitimacy as experts in the field within the hierarchy of an academic organization (Volkwein, Liu, & Woodell, 2012). The perception of a lack of legitimacy as experts presents a real challenge for an IR professional. It is vital for the head of the IR

department to possess expert and referent power in order to influence decision-making since this position often does not afford access to the remaining three bases of power. Although Knight (2010) reported that it is not necessary for all IR staff members in a multi-person office to have a strong background in technical/analytical skills, he did indicate it was important for those skills to be present overall among the staff. In addition, the lack of expertise can affect the sophistication of the data analysis the IR department can produce, putting limits on the kind of information the IR staff can provide to leadership. Without the skills, knowledge, and disposition reflected in Terenzini's (1993, 2013) three tiers of organization intelligence, the IR professional will struggle to fulfill his or her primary job, which is to have a notable influence on the decision making, planning, and policy formation at the institution he or she serves (Knight, 2010).

Staffing and knowledge of advanced statistics. Many smaller institutions in particular have limited IR capacity in terms of staffing levels and knowledge of more advanced statistical analysis (Glover, 2009; Morest & Jenkins, 2007). These smaller IR offices spend a considerable amount of time completing state and federally mandated accountability reports, which leaves the staff with little time to focus on the kinds of studies that can impact student success outcomes, institutional effectiveness, or strategic enrollment management and planning (Glover, 2009; Morest & Reid, 2006; Morest & Jenkins, 2007; Volkwein, Liu, & Woodell, 2012). In addition, hiring new IR staff members with data analysis experience is challenging given the resource constraints and the difference in competitive wages between the private sector and the field of higher education (Zachry et al., 2010; Zachry et al., 2009). Finding adequate and skilled staff in the face of competition from the private sector is a challenge for all public institutions,

but it may put the smaller institution at an even greater disadvantage, if the IR office does not have the time and in some cases the knowledge of advanced statistical analysis to give the institution a competitive edge.

Learning on the Job

Despite the demands, many IR professionals still find time to learn the skills needed on the job through informal networks, the use of listservs or online blogs, and by participating in more formal state and national IR affinity groups (Eimers, Ko, & Gardner, 2014; Terenzini, 1993, 2013). In the New Jersey community college sector, these state-level affinity groups are formed around shared concerns, goals, and interests based on similar occupational functions or job titles. There are eight official affinity groups recognized by New Jersey's community college presidents. The affinity groups were created to assist the presidents in statewide initiatives and to address the sector-wide concerns of the 19 community colleges (New Jersey Council of County Colleges; 2015). Individuals are appointed to affinity groups by their respective presidents. Many community college presidents elect to have more than one member serve on some of the affinity groups.

The affinity groups are comprised of campus staff with similar job functions and authorized by the presidents to meet regularly to conduct statewide community college business. The eight affinity groups currently recognized by the presidents are: (a). Academic Affairs Affinity Group (members include the Vice President or Provost of Academic Affairs units from each community college); (b). Business Operations Affinity Group (members include the Vice Presidents or Executive Directors representing the Chief Financial Officers); (c). Institutional Research and Planning Affinity Group

(membership varies but represents concerns related to Institutional Research and Planning); (d). Information Technology Affinity Group (members representing the Chief Information Officers); (e). Labor Relations and Human Resources Affinity Group (members include Executive Directors or Deans related to Human Resource Issues); (f). Student Services Affinity Group (members include Executive Directors or Dean related to Student Affairs and Support Services); (g). Institutional Advancement Affinity Group (members include Chief Foundation or Fundraising Officers, Public Relations and Grants Officers); (h). Distance Education Affinity Group (formerly the New Jersey Virtual Community College Consortium; membership varies but represent concerns related to online or distance education learning).

Research Related to IR Professionals

The focus of this study was on the Institutional Research and Planning Affinity Group and its role in the development of the three tiers of organizational intelligences as defined by Terenzini (1993, 2013). Learning from others in the IR affinity group is potentially another venue of developing the needed skills and knowledge associated with the three tiers. Despite the challenge of being understaffed, and in some cases lacking formal training in advanced statistical methods, many IR offices in community colleges are required to produce more advanced statistical analyses such as enrollment projections, return on investment studies, and benchmarking studies. With decreased enrollments putting a strain on the budgets of the community colleges, the need to find a cost effective professional development tool to learn the skills needed is crucial. According to Eimers, Ko, and Gardner (2014), many IR professions develop their skills by participating in online workshops, special interest groups, or regional IR associations.

Leveraging social networks such as the local IR affinity group to strengthen capacity may create a cost effective, alternative method for ongoing professional development. Additionally, IR affinity groups can be utilized to develop training materials for new and returning IR professionals by providing a standardized foundation of terminology and methodology for the field. By rethinking our approach to capacity building for institutional research, we can strengthen our ability to meet the demand for good quality data and analysis that will inform our decision-making processes and ensure a greater level of accountability and effectiveness at our institutions.

IR Affinity Groups and Research Capacity Building

Therefore the purpose of this study was to examine the nature and the strength of the relationships among the IR professionals in the IR affinity group at community colleges in New Jersey and to describe how this network might contribute to building research capacity at the participating institutions. This approach was based on social/situational learning theory, which focuses on the concept that learning occurs by participation in a community of practice and is grounded in the work of Lave and Wenger (1991; 1998). The study employed the use of social network theory to analyze the strength and complexity of the relationships that exist among the IR offices at the 19 community colleges in New Jersey to better understand information sharing among IR professionals in the group. In light of the growing list of responsibilities, the increasing importance of the role of IR professional, and the lack of resources, it is essential, especially for community colleges, to invest in finding ways to increase IR capacity building in terms of adequately staffing the IR office with qualified professionals who possess competence with research methods, knowledge of pertinent issues, and an ability

to work within and across institutional boundaries to inform decision-making, policy formation and strategic planning.

This study proposed to answer the following questions:

1. How does an IR affinity group support the development of organizational intelligence in the IR professional?
2. To what extent is an IR affinity group a community of practice that supports the development of IR capacity?
3. To what extent does the level of experience of the IR professional in the field of IR, influence the IR professional's perception of the IR affinity group?

Definitions. The following definitions are provided to give the reader a clear understanding about the use of specific terms within the context of the proposed study:

Affinity group. Similar to a professional learning community (PLC) or community of practice (CoP). The primary characteristic of a PLC culture is one where members collaborate with peers to continuously learn and study their field of expertise (Putnam, Gunnings-Moton & Sharp, 2009). In the New Jersey community college sector, the state-level affinity groups are formed around shared concerns, goals, and interests based on similar occupational functions or job titles (NJCCC, 2015).

Community of Practice. A group whose members collaborate and share best practices to improve their field of study. The three defining characteristics of a community of practice are: (1). a shared competence in a common domain of interest; (2). engaged in joint activities and discussions that help improve the profession and share information; (3). active in their field with shared tools, resources and methodologies (Lave & Wenger, 1991)

Data informed decision-making. A "culture of inquiry" where the practitioner interprets data through the lens of his or her professional experience to create knowledge to enlighten and guide the decision making process (Dowd, 2005).

Institutional Research. Defined by Saupe (1990) as "research conducted within an institution of higher education to provide information which supports institutional planning, policy formation and decision making" (p.1).

Institutional Research capacity. the knowledge, skills, and dispositions the IR professional needs to be effective based on Terenzini's three tiers of organizational intelligence (Terenzini, 1993, 2013).

Social network analysis. a systematic approach using empirical data to analyze the nature and complexity of a social network based on ties connecting the members of the social group; uses graphical imagery to represent the connections among group members (Carolan, 2014).

Conclusion

Chapter 2 provides the background literature informing the practice of capacity building and examines the use of communities of practice as a vehicle to build research capacity in IR offices at community colleges in New Jersey. I will explore the five dimensions of capacity building as they relate to the development of the three tiers of organizational intelligence in the IR professional: technical and analytical, issues, and contextual intelligences (King & Bouchard, 2011; Terenzini, 1993, 2013). In Chapter 3, I describe the mixed methods design used to explore the nature and strength of the relationships among the participants in the IR affinity group and the use of social network

analysis as a tool to examine how this network might contribute to building research capacity at the participating institutions.

Chapter 2

Literature Review

Data informed decision-making has dominated discussions of accreditation and accountability in higher education in recent years (Chaplot, Johnstone, & Booth, 2012; Head & Johnson, 2011; Morest, 2009; Morest & Jenkins, 2007; Volkwein, Liu, & Woodell, 2012). An increased demand for accountability from state, federal, and national accreditation agencies has created a call for more data informed decision-making to control spiraling costs and unimpressive outcomes at the community college level (Chaplot, Johnstone, & Booth, 2012; Head & Johnson, 2011). This shift from intuition based to evidence-based planning has led to an expanded role for IR offices across the nation. It has raised the profile of the IR office and given IR a seat at the table where decisions are being made at institutions of higher learning (Parmley, 2009).

In the past, the role of IR was limited to providing data for state and federal reporting such as Integrated Post-Secondary Educational Data System (IPEDS) and Title IV Student Financial Aid funding. Now, however, members of IR offices often find themselves in high demand and need to adapt from being a relatively small, obscure office on campus to one that needs to work across departments, divisions and reporting lines. Developing the three tiers of organizational intelligence: technical and analytical, issues, and contextual intelligence, is crucial to ensure the effectiveness of the IR professional within the organization (Terenzini, 1993, 2013).

This study explored how participation in a community of practice helps support the IR professional in his or her ongoing development of skills, knowledge, and dispositions needed in the field of IR. In this study, I defined institutional research capacity as the knowledge, skills, and dispositions the IR professional needs to be

effective based on Terenzini's (1993, 2013) three tiers of organizational intelligence. The growing role of the IR professional is well-documented in the literature, which describes this role as ranging from one who analyzes data to inform policy and decision making to one who acts as an advocate for change to ensure the institution is achieving its mission and goals (Knight, 2014; Swing, 2009; Terenzini, 1993, 2013; Volkwein, 1999). To better understand how to develop capacity in the three tiers of organizational intelligence, I used a systems framework, which has its roots in the early work of social learning theory. Against the backdrop of a systems approach, I explored the impact of the social and human capital factors that contribute to the knowledge, skills, and dispositions that an IR professional needs to possess in order to have an impact on decision-making and policy formation at his or her institution. To better understand how a systems framework applies to the IR professional's learning requires a brief examination of social learning theory.

Social Learning Theory and the Learning Society

Social learning theory is based on the concept that people learn from watching others. In the late 1960 and early 1970's researchers expanded social learning theory beyond how individuals learned, to study how learning occurred within an organization (Easterby-Smith & Araujo, 1999). Some of the earliest work on organizational learning emerged from Schon's (1973) concept of the learning society. Schon believed that the modern way of life created an increasing need for members of society to be able to adapt quickly to change and required an open-mindedness to learn new skills.

In Schon's (1973) theoretical framework, there is a continuous process of transformation occurring in our society and society's social institutions, which include

but are not limited to: the family, health care, government, and institutions of higher education. This continuous change creates a loss of stable states which require our social institutions to learn how to adapt, guide, and manage these transformations. In order to survive in this new environment, social institutions need to develop a capacity to respond and adjust to the continuous change by becoming learning systems capable of initiating transformations proactively (Schon, 1973).

Changing Landscape in Higher Education

Colleges and universities are social institutions dealing with a loss of stable states as they are faced with unprecedented challenges to the traditional university model. Decreased funding from state and federal sources, threats from disruptive technologies, and increased public scrutiny have forced institutions to reexamine current practices and find ways to streamline academic programs and operate more efficiently with less resources. Prior to these challenges, the demands on IR have been focused on state and federally mandated reports related to accountability and accreditation (Calderon & Mathies, 2013). However, with increasing pressure from privatization and marketization, an additional strain is being placed on institutional researchers to provide timely and increasingly complex data analysis to help institutions of higher education to find ways to compete both locally and globally. According to Calderon and Mathies (2013), the highest level of professional excellence from institutional researchers will be needed to provide guidance to educational leaders as they respond over the next twenty years to the challenge of meeting societal needs but with less reliance on public funds and resources. Institutions of higher education face enormous challenges at the local, national and global level, which will necessitate a reliance on the ability of IR to quickly and accurately

analyze data in response to market trends in order to compete globally (Calderon & Mathies, 2013).

Systems Framework and Organizational Capacity

In today's environment with shrinking funding from public sources, decreasing enrollment, and growing challenges from disruptive technologies, having the ability to learn and adapt quickly is essential for an institution of higher education to survive. It is the job of the IR professional to help the institution use data to inform decision-making, policy implementation, and strategic planning so that the institution can learn and adapt to this changing landscape.

There are numerous frameworks describing an integrated systems approach to building the capacity of an organization to learn and adapt (Jurie, 2000; King & Bouchard, 2011; Newmann, King, & Youngs, 2000; Stoll, 2009). However to date, there has been no research published on applying an integrated systems framework to building research capacity in the field of IR. Since there were no studies examining how a system framework could be applied to IR, I modified King and Bouchard's framework to study research capacity in IR at a community college.

I selected King and Bouchard's (2011) model because they specifically identified the importance of professional communities as an essential component for developing the capacity to learn and grow within an organization. While the other frameworks address the importance of teamwork and shared vision, they did not specifically address the need for professional communities. The impact of these communities, which cross institutional lines and unite institutions within a common sector, could potentially play an important role in IR skill development at the community college due to the small size of many IR

offices and potential isolation from peers with similar job responsibilities (Morest & Jenkins, 2007; Volkwein, Liu, & Woodell, 2012).

King and Bouchard (2011) defined a school's organizational capacity as the "collective power of an entire faculty to strengthen student performance" (p.654). They report that their model is grounded in prior research which indicates that the quality of instruction has the most direct effect on student achievement (King, 2002; Newmann et al., 2000; Youngs & King, 2002). The authors maintain that the quality of instruction is influenced by five key dimensions of the school's capacity: (1). knowledge, skills, and dispositions; (2). technical resources; (3). leadership and distributed leadership; (4). program coherence; and (5). professional communities.

I adapted King and Bouchard's (2011) model and applied it to developing research capacity in IR at a community college. As with King and Bouchard's model, there are the same five interactive dimensions listed above. These five dimensions interact with each other and have an impact on the quality of the research produced, which ultimately affects the institution's effectiveness and student outcomes. Each dimension is detailed below along with the related theories that shed further light on the inner workings of each one.

Dimension 1: Knowledge, Skills and Dispositions

The first dimension is knowledge, skills, and dispositions, which encompass the professional competencies of one's field and one's expectations for the learners. According to King and Bouchard (2011) in the K-12 environment this includes expertise in curriculum, pedagogy, assessment, classroom management, and high expectations for students. However, for the IR professional in higher education, the knowledge and skill

sets differ. King and Bouchard's framework is missing the depth necessary to cover key areas of knowledge and skills needed by the IR professional. An effective IR professional needs to be competent in a variety of areas. To better understand this dimension as it relates to the IR professional, I draw upon Terenzini's three tiers of organizational intelligence: Technical and Analytical, Issues, and Contextual intelligences (Terenzini, 1993, 2013).

Technical and analytical intelligence. Terenzini's (1993, 2013) Technical and Analytical tier falls into two dimensions within King and Bouchard's (2011) model: knowledge, skills, and dispositions and technical. For example, sharing best practices, knowledge of definitions, and technical specifications of required State and Federal reports fit within the first dimension of knowledge, skills, and dispositions. The IR professional needs to possess factual knowledge about his or her sector of higher education. This is an important distinction for the IR professional, since one size does not fit all when it comes to measuring institutional effectiveness and student success across the wide variety of institutions of higher education, from two-year, public to four-year, private colleges and universities.

While some definitions are consistent across the field, many others vary based on the sector. For example, one variable or metric commonly used to measure student success in higher education is the graduation rate. However, although some of the components of this definition are standard, such as 150% of the normal time, the length of time between starting the degree and completing it varies based on the degree requirements. At a community college, the graduation rate is calculated based on a three

year period as opposed to a six year period for the traditional four year public university (Department of Education, 2015).

Even then some of the more enduring variables or metrics used to measure student success are being challenged and revised. For example, in the community college sector, some claim the Department of Education's graduation rate is a poor measure of student outcomes, arguing that this is not enough time for many community college students who need to complete a significant number of remedial and prerequisite courses before they are ready to enroll and be successful in college level coursework in their chosen degree path (Juszkiewicz, 2014). Given the challenges to definitions as a result of the push for accountability and the resurgence of performance funding, it is crucial that the IR professional stay informed of the "hot button" issues in higher education and their potential impact on the institution that he or she serves (CCRC, 2015; Jenkins, 2011).

While much of the technical and analytical knowledge and skills can be acquired through participation in the Association for Institutional Research (AIR) workshops and other professional conferences and webinars, there are finer nuances in definitions that are only learned through interactions with other IR professionals in the same sector within the same state that the institution operates. Not only are there variations in definitions among the different institution types, but there are also differences within each sector that can vary from state to state.

Importance of social resources. Social learning and organizational learning theories provide a basis for understanding how the additional knowledge and skills needed to be a successful and effective IR professional can be developed. These theories also provide a mechanism to understand how the IR professional can stay abreast of new

developments in the field and continue to provide relevant information on the challenges and opportunities that his or her institution faces. One of the key tenets of social learning theory is that "people learn from observing other people…" (Merriam & Cafferello, 1991, p.134). King and Bouchard (2011) also stress the importance of learning that occurs when teachers have the opportunity to collaborate and share best practices with one another. They argue that the "individual teacher competence must…be exercised in an organized, collective enterprise. This aspect of capacity emphasizes the educative importance of social resources in the school, which we refer to as school wide professional community" (p.655-656).

Having a venue for collaboration and information sharing is also important for the IR professional throughout the lifespan of his or her career. Kerrigan (2015) found a strong correlation between communication channels and the use of data to inform decision making. She suggested that this may be due to the way these lines of communication support the development of social capital "by providing avenues for sharing desirable behavior, by increasing opportunities for groups to develop and share existing knowledge, and by creating venues to share new knowledge" (p. 613). This social capital accumulates as a result of the relationships formed among the group members and can be used to influence decision-making and help obtain group cooperation to achieve challenging objectives (Coleman, 1998; Smylie & Evans, 2006).

While the resources exist within an elementary or secondary institution to form a school wide or grade-level-wide professional learning community to support ongoing professional development, the IR offices in the community colleges are often small. Since many of the IR offices consist of only one to three staff members with varying

levels of experience, training, and educational backgrounds, it is necessary to expand membership in the professional community beyond the boundaries of the specific institution to a larger group of IR professionals (Eimers, Ko, and Gardner, 2012; Morest & Jenkins, 2007). One mechanism to accomplish this is through regional, special interest groups, such as an affinity group or professional learning community.

Beyond technical and analytical intelligence. The knowledge and skills dimension of King and Bouchard's (2011) model does not address the other areas of expertise crucial for an effective and successful IR professional, so I draw upon two of Terenzini's (1993) tiers of organizational intelligences to gain a better understanding: Issues and Contextual intelligence. Several prominent members of the IR community have suggested that Issues and Contextual intelligence are just as important to the IR professional, in some cases, maybe even more so than Technical and Analytical intelligence (Eimer et al., 2012; Knight, 2014). According to Terenzini (1993), while Technical and Analytical intelligence is foundational to the IR professional, it has little value or usefulness without the remaining two levels of intelligence to give it meaning and purpose.

Issues intelligence includes the ability to understand key issues/topics in the field of higher education, such as enrollment management, cost containment, and the completion agenda. It also encompasses understanding how the institution functions, how decisions are made, and how to work with and through others to accomplish goals (Terenzini, 1993, 2013). According to Terenzini (1993), in order to be effective, the technically and analytically sound IR professional must also possess issues intelligence, which includes knowledge of the art of political persuasion, the ability to know when to

compromise, and the importance of consultation with the opinion makers on campus. He saw issues intelligence as the second tier that is incomplete without the third and final tier – Contextual intelligence.

Contextual Intelligence covers the ability to navigate and negotiate in the political arena, understanding how business is done (key player, opinion leaders) and having a respect for different perspectives. This tier involves knowing the informal and formal power structures at work, along with the unique history and mission of the institution. Contextual intelligence also includes having knowledge of the internal and external environments one works in and how to work within those systems to achieve one's goals (Terenzini, 1993, 2013). According to Terenzini (1993), this tier includes a high level of "organizational savvy and wisdom" (p.6). He saw this as the highest tier of organizational intelligence, one that enables the IR professional to develop the legitimacy, trust and respect needed to accomplish ones goals.

Components of Contextual and Issues intelligence are key elements of emotional intelligence (Eimers et al., 2012). According to Knight (2014), "…improving emotional intelligence among institutional researchers…is the most important issue facing institutions of higher education that will allow them to fully embrace a culture of evidence-based decision-making" (p.37). Both Knight (2014) and Eimers et al. (2012) contend that these skills are essential for the IR professional to advance to leadership positions and to have a meaningful and positive impact on one's institution. According to Knight (2010), the measure of effectiveness of an IR professional is related to his or her ability to influence his or her institution's decision-making and policy formation.

In order to achieve this level of effectiveness, an IR professional must possess both individual competence in the form of emotional intelligence and interpersonal competence, which has to do with the individual's ability to "get along" with others and function in a group where there are authentic relationships and meaningful interactions (Jurie, 2000). Both emotional intelligence and interpersonal competence are related to the IR professional's dispositions, the third and final component of King and Bouchard's first dimension. Being able to relate well with others and gain their trust and confidence, is essential in order for the IR professional to be able to convince educational leaders to make use of IR findings and to use the data provided by IR to inform the decision-making process. According to Kerrigan (2014), it is human and social capital rather than physical capital that influences an organization's capacity to make data informed decisions. Although there are aspects of physical capital that are important to the ability of the IR professional to perform the functions of the IR office, as Kerrigan (2014) demonstrated, it is the human and social capital that has a greater influence on data driven decision making. From this perspective, the actual tools are less important than how they are used by the IR professional in his or her role as an advisor to educational leaders. This reinforces the importance of developing the contextual and issues intelligence tiers in Terenzini's model.

Dimension 2: Technical Resources

The second dimension of King and Bouchard's capacity building model is technical resources. According to King and Bouchard (2011) this consists of the physical capital including curriculum in the form of books and other resources, computers and other technologies used in the classroom, and sufficient workspace. In my adaptation of

King and Bouchard's model, I see technical resources as it relates to the IR professional in terms of another component of Terenzini's three tiers of organizational intelligence: Technical and Analytical intelligence. In addition to knowledge about key terms and concepts in the field as mentioned in the previous section, this tier includes expertise in working with databases or enterprise resource planning (ERP) systems such as Ellucian, Jenzabar, or Three Rivers. In a 2012 survey on analytics, researchers at EDUCAUSE found that while the use of data to answer strategic questions, to make predictions, and to inform decision making was viewed by over 80% of respondents as a highly important topic for higher education, nearly half of the respondents believed that analytics were cost prohibitive and that their institutions lacked the resources and expertise to meet the challenge of implementation (Bichsel, 2012).

Technical and Analytical intelligence also includes expertise with specialized software, research methodology and analytical skills, and the ability to understand ERP and related Business Intelligence (BI) software for analysis (Terenzini, 1993, 2013). Along with knowledge of the database structure, including knowing what tables and fields to extract the data from and sources of information, the IR professional also needs to have strong methodological skills in both quantitative and qualitative research design, and knowledge of computing software to extract and analyze data (Eimers, Ko, and Gardner, 2012; Morest & Jenkins, 2007, Terenzini, 1993, 2013). The IR professional is faced with knowing a wide variety of statistical methodologies and an even greater variety of software applications and systems. This includes statistical software packages such as SAS, Stata or SPSS.

It is interesting to note that according to Eimers, Ko, and Gardner (2012), the technical/analytical skills and mind-set that make IR professionals so good at what they do, may also inhibit the IR professional's ability to reach their full potential in the areas of contextual and issue intelligence. One of the aims of this study will be to further explore how all three tiers of organizational intelligence in IR professionals can be developed through the social network that exists among the members of an IR affinity group.

Dimension 3: Program Coherence

The next dimension needed to build capacity in King and Bouchard's model is program coherence. Program coherence relates to the sustained efforts to build capacity that have clear learning goals, and are coordinated and directed (King & Bouchard, 2011). Newmann et al. (2000) argue that sustained program coherence is essential to lasting and effective school reform. King and Bouchard (2011) view program coherence as an indicator of the strength of the organization's integration. Without this integration, the organization is fragmented and this contributes to weakened student and staff learning.

Modifying this dimension of the model to fit the loosely connected IR offices in the 19 New Jersey community colleges participating in the IR affinity group, could potentially have a great impact on the success of the proposed study. Although the members are appointed by the college president, the attendance at IR affinity group meetings and level of participation in the IR affinity group is not monitored per se and there are no consequences for non-participation. Given that participation in the affinity group is basically voluntary and that there is no one institution or collection of

individuals responsible for setting annual goals, a lack of program coherence in the IR affinity group could pose the greatest threat to its effectiveness as a possible mechanism for ongoing professional development. As it relates to building IR capacity, it is important that the group have clear and coordinated goals. While there has been limited research on the effectiveness of collaboration across IR offices from different institutions, there have been several studies in the K-12 systems that have reported that interactions among professionals across schools have led to deeper, more meaningful exchanges (Honig et al., 2010; Park & Datnow, 2009; Rusch, 2005).

In addition, other studies on professional development recommend a model that is ongoing and embedded with links to other reform initiatives (Haviland & Rodriguez-Kiino, 2009; Garet et al., 2001; Penuel et al., 2007). These studies found that common themes need to be reinforced over time and must include critical reflection and dialogue among the participants in a safe environment where trust has been established to effect lasting change in practice. Even though the IR affinity group can continue to operate without a formal plan of program coherence, the proposed research study will examine what if any type of program coherence exists and how it could be strengthened or developed.

Dimension 4: Leadership and Distributed Leadership

The fourth interactive dimension in King and Bouchard's (2011) model is that of the school's leadership and the use of distributed leadership within the organization. Distributed leadership stresses the importance of trust and respect between leaders and those they empower to lead. It encourages autonomy and critical thinking and does not emphasize control or manipulation by the leadership. It is collaborative in nature and

works on a cycle of continuous improvement from planning, acting, observing, and reflecting. These concepts are similar to the Jurie's (2000) interpersonal competence, which has to do with the individual's ability to "get along" with others and function in a group where there are authentic relationships and meaningful interactions (p.267). At the core of distributed leadership is the interaction among and between leaders, followers, and their shared situations (Spillane, 2005). According to King and Bouchard (2011) the same is true in school systems, where the success or failure of capacity building lies with school leadership as a collaborative effort among the principals, teachers, and other school leaders.

King and Bouchard (2011) maintain that it is not enough to get staff to work harder to make the organization work within the existing structure; instead success will often require organizational change; the ability within the organization to adapt and manage transformations. According to Heifetz and Linsky (2002), people do not resist change in as much as they resist facing the losses associated with change. In the case of adaptive change, members of an organization are faced with a loss of the familiar as they are forced to evaluate what they truly value and believe to determine what is expendable in order to adapt to improve their current environment or make adjustments to thrive in the face of a new challenge or threat (Heifetz & Linsky, 2002).

A similar shift in mind set needs to occur in higher education leadership and especially in the IR profession. Swing (2009) issued a challenge to IR professionals to respond to the call to act as change agents, ones who are actively involved in helping the organization learn and adapt to new and existing challenges. He admonished IR leaders to lose the mentality that they should just report the facts. Instead he suggested that IR

professionals collaborate with the institution's decision makers by acting in the role of advisor to make sense of the data used to inform policy and guide the institution's goals and mission. In addition, he recommended that institutional researchers interact with the leadership to provide meaning as they analyze and interpret the data on the institution's effectiveness to inform and guide the decision-making process.

Dimension 5: Professional Community

The final dimension of King and Bouchard's (2011) model is professional community, where skills, knowledge, and resources can be shared among the members who actively collaborate. These professional communities are similar to a Professional Learning Community (PLC) or Community of Practice (CoP). Just like the professional communities in King and Bouchard's model, the primary characteristic of a PLC culture is one where members collaborate with peers to continuously learn and study their field of expertise (Putnam, Gunnings-Moton & Sharp, 2009). The same characteristics are present in a CoP, where members collaborate and share best practices to improve their field of study. Lave and Wenger (1991) listed three defining characteristics of a community of practice. First, its members have a shared competence in a common domain of interest. Second, the community is engaged in joint activities and discussions that help each improve the profession and share information. Finally, the members are active practitioners in their field with shared tools, resources and methodologies to address the issues in their domain.

Lave and Wenger (1991) describe these communities of practice as vehicles where the skills, knowledge, and resources can be shared among its members who actively collaborate. According to Wenger (1998), learning occurs through an interaction

of community, practice, identity and meaning. The CoP framework is based on the premise that learning occurs through engagement in what Wenger terms as "social practice" (p.47). This "social practice" is not just practice as repetitive motions, but doing the task in the context of social interactions recognizing the shared, collective experiences that give meaning and structure. Wenger (1998) describes social practice as both explicit and tacit. It includes the written or expressed rules and regulations and the unspoken, underlying assumptions of the group's shared world view or beliefs.

According to Wenger (1998), CoPs are ubiquitous. In the case of IR, these communities of practice are the formal and informal social networks that provide a venue for learning to occur both within and across the IR departments at each organization. Many IR offices are producing more advanced statistical analyses such as enrollment projections, return on investment studies, and benchmarking. IR professionals often learn the skills needed for these more advanced projects on the job through informal networks and the use of listservs, through more formal state and national IR affinity groups, which are groups formed around shared concerns, goals, and interests. Since many IR offices are small, it is beneficial to have a larger community of IR professionals from which to learn and share best practices.

Leveraging the social networks that exists in professional communities, such as in the IR affinity group, to strengthen capacity can create an alternative method for ongoing professional development. Additionally, these affinity groups can be utilized to develop training materials for new and returning IR professionals providing a standardized foundation of terminology and methods for the field. By rethinking our approach to capacity building, we can strengthen our ability to meet the demand for good quality data

and analysis that will inform our decision-making processes and ensure a greater level of accountability and effectiveness at our institutions.

CoPs and social network analysis. These professional communities can be explored through the lens of social network analysis (SNA). SNA allows the researcher to get a visual representation of the IR CoP and to quantify the number and strengths of connections among the members of the IR affinity group. The analysis at this level will help illuminate the channels of communication that exist within the IR affinity group and understand how to best use those channels to maximize the group's effectiveness. In addition, SNA can be used to identify basic assumptions among the IR professionals that drive the culture and group behavior of the IR affinity group members. The analysis will be used to examine how the IR affinity group supports the IR professional development on the three tiers of organizational intelligence (Issues, Contextual, and Technical/Analytical Intelligence) as they apply to IR (Terenzini, 1993, 2013; Eimers et al., 2012).

One of the key areas of focus in my study was on the professional community dimension of the model using the statewide affinity group for institutional research and planning. Affinity groups exist at the national and local level. At the national level are organizations such as the Association of Institutional Research (AIR) and national listserv's such as the one maintained by the National Community College Council for Research and Planning. At the local level there are the regional chapters of AIR, organizations such as the New Jersey Council of County Colleges (NJCCC), and the Institutional Research and Planning Affinity Group (IRPAG), which includes membership from all 19 community colleges in NJ, as well as representation from the

NJCCC and community college presidents. The local NJ affinity groups are formed around shared concerns, goals, and interests based on similar occupational functions or job titles. For example, there are currently eight active community college affinity groups sanctioned by the NJ community college presidents, such as the Academic Affairs Affinity Group and the Institutional Research and Planning Affinity Group (NJCCC, 2015).

I choose to focus on the local affinity group for several reasons. First, the national groups often lack a local flavor because they try to serve a wide variety of colleges with a great disparity of missions. Second, with the wide variety of tools being used nationally, including the different student data systems and statistical packages, it is often hard to develop a professional training that can meet the needs of each college or university. Third, the national listservs can provide a great deal of useful information but they can also be impersonal and there is no way to evaluate the credibility and validity of the responses.

For the purpose of this research study, I analyzed the existing network among the IRPAG using social network theory to better understand the channels of communication among IR professionals in NJ community colleges and explored the basic assumptions that drive the culture and group behavior as they relate to the development and maintenance of the three tiers of organizational intelligence.

Trying to understand such a large and complex system of interactions is extremely difficult. To get a better understanding of this complex phenomenon, this study utilized social network theory to help analyze and simplify the patterns and anomalies in the vast web of relationships at play both within and across organization (Carolan, 2014; Daly,

2010; Deal, Purinton, & Waetjen, 2009). Through the use of social network analysis, relationships within the IR community of practice were mapped out to identify the patterns and the strength of the links between its members.

Social network analysis provides several distinct advantages. First, better understanding the IR social network will enable future researchers to be able to better match up and connect individuals within the CoP to maximize the dissemination and impact shared of information (Deal, Purinton, & Waetjen, 2009). Second, the use of social network analysis will help one understand the channels of communication. Creating a social network map allows one to identify the nodes or players within the network and the strength (links) or number of connections each has to one another (Daly, 2010; Deal, Purinton, & Waetjen, 2009). Identifying the role each member has within the network will allow one to maximize the network as a venue for learning.

Deal, Purinton, and Waetjen (2009) identified four types of network players: stars, bridges, bottlenecks, and isolates. Stars are defined as individuals with numerous connections. Deal et al. (2009) claim that for innovation to succeed within an organization, gaining the support and buy-in from the hub or star is essential. These individuals are sometimes referred to as "opinion leaders", "power users", or "influencers". The second type of network player is the bridge. These individuals are boundary spanners or nodes within a sub-group who connect one group to another either within or across organizations. They are also known as the gatekeepers of information. These individuals can also play an important role in the adoption of change initiatives. The final two types are identified as the bottlenecks and the isolates. Both types can frustrate or stall an initiative by blocking the flow of information among members of a

network. The first because they tend to be very selective with information and usually only share the information when they see it as something they will benefit or profit from personally. This type of self-serving behavior is seldom good for the entire organization and is more about personal accumulation of power. The final network player is the isolate. These individuals are not connected or only peripherally linked to other members of the network. They tend to keep to themselves and usually have little influence with other members within the network.

Finally, using social network analysis allowed me to gain insight into the basic underlying assumptions that motivate and sometimes drive a group's behavior or response. Gaining a better understanding of the IR affinity group will allow future researchers to determine if such a group can be used as a viable mechanism to develop the research capacity of IR professionals who participant in CoPs. Social network theory allows one to get a glimpse of the invisible layer of culture. Schein (2004) described this phenomenon as a culture continuum ranging from the visible or espoused values to the invisible but powerful theories in use. Knowledge of that invisible layer allows one to better understand how and why some changes are embraced or rejected. This is an important key to understanding an organization's ability to learn and adapt to change (Deal, Purinton, & Waetjen, 2009).

Chapter 3

Methods

This chapter explains the design of the study including the research methodology, the participant sample and setting, and the data collection and analysis. It notes the limitations of the study as well as the steps taken to control for potential bias, as I am conducting insider-research, as an active member of the IR affinity group used in the study.

The proposed research study utilized a parallel mixed methods (mm) QUAN + qual design (Teddlie & Tashakkori, 2009). The study emphasized the quantitative data and supplemented with limited qualitative data to answer the following research questions:

1. How does an IR affinity group support the development of organizational intelligence in the IR professional?
2. To what extent is an IR affinity group a community of practice that supports the development of IR capacity?
3. To what extent does the level of experience in the field of IR influence the IR professional's perception of the IR affinity group?

The quantitative data collection included a combination of Likert scales items designed to measure the attitude of the IR professionals regarding participation in the IR affinity groups (Dillman, 2007; Fink, 2013). A modified version of the School Staff Social Network Questionnaire (SSSNQ) instrument was used to measure the nature and the strength of the relationships within the social network (Pitts & Spillane, 2009).

The qualitative data consisted of a document review of the IR affinity group agenda and minutes which was conducted along with an analysis of the email listserv

postings. The two data sources were used as additional evidence to validate the quantitative survey findings. The information gleaned from the qualitative data collection was used together with the quantitative data to determine how the IR affinity group supported the development of organizational intelligence in the IR professional (Teddlie & Tashakkori, 2009).

Participants

The IR professionals from all 19 community colleges in the New Jersey who are members of the statewide IR affinity group were invited to participate in both the IR affinity group survey (IRAG) and the modified SSSNQ survey. There were a total of 32 official members in the IR affinity group. This invitation included the heads of the IR departments and the remaining members of each IR departments' staff who were members of the IR affinity group during the study timeframe.

It was important to include other members of the IR staff in the evaluation of the IR affinity group as it relates to the development of the three tiers of organizational intelligence for several reasons. First, the community college sector needs to ensure there will be a sufficient supply of well-trained and qualified individuals to meet the demand for future IR directors, as the current IR leadership retires or leaves the sector to pursue opportunities for career advancement.

Second, in the past three years, there have been a number of IR directors who have left or retired from the community college sector in New Jersey. These departures have left a hole in the IR community since some of the history and knowledge of historical antecedents have been lost. Expanding the professional development

opportunities through the IR affinity group ensures that more of that collective history will be passed on to future IR directors.

Finally, including IR professionals at various stages in their careers from the entry level research assistant to the head of the IR department allowed me to compare the perceptions of how much participating in the IR affinity group helps develop or maintain the three tiers of organizational intelligence and to determine the differences based on the various levels of experience and job responsibilities.

Data Collection

Quantitative data was collected to measure the attitudes of the IR professional regarding the effectiveness of using the affinity group as a vehicle to build research capacity and included an analysis of the nature and the strength of the relationships that existed in the social network of IR affinity group professionals. The IRAG survey and the modified SSSNQ were administered via Qualtrics.

The IRAG questionnaire is a Likert-scale survey developed to measure the attitudes of the IR professional regarding the effectiveness of using the affinity group as a vehicle to build research as it relates to Terenzini's (1993, 2013) three tiers of organizational intelligence. A few open ended questions were included to collect suggestions for ways to enhance or change the IR affinity group. In addition, close ended questions were collected, such as number of years in IR, the position/job title, and the individual's highest degree obtained in order to look for differences in perspectives between novice and experienced IR participants (Dillman, 2007; Fink, 2013).

The School Staff Social Network Questionnaire (SSSNQ), is an instrument designed to study school leadership practice (Pitts & Spillane, 2009). The SSSNQ was

developed to study policy implementation, school leadership, and advice networks within the K12 setting. It has been published in several articles on school leadership as a means to gain a better understanding of the formal and informal interactions that contribute to leadership, change, and knowledge development in K12 (Daly, Liou, Tran, Cornelissen, & Park, 2014; Moolenaar, 2012; Pitts & Spillane, 2009). The SSSNQ has not been previously used in higher education. In the current study, the SSSNQ survey was modified, with permission from the authors, to measure the nature and the strength of the relationships in the IR affinity group network and was adapted to examine the level of development related to the three tiers of organizational intelligence.

Instrumentation

The Institutional Research Affinity Group (IRAG) survey consisted of 25 questions, including demographic variables, 5-point Likert scale items, and several open ended questions (Fowler, 1995; Salant & Dillman, 1994). Three sets of nine questions were used to calculate the subscale scores for the three tiers. The items in the subscales were grouped together based on the skills and knowledge aligned with Terenzini's three tiers of organizational intelligence.

The modified SSSNQ consisted of five questions designed to determine the nature and the strength of the relationships that exist among the IR affinity group members. The questions identified which individuals interacted with each other, the frequency of the interactions, and the importance of the interactions in developing the three tiers of organization intelligence. The validity of the original SSSNQ was established through extensive testing at 22 schools, with additional follow-up studies employing interviews in which the individuals were asked to think out loud as they completed the instrument (Pitts

& Spillane, 2009). The analysis confirmed that the instrument captured both the formal and informal social influence interactions of the participants in the study.

Data Analysis

IRAG survey. The analysis of the IRAG survey was conducted using SPSS. This 25 item survey was developed to measure the IR members' perceptions on how much participation in the IR affinity group helps them to develop or maintain the skills and knowledge associated with Terenzini's (1993, 2013) three tiers of organizational intelligence.

Cronbach's alpha was used to determine the internal consistency and reliability of the Likert-scale survey and the sub-scale scores on the technical/analytical, issues and contextual intelligence tiers (Cortina, 1993). Descriptive statistics on the three subscales were calculated and the mean scores were compared for the entire group to see if the perception is that participating in the IR affinity group might help develop or maintain skills in one, two or all three tiers (Cohen & Lea, 2004; Elliott & Woodward, 2007; Fink, 1995).

Review of the content of the listserv postings for the past year along with the minutes from the IR affinity group meetings were collected to determine the number of times a topic was related to one or more of the three tiers of organizational intelligence. Quantitizing the frequency of those items related to the three tiers provided additional data sources to confirm the findings of the IRAG survey. Quantitizing is the process of converting qualitative data such as the information retrieved from document review, and assigning a nominal or ordinal value to the data for the purpose of showing the regularity or occurrence of a specific phenomenon (Sandelowski, Volis, & Knafl, 2009).

A Kruskal-Wallis was used to compare the sub-scale scores and the overall score on the IRAG survey among the three groups based on the length of time the participant was a member of the IR affinity group (Cohen & Lea, 2004; Elliott & Woodward, 2007; Fink, 1995). Finally, a Spearman's rho was used to determine if there was a correlation between the scores on the IRAG survey and the number of years of experience in the field of IR (Cohen & Lea, 2004; Elliott & Woodward, 2007; Fink, 1995).

Modified SSSNQ. The final analysis involved analyzing the modified SSSNQ to determine the nature and strength of the relationships among the participants in the IR affinity group. The social network analysis was performed using Node XL. The application was used to create visual representations of the number and strength of the ties among the participants of the IR affinity group network. This additional piece of information helped determine to what degree the group acts as an active and mature community of practice. This data could provide valuable information for future research to be able to better match-up and connect individuals within the CoP to maximize the dissemination and impact of shared information through the optimum channels of communication identified (Deal, Purinton, & Waetjen, 2009). The responses to the modified SSSNQ were examined using quantitative social network analysis (SNA) techniques.

Social Network Analysis (SNA) Design

The study utilized a whole network design using the well-defined boundaries of the IR affinity group's official membership list. This approach allowed me to examine the network connectivity and draw conclusions about the entire network because every

member of the IR affinity group was invited to participate and identified by name and organization on the modified SSSNQ (Robins, 2015).

Defining the network. The network boundaries were set using nominalist strategies (Heath, Fuller, and Johnston, 2009). Boundaries set using this method are imposed and defined by the researcher. In this case, I selected to limit the participants to those individuals who are approved by their college president to be a member of the IR affinity group and who participate in the IR affinity group activities. The official IR affinity group's membership list was used to create the name interpreters on the modified SSSNQ to determine the nature and strength of the ties among the various members of the network (Heath, Fuller, and Johnston, 2009).

Basic demographic and social constructs such as job classification and length of time spent in IR was collected on each participant (Robins, 2015). IR affinity group members from all 19 community colleges in NJ were invited to complete modified SSSNQ survey. The network consisted of a total of 32 IR professionals who were officially appointed by their college president to be members of the IR affinity group. Questions on the modified SSSNQ were collected allowing the respondent to indicate the frequency and importance of the interaction with each member of the IR affinity group both on the receiving and giving end of the information exchange.

Quantitative SNA. The quantitative SNA included descriptive statistics on the actors or IR affinity group members. In addition, descriptive statistics on the network, including the density and average degrees were reported. The network density is a measure of the proportion of number of ties in relation to the total possible number of ties that are present between the actors or nodes in the network. It gives an indication of the

amount of activity occurring with the group (Robins, 2015). The degrees gives an indication of the amount of activity going to and from a node or actor. The more the connections emanating to and from a node the more "popular" or active the actor is within the network (Robins, 2015).

Using this method of analysis allowed me to examine the strength of the IR affinity group network. The network density allowed me to quantify the frequency of interaction and its importance to the IR affinity group members as a mechanism for the development of the three tiers of organizational intelligence. Determining the degrees helped identify those members of the group who are key players or star nodes within the network. The strength of the ties among the participants is measured by the frequency of interaction. The greater the frequency, the more connected and therefore the greater potential for the exchange of information. Having a better understanding of the network density and degrees of connectedness may enable future researchers to connect individuals within the CoP to maximize efficiency of the group in regards to dissemination and impact shared of information (Deal, Purinton, & Waetjen; 2009).

Data from the modified SSSNQ was also analyzed by cohesion to give a measure of the density of the relations or ties between actors (Herz, Peters, & Truschkat, 2015). This technique allowed me to identify the presences of clusters within the network. Using this information it is possible to determine if one or more actors had equivalent positions of influence within the network (Herz, Peters, and Truschkat, 2015). The combination of both the positional and relational analysis techniques gave a more enriched picture of the social network, revealing the areas of strong and weak ties within the network (Herz, Peters, & Truschkat, 2015; Jack, 2005). Having knowledge of the strong and weak ties

within the IR affinity group network will enable future researchers to understand the group dynamics and whether or not some members are more influential than others. The knowledge of strong and weak ties can be utilized to increase the efficiency of disseminating knowledge linked to the three tiers of organizational intelligence.

Reliability

The IRAG Likert-scale survey was reviewed by two researchers with experience in survey construction and pilot tested with former IR affinity group members from 2-year institutions. In addition, information obtained from the document review, including the listserv posts and minutes from the IR affinity group meetings was used to triangulate the data obtained from the IRAG survey (Craig, 2009; Teddlie & Tashakkori, 2009). A data code book with keywords based on the skills and knowledge identified in Terenzini's (1993, 2013) three tiers of organizational intelligence was developed as a guide. Using this guide, I reviewed the content of the listserv postings for the past year along with the minutes from the IR affinity group meetings to determine the number of times a topic was related to one or more of the three tiers of organizational intelligence.

Role of Researcher

As an active member of the IRPAG with over ten years of experience in institutional research, I recognized my role as an insider-researcher and my vested interest in the research outcomes (Costley, Elliott, & Gibbs, 2010). I acknowledged my role as an IR professional and researcher as part of the informed consent process. I made every attempt to remove any insider bias by utilizing statistical tests to evaluate the reliability of the instruments used in the study and through the use of external readers. The development of the IRAG survey items were guided by Terenzini's framework on

organizational intelligence to control for my own potential bias as a member of the IR affinity group. In addition, open ended questions were used to provide participants with an opportunity to share their own perceptions of the impact the IR affinity group may or may not have had on their own professional development.

Limitations

This study was limited to one affinity group within a specific geographic region and a single institution type, which may impact its generalizability. The context in which this study took place may prevent generalizing to other affinity groups outside of the IR profession and community college sector. Despite these limitations, the results of this study shed light on the utility of a community of practice in the development of the three tiers of organizational intelligence in the IR professional.

Ethical Consideration

Particular care was given to maintain the confidentiality of participants' identities throughout the data collection and final writing of the report. Data were collected anonymously and protected in a secure, digital environment. The study followed the regulations outlined by Rowan University. I received full IRB approval from the University and I completed the necessary IRB training. The study was fully explained to the participants, informed consent was obtained, and the participants were informed that their participation was completely voluntary and that they could withdraw from the study at any time. Because I am a member of the IR affinity group, I recognized the potential for bias and attempted to control for it by assuring the participants of their anonymity and using external readers.

Conclusion

This chapter provided the methods and techniques that were used to analyze the data collected related to the IR affinity group members' acquisition and maintenance of the three tiers of organizational intelligence and the nature and strength of the social network that exists among the IR affinity group members. Having established the need to better understand the development of the three tiers of organizational intelligence via participation in the IR affinity group in the previous chapters, the systematic methodology defined allowed me to answer the proposed research questions.

Chapter 4

Findings

This chapter presents the findings of a study on the impact of participating in an Institutional Research (IR) affinity group on the development of the three tiers of organizational intelligence and the strength and nature of the social network that exists among the participants. Since many IR offices are small, it is beneficial to have a larger community of IR professionals from which to learn and share best practices (Swing, Jones, & Ross, 2016). Leveraging the social networks that exist in professional communities, such as in the IR affinity group, to strengthen capacity can create an alternative method for ongoing professional development. Additionally, these affinity groups can be utilized to develop training materials for new and returning IR professionals providing a standardized foundation of terminology and methods for the field.

Therefore the results provided in this chapter will describe the nature and the strength of the relationships among the IR professionals in the IR affinity group at community colleges in New Jersey and how this network contributes to building research capacity at the participating institutions. The study results are focused on the quantitative data and are supplemented with limited qualitative data to answer the following research questions:

1. How does an IR affinity group support the development of organizational intelligence in the IR professional?
2. To what extent is an IR affinity group a community of practice that supports the development of IR capacity?

3. To what extent does the level of experience in the field of IR influence the IR professional's perception of the IR affinity group?

The analysis of the Institutional Research Affinity Group (IRAG) survey and the quantitizing of the IR listserv posts and IR meeting agendas are presented together in the first section of this chapter and were done to answer the first and third research questions. The social network analysis based on the data collected using the modified School Staff Social Network Questionnaire (SSSNQ) is presented last and was used to answer the second research question.

The chapter includes: 1) the response rate for the study, 2) the reliability of the instruments, 3) background characteristics of the IR affinity group members, and 4) the results for each of the research questions that guided the study.

Response Rate

Thirty-two members on the official IR affinity group membership roster were invited to participate in the study, which included two survey instruments. The first was the IRAG survey which was designed to measure the IR members' perceptions on how much participation in the IR affinity group helps them to develop or maintain the skills and knowledge associated with Terenzini's (1993, 2013) three tiers of organizational intelligence. The second was the modified SSSNQ, which allowed the respondent to indicate the frequency and importance of the interaction with each member of the IR affinity group both on the receiving and giving end of the information exchange.

One member declined to participate in the study and two members did not complete the surveys within the timeframe, despite multiple requests and extra time allotted to complete the surveys. A total of 29 surveys were collected from participants.

One additional member was excluded due to failure to complete the survey items for the sub-scales and total score. Of the total eligible to participate, 28 respondents filled out useable surveys, yielding an 88% response rate.

IRAG Survey Reliability

Cronbach's alpha was used to determine the internal consistency and reliability of the Likert-scale survey and the sub-scale scores on the technical/analytical, issues and contextual intelligence tiers. The internal consistency and reliability of the IRAG survey and sub-scales was pilot tested on a group of former IR affinity group members (n=11) and with the current group of IR affinity group members (n=28).

The three subscales of the IRAG appeared to have good internal consistency, with Cronbach's alpha greater than 0.8 in both the pilot sample of former IR affinity group members and in the sample of current IR affinity group members. All items appeared to be worthy of retention. The greatest increase in alpha would come from deleting item 1 from the technical/analytical subscale, but removal of this item would increase alpha only by .02. Table 1 shows the Cronbach's alpha for each sub-scale for both the pilot study and the current study group.

Table 1

Reliability Statistics for Subscales of IRAG Survey

Subscale	Number of Items	Pilot Study	Current Study
Technical/Analytical Tier	9	.952	.869
Issues Tier	9	.936	.838

Table 1 (continued)

Subscale	Number of Items	Pilot Study	Current Study
Contextual Tier	9	.933	.911

Limitations of IRAG Instrument

Although the IRAG has good internal reliability, the instrument was designed for use with a specific population in mind to measure the impact of participation on skill sets specific to the IR professionals participating in the affinity group at community colleges in New Jersey so the results cannot be generalized to other affinity groups.

One difference between the initial pilot group and the current group is the level of experience and length of time participating in the IR affinity group. The pilot group consisted of former IR professionals who were actively involved in the IR affinity group for a longer length of time (M=11.64 years, range 4 – 28 years). The current study group included a wider range of participants (M=8.95 years, range <1 - 25 years), some who had a year or less of involvement with the IR affinity group. This difference in the length of time that the respondents were members of the IR affinity group may explain why the Cronbach values were higher for the pilot study group compared to the current study group. However, since the value for both groups is above 0.8 on all the subscales, I am confident that the current members' survey results show good internal reliability.

Analysis of IRAG Survey

Descriptive statistics on study participants. Descriptive statistics on the participants showed varying levels of education obtainment and a fairly even distribution for length of time participating in the IR affinity group. Less than one fourth of the

sample had only obtained a bachelor's degree. Over half of the participants reported having a Master's degree, and the remaining members had a doctoral degree. Table 2 shows the distribution of the educational levels obtained by members of the IR affinity group.

Table 2

Highest Level of Education Completed

	n	Percent
4-year College Degree	6	21.4%
Master's Degree	15	53.6%
Doctoral Degree	7	25.0%

The mean amount of experience in the field of IR was 8.95 years. Table 3 shows the breakdown of the group by amount of time they have been a member of the IR affinity group.

Table 3

Length of Time as a Member of the IR Affinity Group

	n	Percent
One Year or less	7	25.0%
Two to Five Years	10	35.7%
More than Five Years	11	39.3%

The IR offices participating in the study ranged in size between 1 and 5 employees. The average size of the IR offices was 2.81 members. However, due to limitations in the wording of the question, it is not possible to tell how many may have included non-IR personnel, such as support staff in the total reported.

Score on IRAG organizational intelligence tier subscales. The items that make up the three subscales of the IRAG survey correspond to the three tiers of organizational intelligence developed by Terenzini (1993). Questions were developed to relate specifically to the skills and knowledge as described by Terenzini (1993) for the Technical and Analytical intelligence, Issues intelligence, and Contextual intelligence tiers. The Technical and Analytical tier includes factual knowledge, expertise in research methodology, and an understanding of computing technology and software. The Issues tier consists of an understanding of issues facing higher education, an extensive knowledge of one's institution and campus politics, and a strong grasp on interpersonal relationships in order to accomplish goals. The Contextual tier is an understanding of the culture of higher education and the institution, respect for all constituents, and knowing how business is done at one's institution (Terenzini, 1993; 2013). The survey was developed to answer the question of how participation influences organizational intelligence by measuring the IR members' perceptions on how much the IR affinity group helps them to develop or maintain the skills and knowledge associated with the three tiers of organizational intelligence by reinforcing skill development and providing opportunities to connect with other IR professionals.

Each subscale consisted of nine Likert-scale items, rated on a 5-point scale from "A great deal" to "None at all", to measure the attitudes of the IR professional regarding

the effectiveness of using the affinity group as a vehicle to develop or maintain the skills related to the specific tier of organizational intelligence. The three sets of nine questions were used to calculate the subscale scores for the three tiers and a total score overall was calculated by adding the three subscales together.

Descriptive statistics on the three subscales and the total IRAG score were calculated for the group. The mean scores were compared for the entire group to answer the first research question regarding how participating in the IR affinity group supports the development or maintenance of skills in one, two or all three tiers of organizational intelligence in the IR professional. Table 4 provides the mean and standard deviation for the three subscales and the total overall score on the IRAG survey. The mean and standard deviation for each item in the IRAG survey is shown in Appendix B.

The Issues tier had the highest ratings, with a mean score of 28.8 out of 45 total possible points. The Contextual tier was second, with a mean score of 24.6, followed closely by the Technical/Analytical tier with a mean score of 22.9. The overall subscale scores indicate that the IR affinity group members believed that participation in the group helped to them to develop or maintain the knowledge and skills related to the three tiers of organization intelligence a little to a moderate amount.

Table 4

Mean and Standard Deviation on IRAG Subscales and Overall Total

	n	M	SD
Technical/Analytical Tier	28	22.9286	7.31274
Issues Tier	26	28.8077	6.47468

Table 4 (continued)

	n	M	SD
Contextual Tier	27	24.5556	7.98717
Total IRAG Score	25	75.2800	18.22891

The item by item analysis revealed that some skills and knowledge transfer within a specific tier were aided by participation in the group more than other items. For example, with the Technical/Analytical tier, over 90% of respondents indicated that participation in the affinity group helped a moderate to great amount in their understanding of the definitions of reporting elements required for the NJ SURE and IPEDS data files, but had little to no impact on their understanding of intermediate to advanced statistical analysis techniques. In the Issues tier, 93% of respondents reported participation in the IRAG helped a moderate amount to a great deal to keep them aware and understand pending state legislation that could impact community colleges. In contrast, less than 50% reported that participation in the IRAG helped them understand techniques for working with others to accomplish their IR goals. Within the Contextual tier, respondents indicated that participation aided in their understanding of external environment that impacted higher education but was less helpful with understanding how to work with and navigating their internal environment and stakeholders.

Additional IRAG survey items. In addition to the 27 items that make up the subscales, four stand-alone questions were developed to summarize in one statement the knowledge and skills associated with a specific tier of organizational intelligence to provide additional confirmation of the sub-scale findings. Because of the potential

difference in response to the role of internal and external constituents, the third tier, Contextual Intelligence, was divided into two questions. One question was related to internal constituents, which are specific to a given institution and the other to the external constituents, which may be the same at all of the institutions, such as the state legislators and state/national consumer advocate groups. Table 5 provides the mean and standard deviation for the four stand-alone items.

The mean scores on the stand alone questions support the findings of the three subscale scores, with the highest score related to the Issues tier. The mean score for the stand alone questions related to the external constituents in the Contextual tier was higher than the rating given to the question related to internal constituents.

Table 5

Stand-Alone Organizational Intelligence Tier Questions - Mean and Standard Deviation

Tier	Question	n	M	SD
Technical/Analytical	Gain an understanding of technical and analytical issues such as reporting data elements, use of statistical software, or other IR related technical or analytical questions.	28	3.89	.956
Issues	Gain an understanding of the issues impacting community colleges such as state and federal legislation, strategic planning or program prioritization.	28	3.93	.900
Contextual (Internal)	Gain an understanding of the issues related to internal constituents at your institution such as skills related to negotiating internal politics, managing other departments' expectations of the IR department, or how to have a positive impact on the decision-making process at your institution.	28	2.54	.962

Table 5 (continued)

Tier	Question	n	M	SD
Contextual (External)	Gain an understanding of the issues related to external constituents connected to your institution.	28	3.11	1.066

Quantitizing IR Listserv Posts

Quantitizing is the process of converting qualitative data such as the information retrieved from document review, and assigning a nominal or ordinal value to the data for the purpose of showing the regularity or occurrence of a specific phenomenon (Sandelowski, Volis, & Knafl, 2009). Quantitizing the frequency of those items related to the three tiers, provided additional data sources to confirm the findings of the IRAG survey.

There were a total of 111 posts made on the IR listserv between September 1, 2015 and August 31, 2016. Each of the initial posts on the IR affinity group listserv were reviewed and categorized into buckets representing the three tiers of organizational intelligence: Technical/Analytical, Issues, or Contextual. Appendix A contains a table based on the work of Eimers, Ko, and Gardner (2012) adapted from Terenzini (1993), which describes the knowledge and skills associated with each tier of organizational intelligence. Using that chart, I developed a code book also included in Appendix A with key words and themes related to each tier to use as a guide when reviewing the listserv posts and minutes from the IR affinity group. Some posts meet the criteria for more than one tier and were counted in each tier that applied. A fourth category, "Other", was added to capture posts that did not fit into one of the tiers of organizational intelligence as

defined by Terenzini. The "Other" option was further categorized by common themes related to information sharing.

Based on the responses to the survey questions, respondents reported they were more likely to communicate with another IR affinity group member directly (M = 3.50, SD = 1.37) instead of answering questions posted on the IR listserv (M = 2.86, SD = 1.18). For this reason, follow-up or responses to the initial posts were not categorized since it is possible for the respondents to reply directly to the initiator of the post making it impossible to categorize all of the responses to the initial listserv post. Because I was concerned about potentially biasing the results due to the missing posts, I chose to only categorize the initial listserv post without counting the responses within the thread of the discussion. Table 6 provides the frequency and percent of times an initial post was related to one or more of the tiers of organizational intelligence.

As shown in Table 6, items posted on the listserv were most frequently related to the Technical and Analytical tier (45%), followed by information sharing related to IR affinity group business, job postings, and conferences/workshop opportunities (41%). Postings related to the Issues (26%) and Contextual tiers (16%) occurred less frequently on the IR listserv. Even though the listserv is restricted to IR affinity group members and NJCCC staff, it is still a public forum. When a member posts a question or shares an item of information, it creates a lasting digital footprint. Therefore, given the public nature of online postings and the more permanent digital record, it is not surprising that participants on the IR affinity group listserv were less likely to ask questions related to navigating political challenges or how to work with internal and external constituents, which are associated with the Issues and Contextual tiers. Participants were almost two

times more likely to post an item related to the Technical/Analytical tier than the Issues tier and nearly three times more likely than a question related to the Contextual tier. Questions or issues that were less sensitive in nature and not controversial were shared more openly on the listserv.

Table 6

Analysis of IR Affinity Group Listserv Posts

Tier of Organizational Intelligence	Frequency of Posts Related to Tier	Percent of Post Related to Tier
Technical/Analytical Tier	50	45%
Issues Tier	29	26%
Contextual Tier	18	16%
Other*	46	41%

**Other includes Information Sharing (Grants, IR Affinity Group Business, Job Postings, and Conference/Workshop)*

Quantitizing IRAG Meeting Minutes

There were a total of five face-to-face IR affinity group meetings held between September 1, 2015 and August 31, 2016. The minutes from those meetings were reviewed and agenda items discussed were categorized in the same manner as the IR listserv posts representing the three tiers of organizational intelligence: Technical/Analytical, Issues or Contextual. Some agenda items meet the criteria for more than one tier and were counted in each tier that applied. A fourth category, "Other", was added to capture agenda items that did not fit into one of the tiers of organizational

intelligence at defined by Terenzini. Appendix A contains the code book used to categorize each of the items.

The IR affinity group meetings follow Robert's Rules of Order and common items related to the business of facilitating the meeting, such as the roll call, approval of previous minutes and times of the meeting, were counted as "Other - IR Affinity Group Business*"*. Table 7 provides the frequency and percent of times an agenda item was related to one or more of the tiers of organizational intelligence. In the one case where several agenda items were tabled due to time constraints, those topics were only counted once, after they were discussed at a subsequent IR affinity group meeting.

The analysis of the IR affinity group meeting minutes showed that the topics discussed were divided fairly evenly among the three tiers: Technical/Analytical, Issues, and Contextual. The face to face participation and the practice of the group reviewing the minutes prior to final approval allows for more control over how the more "sensitive" topics are presented and recorded. This environment allows for a more open exchange of questions and information sharing in all three tiers of organizational intelligence. However, it should be noted that certain topics within each tier were not routinely documented in the minutes of the meetings. For example, review of the minutes showed that while there were a number of topics related to term definition and reporting requirements, there were no specific agenda items discussed related to intermediate or advanced statistics, both skills and knowledge related to the Technical/Analytical tier. In a similar fashion, topics were discussed related to the proposed or pending state and federal regulations but none related to strategic planning or accreditation, both skills and knowledge related to the Issues tier. So while there was more discussion of items related

to the three tiers of organizational intelligence at the face to face meetings, some subset of skills and knowledge at each tier were not routinely addressed.

Table 7

Analysis of IR Affinity Group Meeting Minutes

Tier of Organizational Intelligence	Frequency of Agenda Items Related to Tier	Percent of Agenda Items Related to Tier
Technical/Analytical Tier	27	45%
Issues Tier	32	53%
Contextual Tier	30	50%
Other	10	17%

Analysis of IRAG Subscales by Length of Membership in IR Affinity Group

To answer the third research question, the Kruskal-Wallis test was used to compare the sub-scale scores and the overall score on the IRAG survey among the three groups based on the length of time the participant was a member of the IR affinity group. Results of that analysis indicated that the groups did not differ significantly on the Technical and Analytical and the Contextual tiers; however, there was a statistically significant difference on the Issues tier subscale ($H(2) = 7.189$, $p < .05$) with a mean rank of 8.25 for those who were members of the IR affinity group for one year or less, 11.56 for those who were members two to five years, and 17.95 for those who were members for more than five years.

A post hoc rank sums test indicated that the IR professionals who were members for one year or less rated the impact of participating in the affinity group on the Issues Intelligence tier significantly lower than those IR professionals who were members for more than five years, $z = -9.705$, $p < .05$. However, IR professionals who were members for two to five years did not differ significantly from those IR professionals who were members for one year or less, $z = -3.306$, $p < .05$, or those who were members more than five years, $z = -6.399$, $p < .05$.

Table 8

Score on Subscales by Length of Time in the IR Affinity Group

		n	Mean Rank
Technical/Analytical Tier	One Year or less	7	12.71
	2 to 5 Years	10	14.45
	More than 5 years	11	15.68
Issues Tier	One Year or less	6	8.25
	2 to 5 Years	9	11.56
	More than 5 years	11	17.95
Contextual Tier	One Year or less	7	11.29
	2 to 5 Years	9	13.67
	More than 5 years	11	16.00
Total IRAG Score	One Year or less	6	8.33
	2 to 5 Years	8	12.00
	More than 5 years	11	16.27

Effectiveness of the IR Affinity Group as Vehicle for Professional Development

In addition, to the difference on the Issues subscale, the longer time members rated the statement, "the relationships I have developed with the other IR affinity group members have assisted in developing or maintaining the skills and knowledge I need to

be successful in IR", higher than those who were only members for a year or less. There was a statistically significant difference on the relationship question ($H(2) = 10.427$, $p < .005$) with a mean rank of 6.93 for those who were members of the IR affinity group for one year or less, 16.55 for those who were members two to five years, and 17.45 for those who were members for more than five years. The greatest difference was observed between those who were only members of the IR affinity group for a year or less and those who reported being members for more than five years. There was no significant difference between those who were members two to five years compared to those who had been members for more than five years. There was no statistical difference between the three groups based on length of membership for the other items related to the effectiveness of the IR affinity group in helping to develop or maintain the skills and knowledge need to be successful in IR, and all three groups believed that participating in IR affinity group helped them improve their skills and knowledge needed as an IR professional.

Table 9

Score on Effectiveness of IR Affinity Group by Length of Membership

	Membership Group	n	Mean Rank
The current structure of the IR affinity group provides an opportunity for me to develop the skills and knowledge needed to be successful in IR.	One Year or less	7	13.07
	2 to 5 Years	10	16.85
	More than 5 years	11	13.27
Participating in the IR affinity group has helped improve my skills and knowledge as an IR professional.	One Year or less	7	8.93
	2 to 5 Years	10	17.70
	More than 5 years	11	15.14

Table 9 (continued)

	Membership Group	n	Mean Rank
I would like to see changes made to the IR affinity group to enhance professional development opportunities.	One Year or less	7	10.86
	2 to 5 Years	10	14.85
	More than 5 years	11	16.50
The relationships I have developed with the other IR affinity group members have assisted me in developing or maintaining the skills and knowledge I need to be successful in IR.	One Year or less	7	6.93
	2 to 5 Years	10	16.55
	More than 5 years	11	17.45

Finally, to answer the question, to what extent does the level of experience in the field of IR influence the IR professional's perception of the IR affinity group, a Spearman's rho was used to determine if there is a correlation between the subscales scores on the IRAG survey and the number of years of experience in the field of IR. There was a nonsignificant correlation of r_s=0.02 (n=25, p = n.s) between the IRAG total score and the number of years of experience in the field of IR. The IRAG subscales for Technical and Analytical (r_s=-0.28, n=28), Issues (r_s=0.20, n=27) and Contextual (r_s=-0.10, n=26) also were nonsignificant. Therefore, there was not a significant difference in the IR professional's perception of the IR affinity group based on the number of years of experience in IR. However, as mentioned previously, the length of time a respondent was a member of the IR affinity group does significantly influence the IR professional's perception of the value of participating in the IR affinity group related to the Issues tier and overall value of the relationships formed to assisted him or her in developing or maintaining the skills and knowledge needed to be successful in IR.

Social Network Analysis

The final section of analysis involves the results of the modified SSSNQ to determine the nature and strength of the relationships among the participants in the IR affinity group. Descriptive statistics and visual representations of the number and strength of the ties among the participants of the IR affinity group network are provided. This additional piece of information will help determine to what degree the group is an active community of practice, answering the second research question, to what extent is an IR affinity group a community of practice that supports the development of IR capacity?

Walker, Wasserman and Wellman (1994) described an active and intimate network as one where the density ranges between 0.30 and 0.50. By measuring the network density I was able to quantify the frequency of interaction and its importance to the IR affinity group members as a mechanism for the development of the three tiers of organizational intelligence. Determining the degrees helped identify those members of the group who are key players or star nodes within the network. The strength of the ties among the participants is measured by the frequency of interaction. The greater the frequency, the more connected and therefore the greater potential for the exchange of information.

The use of social network analysis provided a visual representation to help understand the channels of communication that exist among the members of the IR affinity group. By using a social network map, I was able to create a visual representation of the nodes, which in this case represent the members of the IR affinity group within the network and the strength (links) or number of connections each has to one another (Daly, 2010; Deal, Purinton, & Waetjen, 2009).

Descriptive statistics on the network. The following structural social network analyses were conducted: the number of network links and network density, and social network centrality measures, specifically Eigenvector centrality, in-degree centrality, and out-degree centrality. There were a total of 32 nodes in the IR affinity group with an overall graph density of 0.31 and an average degree of 13, indicating that overall an active network exists among the members creating a good conduit for the flow of information to and from the participants.

Figure 1 shows the links between IR affinity group members with a triangle representing individuals who were members for a year or less, a circle representing members between 2 to 5 years, and a solid square representing those who have been a member of the IR affinity group for more than 5 years. As Figure 1 shows, individuals who are members longer tended to have a higher number of connections to others within the group as compared to the nodes or individuals on the right-hand side, representing individuals who have been a member for less time that have fewer connections to other members of the IRAG.

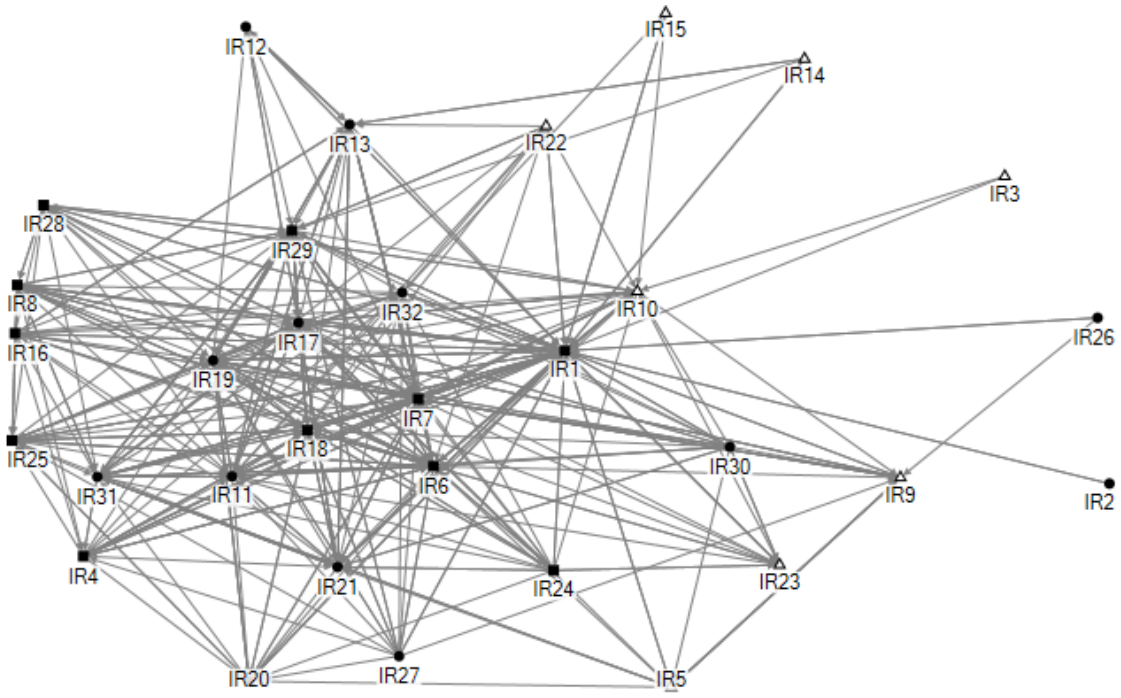

Figure 1. IRAG Network Diagram

When comparing the three network diagrams (Figures 2, 3, and 4) related to the tiers of organizational intelligence, a pattern of decreasing density and in and out-degree connections emerges. The in-degree metric represents the number of edges or connections that point toward a node, in this case the number of people in the group who seek advice or information from the IRAG member. The out-degree metric represents the number of edges or connections that point away from a node, in this case the number of people in the group whom the IRAG member seeks advice or information from. Table 10 contains the network density and in-degree and out-degree for the overall network and by each tier of organizational intelligence. The highest level of connection occurs in the Technical and Analytical exchange with the Issues and Contextual tiers showing fewer and less dense connections among the members of the IR affinity group. This may be due

to the fact that the Issues and Contextual tiers consists of potentially sensitive items such as workplace politics and navigating hot button topics related to state and federal policy, which may better suited to a smaller, more intimate network of highly trusted colleagues. This may represent a subset of the larger IR affinity group or a completely separate group formed outside of the IRAG.

Table 10

Measures of Network Density and Degrees for the IR Affinity Group

	Density	Average In-Degree	Median In-Degree	Average Out-Degree	Median Out-Degree
Overall	0.31	9.63	8.50	9.63	11.00
Technical/Analytical	0.23	7.16	7.50	7.16	6.00
Issues	0.14	4.29	3.00	4.29	3.00
Contextual	0.09	2.79	2.00	2.79	0.00

Figures 2 through 4 show the network diagrams as they relate to the Technical and Analytical, Issues and Contextual tiers. In contrast to the overall network diagram where every node was connected to at least one other node, the separate diagram of these tiers show a decreasing number of connections and an increasing number of isolated group members. A line with an arrow pointing to a node, represents an exchange where a member sought information from another member. In this case, the arrow points to the member who is the information giver. A line with an arrow on both ends represents a

connection between two nodes where there was a reciprocal exchange of information seeking and giving.

The Technical and Analytical network diagram (Figure 2) has fewer isolated members and a higher number of connected links compared to the Issues (Figures 2) and Contextual tier networks (Figure 3). The higher the number of links, the more connected a group member is to other members of the group. These individuals have one or more members that they go to get advice or information on topics related to the three tiers of organizational intelligence. In this case, more members are connected to one another relating to questions or information sharing in the Technical and Analytical tier than at the Issues and Contextual tier.

The isolated nodes, the triangles and dots with no lines connecting them to the other members, represent members with no connection to another member. This isolation often involves nodes representing newer members of the group as seen in Figures 2 through 4. Based on these diagrams, it appears that new members report having fewer members within the group that they go to when they have questions about topics related to the three tiers of organizational intelligence.

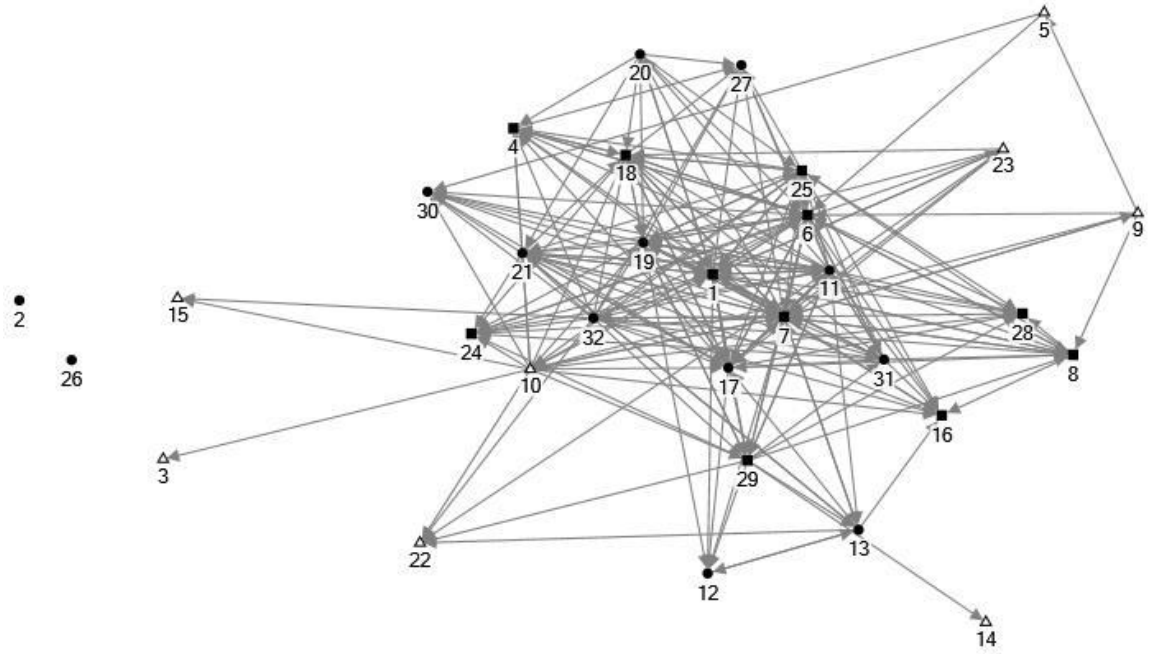

Figure 2. Technical and Analytical Skills and Knowledge Exchange Network Diagram

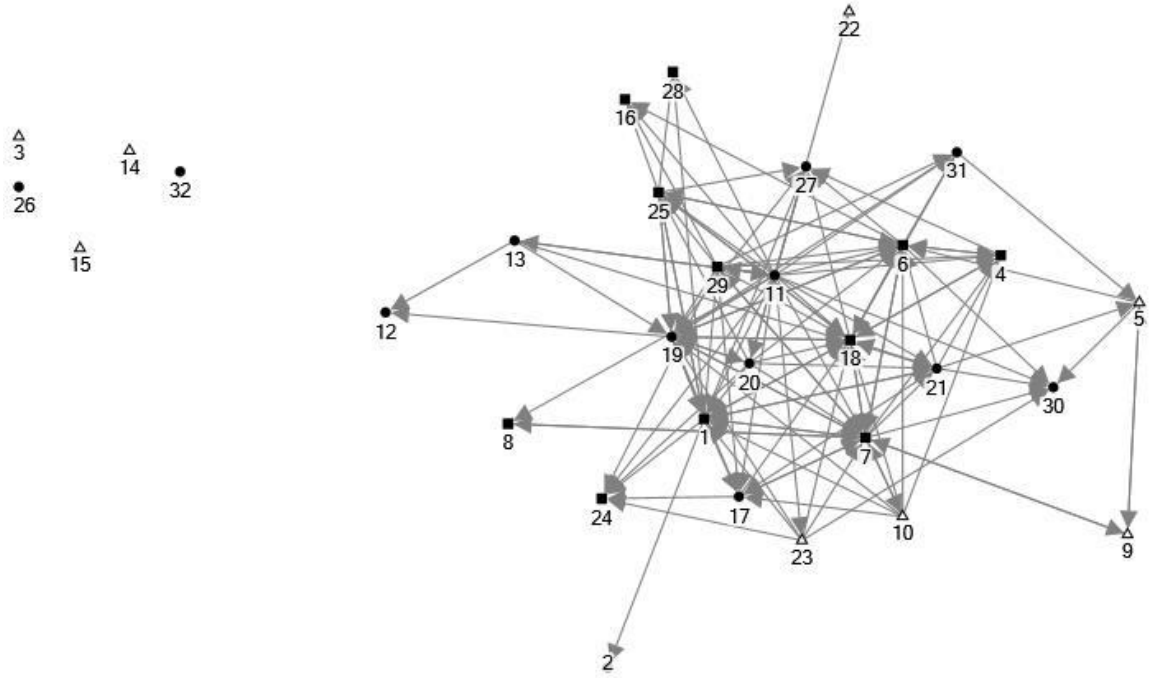

Figure 3. Issue Skills and Knowledge Exchange Network Diagram

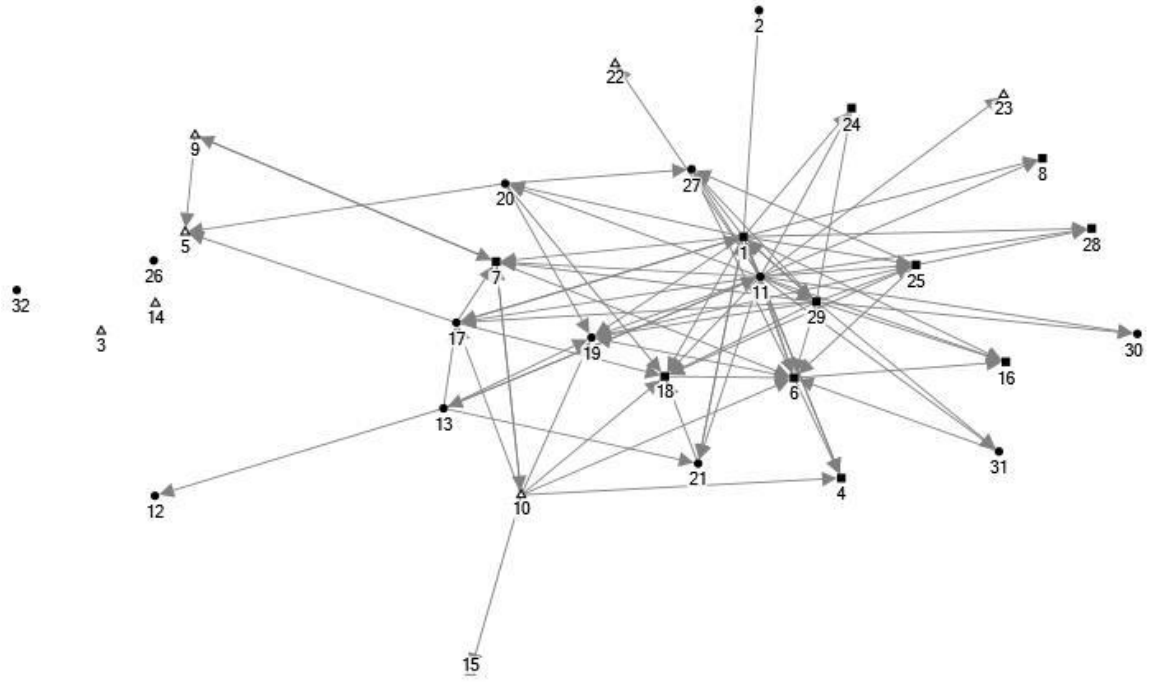

Figure 4. Contextual Skills and Knowledge Exchange Network Diagram

Network cohesion. Finally, the network cohesion was examined to measure the density of the relations or ties between actors. Network cohesion is measured by network centrality metrics that provide a means to quantify how important a node (actor/entity) is within the network (Hansen, Shneiderman, & Smith, 2011). Three common metrics to describe network cohesion include: Betweenness centrality, Closeness centrality, and Eigenvector centrality. Betweenness centrality indicates how important a node is at connecting or "bridging" together different parts of the network. Closeness centrality is a measure of how close each node is, on average, to the other nodes in the network. Eigenvector centrality gives an indication of how well connected one member is to other well connected members (Hansen, Shneiderman & Smith, 2011).

Similar to the previous findings, Table 11 shows the measure of network centrality for the tiers of organizational intelligence vary slightly on the Betweenness

Centrality with the Contextual tier having the highest average since there are fewer connections with some nodes having a more important role in connecting members and the flow of information to other nodes. This means that some members of the group are relied on more frequently as a source of information and play a greater role in connecting members of the group to each other.

Table 11

Measures of Network Centrality

	Betweenness	Closeness	Eigenvector
Overall	16.56	0.022	0.031
Technical/Analytical	17.63	0.020	0.031
Issues	17.06	0.019	0.031
Contextual	24.31	0.017	0.027

It should also be noted that although there are fewer connections in each tier, there is still a core of group members that emerge in each tier. The measures of centrality for the individual nodes is shown in Table 12 sorted by the most connected members to the least. As with previous findings, the nodes most connected more likely represented those individual who were members of the IR affinity group for a longer period of time. This analysis shows that with this particular IR affinity group, the longer an individual is a member, the more likely they are to be a "star" node or "bridge" node as indicated by higher Betweenness and Eigenvector centrality measures shown in Table 12.

Stars are defined as individuals with numerous connections. Gaining the support and buy-in from the star is essential. According to Deal et al. (2009), connecting with these star nodes, who are sometimes referred to as "opinion leaders", can speed the dissemination of information and increase the likelihood that an innovation will be successfully adopted by the group. Longer term members of the IRAG also tend to act as "bridge" nodes. These individuals are boundary spanners or nodes within a sub-group who connect one group to another either within or across organizations. They are also known as the gatekeepers of information. These individuals can also play an important role in the adoption of change initiatives (Deal et al., 2009).

Table 12

Measure of Centrality for Individual Nodes in IR Affinity Group

Node	Degree	In-Degree	Out-Degree	Betweenness Centrality	Closeness Centrality	Eigenvector Centrality	IRAG Member
IR1	29	31	15	237.463	0.032	0.053	> 5 Yrs
IR7	24	22	18	27.676	0.026	0.049	> 5 Yrs
IR17	23	19	13	21.229	0.025	0.046	2-5 Yrs
IR6	23	17	18	25.570	0.026	0.049	> 5 Yrs
IR11	22	21	11	16.267	0.025	0.047	2-5 Yrs
IR29	22	20	9	32.118	0.025	0.045	> 5 Yrs
IR19	20	19	14	18.886	0.025	0.046	2-5 Yrs
IR10	19	17	6	40.332	0.023	0.037	1 Yr <
IR32	19	19	3	19.084	0.023	0.041	2-5 Yrs
IR21	18	13	12	8.321	0.023	0.040	2-5 Yrs

Table 12 (continued)

Node	Degree	In-Degree	Out-Degree	Betweenness Centrality	Closeness Centrality	Eigenvector Centrality	IRAG Member
IR25	18	13	11	4.345	0.023	0.042	> 5 Yrs
IR31	18	18	11	10.674	0.023	0.042	2-5 Yrs
IR18	17	21	16	17.479	0.026	0.049	> 5 Yrs
IR24	14	0	14	2.799	0.021	0.033	> 5 Yrs
IR4	14	7	13	3.205	0.022	0.037	> 5 Yrs
IR20	13	11	7	3.657	0.020	0.030	2-5 Yrs
IR16	12	0	17	2.930	0.022	0.040	> 5 Yrs
IR30	12	0	14	6.783	0.021	0.031	2-5 Yrs
IR8	12	9	13	4.135	0.021	0.035	> 5 Yrs
IR13	11	10	9	10.664	0.020	0.028	2-5 Yrs
IR27	11	0	12	3.064	0.020	0.028	> 5 Yrs
IR28	11	2	12	0.435	0.020	0.032	> 5 Yrs
IR23	9	7	4	0.292	0.019	0.022	1 Yr <
IR5	8	3	6	2.018	0.019	0.017	1 Yr <
IR12	6	1	6	0.000	0.018	0.015	2-5 Yrs
IR22	6	0	9	0.965	0.019	0.022	1 Yr <
IR9	6	8	4	9.476	0.019	0.017	1 Yr <
IR14	3	0	3	0.000	0.017	0.007	1 Yr <
IR15	3	0	3	0.133	0.017	0.007	1 Yr <
IR2	1	0	1	0.000	0.016	0.003	1 Yr <
IR26	1	0	2	0.000	0.017	0.004	> 5 Yrs
IR3	1	0	2	0.000	0.017	0.005	1 Yr <

Conclusion

The findings reported in this chapter show that members of the IRAG believe that participating in the group helps them to develop or maintain some of the skills and knowledge associated with the three tiers of organizational intelligence. The analysis revealed that there are some differences in the perceptions of IRAG members based on the length of time they have been members. Those individuals who have been members more than five years indicated a higher rating of the importance of the relationships they have formed in the group at helping them develop and maintain the skills and knowledge needed to be successful in IR.

Finally, the social network analysis demonstrated that there were a greater number of connections between members in the Technical and Analytical tier compared to the Issues and Contextual tiers. These differences in the degree of connectivity were most apparent between the newer members and those who have been members for more than five years. The members for more than five years had the greatest number of connections to other members. In Chapter 5, I discuss these findings as they relate to the research questions and implications that they have for policy, leadership, and future research.

Chapter 5

Conclusions

The purpose of this study was to examine the nature and the strength of the relationships among the IR professionals in the IR affinity group at community colleges in New Jersey and to describe how this network contributes to building research capacity at the participating institutions. This approach is based on social/situational learning theory, which focuses on the concept that learning occurs by participation in a community of practice (Lave & Wenger, 1991; 1998). The study employed a combination of two surveys. The Institutional Research Affinity Group (IRAG) survey was used to gain an understanding of how participation in the affinity group impacts the members. I also utilized a modified version of the School Staff Social Network Questionnaire (SSSNQ) to collect data on the social network to examine the strength and complexity of the relationships that exist among the IR offices at the 19 community colleges in New Jersey to better understand information sharing among IR professionals in the group.

This study was guided by the following research questions:

1. How does an IR affinity group support the development of organizational intelligence in the IR professional?
2. To what extent is an IR affinity group a community of practice that supports the development of IR capacity?
3. To what extent does the level of experience of the IR professional in the field of IR, influence the IR professional's perception of the IR affinity group?

In this chapter I will discuss the answers to the research questions that guided the study and the implications of the findings on policy, practice, and future research. The

chapter will conclude with recommendations for ways to enhance the IR affinity group and suggestions for future research that will give greater insight into the use of a local affinity group as a vehicle to build research capacity among institutional research professionals. I start with the discussion of the first and third research questions and follow with the discussion of the second research question.

IR Affinity Group and Development of Organizational Intelligence

Research Question #1: How does an IR affinity group support the development of organizational intelligence in the IR professional?

The IRAG survey was developed to answer the question concerning how participation influences organizational intelligence by measuring the IR members' perceptions on how much the IR affinity group helps them to develop or maintain the skills and knowledge associated with the three tiers of organizational intelligence by reinforcing skill development and providing opportunities to connect with other IR professionals. Organizational intelligence covers three tiers. The Technical and Analytical tier includes factual knowledge, expertise in research methodology, and an understanding of computing technology and software. The Issues tier consists of an understanding of issues facing higher education, an extensive knowledge of one's institution and campus politics, and a strong grasp on interpersonal relationships in order to accomplish goals. The Contextual tier is an understanding of the culture of higher education and the institution, respect for all constituents, and knowing how business is done at one's institution (Terenzini, 1993; 2013).

Overall, the analysis of the IRAG survey results showed the participants indicated that the IR affinity group helped to develop and maintain some of the skills and

knowledge associated with the three tiers of organizational intelligence in the IR professional. For example, the study participants indicated that it helped them to gain a better understanding of external demands, such as knowledge of required federal and state reporting data element definitions, external legislation, and issues impacting higher education outside of their own institutions. However, the group as a whole indicated that participation in the IR affinity group had less of an impact on their knowledge and skills related to working with internal stakeholders and understanding the internal workings within one's institution.

An item by item analysis of each of the questions related to the three tiers also revealed that some skills and knowledge sets within a specific tier were impacted less than others. For example, in the Technical and Analytical tier, the members indicated that participation in the IRAG had little impact in helping them develop or maintain intermediate to advanced knowledge of statistical techniques but helped a lot to a great deal in understanding definitions of data elements required for state and federal reporting.

In the Issues tier, IRAG members felt participation in the group contributed a great deal to the development and maintenance of their awareness and knowledge of state and federal legislation impacting the community college sector but contributed less to their knowledge and understanding of internal studies of their institution, such as strategic planning and how decisions are made formally and informally at a community college.

Finally, in the Contextual tier, IRAG members indicated that participating in the affinity group helped them develop and maintain their knowledge of the external environment in which their institution operates but had less impact on their understanding

of the internal environment at their institution. In relation to understanding of the internal environment, respondents were less likely to indicate that participating in the IRAG helped them gain an understanding of the issues related to internal constituents at their institution, such as skills related to negotiating internal politics, managing other departments' expectations of the IR department, or how to have a positive impact on the decision-making process at their institution, associated with the second and third tiers of organizational intelligence.

According to Terenzini (1993), while Technical and Analytical intelligence is foundational to the IR professional, it has little value or usefulness without the remaining two levels of intelligence to give it meaning and purpose. Given the importance of Issues and Contextual intelligence, the lack of impact on the knowledge and skills related to internal dynamics reported by the IRAG members, suggests there is a need to enhance the current IR affinity group or to supplement the IR professional's acquisition of these skills in other ways. As noted previously, Knight (2014) indicated that "…improving emotional intelligence among institutional researchers…is the most important issue facing institutions of higher education that will allow them to fully embrace a culture of evidence-based decision-making" (p.37). Both Knight (2014) and Eimers et al. (2012) contend that these skills are essential for the IR professional to advance to leadership positions and to have a meaningful and positive impact on one's institution.

The survey results from the IRAG related to working with and influencing internal constituents and knowledge of intermediate and advanced statistics suggests that some characteristics associated with the three tiers of organizational intelligence are not developed or maintained by participating in the IRAG. This may be due to a deficiency in

the current structure of the IR affinity group meetings. During the review of the IR affinity group's meeting minutes, it was noted that there were items related to data or term definitions or proposed and pending legislation at every meeting but none related to topics on statistical analysis or working with internal constituents. The group may need to dedicate a segment of time to knowledge of statistics and working with internal constituents, during each meeting in order to have an impact on these areas.

Intentionally addressing topics related to statistics or strategic planning supports the suggestions made by several members in the open ended questions that one of the ways to improve the IR affinity group was to provide more opportunity for short 10 to 15 minute individual member presentations or sessions on IR specific topics where members can exchange ideas, best practices, and ask questions. Suggestions were made to embed these presentations or sessions into the formal agenda or schedule them to occur immediately before or after the regularly scheduled meetings. Sustained, coordinated, and directed learning goals embedded in an organization's structure are an essential component to King and Bouchard's organizational capacity building model. King and Bouchard (2011) refer to these embedded, ongoing learning goals as program coherence and view it as an indicator of the strength of the organization's integration. Without this integration, the organization is fragmented and this contributes to the weakened learning of the members.

Even though the members indicated that one of the primary purposes for the IR affinity group was to allow for professional development and networking, no mention was ever made of a formal plan of program coherence to specify what topics to cover or how to encourage a focused exchange. The current research study determined that there

was some level of program coherence related to the common understanding of data element definitions for state and federal reporting and the impact of external constituents on the community college sector built into the structure of the agenda for every scheduled meeting, but items related to skill building in intermediate and advanced statistics, program evaluations, and strategic planning are not regularly included in the meeting agenda.

In addition, evaluation of the listserv postings showed that although it may be a venue for sharing Technical and Analytical tier related questions, the public nature of the listserv may contribute to the lower level of postings related to the Issues and Contextual tiers. Both the Likert scale items and the open ended questions revealed that related to specific technical/analytical skills and the sharing of best practices in how to meet the needs of internal constituents through strategic planning and information sharing, there was a desire to enhance the IR affinity group to meet this need.

The development of certain Technical and Analytical skills, such as statistical methods for predicting enrollment trends, may be addressed through the use of a virtual shared learning space. Several studies have shown that virtual communities of practice can provide a venue for information sharing and knowledge exchange (Johnson, 2001; Pan & Leidner, 2003, Smeds & Alvesalo, 2003). A virtual shared learning space could also help address a common complaint among the group members captured by the open ended question on the negative aspects of participating in the IRAG, which was the time it took to travel to a common meeting place. Creating a virtual shared learning space would eliminate the time and resources it takes to travel to a common location.

Having an impact on the development of soft skills associated with the Contextual tier that allow one to influence and have the ability to work with and through others to accomplish goals, will require a deliberate agenda designed to occur in an environment with a high level of trust among the members. Numerous studies have found that common themes need to be reinforced over time and must include critical reflection and dialogue among the participants in a safe environment where trust has been established to effect lasting change in practice (Haviland & Rodriguez-Kiino, 2009; King & Bouchard, 2011; Moolenaar & Sleeger, 2010; Roberts, 2006; Wenger, McDermott, & Snyder, 2002). One of the limitations of a virtual online learning space is that it may not create a safe environment where trust can be established (Usoro, Sharratt, Tsui, & Shekhar, 2007). More sensitive topics related to workplace politics or more complex interrelated tasks such as developing a strategic plan with internal and external constituents, may require a different approach. Future research should explore if use of the face to face community of practice, such as the IR affinity group, can help the IR professional develop or maintain the skills and knowledge associated with these more sensitive and complex topics.

Perception of IR Affinity Group by Level of Experience in IR

Research Question #3: To what extent does the level of experience in the field of IR influence the IR professional's perception of the IR affinity group?

As described in Chapter 4, the Kruskal-Wallis test was used to compare the sub-scale scores and the overall score on the IRAG survey among the three groups based on the length of time the participant was a member of the IR affinity group. Results indicated that the groups did not differ significantly on the Technical and Analytical and

the Contextual tiers; however, there was a statistically significant difference on the Issues tier subscale for those who were members of the IR affinity group for one year or less compared to those who were members for two to five years and for those who were members for more than five years.

The analysis using the post hoc rank sums test grouped the IR professionals according to the same lengths of time in the IR affinity group: one year or less, 2 to five years, and more than 5 years. This analysis indicated that the professionals who were members for one year or less rated the impact of the IR affinity group on the Issues Tier significantly lower than ratings of the impact given by IR professionals who were members for more than five years. Regarding the impact of the IR affinity group on the Issues intelligence tier, no significant differences were found between the scores of IR professionals who were members for 2 to five years, compared to IR professionals in either the one year or less group or those in the more than five years group.

Additional results from the IRAG survey also provided information to research question #3. The IRAG survey included four items designed to measure the effectiveness of the IR affinity group by length of membership. These results indicated that for the statement: "the relationships I have developed with other IR professionals have assisted in developing or maintaining the skills and knowledge I need to be successful in IR," there was a statistically significant difference between responses of members with one year or less in the IR affinity group and the responses of those who were members for five years or more. The effectiveness of the IR affinity group in building relationships that "assist in developing the skills and knowledge needed to be successful in institutional

research" has implications for practice and leadership that will be detailed in the Implications section of this Chapter.

Although the amount of experience in IR did not have an influence on the members' perception of the IR affinity group, the length of time as a member of the group was important. The respondents who were members for more than five years were more likely to perceive value in the relationships formed with other IR affinity group members than those who were members for one year or less. It is not surprising that the new members did not have as high a perceived value in the relationship with other IR affinity group members in helping them to develop or maintain the skills and knowledge needed to be successful in IR since it takes time to build up the rapport and trust with other members. But in light of these findings, it may be helpful to connect new members with an experienced member to help expedite a sense of belonging and understanding for the newcomer (Wenger, 1998). This pairing of an experienced IR affinity group member with a new IR affinity group member could help eliminate the possibility of cliques or clusters forming within the group, preventing new and existing members from benefiting from the exchange of information (Deal, Purinton, & Waetjen, 2009; Wenger, 1998; Wenger, McDermott, & Snyder, 2002).

Social Network Analysis of the IR Affinity Group

Research Question #2: To what extent is an IR affinity group a community of practice that supports the development of IR capacity?

The final section of analysis involves the results of the modified SSSNQ to determine the nature and strength of the relationships among the participants in the IR affinity group. Descriptive statistics and diagrams provided visual representations of the

number and strength of the ties among the participants of the IR affinity group network. This additional piece of information showed to what degree the group acts as an active community of practice. The network metrics confirm that there is an active and intimate network among IR group members. Walker, Wasserman, and Wellman (1994) reported that most active and intimate networks have a density measuring between 0.30 and 0.50. The overall graph density for the IR affinity group was 0.31.

The social network analysis revealed that the most connected people in the network were those who were members more than five years. The most connected members of the group often act as stars or bridges within a network. The stars are the highly connected members who are looked at as "opinion makers" and have a strong influence in the group (Deal, Purinton, & Waetjen, 2009). The bridges are members who connect subgroups within the larger network to one another. Members who are bridges play an important role in facilitating the exchange and flow of information on all three tiers of organizational intelligence. These individuals are sometimes seen as "gatekeepers" and can play a role in adopting change initiatives (Deal et al., 2009). Having long-term members who possess the historical antecedents and group history, who are actively engaged and connected is important to the success and longevity of the group (Wenger, 1998; Wenger, McDermott, & Snyder, 2002). These findings support capacity building efforts and leadership development and will be further discussed in the following section.

The social network analysis yielded four separate diagrams showing connections among the members of the IR affinity group: Overall connections, Technical and Analytical connections, Issues connections, and Contextual connections. The diagram

showing the overall connectivity among the group members included a link or connection between two members in any of four categories: Technical and Analytical, Issues, Contextual, or Other. The "Other" category was an open ended category where the participant could specify other areas of information sharing which included sharing job postings or information related to questions about the size of the IR office, job titles, or reporting structure. There were a higher number of connections on the Overall connectivity diagram than there were within in each separate tier of organizational intelligence. Similar to the analysis of the IRAG listserv, the greatest number of connections occurred in the Technical and Analytical tier, followed by the Issues tier and the lowest number of connections occurred in the Contextual tier.

As noted earlier, the higher level of connection in the Technical and Analytical tier may be due to the fact that the Issues and Contextual tiers consists of potentially sensitive items such as workplace politics and navigating hot button topics related to state and federal policy, which may be better suited to a smaller, more intimate network of highly trusted colleagues. Further research is needed to determine if the size of the network and level of trust in the group have any impact on developing the skills and knowledge related to the more potential sensitive items of organizational intelligence in the IR professional.

Even if it is not the case, that a smaller, more intimate network is needed for more sensitive topics, it is still important to reduce the isolation of the newer members. As one member described it, "When I was a new IR person, it's hard to understand what others were talking [sic] in the affinity group meeting." Therefore, mentoring or pairing of new and existing members, as mentioned previously, may help alleviate the isolation and

increase the transfer of knowledge for some members (Wenger, McDermott, & Snyder, 2002).

Limitations for Practice

This study was designed to examine a very specific set of skills and knowledge as it relates to a group of IR professionals within a specific geographic region and a single institution type, which may impact its generalizability. The context in which this study took place may prevent generalizing to other affinity groups outside of the IR profession, geographic location, and community college sector.

Implications

Implications for policy. The findings from this study suggest that communities of practice, such as the IR affinity group, can support the development and maintenance of some of the skills and knowledge related to the three tiers of organizational intelligence in the field of IR. With modifications to the existing IR affinity group, it is possible that additional skills and research capacity building can be enhanced as well, by establishing clear learning goals, that are coordinated and directed (King & Bouchard, 2011). Future research could explore if a shared virtual training environment in intermediate and advanced statistics or topic-focused workshops led by members of the affinity group or external experts can help develop the skills and knowledge in areas such as statistics, strategic planning, or navigating workplace politics. In today's environment with shrinking funding from public sources, it is essential to find creative cost-saving initiatives. Therefore, it may be beneficial for states or participating member institutions to consider the funding of shared professional development opportunities for IR

professionals that incorporate communities of practice as a vehicle for the ongoing exchange of information related to the three tiers of organizational intelligence.

Implications for practice and leadership. In addition, establishing a mechanism for pairing new members with well-connected, long-time members could help strengthen the ties within the group and increase the flow of information to the new members who are currently more isolated (Wenger, McDermott, & Snyder, 2002). Further research is needed to determine if this pairing of new and current members will increase the knowledge and skills in the understanding of the Issues and Contextual tiers.

The pairing also has the added benefit of connecting new members with more experienced members thereby increasing the opportunity for the established member of the group to pass on the history and knowledge of historical antecedents (Wenger, McDermott, & Snyder, 2002). Expanding the professional development opportunities through the IR affinity group ensures that more of that collective history will be passed on to the newer members and future IR leadership.

The community college sector needs to ensure there is a sufficient supply of well-trained and qualified individuals to meet the demand for future IR directors, in the event that the current community college IR leadership retires or leaves the sector to pursue opportunities for career advancement. Currently the IR affinity group's membership is limited to those one or two members appointed by the institution's president. In response to the open ended question about how the IR affinity group could be improved, one long time IR affinity group member suggested that the NJ IR affinity group should be open to everyone in the IR office because there was "something to be said for having some channels of information that are more inclusive". Opening membership up to all members

of the institution's IR department could expand the reach and impact of the network. The implication for leadership is that expanding the membership in the IR affinity group could be used as part of succession planning to develop and promote IR talent from within the existing network. Studies in K-12 have shown that communities of practice can be useful in succession planning in principals and administrative staff, by connecting future leaders with current leaders as they learn together, derive meaning, and form their identities as part of the group (Fink & Brayman, 2004; Giles & Hargreaves, 2006). This same approach can be taken in the IR affinity group by opening up membership and pairing new members with existing long-term member.

In addition to succession planning in IR leadership, there are implications for the New Jersey community college presidents related to their use of distributed leadership with the affinity groups at the state level. Distributed leadership stresses the importance of trust and respect between leaders and those they empower to lead. It encourages autonomy and critical thinking and does not emphasize control or manipulation by the leadership. It is collaborative in nature and works on a cycle of continuous improvement from planning, acting, observing, and reflecting. At the core of distributed leadership is the interaction among and between leaders, followers, and their shared situations (Spillane, 2005).

The community college presidents sanction the existence of the affinity groups for the purpose of supporting statewide initiatives to advance higher education in the state of New Jersey (New Jersey Council of County Colleges, 2015). By charging the IR affinity group with the responsibility to serve as the research and advisory group to the New Jersey Community College Presidents performing sector-wide analyses on pertinent

funding, policy, research, and academic issues to inform executive leadership decision-making, the college presidents in coordination with the New Jersey Council of County Colleges, are employing a distributed leadership approach to address concerns from state legislatures, develop statewide policies, and implement statewide initiatives to increase student success in the sector.

Spillane (2005) sees distributed leadership as a "reciprocal interdependency" between leaders and followers. They play off each other to affect the best outcome in light of their shared situation. For example, in response to a proposed bill aimed at implementing some form of performance based funding in New Jersey, the NJ Council of County Colleges along with the community college presidents, worked with the IR affinity group to help shape the proposed metrics for accountability. The collaborative effort dissuaded lawmakers from including performance metrics in the proposed legislation that would do more harm than help to the community college sector.

An increased demand for accountability from state, federal, and national accreditation agencies has created a call for more data informed decision making to control spiraling costs and unimpressive outcomes at the community college level (Chaplot, Johnstone, & Booth, 2012; Head & Johnson, 2011). This shift from intuition based to evidence based planning has led to an expanded role for IR offices across the nation. Community college presidents can take a distributed leadership approach to working through the IR affinity group to take advantage of the expanded network of expertise that the collective membership provides to inform policy and decision-making at the state level.

With so much as stake related to funding and statewide policies, it is crucial for the IR professionals in the community college sector to be at the top of their game as they work collaboratively with the college leadership to inform decision-making in response to the changing landscape in higher education. Utilizing the affinity group to help develop and maintain the skills and knowledge needed by the IR professional to be successful and to assist the presidents by providing the support needed to achieve this goal is crucial in this distributed approach to leadership.

Future Research

Future research should look at ways the IR affinity group could be enhanced to provide more opportunity for knowledge and skill building in the three tiers of organization intelligence as a possible cost-effective means to develop research capacity building in the IR professional. This research could give us a better understanding of ways to enhance communities of practice to maximize the acquisition of knowledge and skill building in the field of institutional research. Modifying the SSSNQ to capture the differences within the three tiers of organizational intelligence will enable future researchers to provide a more accurate picture of which skills are impacted by enhancements or changes to the IR affinity group. Future versions of the IRAG instrument should be revised to split the Technical/Analytical stand-alone question into knowledge of technical definitions and knowledge/skills related to statistical software and analysis. The Issues tier questions should also be divided into separate questions grouped by knowledge of state and federal legislation and the knowledge and skills related to institutional strategic planning, accreditation, and budgeting and resource allocation related to academic program prioritization.

In addition, with a more detailed questionnaire, the social network analysis might be able to better identify the smaller networks within the larger group. For example, there may be a small subset of individuals within the network that members go to for advice on statistical software. When the specific skills and knowledge related to the Technical/Analytical tier are combined into one category, the different types of skills and knowledge associated with the tier can get lost within the larger set. This additional knowledge could potentially identify subgroup experts or special topic leaders within the larger affinity group.

Future research in this area should also explore the level of trust among the members of the IR affinity group since numerous studies maintain the importance of ongoing professional development occurring in a trusting environment in order to have a lasting change in practice (Haviland & Rodriguez-Kiino, 2009; King & Bouchard, 2011). It would be useful to examine variations in levels of participation especially by geographic location/proximity; there was a time when community colleges did not actively recruit across county borders but in some counties in New Jersey that practice has changed. This change impacts the mutual trust and respect factors and could make the IR affinity group less effective. This could prove a challenge to future IR affinity group members, as several studies have indicated mutual trust is a key factor in the success of a community of practice (King & Bouchard, 2011; Roberts, 2006; Wenger, McDermott, & Snyder, 2002).

While the long-time members of the IR affinity group placed a high value/importance on the relationships formed within the group, which would seem to support a high level of trust, this topic was not fully explored in the current study. In

addition, for new members of the group it may take several years to build those relationships to establish an adequate level of trust and understanding. Future research could explore the value of pairing a new member with a longer term member of the IRAG to see if an adequate level of rapport and trust can be established sooner for the new member.

Finally, this study was unable to determine if the size of the IR office had any impact on the IR professional's perception of the benefits of being a member of the IR affinity group. The impact of these communities, which cross institutional lines and unite institutions within a common sector, could potentially play an important role in IR skill development at the community college due to the small size of many IR offices and potential isolation from peers with similar job responsibilities (Morest & Jenkins, 2007; Volkwein, Liu, & Woodell, 2012). The IR professionals might benefit from the community of practice because it expands their network of resources by connecting them with additional experts in their field of study. It is possible that a smaller IR office may value the additional resources more than a larger IR office. Since a recent study by Swing, Jones, and Ross (2016), indicated that many IR offices are small compared to other administrative offices, future studies could examine if there is a correlation between the perceived benefits of belonging to an IR affinity group and the size of the IR office.

Recommendations

The social network analysis of the group demonstrated that an active network does exist among the member of the IR affinity group. Analysis of the network by the three tiers of organizational intelligence showed that there were some differences in the level of connectivity in each tier based on the length of time a participant is a member of

the group. These differences were most apparent in the higher level tiers related to Issues and Contextual Intelligence, with those who were members for more than five years more connected to other members at a higher frequency than those who were members for a year or less.

In addition, based on the self-report of the participants, being a member of the IRAG does help to develop and maintain the skills and knowledge in some but not all aspects/domains of the three tiers of organizational intelligence. Participants found being a member helped them in terms of understanding definitions for state and federal required reports, provided emotional support in facing the demands of the job, and kept them aware of legislation and hot button topics facing higher education and community college sector.

However, in its current structure the IR affinity group does not help with knowledge of intermediate/advanced statistics or the Contextual-skills associated with working and navigating the internal politics at one's institution. Several study participants suggested one of the ways to improve the IRAG was to add time for focused topics/presentations on intermediate and advanced statistics, institutional research and policy analysis, and planning, enrollment and financial management.

Pairing new members with more experienced members would also increase the opportunity for the established member of the group to pass on the knowledge of historical antecedents impacting the group and the community college sector in New Jersey. Expanding the professional development opportunities through the IR affinity group ensures that more of that collective history will be passed on to the newer members and future IR leadership. Enhancing the IR affinity group by pairing new members with

more seasoned members in a "buddy" system, may help facilitate quicker connections to the larger network and help the community college sector to ensure there is a sufficient supply of well-trained and qualified individuals to meet the demand for future IR directors.

Finally, this study utilized a systems framework to gain a better understanding of capacity building in the IR professional. King and Bouchard's model (2011) consists of five key interactive dimensions: knowledge, skills, and dispositions; technical resources; leadership and distributed leadership; program coherence; and professional communities. The modified version of King and Bouchard's model was useful in helping understand the dynamics of the different dimensions at play in the building of the research capacity for the IR professional.

By referencing the systems framework, this study reinforced King and Bouchard's assertion that capacity building consists of five key interactive dimensions. When drilling into the item by item analysis of the individual tiers of organizational intelligence, it became clear that the members felt participating in the group helped to develop or maintain some skills but not others. In this case it was not the professional community or even the knowledge and skills dimension, but rather it was weak program coherence that was partially the culprit. According to King and Bouchard (2011), in order to develop skills and knowledge one needs clear, ongoing learning goals that are coordinated and directed. Analysis of the meeting minutes confirmed that topics related to intermediate and advanced statistics or strategic planning were not discussed at the IR affinity group meetings. One suggestion to enhance the IRAG is to have segments of the

meeting at the beginning or end of the day to focus on special topics such as advanced statistics or strategic planning.

To continue the ongoing discussion of these topics, the use of the technology dimension can be employed to establish a virtual training space. Currently the group employs the technology dimension through the use of the IR listserv and a shared Google drive. But expanding the use of the technology dimension to include a shared virtual learning space could lead to more collaboration on topics that require a longer time on task, such as the discussion of intermediate and advanced statistics, strategic planning, and accreditation.

The framework was further validated, when review of the minutes determined that the discussions related to term definitions and state and federal legislation were routinely included as topics in the meetings. On these items members reported that participating in the IRAG did help them to develop or maintain the skills and knowledge needed to address these issues. The fact that items specifically included routinely on the IR affinity group meeting agenda had higher ratings then items that were not included on the meeting agenda, help support King and Bouchard's (2011) assertion that to develop skills and knowledge you need clear, ongoing learning goals that are coordinated and directed.

Finally, the leadership and distributed leadership dimension of King and Bouchard's (2011) model helps shed light on the role of the community college presidents that sanction the IR affinity group's existence. From the IR group members' perspective, this dimension highlights the importance of distributed leadership, as demonstrated by the common theme that emerged from the response to the question to define the purpose of the IR affinity group in their own words. Repeatedly the members

identified the primary purpose of the group was to act as an "advisory group" to the community college presidents by collectively performing sector-wide analyses on academic issues, funding, and policy, which should assist college presidents and administration to make data-informed decisions. The group derived its identity, meaning, and purpose from this charge to be an advisory group to the community college leadership. Sharing a common identity and deriving meaning and purpose from it, are important to communities of practice (Wenger, McDermott, & Snyder, 2002). The fact that members are appointed to the IR affinity group by the presidents and that time to attend and participate in the group is also sanctioned and approved by the community college presidents demonstrates the importance and value that the group has to leadership. Prior research in the K12 sector has demonstrated importance of the role of principal leadership to develop school capacity by promoting collaboration and reflective inquiry by allocating time for teachers to work together and by connecting teachers to external resources (Youngs & King, 2002). Leveraging the influence of the community college presidents should be used to expand and enhance the effectiveness of the IR affinity group as a vehicle for ongoing, directed, and focused professional development by supporting research capacity building initiatives and sending the message to the IR affinity group members that these types of activities are needed and valued by the leadership.

Conclusion

Institutions of higher education face enormous challenges at the local, national and global level, which necessitates a reliance on the ability of IR to quickly and accurately analyze data in response to market trends in order to compete globally

(Calderon & Mathies, 2013). Previous researchers have established the importance of professional communities as an essential component for developing the capacity to learn and grow within an organization (Haviland & Rodriguez-Kiino, 2009; Garet et al., 2001; King & Bouchard, 2011; Penuel et al., 2007). This study explored the impact of the social and human capital factors that contribute to the knowledge and skills an IR professional needs to possess in order to have an impact on decision-making and policy formation at his or her institution in response to the challenges higher education faces. This study also found evidence to support the use of a CoP as a mechanism to build research capacity in the three tiers of organizational intelligence.

According to Wenger (1998), learning occurs through an interaction of community, practice, identity, and meaning. The CoP framework is based on the premise that learning occurs through engagement in what Wenger terms as "social practice" (p.47). This "social practice" is not just practice as repetitive motions, but doing the task in the context of social interactions recognizing the shared, collective experiences that give meaning and structure. The IR affinity group provides a venue where institutional researchers at community colleges in New Jersey can explore both the written or expressed rules and regulations and the unspoken, underlying assumptions of the group's shared world view or beliefs. In the words of one of the study participants, the benefit to being a member of the IR affinity group is, "getting to know my fellow IR colleagues and forming professional relationships that will hopefully stay with me throughout my career. It's great to have a network of individuals who understand the challenges and issues that IR professionals face. I feel like I can rely on them for advice and helpful insight."

In a time when higher education is facing unprecedented challenges to the traditional university model, including decreased funding from state and federal sources, threats from disruptive technologies, and increased public scrutiny, colleges and universities are forced to reexamine current practices and find ways to streamline academic programs and operate more efficiently with fewer resources. The highest level of professional excellence from institutional researchers will be needed to provide guidance to educational leaders as they respond over the next twenty years to the challenge of meeting societal needs but with less reliance on public funds and resources.

These enormous challenges at the local, national, and global levels, will require the IR professional to quickly and accurately analyze data. However, Swing, Jones, and Ross (2016), noted that increased reporting demands in the face of stagnant growth in IR office size, will likely put even greater limitations on the IR staff's availability to do IR functions beyond just meeting the basic state and federal reporting requirements. In addition, the Association for Institutional Research (AIR), recently released a report on a new aspirational vision for institutional research, which expanded the definition of "decision makers" to include not only the top leadership but also added students, faculty, and staff (Swing & Ross, 2016).This new shift increases both the demand and the scope of the work that the IR professional must now accomplish through more sophisticated data analytics, all of which need to be transparent, easily accessible, and student-focused. Having a cost effective, on-going venue to develop the skills and knowledge associated with the three tiers of organizational intelligence in IR is essential to the IR profession and for survival of institutions that rely on the IR professional to help them learn and adapt quickly to this changing landscape.

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Appendix A

Terenzini's Three Tiers of Organizational Intelligence in IR

Technical and Analytical Intelligence	a. Factual knowledge b. Methodology skills c. Understanding computing and computing software
Issues Intelligence	a. Understanding key issues in higher education especially the internal issues most germane to your institution b. How your institution functions including the formal and informal decision-making process c. Ability to work with and through others to accomplish goals
Contextual Intelligence	a. Understanding the culture of higher education, including your own institution's culture and history b. How business is done at your institution c. Respecting the perspectives of all constituencies d. Knowledge of environment in which your college operates

Source: Eimers, Ko, & Gardner, 2012; Terenzini, 1993

Code Book for Quantizing Listserv Posts and IR Affinity Group Meeting Minutes

Tier	Keywords
Technical and Analytical Intelligence	definitions, terms, acronyms, data fields, databases, quantitative/qualitative methodology, surveys, retention, enrollment projections, statistical software, SPSS, SAS, Excel, ERP systems, software for managing data/results
Issues Intelligence	higher education issues, legislation, formal and informal decision-making, IR office capacity/staffing, working with others, knowledge of current issues & problems facing institution
Contextual Intelligence	higher education culture, institutional memory, key players in organization/ governance, constituencies – internal or external
Other – Information Sharing	conferences, workshops, webinars, job postings, grants/funding opportunities, items related to the business of the IR affinity group meetings: IR affinity group meeting minutes, IR affinity group meeting reminders, IR affinity group agenda items and meeting locations

Adapted from Eimers, Ko, & Gardner, 2012; Terenzini, 1993

Appendix B

IRAG Subscale Items: Mean and Standard Deviation

	n	M	SD
Technical/Analytical Tier			
Q6_a - Understanding of data elements required for NJ SURE reporting	28	3.86	.970
Q6_b - Understanding of data elements required for IPEDS or other federal reporting	28	3.79	1.067
Q6_c - Understanding research study design and methodology	28	2.75	1.378
Q6_d - Basic knowledge of survey tools such as Survey Monkey, Qualtrics or Google Forms	28	2.00	1.247
Q6_e - Basic knowledge in the use of statistical applications such as SPSS, SAS or Excel	28	2.14	1.208
Q6_f - Intermediate to advanced knowledge in the use of statistical applications such as SPSS, SAS or Excel	28	1.96	1.138
Q6_g - Knowledge of advanced statistical techniques such as enrollment projections, regression analysis, ANOVA, etc.	28	1.68	1.020
Q6_h - Knowledge of techniques or tools to extract data from your ERP system such as Datatel/Ellucian, Banner, Jenzabar	28	2.29	1.182
Q6_i - Knowledge of business intelligence tools related to strategic planning & decision making such as dashboards, data warehouses, data mining, etc.	28	2.46	1.201
Issues Tier			
Q7_a - Awareness of proposed or pending legislation in the State of NJ impacting the community college sector	28	4.18	1.020
Q7_b - Awareness of proposed or pending federal legislation impacting the community college sector	27	4.04	1.018
Q7_c - Understanding of proposed or pending legislation in the State of NJ impacting the community college sector	28	3.86	.970
Q7_d - Understanding of proposed or pending federal legislation impacting the community college sector	27	3.78	1.013
Q7_e - Understanding of key management issues for community colleges in NJ such as enrollment management, instructional cost, and academic prioritization, etc.	28	2.82	1.219
Q7_f - Understanding of key issues related to strategic planning	28	2.43	1.069
Q7_g - Understanding of key issues related to institutional effectiveness or accreditation	28	2.82	1.188

	n	M	SD
Q7_h - Understanding how decisions are made, formally and informally at a community college	28	2.57	1.034
Q7_i - Understanding of techniques for working with and through others to accomplish goals at my institution	28	2.50	1.171
Contextual Tier			
Q8_a - Knowledge of key institutional processes that impact decision-making at a community college	28	3.11	1.227
Q8_b - Ability to have a positive influence or impact on decision making at my institution	28	2.96	1.138
Q8_c - Understanding of strategies for navigating the political arena at my institution	28	2.29	1.150
Q8_d - Knowledge of how to identify key players at my institution	28	2.25	1.236
Q8_e - Understanding the culture and history of community colleges in NJ	27	2.89	1.188
Q8_f - Knowledge of the internal environment in which my institution operates	28	2.25	1.143
Q8_g - Knowledge of the external environment in which my institution operates	28	3.18	1.188
Q8_h - Understanding of techniques for working with both internal and external constituencies groups such as the Board of Trustees, community members, or state or national advocacy groups, etc.	28	2.46	1.138
Q8_i - Understanding of techniques for managing expectations of IR from different constituency groups such as administrators, faculty, staff, or Board of Trustees, etc.	28	2.79	1.101

Appendix C

Open Ended Comments from Survey Participants

ID	Membership Length	Q14 - Purpose of IRAG in your own words
5.00	One Year or less	Discuss issues related to IR reporting requirements.
6.00	More than 5 years	A forum to share information, get updates from the NJCCC.
7.00	More than 5 years	The purpose of the group is facilitate statewide initiatives from the community college presidents and to provide a venue for collaboration and sharing of best practices in the field of IR.
8.00	More than 5 years	To understand and interpret the rules for a level playing field.
9.00	One Year or less	Allow for a community to come together and answer common questions, work through requirements together, and discuss strategies in meeting internal and external requirements.
10.00	One Year or less	The IR affinity group is a great resource for all IR professionals. It ensures consistency in reporting and provides an opportunity to discuss impact of such requirements. It additionally provided opportunities to enhance the field and thereby, each of our institutions.
11.00	2 to 5 Years	Making us on the same page in understanding the federal and state requirements on data reporting; Making us current on the status of the legislatorial changes; Exchanging on the information of the tools used for data mining and dissemination.
12.00	2 to 5 Years	A forum for IR personal to exchange the ideas of new projects, new technical tricks, college marketing trends, announcements from government.
14.00	2 to 5 Years	The affinity group is an advisory group to community college presidents in NJ. The collective perform sector-wide analyses on academic issues, funding, and policy. The results from these analyses should assist college presidents and administration with data-driven decision making.
18.00	2 to 5 Years	A collaborative group that supports state level data initiatives to improve and affect change with student success.

ID	Membership Length	Q14 - Purpose of IRAG in your own words
19.00	More than 5 years	The IR group's purpose is to respond to requests from the President's Council on Federal/State/ and local issues. It at times acts as an advising body to the President's Council on the feasibility of some of these requests and aids in the decision-making process.
20.00	2 to 5 Years	The purpose as I understand it, was originally an outcome of Best Practices. The group was devised to work on the Student Success Model and to share best practices that would elevate the work of IR offices.
21.00	2 to 5 Years	To share best practices and knowledge. To be informed by NJCCC regarding issues affecting our sector and higher education in general.
22.00	2 to 5 Years	I think the main purpose of the group is to help policy leaders make more informed decisions. We serve as experts on a host of issues and the Council relies on us for our knowledge and expertise. I think the secondary goal of the group is to form a network of colleagues to share best practices.
23.00	One Year or less	The purpose of the IR affinity group is to facilitate networking among community college institutional researchers in the state of New Jersey.
24.00	One Year or less	Serve as a resource for IR professionals in the NJ community college sector, including sharing best-practices, policy discussions/updates, and standardization of data collection (where appropriate). Also involved in design and data collection for sector-wide analyses.
29.00	More than 5 years	Provide an environment which allows the sector to present itself in a unified way to state government. Share experiences as they relate to state and federally mandated reports. On a more cynical note it gives the NJCCC a reason for existing.
30.00	More than 5 years	To exchange IR knowledge with my counterparts from other institutions. Also the passing of information to and from the President's council.
32.00	2 to 5 Years	Information sharing; Relationship building; Clarification of requirements

ID	Membership Length	Q15 - Benefits of participating in IRAG
5.00	One Year or less	Learning what other CCs are doing.
6.00	More than 5 years	Keeping us informed regarding new mandates, Perkins, state funding, Presidents Council initiatives. Gaining contacts. Developing a network of resources.
7.00	More than 5 years	Networking with other IR professionals and having other IR experts to ask questions and share knowledge and experience with.
8.00	More than 5 years	Equal knowledge and interpretation.
9.00	One Year or less	Ability to connect with professionals who have more experience working in the area. Folks know the nuances of reporting criteria, use the same SIS system, etc.
10.00	One Year or less	Resources and support
11.00	2 to 5 Years	Getting an awareness of changes and exchanging information.
12.00	2 to 5 Years	Finding the benchmark to see how our office or college is doing among all institutions.
14.00	2 to 5 Years	I've made professional contacts who have helped me out with my daily tasks and projects at my home organization. My IR knowledge has increased a great deal since participating. The listserv is a great tool/resource.
18.00	2 to 5 Years	Sharing of ideas about projects within the IR office, interpretation of definitions for federal and state reporting and hearing about what issues being discussed at the state level that impact our role as community college IR offices.
19.00	More than 5 years	Awareness of issues and up coming research requests. Also acts as a great networking opportunity and support from like-minded individuals.

ID	Membership Length	Q15 - Benefits of participating in IRAG
20.00	2 to 5 Years	Troubleshooting data questions/definitions and learning from colleagues on how to approach different reporting requirements. Best practices for IR endeavors are also shared.
21.00	2 to 5 Years	I've learned much from my colleagues, they're an invaluable resource. It's also a good networking opportunity.
22.00	2 to 5 Years	Getting to know my fellow IR colleagues and forming professional relationships that will hopefully stay with me throughout my career. It's great to have a network of individuals who understand the challenges and issues that IR professionals face. I feel like I can rely on them for advice and helpful insight.
23.00	One Year or less	Making contacts with other institutional researchers from the state of New Jersey.
24.00	One Year or less	A professional (and sometimes also personal) connection through something like the IR affinity group is especially valuable in a field like IR, where many offices are small, and the knowledge is specialized; when you can't just walk down the hall to ask a colleague "hey, what do you think about XYZ" it is particularly helpful to have a statewide network of other IR professionals. It's also helpful in keeping everyone up-to-date on necessary information, such as VEDS deadlines, changes to data definitions, etc.
29.00	More than 5 years	Develop professional relationships. Seek help from people in the same data driven boat as you.
30.00	More than 5 years	Providing a forum to discuss common issues, provide support for newer members, provide a conduit for statewide issues.
32.00	2 to 5 Years	As previous (Information sharing; Relationship building; Clarification of requirements)

ID	Membership Length	Q16 - Negative aspects of participating
5.00	One Year or less	Having the time to attend the meetings.
6.00	More than 5 years	Time and work. If you are a member of a small workgroup, the time commitment can be very challenging. Also, some of the projects we take on (for the NJCCC or the Presidents) are very time consuming.
7.00	More than 5 years	Travel to the meetings is sometimes a burden and the "additional" projects that come out of some of the meetings with NJCCC is a challenge to balance with the already heavy workload.
8.00	More than 5 years	The differences in operations.
9.00	One Year or less	Finding the time to connect to folks, even though I realize it would be beneficial.
10.00	One Year or less	None
11.00	2 to 5 Years	None.
12.00	2 to 5 Years	When I was a new IR person, it's hard to understand what others were talking in the affinity group meeting.
14.00	2 to 5 Years	n/a
18.00	2 to 5 Years	Politics at individual institutions. Also the dynamics between college leadership and the Council of County Colleges.
19.00	More than 5 years	Dealing with variances in how other institutions operate that make some requests impossible to complete. Also, finding the time to be an active participant.
21.00	2 to 5 Years	The travel.
22.00	2 to 5 Years	[redacted] is great at providing us with the big picture, but I think sometimes that perspective is lacking in our discussions and we get 'bogged down in the weeds'.

24.00	One Year or less	I think the group works very well, and I think it's fantastic that it exists! I have been fortunate to be able to attend most of the meetings in my year of membership, which I know must be an issue for some colleges due to time, geography, etc.
29.00	More than 5 years	Responding to (and putting up with) NJCCC requests and what I would characterize more as interference than help.
30.00	More than 5 years	Keeping track of who is from what institution.
32.00	2 to 5 Years	Time necessary to travel to meetings

ID	Membership Length	Q17 - In what ways if any can the IRAG be improved
5.00	One Year or less	Spend time discussing how existing IR information can be used by the colleges to make strategic decisions such as strategic enrollment management plans and portfolio of offerings.
6.00	More than 5 years	It would be really nice to have presentations from our members regarding how they've used data, such as the results of the NCCBP, CCSSE, or Achieving the Dream data. It might also be helpful to have a website with job postings, common due dates, upcoming conferences or professional development activities, etc.
7.00	More than 5 years	Keep to a tighter schedule in the morning so there is time for professional development workshop or discussions in the afternoon or consider flipping the meetings to the afternoon and have the workshop/topic in the morning when everyone is fresh and can tackle a meaningful, in depth discussion related to an IR topic.
10.00	One Year or less	Meet monthly and also provided workshops/training continually
11.00	2 to 5 Years	None.

ID	Membership Length	Q17 - In what ways if any can the IRAG be improved
12.00	2 to 5 Years	Meet more frequently, add more topics in the meeting.
14.00	2 to 5 Years	n/a
18.00	2 to 5 Years	Perhaps more sharing of ways that individual offices are increasing efficiency. For example a 5-10 minute presentation/demonstration at each meeting of tools being used.
19.00	More than 5 years	Increase the level of response and participation from the membership. Also, offering training or Best Practices at the technical level would broaden the scope of knowledge to ultimately allow for processes to be more efficiently executed.
22.00	2 to 5 Years	I think the various subgroups and subcommittees could be more organized. There should be leaders of each group and they should meet regularly and report out to the larger group. I feel like we try to do this but it never ends up working out that way.
24.00	One Year or less	I was a member of the CA Community Colleges' Research and Planning Group for 5+ years; while that is a very different group in terms of mission, size, and financial/staffing resources, one thing I appreciated was that any IR staff (actually, anyone at all, I think) could subscribe to the listserv and have direct access to its information: asking/answering questions, and receiving updates about policies and information about professional development opportunities, etc. I know that does not fit with the NJ affinity group model, and it no longer affects me personally since my Director and President supported my membership in the NJCCIRPAG, but I do think there is something to be said for having some channels of information that are more inclusive.
32.00	2 to 5 Years	Let's keep all of the meetings in central NJ.