# IDENTIFICATION OF LEADERSHIP PRIORITIES FOR DIETETICS EDUCATION: A DELPHI STUDY

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## ABSTRACT

Leadership development is important for the profession of dietetics. However, specific leadership skills needed by entry-level registered dietitians are not clear. A Delphi study was conducted to define leadership for dietetics and identify leadership knowledge, skills, training, and experiences required for dietetics education programs. Panelists were comprised of practitioners serving in professional leadership positions and educators in dietetics programs (N=105). Forty panelists (38% response rate) participated by completing three rounds of questionnaires. In round 1, panelists were asked to define leadership for dietetics, and identify leadership knowledge, skills, training and experiences essential for educational programs. Content analysis was conducted to identify themes. Rounds 2 and 3 asked panelists to rate each statement on importance for entry-level practice and necessity for dietetics education programs, respectively. Rounds 2 and 3 were analyzed using descriptive statistics to identify priority statements reaching consensus of 80% or higher. Additionally, a chi-square analysis was conducted to identify relationships between round 2 and round 3 responses. Experts identified promoting teamwork and collaboration, professionalism, and honesty as important in a definition of leadership. Twenty-five statements of leadership knowledge, skills, training, and experiences reached consensus as being absolutely necessary for dietetics education, particularly with an emphasis on communication, teamwork, critical thinking, professional ethics, life-long learning, evidence-based practice, nutritional science and medical nutrition therapy, organizational skills, goal setting, and nutrition education. Highly valued leadership priorities were observed ($p<0.05$) based on chi square analysis for knowledge of medical nutrition therapy; knowledge of how to speak confidently; written, oral, and electronic media communication skills; projects requiring critical thinking and

decision making; projects requiring assessment, goal setting and implementation; and development of patient education materials. An additional chi-square analysis was conducted to observe relationships between ratings of panel groups by leadership role. Discrepancies were observed between practitioners' and educators' ratings in 31 out of 202 leadership statements indicating contrasting leadership perspectives based on professional role with mostly higher ratings by practitioners. This research reaffirms the importance of leadership for dietetics practice, provides evidence to support leadership curriculum development for dietetics programs, and sets ground work for future exploration of leadership development both within education programs and for dietetic practitioners.

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## DEDICATION

I dedicate this dissertation to all of the amazing registered dietitian nutritionists who have served in leadership positions and worked to advance the profession. In particular, this is dedicated to my colleagues in the Idaho Academy of Nutrition and Dietetics who have mentored me and inspired me to study leadership.

# TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

# CHAPTER 1

# INTRODUCTION

Leadership is defined by Northouse (2007) as "a process whereby an individual influences a group of individuals to achieve a common goal" (p. 3). The profession of nutrition and dietetics values and emphasizes leadership for its practitioners. Registered Dietitian Nutritionists (RDNs) serve to provide leadership in the area of food and nutrition. This role requires entry-level RDNs to possess leadership skills, and places expectations on dietetics education programs to develop dietetic students' leadership ability. This study examined the leadership knowledge and skills required for entry-level dietetics practice and identified the training and experiences recommended for development of leadership in dietetics education programs. Chapter 1 includes a background to dietetics leadership and introduces the study by addressing the problem, purpose, research questions, epistemological stance, theoretical orientation, limitations, delimitations, rationale, and significance.

## Background

### The Registered Dietitian Nutritionist

A Registered Dietitian (RD) or RDN is an expert in food and nutrition who qualifies for the credential by meeting academic and professional requirements (Academy of Nutrition and Dietetics Student Center, 2013). This credential protects the public by ensuring the practitioner has met standards for education and training along with demonstrating knowledge by passing a national examination. Practice of RDNs is diverse with seven main practice areas identified for the profession. Table 1 illustrates the seven practice areas in the field of dietetics along with percentages of RDNs working in each area. At entry-level, an RDN practitioner is trained to work in (a) clinical nutrition (including acute, ambulatory, and long-

term care; (b) food and nutrition management; and (c) community dietetics which are the top practice areas as illustrated in Table 1 (Winterfeldt, Bogle, & Ebro, 2014).

Table 1

*Dietetics Practice Areas and Percentage of Dietitians*

| Practice Area | Percentage of RDNs |
|---|---|
| Clinical nutrition acute care/inpatient | 30% |
| Clinical nutrition ambulatory care | 17% |
| Clinical nutrition long-term care | 9% |
| Food and nutrition management | 12% |
| Community | 11% |
| Consultation and business | 8% |
| Education and research | 7% |
| Other | 6% |

*Note.* Adapted from "Primary Area of Practice by Dietitians (Percent)" (Winterfeldt, Bogle, & Ebro, 2014, p. 11) and "Percentages of Dietitians in the Seven Practice Areas in the Field of Dietetics" (Payne-Palacio & Canter, 2014, p. 33).

The roles of RDNs in both entry-level and advanced practice settings are varied and diverse. However, some general characteristics for job functions exist within each defined practice area (Payne-Palacio & Canter, 2014; Winterfeldt et al., 2014). Clinical dietitians work in medical facilities delivering medical nutrition therapy to patients with specific health conditions such as diabetes, renal disease, heart disease, cancer, and other conditions. The practice area includes acute (inpatient), ambulatory (outpatient), and long-term care. Many RDNs in clinical nutrition become specialists with advance certifications. Community dietitians work for government agencies and programs such as school nutrition, Women

Infants and Children (WIC) and Cooperative Extension as well as community programs such as food banks, corporate wellness, and others.

Management dietitians work to operate facilities and programs. Foodservice is a common management field where RDNs direct hospital, school-district, and other foodservice facilities. In addition, dietetic managers are needed in both the clinical and community practice settings. Beyond these entry-level practice areas, RDNs work in education, research, consulting, business/entrepreneurial roles, and other specialty practice settings. A wide-range of opportunities exists within the dietetics field. This study focused on leadership competencies needed for entry-level roles of RDNs in any area of the field.

**Dietetics Education**

Dietetics education is overseen by the Accreditation Council for Education in Nutrition and Dietetics (ACEND), formerly known as the Commission on Dietetics Education (CADE) (Accreditation Council for Education in Nutrition and Dietetics, 2013). The role of ACEND, the accrediting branch of the Academy of Nutrition and Dietetics, is to protect both the public and students by ensuring the quality of education programs for nutrition and dietetics professionals. Figure 1 illustrates the organization units of the Academy. Dietetics education incorporates two components: (a) didactic coursework that teaches core knowledge requirements, and (b) supervised practice experience during which students must demonstrate required competencies (Academy of Nutrition and Dietetics Student Center, 2013; Accreditation Council for Education in Nutrition and Dietetics, 2012). To become an RDN, students can complete a didactic program, and then apply to a dietetic internship program. Another option is a coordinated program where students complete didactic requirements and supervised practice experiences concurrently. Both types of programs must

be accredited by ACEND, and must cover core knowledge and competency requirements for dietetics. The most recent requirements are the *2012 Core Knowledge and Competencies Standards for the RD* (Accreditation Council for Education in Nutrition and Dietetics, 2012). The current standards include no specific leadership knowledge requirements, and only two leadership competency requirements. The competency requirements are for dietetic students to demonstrate leadership ability and to serve in professional organizations during supervised practice experiences (Skipper, Young, & Mitchell, 2008).

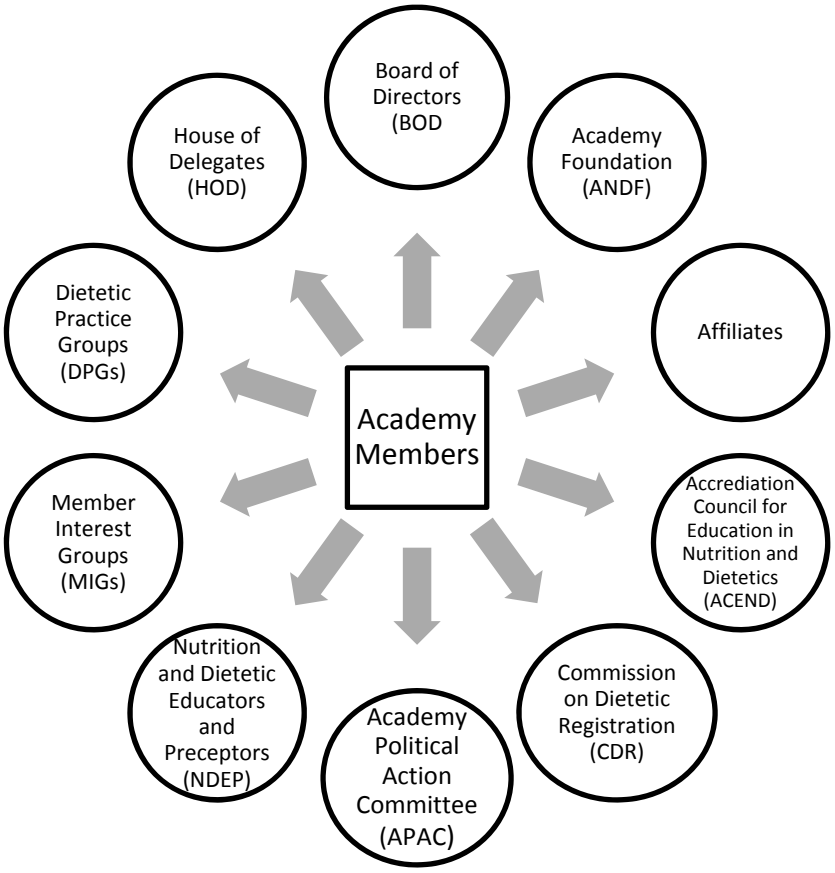


*Figure* 1. Organization Units of the Academy of Nutrition and Dietetics. Adapted from the Academy of Nutrition and Dietetics (2013).

## Leadership Roles in Dietetics

Leadership roles in dietetics are either internal to the profession or external (Capra, 2012). For example, internal leadership is the influence of RDNs within practice settings and professional organizations while external leadership influences local and national policy. The literature related to dietetics leadership focuses on leadership roles internal to the profession. The mission of the Academy of Nutrition and Dietetics (formerly the American Dietetic Association) is "empowering members to be the nation's food and nutrition leaders" (Academy of Nutrition and Dietetics, 2013, para. 1). Registered dietitian nutritionists lead in the area of food and nutrition in a variety of ways. First, RDNs lead through the public promotion of food and nutrition to the public to improve health. Second, RDNs hold various leadership positions; most commonly, work positions where leadership functions are part of the job description. Management positions are a common example. Third, many volunteer leadership positions exist within different organizations related to the profession. In order to fulfill the mission of the Academy of Nutrition and Dietetics, RDNs must not only continue in internal leadership roles, but must increase external leadership roles to influence international and national policy (Capra, 2012). Graduates from dietetic education programs must be prepared to serve in leadership positions and fulfill this mission of being a food and nutrition leader both internally and externally to the profession.

## Problem Statement

According to the Center for Creative Leadership (CCL) (2010) "the healthcare sector is experiencing significant and rapid change, with dramatic change yet to come" (p. 3). The dramatic forecasted change is becoming a reality with the implementation of the Affordable Care Act; a policy change requiring competent leaders (Garman & Lemak, 2011). While the

need to adapt during change is evident, leadership skills needed for a complex environment are not clear (CCL, 2010). Healthcare organizations "must develop the leadership capacity needed to adapt and succeed in the future" (CCL, 2010, p. 3). A gap in leadership exists in healthcare. Garman and Lemak (2011) recognized a shallow body of evidence supporting many common leadership practices and a need to identify leadership competencies for the future of healthcare.

The Academy of Nutrition and Dietetics also has identified a need for leadership development in the dietetics profession (Smith-Edge, 2003). Steps have been taken to include leadership development in dietetics education programs and prepare dietetic students for leadership roles. In 2008, ACEND implemented new competencies requiring dietetic students to demonstrate leadership ability, and to serve in professional organizations during supervised practice experiences (Skipper et al., 2008). However, leadership topics were not added to the didactic curriculum core knowledge requirements. Without specifying leadership core knowledge requirements, students are expected to demonstrate leadership competencies without previous education related to leadership.

Leadership has become a critical component to healthcare professions (Abdolijavad, Soudabeh, Reza, Ahmad, Ali, & Ali, 2012; CCL, 2010; Garman & Lemak, 2011), including dietetics. Like for other healthcare professions, it is unclear what competencies are needed to prepare dietitians for leadership in an environment of change (CCL, 2010). The challenge faced by dietetic educators is lack of direction and limited resources for the leadership development of dietetic students. Guidelines are needed for dietetic educators in preparing students for leadership, and evidence is needed to support leadership development strategies

in dietetics education. Identification of leadership priorities for dietetics education helped fill this gap by providing guidelines for leadership development.

## Significance of Study

A lack of literature exists on leadership and dietetics. This study contributed to a greater understanding of leadership development in the dietetics profession. A second contribution to the field of dietetics was identification of a definition of leadership for dietetics. Third, the study determined leadership knowledge, skills, training, and experiences required for entry-level dietetics practice and inclusion in dietetics education programs. As previously noted, a challenge exists for dietetic educators to prepare RDNs for leadership roles. Current requirements for leadership development are limited within dietetics education programs. Leadership development programs for RDNs do not appear to be based on research, nor are the programs tested for effectiveness.

Capra (2012) avowed, "It will take leadership and vision to transform the curriculum, and it will take leadership and vision to see what dietetics can become: linking health, nutrients, and food" (p. 180). The profession of dietetics must prepare for the future, and leaders in dietetics hold responsibility to position the profession for change. Registered dietitian nutritionists must have the skills to emerge as internal leaders to move the profession forward and external leaders to be the nation's food and nutrition leaders. Evidence and theory guide training of dietetic students. This study contributes to the understanding of leadership development in dietetics, and provides supporting evidence to guide educators in leadership training for dietetic students.

## Purpose of Study

The purpose of this study was to identify leadership priorities for dietetics education. Using the Delphi technique, experts in the field of dietetics provided opinions to reach consensus about: (a) a definition of leadership for dietetics, (b) leadership knowledge and competencies that should be required for dietetics education, (c) training in the classroom for leadership development of dietetic students, and (d) experiences outside of the classroom for leadership development of dietetics students. To answer the research questions, experts were identified in both the areas of dietetics leadership and dietetic education. The Academy of Nutrition and Dietetics affiliate presidents were selected for the panel of experts in the area of dietetic leadership. Directors of Coordinated Programs in Dietetics (CPD) were selected as experts in the area of dietetics education. CPD directors were selected because they oversee both core knowledge and competencies for dietetics education as opposed to didactic or internship program directors which would oversee one or the other.

A second purpose of this study was to compare expert leader opinions between dietetic practitioners (affiliate presidents) and dietetic educators (CPD directors). Comparisons of leadership opinions between group panels contributed to leadership theory. An understanding of diverse views about the importance of leadership depending upon professional position was established.

### Research Questions

Dietetic education programs must prepare graduates for leadership roles both internal and external to the field of dietetics. To provide guidance to dietetic educators for the leadership development of dietetic students, this study addressed the primary research question:

1. What core knowledge and competencies related to leadership are essential for dietetics education?

In order to answer this question and develop a model of leadership development for dietetic education, the following sub questions were asked:

   a. How do affiliate presidents and CPD directors define leadership for dietetics?
   b. What do affiliate presidents and CPD directors identify as essential core knowledge and competencies in leadership for dietetics education?
   c. What do affiliate presidents and CPD directors identify as recommended training within the classroom for leadership development of dietetic students?
   d. What do affiliate presidents and CPD directors identify as recommended experiences outside of the classroom for leadership development of dietetic students?

To address the second purpose of this study, the following research question was asked:

2. How do the leadership views of dietetic practitioners in leadership roles compare with those of dietetic educators in leadership roles?

## Epistemological Stance and Theoretical Orientation

The epistemological stance and theoretical framework influenced how the study was implemented and how the results were interpreted and reported. This study was informed from an epistemological stance of constructionism. The underlying view was that meaning was constructed from this study by reaching a consensus on dietetic leadership education from expert opinion. Knowledge was socially constructed from within the dietetics profession to

inform dietetics leadership education. The epistemology of constructionism views knowledge from the standpoint that "meaning is not discovered, but constructed" (Crotty, 1998, p. 8). This view fits well with the consensus building approach of the Delphi technique. The methods included repeated on-line questionnaires to a panel of experts in order to reach a group consensus. Slife and Williams (1995) point out that "no one demonstration can verify, falsify, or establish the truth of the matter or way things are" (p. 196). The study approached the problem using a group of experts who provided opinions and then worked toward consensus on a solution. Meaning was being constructed, and not an absolute truth.

An interpretivism theoretical framework was used to guide the study. One key element was identification of a common language and competencies for dietetics leadership. Slife and Williams (1995) noted, "Everything human beings do, because it involves language, understanding, and knowing, is interpretive. Also, this lived experience is richly contextual, situated in a history and network of social relations and interpretations" (p. 160). Interpretation of experiences fit well with the Delphi technique to construct meaning (a consensus) through interpretation of expert opinions. Keeney, Hasson, and McKenna (2011) emphasized, "The Delphi technique does not produce any right or wrong answers or any definitive answers; instead, it produces valid expert opinion" (p. 9). Crotty (1998) claimed that interpretivism, in particular symbolic interactionism, stems from pragmatism. The purpose of the study also fit well with pragmatism, being focused on outcomes. The study had a practical application of recognizing the best way to prepare dietetic leaders, and to develop a model of leadership development for dietetics education.

## Limitations and Delimitations of Study

A limitation of this study was the results can not be generalized, a commonly cited limitation of the Delphi technique (Skulmoski, Hartman, & Krahn, 2007). Use of a convenience sample for expert opinions is utilized for the Delphi technique. Without a representative sample, the results are not generalizable. This study sought to gather a consensus on leadership knowledge, skills, training, and experiences required for dietetics education through expert opinion. Future research is needed to determine effectiveness of the identified leadership priorities when applied to leadership development of dietetic students.

The scope of this study was limited to dietetics education. A comprehensive definition of dietetic leadership was desirable, but not feasible for this study. The boundaries of this research limited dietetic leadership to the education segment. Defining leadership for dietetics education looked specifically at the leadership core knowledge and competencies required for dietetics education and strategies to best achieve these outcomes. Education programs must prepare students for entry-level practice. The knowledge, skills, training, and experiences for leadership focused on this educational segment of the profession. It is understood that advanced practice levels exist that may require additional leadership competencies. However, this study focused on competencies expected for entry-level and achievement within an ACEND accredited dietetics education program.

## Rationale for Study

The need to study leadership for dietetics education was partially determined through personal experience and reflection in leadership positions along with personal communication with other RDNs in leadership and educator roles. Filling leadership positions within dietetic associations, particularly in smaller states such as Idaho, is an observed challenged.

Graduates of dietetic programs moving into entry-level positions may not be prepared to function in leadership positions. In addition, observations as a dietetic educator have illustrated the complexity of preparing students to fill leadership roles.

The sustainability of the dietetics profession requires RDNs to fill leadership positions in both practice areas and volunteer organizations. Hunter, Lewis, and Ritter-Gooder (2011) stated, "Proficient leaders are critical in keeping our profession on the cutting edge by identifying areas of need for change and providing leadership for change" (p. 1804). The need for leadership in dietetics has been noted in the literature for over twenty years; however, limited research has been conducted in this area (Barker, Arensberg, & Schiller, 1994; Gregoire & Arendt, 2005). Despite limited research in dietetics leadership, the Academy of Nutrition and Dietetics has made a commitment to invest in the development of leadership skills for its members (Laramee, 2005; Smith-Edge, 2003). This commitment has resulted in several outcomes related to leadership development.

First, in 2004 the Academy of Nutrition and Dietetics implemented the annual Leadership Institute with a goal of improving leadership skills for RDNs (Laramee, 2005; Smith-Edge, 2003). However, the outcome only provided leadership training for a small group of RDNs. A limited number (300-400 members) were invited to attend each year. In order to be invited, an RDN must have already accepted a leadership position. A selective enrollment for the Leadership Institute did not address the challenges of motivating RDNs to participate in leadership positions, or training all members of the profession to be leaders. After eight years, the Leadership Institute ceased in order for leadership training programs to be evaluated (Academy of Nutrition and Dietetics Academy Member Center, 2013). Instead,

a new Leadership Certificate of Training program was offered on-line to all members in 2012. Currently, no evaluations or outcomes from the new training program have been reported.

A second outcome of the Academy of Nutrition and Dietetics' commitment to leadership is the implementation of leadership competencies that must be met by dietetic students. The implementation of competencies is a positive step in leadership development for dietetic professionals; however, the competencies are broad and lack adequate explanation. Students are required to demonstrate leadership during supervised practice experience, but no clear definition of leadership and guidelines are available. Standards for successful demonstration of leadership are left to interpretation of instructors and preceptors. It is a reasonable expectation for dietetic education programs to provide leadership development for students and ensure leadership competence. However, this role requires dietetic educators to be competent in providing leadership training and possess skills to prepare dietetic students for leadership roles. In addition, a clear definition of leadership including core knowledge and competencies are needed for dietetic educators as they provide leadership development.

Insights from the study helped to define leadership for dietetics education, identify leadership core knowledge and competencies essential for dietetics education, identify recommended strategies for preparing dietetic students to be effective leaders in the profession, and identify leadership views contributing to dietetic leadership and leadership theory. Results provided a foundation for development of a leadership competency framework for dietetics education. The call from Gregoire and Arendt (2005) to "determine strategies for preparing dietitians to be effective leaders" (p. 401) must be heeded by dietetic

educators in order to provide leadership development, and to plan experiences for students to meet the leadership competencies.

## Definition of Terms

The field of dietetics includes multiple terms commonly understood by professionals. Several terms have already been introduced. For the benefit of readers outside of the field, a list of terms has been compiled for reference (Academy of Nutrition and Dietetics, 2013; Payne-Palacio & Canter, 2014; Winterfeldt et al., 2014).

Registered Dietitian (RD) or Registered Dietitian Nutritionist (RDN): The RDN is a food and nutrition expert. The national credential is earned through accredited education, training, and passing a national examination. In 2013, the RDN credential was established for optional use to include the term nutritionist in the title.

The Academy of Nutrition and Dietetics (the Academy): Formerly the American Dietetic Association (ADA), the Academy of Nutrition and Dietetics is the largest organization representing food and nutrition professionals.

Affiliates: Within the Academy, each state has an affiliate organization that serves as the organization for food and nutrition professionals within that state. State affiliates provide many leadership opportunities for RDNs.

Dietary Practice Groups (DPGs): Within the Academy, DPGs are specialized practice groups that allow members to network with professionals in their practice areas. DPGs provide many leadership opportunities for RDNs.

Accreditation Council for Education in Nutrition and Dietetics (ACEND): Formerly the Commission on Dietetics Education (CADE), the Academy's accrediting agency for

overseeing dietetics education. ACEND certifies the quality of dietetics education and sets standards for dietetics education programs.

Commission on Dietetics Registration (CDR): the Academy's credentialing agency which oversees the RD/RDN credential. CDR maintains the standards for registration status, and monitors continuing education for practitioners. In addition, several advanced practice certifications are issued through CDR.

Coordinated Programs in Dietetics (CPD): Dietetics education programs accredited by ACEND that include didactic coursework and 1200 supervised practice hours. CPDs cover both core knowledge and competency requirements. Graduates of the CPDs are eligible to sit for the registered examination for registered dietitians.

Didactic Programs in Dietetic Program (DP): Dietetics education programs accredited by ACEND that include didactic coursework. DPs cover core knowledge requirements. Graduates receive a verification statement upon completion of the DP, and must complete a Dietetic Internship in order to be eligible to sit for the registration examination for registered dietitians.

Dietetic Internships (DI): Dietetics education programs accredited by ACEND that include 1200 supervised practice hours. DIs cover the required competencies for registered dietitians. Internship applicants must have a verification statement of completion from an accredited DP.

Core Knowledge: Knowledge requirements for the didactic coursework in CPD and DP education programs determined by ACEND that prepare students to attain the required competencies.

Competencies: A set of knowledge, skills, values and behaviors that are expected for practitioners. Competencies for dietetics education lay out the minimum performance standards for entry-level practice.

Supervised Practice (SP): Professional learning experiences required during CP and DI education programs determined by ACEND during which students perform tasks to demonstrate required competencies. At least 1200 SP hours are required.

Dietetic Educators: Faculty in dietetic education programs and preceptors for supervised practice in coordinated and internship programs.

Preceptor: A practitioner that oversees the dietetic students SP hours, provides training, models professional behaviors, and documents demonstration of required competencies for the student.

Registration Examination for Registered Dietitians: The final step in the dietetic registration process. After completing didactic education and supervised practice, students must pass the registration exam to become certified as an RD/RDN.

Entry-Level Dietetics Practice: The first three years of practice following registration. Entry-level practice areas commonly include clinical dietetics, community nutrition, and foodservice management positions.

Continuing Professional Education (CPE): Requirements for renewed certification of the RD/RDN credential. Practitioners must complete 75 CPE hours during every 5 year certification cycle. CPEs are planned and approved through the Academy's Professional Development Portfolio Process (PDP).

## Summary

In Chapter 1 the topic of dietetics leadership was introduced along with the Delphi study, which investigated leadership priorities for dietetics education. The problem, purpose, research questions, epistemological stance, theoretical orientation, limitations, delimitations, rationale, and significance were addressed. In Chapter 2 literature related to dietetic leadership and the Delphi technique is presented. Methods of the study are detailed in Chapter 3. The dissertation is written in a manuscript format with two manuscripts intended for journal submission. The Chapter 4 leadership manuscript focuses on the first research question and sub questions. The Chapter 5 comparison manuscript addresses the second research question. Finally, Chapter 6 contains expanded results, discussion, summary and conclusions of the research study.

# CHAPTER 2

# REVIEW OF LITERATURE

Chapter 2 focuses on literature related to the Identification of Leadership Priorities for Dietetics Education Delphi study. This study contributed to dietetics leadership literature through the identification of leadership knowledge, skills, training, and experiences recommended for dietetics education. The first part of the chapter reviews the history of the dietetics profession, provides an overview of leadership, describes leadership literature related to dietetics, discusses the importance of leadership for the field of dietetics, reviews leadership literature in professional fields, and introduces leadership competencies, development, and curriculums. The second part of Chapter 2 focuses on the Delphi technique, presenting the history, discussing recommendations for implementation, and reviewing Delphi literature related to dietetics and leadership.

## History of the Dietetics Profession

The profession of dietetics is relatively young; however, the history of dietetics practice can be traced to ancient times. Dietary prescriptions for health are found in the Bible, ancient writings, and other historic documents (Payne-Palacio & Canter, 2014). Throughout centuries, dietary advice has been documented, but most lacked sufficient scientific evidence. Early medical facilities lacked proper diets and showed little concern for nutrition. The Registered Dietitian credential was not established until the 1960s; however, earlier contributions to the field led to improved dietetic practice.

During the Crimean War, Florence Nightingale began foodservice for troops which improved their diet and reduced the mortality of injured soldiers (Payne-Palacio & Canter, 2014). In the United States, Sarah Tyson Rorer is considered the first American dietitian.

She established the Philadelphia Cooking School in 1878 where students took classes resembling an early dietetics curriculum such as chemistry, physiology, hygiene, nutrition, and cooking for the sick (Payne-Palacio & Canter, 2014). In 1899, the term dietitian was first defined at the Lake Placid Conference on Home Economics. This definition recognized dietitians as individuals specializing in knowledge of food and having the ability to provide diet therapy within the medical profession.

Establishment of the Academy of Nutrition and Dietetics (formerly the American Dietetic Association) contributed to advancement of the dietetics profession in the twentieth century (Winterfeldt et al., 2014). A special meeting of dietitians was held in 1917, which led to the formation of the American Dietetic Association. Led by Lulu Grace Graves as president and Lenna Frances Cooper as vice president, the association had 39 charter members (Payne-Palacio & Canter, 2014; Winterfeldt et al., 2014). These early leaders rallied dietitians during wartime to address current needs, and blazed the trail for a new association and profession when the American Home Economic Association cancelled its meeting because of wartime. While leadership within the profession only began to be studied at the end of the century, strong leadership was clearly evident in the association's beginning.

Within a few years, as early as 1919, the association began to recommend standards for education (Winterfeldt et al., 2014). In 1927, *The Journal of the American Dietetic Association* published the first education standards for dietetics training (Payne-Palacio & Canter, 2014). The profession continued to advance because of the association's early steps to oversee education, training, and practice of its members (Winterfeldt et al., 2014). In 1969, dietetics registration was established. While many changes have been made, involvement of the association in education and professional practice still remains. Functions of education

and credentialing eventually led to establishments of ACEND and CDR, two independent branches of the Academy. Preparing leaders for dietetics is ultimately connected to the Academy of Nutrition and Dietetics.

While the profession of dietetics advanced in the U.S., it also grew internationally. Calabro, Bright, and Bahl (2001) conducted a survey looking at international perspectives in dietetics and had respondents from 61 different countries. They found that dietetics was a recognized profession in 81% of the countries, and most had a professional association. Clinical dietetics was the most common practice area. Availability of standards for educational programs, and credentialing requirements varied for each country. As evidenced by Calabro et al. (2001), dietetics is an international profession; therefore, international advancements of the profession would be beneficial for advocating a dietitian's role as the leader in food and nutrition.

## Introduction to Leadership

Several approaches and theories to leadership are used in the literature. Common approaches to study leadership include the trait approach, skills approach, behavior or style approach, and situational approach (Barker et al., 1994; Gregoire & Arendt, 2005; Northouse, 2007). One of the earliest views on leadership is the trait approach (Barker et al., 1994). The approach looks at the traits and characteristics that are exhibited by great leaders. Sometimes called "great man theories," early attempts to understand leadership were sought by studying great historical leaders. This view holds that great leaders have innate qualities and characteristics for leadership (Barker et al., 1994; Gregoire & Arendt, 2005; Northouse, 2007).

Similar to the trait approach, the skills approach focuses on the leader, but instead of characteristics it emphasizes the competence of leaders or what the leader can do (Northouse, 2007). Different skills of leaders have been identified, but the areas of Katz's three skill approach of technical, human, and conceptual skills are commonly applied in dietetics (Payne-Palacio & Theis, 2012). Technical skills involve performing specialized functions, such as cooking or menu planning. Human skills relate to understanding and motivating people. Finally, conceptual skills focus on leading an organization, and include functions such as visioning, and goal setting.

As leadership theories evolved, instead of looking at traits and skills leaders possess researchers began looking for the identifiable behaviors of leaders. The style approach, also called the behavior approach, emphasizes leaders' behavior, defined as the way they act and what they do (Barker et al., 1994; Gregoire & Arendt, 2005; Northouse, 2007). Behaviors can be categorized into two dimensions: (a) task behaviors, which focus on the job itself; and (b) relationship behaviors, which focus on human interaction (Gregoire & Arendt, 2005; Northouse, 2007). Research looking at leadership behaviors led to development of the Managerial Grid or Leadership Grid, a model commonly taught in dietetics management courses (Gregoire & Arendt, 2005; Northouse 2007; Payne-Palacio & Theis, 2012). This model suggests the best style of leadership is one where a leader has a high concern for people (relationships), and a high concern for results (tasks) resulting in a team management approach.

Finally, the situation approach looks at leadership beyond just a leader-centered view (leaders' traits, skills, behaviors), and focuses on the situation of leadership (Barker et al., 1994; Gregoire & Arendt, 2005; Northouse, 2007). A basic premise of this approach is that

different situations require different styles of leadership. One model suggests the style of leadership required in a situation is largely related to the development level of the followers (Northouse, 2007). When followers are in early development in a job or profession, a more directing style is needed. As followers develop, leadership styles require increasingly supportive behaviors from leaders (coaching and supporting style). Eventually a more delegating style for highly developed followers can be used which involves low direction and low support from a leader. Using the situation to determine a leader's approach is a basis for many of the situational leadership theories as opposed to simply using a leader based approach (Gregoire & Arendt, 2005). These theories include the Contingency Theory, Leader-Member Exchange, Path-Goal Theory, and others (Barker et al., 1994; Gregoire & Arendt, 2005).

In addition to leadership theories mentioned, many motivational and management theories are linked to leadership principles. For example, dietetics management textbooks frequently overlap between the concepts of management and leadership. Some of these theories include Theory X and Y, Herzberg's Dual Factor theory, Theory Z, and Expectancy Theory (Barker et al., 1994; Gregoire, 2013; Payne-Palacio & Theis, 2012). Because management is a practice area within dietetics, leadership is commonly included within the management curriculum of dietetics education. For this study, there was a distinction between management and leadership. Leadership was addressed for the entire profession of dietetics, not just RDNs in management positions. The Academy of Nutrition and Dietetics (2013) aims to empower all members as food and nutrition leaders, not just those in management roles.

Most leadership theories and approaches are incomplete because only two dimensions (manager tasks and relationships) are addressed (Barker et al., 1994). Missing from previously covered theories are values of people and explanations of why some organizations succeed while others do not. Barker et al. (1994) posited that the theory of transformational leadership can better address some of these issues, and has implications for dietetics practice. Transformational leadership is a process that transforms and changes people beyond just working to achieve a common goal (Northouse, 2007). Not only do the followers change, but the leaders as well; bringing everyone to a higher level of morality. Barker et al. (1994) describe transformational leadership as "about change, innovation, the empowerment of others, and power *with* others, and not *to* others" (p. 40). Transformational leadership is currently a common approach to leadership, and one that has been the subject of much research and practice.

## Leadership Literature in Nutrition and Dietetics

Leadership in dietetics has been previously defined as "The ability to inspire and guide others toward building and achieving a shared vision" (Borra & Kunkel, 2002; Gregoire & Arendt, 2005). As evidenced in the history of the profession, dietetics is built on the work of strong leaders uniting individuals who are working to meet food and nutrition needs (Payne-Palacio & Canter, 2014; Winterfeldt et al., 2014). The Academy of Nutrition and Dietetics continues to provide a network for leadership in dietetics. The organization relies on its members to fill leadership positions and provide support. In turn, the Academy works to achieve its mission of every member being a leader in food and nutrition. Leadership exists in multiple capacities from leading in the profession, leading in a job setting, to leading the public to better health through food and nutrition.

According to Capra (2012), literature on leadership and dietetics is extensive, especially in the United States. Despite a large number of published articles, many are commentaries or editorials versus research studies. Limited research has been conducted on dietetics and leadership. Over the past twenty years, numerous researchers and dietetics professionals have called for additional research in the areas of leadership and dietetics (Arensberg, Schiller, Vivian, Johnson, & Strasser, 1996; Barker et al., 2014; Gregoire & Arendt, 2005). Despite a recognized need for additional investigation, leadership and dietetics research is still limited.

Gregoire and Arendt (2005) reviewed leadership and dietetics research over the past 100 years. They identified eight studies conducted in leadership since 1993. One study was unpublished data, two were dissertations, and five were published studies. At the time of their review, most published research had been survey research focused on identifying characteristics, skills, and styles of dietetic leaders or looking at dietitians in management positions (Arendt & Gregoire, 2005; Gregoire & Arendt, 2005). For example, Schiller, Foltz, and Campbell (1993) used the Life Styles Inventory and identified two dominant styles: dependent and self-actualizing. Individuals with a more positive (self-actualizing) style were more likely to participate in leadership roles. Arensberg et al. (1996) used the Visionary Leader Behavior Questionnaire to compare self-perceptions of clinical nutrition managers to perceptions from their subordinates. Self-perceptions of managers were higher, with highest ratings in respectful leadership and lowest in communication leadership. Results identifying characteristics of dietetic leaders have been inconsistent, primarily because different instruments were used for assessment or different populations were compared. As such, no definitive list of characteristics, skills, or styles for dietetic leaders is available.

Since Gregoire and Arendt's (2005) review, additional studies have been conducted in the area of leadership and dietetics. However, few articles have been published. Dietetics leadership research is still limited, and additional investigation of leadership development for RDNs is needed.

**Dietetics Leadership Training and Development**

A need also exists for leadership training and development among dietetics professionals. Through the years, the call for improved leadership skills and leadership training for dietitians has been frequently stated in the literature (DeMicco & Williams, 1999; Pace, 1995; Parks, 2002; Watson-Jarvis, 2000). Corby (1997) assessed the community development and leadership skills of dietitians working in the Caribbean, and found that RDNs identified a need for professional development specifically in the area of leadership. In addition, dietitians in the study rated their leadership skills below their desired level of skill.

In another study looking at transformational leadership of clinical dietitians (Arensberg et al., 1996), researchers found clinical nutrition managers demonstrated transformational leadership skills; however, they lacked visionary leadership skills such as communication skills. While the managers recognized the importance of these skills, they were not provided proper training to implement them.

A third study assessed if RDNs were prepared for roles as hospital foodservice directors (Gregoire, Sames, Dowling, & Lafferty, 2005). An ability to act as an effective team leader was rated by both foodservice directors and their executives as the most important competency. However, RDNs rated themselves as only being somewhat competent in leadership areas while executives rated the RDNs as competent, thus illustrating a need to increase confidence of RDNs in the area of leadership.

Each of these three studies (Arensberg et al., 1996; Corby, 1997; Gregoire et al., 2005) looked at leadership of registered dietitians, but in three different entry-level practice areas for RDNs: community, clinical, and foodservice management. Results of all three studies indicated a need for leadership development in all areas of dietetic entry-level practice. This need has been reinforced by actions of the Academy of Nutrition and Dietetics to implement the Leadership Institute (Laramee, 2005; Smith-Edge, 2003). Unfortunately, no research has been conducted to determine effectiveness of the Institute for dietetics professionals. Additionally, limited research was found assessing leadership training for dietitians and leadership education for dietetic students. Other than the Leadership Institute, the only other known large scale leadership training for nutrition professionals is the European Nutrition Leadership Programme (ENLP) (Gilsenan & Korver, 2009; Kelly, 2001). Gilsenan and Korver (2009) claimed effectiveness of the ENLP is evidenced by successful careers of alumni, but showed no research to substantiate their claim. A survey of past program participants (Jones, 2010) showed that participants stated the training had a positive impact on their leadership ability and all participants said they either had or would recommend the program.

As leadership skills have become more of a focus for the profession of dietetics over the past decade, leadership training has begun to be incorporated into dietetics education. Arendt and Gregoire (2005) assessed perceptions of dietetic students as leaders. Using the Student Leadership Practices Inventory, the authors found that dietetic students perceive themselves as demonstrating leadership skills. Perceptions of educators or preceptors on student leadership skills were not evaluated. Since then, the accreditation standards for dietetics education have been revised and updated to include leadership competencies

(Skipper et al., 2008) which require all programs to evaluate leadership skills of students. No studies have been identified that evaluate effectiveness of leadership training for dietetic students.

While leadership training and competency is important for RDNs in professional practice settings, it is also important for volunteer leadership positions in professional associations. Little research has been conducted related to RDNs' participation in volunteer leadership positions such as serving within the Academy of Nutrition and Dietetics national, state, and local organizations. An environmental scan looking at trends impacting the dietetics profession identified declining membership in associations as well as a lack of interest among members in participating in leadership positions (American Dietetic Association House of Delegates, 2002). The environmental scan illustrated a need for leadership training of RDNs to facilitate participation in leadership opportunities within professional associations.

**Models for Leadership in Dietetics**

Several leadership models have been applied to dietetics. A model used in dietetics education is Kouzes and Posner's *The Leadership Challenge* (Hacker, Kurowski, & Burzminski, 2012; Kouzes & Posner, 2012) which consists of five traits of effective leaders: (a) model the way, (b) inspire a shared vision, (c) challenge the process, (d) enable others to act, and (e) encourage the heart. According to Fleming-Castaldy and Patro (2012), this model can be applied to healthcare professions. Educators at Kent State University have applied *The Leadership Challenge* model to dietetics. Kent State offers a combined Masters/Dietetic Internship Program with a leadership concentration. *The Leadership Challenge* model is used

to teach leadership knowledge and develop leadership skills for dietetic students (Hacker et al., 2012).

Constructive Developmental Theory is one approach to studying dietetics leadership and planning leadership development programs (Hunter et al., 2011). This theory was applied to dietetics leadership by measuring the action logic stages of dietetic leaders. Of the 46 leaders completing the Sentence Completion Test International – Maturity Assessment Profile (SCTi-MAP), an assessment tool used to measure action logic stages, 87% scored in the Conventional Tier. Conventional Tier stages include diplomat, expert, and achiever. The highest percentage (61%) of RDNs measured as achiever, which is characterized by being results and goal oriented. The authors state this is consistent with scientific-based professions; however, they recommend use of the theory in leadership training and education to move and train future leaders into the Post-Conventional stages. Characteristics of the Post-Conventional stages include (a) valuing feedback; (b) systematic problem-solving; (c) high awareness of the complexity of meaning-making; and (d) creating personal, organizational, and social transformations (Hunter et al., 2011).

Another learning model suggested for dietetics leadership is the Mindful Leadership framework (Gregoire & Arendt, 2005). This framework suggests leadership knowledge and application is based on experience. Because dietetics education requires demonstration of competencies/learning outcomes through supervised practice experience, this framework may be appropriate for leadership training in dietetics education, (Skipper et al., 2008).

**Importance of Leadership for the Field of Dietetics**

A need for leadership training and development is evident in the research studies conducted. While studies illustrate a need for improved leadership skills for dietetics

practitioners, they do not adequately demonstrate the importance of leadership to the profession of dietetics. The question can be asked, why should an effort be made to train dietitians to be leaders?

Lack of participation and skills in leadership can devalue the profession, rendering leadership important. Participation in dietetic leadership is not high. Williams, Keim, and Johnson (2004) looked at a representative sample of RDNs and their continuing education methods for the Professional Development Portfolio (PDP) process and found that only 8.4% participated in professional leadership for continuing education (Williams et al., 2004). Their study was conducted during early implementation of the PDP process, so numbers may have increased over time. In addition, RDNs may be participating in leadership roles that are not being submitted for continuing education.

Still, lack of leadership skills has been a challenge for RDNs. Nyland and Lafferty (2012) found the business skills of RDNs have been maintained at a basic level while emphasis has been on expanding medical nutrition skills. Their conclusions showed positive results for the area of medical nutrition therapy; however, it has been detrimental in other areas of the profession. For example, many RDNs are serving in staff positions instead of management roles. The leadership positions for food and nutrition are often filled by professionals from other disciplines, resulting in dietitians receiving lower compensation, having less control over the employment environment, and having less advocacy for the competencies and services of RDNs. Clinical training of RDNs places them in a position as a valued member of the interdisciplinary medical team. However, with additional leadership training, RDNs could be leading these teams (Nyland & Lafferty, 2012).

The dietetics profession is continually striving for recognition. Many practitioners feel underappreciated and unsatisfied with their compensation (Porter, 2005). Unless RDNs are empowered to be leaders, this is unlikely to change. Porter stated, "If dietetic professionals are only competent, accurate and safe in their practice, but have no leadership skills, they will be part of a group of followers, not the leaders" (2005, p. 1205). The profession has been strong in preparing competent dietitians, but leadership training is still a missing component.

Dietetic leadership also is important because the position of the RDN as the food and nutrition expert is at risk. Jarratt and Mahaffiee (2002) proclaimed, "Competitive space of the dietetics profession is being seriously challenged" (p. S1822). Many professionals including physicians, nurses, chefs, celebrities, politicians, chiropractors, journalists, and others provide nutrition information to the public.

Part of the risk to dietetics may stem from the gender issues in the profession. From its beginning, dietetics has been a female dominated profession (Evans, 2003). Lack of gender diversity has created challenges in the advancement and recognition of the profession. Evans (2003) stated, "Other health professions, frequently male dominated, often compete with the dietetics profession for power and influence" (p. 4). She identified a patriarchal and hierarchical medical model as being one of the barriers to advancement for a female dominated profession. In addition, the medical model has a culture of giving power based on position and status (Evans, 2003). As the field of dietetics grows, a more diverse profession has been desired. The Academy of Nutrition and Dietetics has made strides toward achievement of this goal. In 2008, the first male dietitian was elected as the president of the American Dietetic Association (Rodriguez, 2010). While gender was not a primary focus of

this study, within the context of dietetic leadership it is important to note the issue of female dominance and struggles for recognition as a profession. Many past leaders have worked to gain recognition and fight a "glass ceiling" faced in the profession. A call for increased diversity is still present.

In order to achieve the mission of RDNs as the food and nutrition leaders, the profession must gain some power within the medical model. Evans (2003) pointed out, "At a time when we are seeing an increased awareness of economic and social impact of diet and nutrition related health disorders, such as obesity and diabetes, dietitians must assume the power required to make a difference, to lead the debate" (p. 2). Such political power is needed for dietitians to fulfill professional roles and responsibilities. In order to protect the public and ensure competence of nutrition professions, RDNs must be the leaders in food and nutrition. As stated by former ADA president Marianne Smith Edge, "In a world of important health issues & problems, the need for leadership from dietetic professionals has never been greater" (n.d., p. 3).

**Leadership Development in Dietetics**

Leadership development of RDNs is important in advancing the dietetic profession, so we have leaders, not followers, in food and nutrition. According to Smith-Edge (n.d.) a first step is recognizing leadership development as an important part of training at all levels. Undergraduate dietetic training and supervised practice should include leadership development. Education must move beyond technical skills and competence because these will not "guarantee our success" (Smith-Edge, n.d., p. 31).

Another key question is how leadership development occurs. Students may be learning leadership knowledge, but do they have the ability to function as a leader? Dietetic

education programs are structured to meet standards of ACEND. While competence is critical to training of dietetic students, Porter (2005) questions stringency of training:

> Do our educational processes and professional practices focus so much on accurate and safe work that we are unwilling to take risks or let students or younger professionals take risks? Are we teaching our young professionals how to solve problems, to work across disciplines, to own issues, to challenge the status quo, to create, to lead? (p. 1205)

Porter's questions have not been answered. However, training of future leaders is critical to the profession of dietetics and questions related to how development occurs need to be addressed.

**Growth of the Dietetics Profession**

Dietetics is a growing profession (Academy of Nutrition and Dietetics Student Center, 2013). According to the United States Bureau of Labor Statistics (2013) a twenty percent increase in employment of dietitians and nutritionists is expected from 2010 to 2020; a rate faster than average for all other professions. The occupation of a dietitian also has been reported as one of the top jobs in America (CNN Money, 2011). With this growing trend, plus the average age of RDNs increasing and nearing retirement, concerns related to the future of the workforce are rising. It is projected by the year 2020, only 75% of demand for RDN practitioners will be met (Nyland & Lafferty, 2012). Not meeting this demand gives opportunities to competitors to fill these roles. While this is a multifaceted problem, part of the solution is to increase leadership skills of RDNs. Nyland and Lafferty (2012) include enhancing RDNs as competent leaders, change agents, and influencers as one strategy for meeting dietetics workforce demands.

Another strategy for meeting workforce demands is to influence legislation (Nyland & Lafferty, 2012). Through advocacy efforts, RDNs have an opportunity to influence legislation, thus, establishing RDNs as the food and nutrition expert. Such legislation protecting the role of the RDN is important as competition increases. Examples of RDNs leading successfully in advocacy efforts include successful passing of a resolution by the Idaho State legislature. The resolution found that registered dietitians can help the people of Idaho and bring "a significant impact on chronic disease management, along with significant health care cost savings in the State of Idaho" (Legislature of the State of Idaho, 2013, para.8). Such legislation benefits the profession and helps protect the position of RDNs as the food and nutrition expert. These types of advocacy movements must be continued, and training new professionals as leaders for the profession is paramount to sustaining these efforts.

## Leadership Literature in Professional Fields

As noted previously, leadership research in the dietetics field is limited; but it is important for advancement of the profession. However, leadership research from other professions is available. One example is nursing, a medical field similar to dietetics. In contrast to the dietetics field, leadership in nursing has substantial research literature. Several studies looking at leadership training programs for nurses have been identified. Supamanee, Krairiksh, Singhakhumfu, and Turale, (2011), examined leadership competencies of clinical nurse leaders and found competencies that emerged as both hidden characteristics (motive, self-concept, and traits) and surface characteristics (knowledge and clinical skills). Results from their study of leadership competencies led to implementation of a nurse leader training program as well as the development of a leadership competency model for clinical nursing.

MacPhee, Skelton-Green, Bouthillette and Suryaprakash, (2012) interviewed twenty seven nurse leaders after participating in a leadership development program. The leadership program was designed using a theoretical empowerment framework. The year-long Nursing Leadership Institute program consisted of four components: (a) a 4-day workshop, (b) mentoring support, (c) organizational supports, and (d) virtual networking. Participants were asked sixteen questions through a phone interview about changes in leadership that occurred as a result of program participation.

The study by MacPhee et al., (2012) produced several results that may be applicable to dietetics leadership curriculum development. Novice participants (three years or less of experience) identified mentorship support, resources and tools, increased confidence, project management competencies, and validation/affirmation of self as ways the program helped them as leaders. These areas also may be important to help dietetic students as leaders. Compared to other leadership training, participants stated the program was more rigorous and evidence-based. A theoretical framework for leadership programs is viewed as a contributing factor. In general, participants demonstrated more qualities of transformational leadership after program participation. In addition, they led successful changes in work environments by implementing strategies learned through the program. One consideration from this study for dietetics leadership education is designing a leadership curriculum with a theoretical framework. Similar to the nursing profession, use of a theoretical empowerment framework may be applicable to dietetics leadership training.

While leadership in nursing is emphasized and well established in the literature, other healthcare professions are lagging in this area. The field of Occupational Therapy (OT) is another medical profession similar to dietetics. Unlike nursing, OT has limited research in

leadership. Similar to the Academy of Nutrition and Dietetics, the American Occupational Therapy Association has emphasized the importance of leadership for its members, and made leadership development part of a vision for the profession (Fleming-Castaldy & Patro, 2012). Fleming-Castaldy and Patro (2012) investigated characteristics of current leaders in OT. They measured attributes of leaders using the Leadership Practices Inventory which is an assessment tool based on the *Leadership Challenge Model* (Kouzes & Posner, 2012). Results indicated OT participants held the qualities of the Leadership Challenge Model, which could contribute to success of leaders in the field.

The field of medicine also has a need for leadership development as expressed in the literature. Abdolijavad et al. (2012) stated training of physicians is focused on clinical and professional skills; however, they concluded conceptual skills, including leadership and management, should be included in training. Kabir, Potty, and Sharma (2008) also called for integration of leadership skills into medical training. They observed the current role of physicians not only includes that of a medical practitioner but an educator, manager, and leader as well. However, educational training for the profession only addressed the first two roles.

As illustrated by the examples of OT and physicians, several medical professions have identified the need to prepare practitioners for leadership roles. Nursing has established leadership development while other professions are only beginning to recognize a need for leadership. For dietetics and other healthcare professions leadership skill development is no longer optional for professionals in the healthcare field (Abdolijavad et al., 2012).

## Leadership Competencies

Leadership can be viewed as both a competency and a construct made up of competencies. The Academy of Nutrition and Dietetics *Standards of Professional Performance for Registered Dietitians in Clinical Nutrition Management* (Clark et al., 2012) lists leadership as a competency of an expert practitioner. At the same time, ACEND includes demonstrating leadership ability as a competency for dietetic student supervised practice (Accreditation Council for Education in Nutrition and Dietetics, 2012). However, leadership itself is a complex construct. Many models and lists of competencies exist to illustrate required components of leadership. This section will discuss the movement of competency-based curriculums and present several leadership competency models.

Competency-based curriculums are becoming more common in healthcare and other fields (Stefl, 2008). The premise is to design a curriculum to prepare students for the roles they will hold after completion of a degree. Specific knowledge, skills, and abilities for future employment are incorporated into a curriculum. Competencies should be developed through an evidence-based approach to ensure the curriculum prepares graduates for future roles. The process for developing competencies (Stefl, 2008) usually begins by reviewing relevant literature. A second step is to approach subject matter experts to provide depth and content validity to the competencies. Finally, practitioners are surveyed. These steps help ensure competencies match realities of a work environment.

Following the trend of competency-based curriculums, the Healthcare Leadership Alliance (HLA) developed the HLA Competency Directory, which contains 300 competency statements organized under five domains; one domain is titled leadership (Stefl, 2008). The domain of leadership includes 98 different leadership competencies (HLA, 2010). Garmen,

Butler, and Brinkmeyer (2006) identified three areas from this list they believe are most important for effective leadership specific to health administration. These areas include (a) a leader with a compelling vision, (b) goals that energize toward a common purpose, and (c) the development of an organizational climate that exhibits the components of diversity, individual motivation, teamwork and mutual trust. Garmen et al. (2006) purported development of leadership competency should begin during formal education; however, they observe difficulty of obtaining leadership competencies in a classroom environment. Instead the authors recommend opportunities for students to be in leadership roles and receive feedback. Participating in leadership roles beyond the classroom allows students to make a contribution to society while developing leadership skills. Opportunities can include service organizations, committees, and special projects.

In the United Kingdom, the "Medical Leadership Competency Framework" (MLCF) was implemented for leadership development of physicians (NHS Institute of Innovation and Improvement, 2010; Wilkie, & Spurgeon, 2013; Willcocks and Milne, 2013). This framework has been adopted for medical education throughout the country following a prioritization of increased leadership skills for physicians. The MLCF consists of five domains that include the following leadership competencies (NHS Institute of Innovation and Improvement, 2010, p. 11):

1. Demonstrating Personal Qualities
    - 1.1 Developing self awareness
    - 1.2 Managing yourself
    - 1.3 Continuing personal development
    - 1.4 Acting with integrity

2. Working with Others
    - 2.1 Developing networks
    - 2.2 Building and maintaining relationships
    - 2.3 Encouraging contribution
    - 2.4 Working within teams
3. Managing Services
    - 3.1 Planning
    - 3.2 Managing resources
    - 3.3 Managing people
    - 3.4 Managing performance
4. Improving Services
    - 4.1 Ensuring patient safety
    - 4.2 Critically evaluating
    - 4.3 Encouraging improvement and innovation
    - 4.4 Facilitating transformation
5. Setting Direction
    - 5.1 Identifying the contexts for change
    - 5.2 Applying knowledge and evidence
    - 5.3 Making decisions
    - 5.4 Evaluating impact

Achieving these competencies is a progression throughout medical school, postgraduate medical training and the first five years of professional practice (NHS Institute of Innovation and Improvement, 2010; Wilkie, & Spurgeon, 2013; Willcocks & Milne, 2013).

Domains 1 and 2 are emphasized during undergraduate medical education. Postgraduate training continues to emphasize Domains 1 and 2 with the addition of Domains 3 and 4. Finally, Domain 5 is achieved during the professional practice. Application of the MLCF illustrates a comprehensive leadership model that has been applied to professional training on a national level. Development of this type of model would fill the gap for dietetic educators regarding leadership development of RDNs.

Concerns about competency models do exist (Willcocks & Milne, 2013). Many models are overly simplified, mechanistic, and ambiguous in nature. Demonstration of competencies also can be difficult to assess (Wilkie, & Spurgeon, 2013). Assessment of leadership competencies is a topic with limited literature meriting further research.

The MLCF is an example of an extensive competency model; however, other leadership competencies have been identified for healthcare professions. Mouradian and Huebner (2007) studied leadership competencies to maternal and child health professionals. The authors identified four core leadership competencies of communication skills, critical thinking skills, internal reflection, and ethics/professionalism. In addition, applied competencies of mentoring, cultural competency, evidence base/science translation, negotiation/conflict resolution, management skills, working with organizations, constituency-building, and policy and advocacy were also acknowledged (Mouradian & Huebner, 2007).

**Competency-based Curriculums in Dietetics**

Competency-based curriculums also have been implemented in dietetics programs. The Accreditation Council for Education in Nutrition and Dietetics oversees education standards and determines competencies required for dietetics education and practice. These standards and competencies are developed through an evidence-based process that begins

with appointment of an Accreditation Standards Committee (ASC) (Skipper et al., 2008). The committee first conducts a review of educational trends. Second, ASC reviews data from a practice-audit of dietetics professional practice conducted by CDR every five years. Third, education standards are collected from other health professions and used as a comparison for those in dietetics. Fourth, internal documents are reviewed such as accreditation documents, and reports from the Academy House of Delegates related to practice issues. Finally, ASC commissions independent research on specific practice issues where data is needed. Following the release of new standards, members of the organization are invited to participate in the process and provide comments (Accreditation Council for Education in Nutrition and Dietetics, 2012). A review of the educational standards occurs every five years. The last major revision process for educational standards and competencies took place in 2008, followed by a revision process designed for fine-tuning in 2012

Dietetics education programs include 35 competencies as required by ACEND (Accreditation Council for Education in Nutrition and Dietetics, 2012). Two competencies directly relate to leadership: (a) apply leadership skills to achieve desired outcomes, and (b) participate in professional and community organizations. While education standards include leadership as a competency, specific leadership competencies are not included in the standards. A leadership competency framework for dietetics similar to those described would be beneficial to dietetics education.

## Leadership Development and Curriculums

Dietetic educators are responsible for preparing students to meet the required leadership competencies during supervised practice rotations. Dietetics literature lacks guidance in the area of leadership development; however, leadership curriculums in other

fields may provide helpful insight for studying leadership training in dietetics. For example, studies in fields of medical education and engineering have provided results that should be considered as part of the framework for investigating leadership training in dietetics education.

Dietetics education is similar to other medical fields including physician education, which has made some efforts to incorporate leadership into training. According to Kabir et al. (2008), increasing opportunities exist for the leadership training of medical doctors. One example is a partnership between the American Orthopaedic Association and the Kellogg Business School on a leadership course which presents six modules on several topics including "finance, marketing, leverage, decision making, transformational leadership, values, governance" (p. 118). The authors recommend establishment of more partnerships to create similar types of leadership development opportunities. This type of model, partnerships with business schools, may be a useful resource for leadership development in dietetics.

Varkey, Peloquin, Reed, Lindor, and Harris (2009) conducted a study at the Mayo Medical School during a process of curriculum reform in order to help identify goals and objectives for a leadership curriculum. Twenty-two faculty members (administrators and educators) participated in focus groups and interviews centering on their perspectives of leadership. Participants were asked to describe (a) knowledge, skills, and behaviors necessary for successful physician leaders; and (b) perspectives about leadership training for medical students (Varkey et al., 2009, p. 245). Twenty-one medical student leaders also were given a written survey, which included a qualitative question asking students what attributes or skills they thought were important for physician leaders in addition to rating the importance of leadership knowledge and skills in medical school curriculum.

Both focus group and interview results by Varkey et al., (2009) were categorized into the three areas: (a) qualities, (b) skills, and (c) knowledge. They found that faculty participants identified qualities for physician leaders as (a) emotional intelligence (self-awareness, empathy, cultural sensitivity, professionalism, drive, inspirational, and commitment); (b) appropriate balance of confidence and humility; (c) creativity, and (d) innovation. Skills identified were teamwork skills, communication skills, management skills, quality improvement skills, and community service related to healthcare. Areas of knowledge for physician leaders were identified as legal issues related to medical practice, healthcare policy, healthcare finance, and leadership models. Student participants identified empathy, compassion, trustworthiness, ethical and moral standards, and communication skills as important attributes for physician leaders. Results from the study may be helpful in planning leadership curriculums in medical education or related fields. As dietetic leadership education is studied and developed, these areas of leadership qualities, skills, and knowledge can provide a starting point for identifying leadership competencies.

The need for leadership curriculums in undergraduate education to prepare professional leaders has been noted beyond the dietetics and medical literature. One example is Cox, Osman and Adams' (2010) response to the lack of leadership abilities among engineering graduates. Twelve engineering faculty were asked about ways that leadership could be incorporated into engineering curricula. Faculty did not support additional courses being added to the curriculum. A common theme among participants was the curriculum was already tightly constrained, and a new course could not be added for every new topic. Dietetics education is similar to engineering education in that the curriculum is tight with little

room for additional courses. For many dietetic education programs, adding a leadership course would not be an option to an already packed curriculum.

Cox et al. (2010) also explored other alternatives for incorporating leadership without adding new courses. Findings included (a) integrating leadership experiences into existing courses; (b) incorporating leadership development (teamwork, communication, and presentation skills) into senior design (capstone) courses; (c) providing real life experiences (internships, study abroad programs); and (d) extracurricular activities (student organizations, work). Each of these alternatives is noteworthy to dietetics education as general ideas for ways to incorporate leadership into a full curriculum. They also discussed barriers that participants identified for incorporating leadership into the curriculum. Barriers mentioned included (a) the need for faculty leadership training, (b) a change in culture/faculty mindset, (c) lack of flexibility in the curriculum, (d) lack of institutional support, and (e) limited time. These barriers are insightful for other degree programs looking to incorporate leadership or other new areas into curriculums. In dietetics, barriers to leadership education also should be identified so they can be addressed in the leadership curriculum development process.

Recommendations regarding strategies that can be incorporated in curricula for leadership development are available from previous studies. Following the development of leadership competencies, Mouradian and Huebner (2007) conducted a workshop where participants recommended leadership teaching methods for leadership for maternal and child health professionals. To increase knowledge, recommendations included didactic class sessions, reading assignments, and use of web-based resources. In order to change attitudes, recommended methods included acknowledging underlying attitudes and beliefs, creating self-awareness and change in attitude stimulated by cognitive dissonance, providing feedback

related to attitudes, using hands-one experiences, mentoring and modeling from faculty, incorporating important values into institutional policies and procedures. Finally, strategies for development of leadership skills included use of role models in addition to hands on practice and experiences.

According to Arendt and Gregoire (2005), little research has been conducted assessing leadership skills of dietetic students, but "research is needed to determine strategies for preparing dietitians to be effective leaders and assume leadership positions" (p. 401). Many questions exist in relation to how to teach leadership. Gonzales (1996) poses several questions related to this issue in her review of Barker et al.'s (1994) leadership book. She asks:

> Given the need for transformational leaders in order for health care firms to survive, and given that transformational leadership requires a different skill set than past leadership, can these new skills be taught? Can one teach a dietetics leader-manager how to be a transformational leader? Like many other leadership texts, *Leadership in Dietetics* avoids such questions and simply assumes that these skills can be taught and learned. (p. 96)

Gonzales asks some key questions in her review that have not been addressed in the literature. What should leadership look like for dietetics practice, what competencies are required, and how should dietetics students be taught these skills? These are some of the questions which prompted this study, identifying leadership priorities for dietetics education.

# The Delphi Technique

## History

The Delphi technique was first used at the RAND Corporation by Dalkey and Helmer in the 1950s (1963). "Its object is to obtain the most reliable consensus of opinion of a group of experts. It attempts to achieve this by a series of intensive questionnaires interspersed with controlled opinion feedback" (Dalkey & Helmer, 1963, p. 458). This technique was designed around a central problem of estimating bombing requirements. According to the authors, several characteristics made the Delphi technique useful for problem solving. First, expert opinion was utilized. Second, repeated questioning through interviews or questionnaires around the central issue/problem was implemented. Third, direct confrontation was avoided through the use of individual questioning. The Delphi technique was believed to access more independent thought from individual experts. The initial experiment utilized seven experts and involved five rounds of questioning with two of these being followed-up by interviews.

The Delphi technique from RAND Corporation has been applied as a research method in numerous fields. Many variations of the methodology have been adapted. Keeney (2009 as cited in Keeney et al., 2011) lists types of Delphi studies as classical, modified, decision, policy, real time, e-Delphi, technological, online, argument, and disaggregative. The author defines main characteristics of each type identified; however, this list is not exhaustive. It seems that Delphi techniques can be adapted to best fit a research question (Skulmoski et al., 2007). Most cited variations are the classical and modified Delphi. The classical method is characterized by open-ended first round questions and three or more rounds of iteration (Keeney, 2009 as cited in Keeney et al., 2011). This design is described in more detail in the following section. Modified Delphi studies have an altered design that usually includes either

replacing the first round with face-to-face interviews or using less than three iteration rounds. Other types of Delphi vary in the purpose of the study or data collection process. An e-Delphi, for example, is conducted on-line through e-mail or a web survey. However, both classical and modified Delphi studies are commonly administered using an electronic format without being distinguished as an e-Delphi.

Fifteen years following the publication of the Delphi technique, Fisher (1978) published a review and critique of the technique. Fisher stated Delphi was used by "government agencies, private corporations, and educational institutions" (p. 66) in several countries for forecasting and also to determine how to address more immediate concerns. In general he was evaluating the use of this method in predicting the future. Because knowledge about the future is unknown, use of expert opinion can help to plan and make decisions for the future. Through examples of four studies, one of which used expert opinion but not the Delphi technique, Fisher concluded that expert opinion and thus the Delphi technique were not useful for predicting the future. However, use of gathering expert opinion from this method was concluded as a useful way to establish goals and objectives. Gathering information from experts to reach a consensus for application and planning has seemed to be the common application of Delphi in research studies as opposed to predicting the future.

More recent publications on application of the Delphi technique describe it as a widely accepted and useful method particularly suited for seeking to understand problems, opportunities, and solutions when knowledge is lacking (Skulmoski, et al., 2007). Skulmoski et al. (2007) describe the technique as a process of collecting and distilling judgments of experts. In moving beyond just forecasting for the future, Delphi has shown to be a flexible

methodology with a variety of purposes from problem solving to exploration of subjects with limited knowledge.

**The Delphi Design**

The Delphi technique is a methodology to facilitate problem solving and reach a consensus related to complex issues using a panel of experts (Dalkey & Helmer, 1963; Fisher, 1978; Linstone & Turoff, 2002). Questionnaires focusing on the research problem or questions are used to gathers opinions from experts. Multiple rounds of questioning are implemented to solve the problem or reach consensus (Skulmoski et al., 2007). Steps of a classical Delphi technique include: (a) identify experts, invite participation, and round 1 questioning; (b) consolidate 1st round responses and return to participants for rating/ranking; (c) calculate mean and interquartile range for 2nd round responses, provide data to participants and ask for reevaluation of response; (d) provide 3rd round consensus data and ask for final revisions; and (e) consolidate the final consensus data (Fisher, 1978; Ludwig, 1997). Classical technique steps can be reduced or expanded to include more or less rounds through use of different variations of the method. According to Skulmoski et al. (2007) the process should continue until consensus is reached, the research question answered, or sufficient information has been collected. Characteristics of the classical Delphi include: (a) anonymity, (b) iteration, (c) controlled feedback, and (d) statistical aggregation of group responses (Rowe & Wright, 1999). A classical Delphi will adhere to these standards; however, other variations have been used in research. As concluded by Skulmoski et al. (2007), "there is no 'typical' Delphi; rather that the method is modified to suit the circumstances and research question" (p. 5).

The Delphi technique can be used as a quantitative, qualitative or mix-method research method. It commonly has a mixed-method application incorporating both qualitative and quantitative approaches (Keeney, et al., 2011, Skulmoski, et al., 2007). In a classical Delphi, the 1st round is typically broad open-ended questioning to gather qualitative data. Subsequent rounds include more quantitative methods of ranking and rating (Ludwig, 1997). Because of the mixed nature of the Delphi technique, authors have positioned it within a variety of paradigms or frameworks from positivist to, more commonly, constructionist and interpretivist (Keeney et al., 2011).

**Expert Selection and Sample Size**

Because outcomes of a Delphi study are consensus of expert opinions, careful selection of the participant experts is critical (Ludwig, 1997). As Keeney et al., (2011) emphasized, "the Delphi is only as good as the experts who participate" (p. 46). Use of stringent protocols (essential characteristics) to determine expert qualifications is recommended. To ensure quality of expert panelists, sampling methods are typically not random. Ludwig (1997) claimed random sampling is not an option for a Delphi study. Instead, purposive sampling techniques, such as snowball sampling, are commonly used to identify experts (Skulmoski et al., 2007). Because of the need for qualified experts, it is critical for panelists to be evaluated and selected carefully. Experts must have knowledge or experience with the issue under investigation to qualify them for participation. Experts also must be willing and available to participate and have time for multiple rounds of the study. Good communication skills also are desirable from expert panelists (Adler & Ziglio, 1996 as cited by Skulmoski et al., 2007).

Recommendations for sampling sizes in Delphi studies vary among authors, from less than 10 to several thousand (Keeney et al., 2011). Published Delphi studies commonly have a sample of 10 to 100 experts (Akins, Tolson, & Cole, 2005); a sample of 10 to 15 has been noted to produce sufficient results (Skulmoski et al., 2007). Delphi studies in the dietetics literature tend to use larger sample sizes (Ayres, Greer-Carney, Fatzinger-McShane, Miller, & Turner, 2012; Brody, Byham-Gray, Touger-Decker, Passannante, & O'Sullivan Maillet, 2012; Kendall, Medeiros, Hillers, Chen, & DiMascola, 2003). One benefit of larger sample sizes is producing more convincing and verified results (Skulmoski et al., 2007); however, a trade-off may be more cumbersome data analysis.

Driven by wide-spread use of the Delphi technique without supporting evidence to effective sample size, researchers Akins et al. (2005) studied response characteristics to determine stability of results for a small sample size in a Delphi study. They augmented first round survey responses using bootstrap sampling to obtain computer-generated results for larger sample sizes. Responses from participants were then compared to computer-generated samples. Results showed responses of the small panel of experts (n=23) were stable when augmented sampling was applied. Akins et al. (2005) concluded that a small sample size using a homogenous group of experts can produce good results; however, guidelines for "small" still have not been firmly established.

**Data Collection**

Data is typically collected through use of a questionnaire instrument or interviews. Anonymity, a characteristic of the method, is ensured during this step through use of administering individual questionnaires (Rowe & Wright, 1999). Development of the data collection instrument is interconnected with administration of the data collection process

(Ludwig, 1997). Following the first round of open-ended questioning, subsequent rounds of questionnaires are developed based on responses from previous rounds. At this step, the characteristic of controlled feedback is incorporated by providing participants with data from previous rounds (Rowe & Wright, 1999). For example, participants are given a statistical summary of group responses from the previous round and asked to re-evaluate responses. Iterations continue until consensus has been reached or enough data is available. Statistical aggregation of group responses is usually used to make a judgment. From the final round, a statistical average is calculated for final judgments (Rowe & Wright, 1999). The number of rounds implemented for data collection is another flexible aspect of the Delphi technique. Three rounds are commonly used and seen as sufficient for most research; however, this number varies among studies (Skulmoski et al., 2007). An increase in rounds may cause a decrease in response rates from participants; but, enough rounds are needed to reach consensus.

**Statistical Analysis**

Analysis methods will vary depending on the research paradigm used for the Delphi study (Skulmoski et al., 2007). Qualitative research will utilize coding of data while quantitative studies will use statistical summarizing of medians and interquartile ranges. A Delphi study can include both qualitative and quantitative data collection and analysis and should be designed to best answer the research question (Skulmoski et al., 2007). A classical Delphi study includes qualitative data analysis for round 1 and quantitative analysis using measures of central tendency and level of dispersion for subsequent rounds (Keeney et al., 2011). While these methods of analysis are most common, flexibility of the Delphi technique allows for use of a variety of methods.

## Advantages and Limitations of Delphi

**Advantages.** The Delphi technique is widely supported for its advantages. Since development of the technique at RAND Corporation, it has been widely used as a research method. Skulmoski et al. (2007) described it as a "flexible, effective, and efficient research method" (p. 1). An advantage of the Delphi technique is the ability to utilize a group process through individual data collection (Ludwig, 1997), because individuals with expertise may not always be in close proximity. The Delphi technique allows for utilizing experts to reach a consensus through use of individual data collection. An iterative process with controlled feedback also facilitates consensus without the disadvantages of having to conform, as often seen in face-to-face groups (Keeney et al., 2011). According to Rowe and Wright (1999), the Delphi technique is seen as a way to reduce pressures and conformity of group members and instead focus on reaching consensus through individuals' feedback. Instead of pressure to conform, panelists have the independence to think through the data and make an independent decision.

**Limitations.** Despite broad use of the Delphi technique, it is often criticized. Keeney et al. (2011) identify five main areas of criticisms regarding the Delphi technique: (a) lack of universal guidelines, (b) size of expert panel, (c) implications of lack on anonymity, (d) expert opinion, and (e) level of consensus. Fisher (1978) summed up criticisms as (a) lack of statistical testing, (b) lack of replication, and (c) unscientific sampling procedures which together add up to the Delphi not being reliable as a scientific method. Fisher's critique was written during a period when qualitative research was highly questioned and not viewed as scientific. He recommended evaluating the Delphi technique by the same standard of social science research because of its similar statistical and sampling procedures. While still not

accepted in all sciences, qualitative methodologies have gained more respect since 1978 (Creswell, 2013).

Another limitation has to do with the Delphi as a tool to predict the future. Because of unknown aspects of the future, a method to predict it is inherently flawed (Fisher, 1978): Fisher may be overly critical of methods to try to prepare for future events and problems. There may not be a method to accurately predict the future within standards of the scientific method. However, expert opinion may still have value in addressing problems and planning solutions. Fisher (1978) does point out that unforeseen events may not always be accounted for and could cause potential problems.

Some limitations such as small sampling sizes and nonrandom sampling methods lead to a lack of generalizability of results (Skulmoski et al., 2007). Hence, authors state the Delphi technique should be used as a method for predicting and problem solving when knowledge or historical data is lacking (Tomasik, 2010). Verification studies also are often recommended by researchers of a Delphi study (Skulmoski et al., 2007).

Rowe and Wright (1999) claimed a weakness of Delphi is a lack of appropriate studies to evaluate effectiveness of forecasting, judging or decision-making. A different method of analysis is needed to determine the effectiveness of this method. Rowe and Wright concluded effectiveness cannot be determined, and Delphi does not seem advantageous over other structured group processes. With all the variations of Delphi used, it is difficult to evaluate effectiveness of the methodology since each variation utilizes a different technique. Additionally, the concept of consensus is questioned by Wright and Rowe (1999). They observed “consensus” was swayed by a researchers’ position during Delphi studies. While

many researchers hold the method as a way to reduce conformity, critics' state consensus does not really occur; conformity is still occurring, but is not apparent.

While critiques of the Delphi technique are widely published and limitations are apparent, the method is not without use. As many authors state, the Delphi technique is useful when knowledge is needed to make a decision; however, it is important to plan carefully and use the method with rigor (Tomasik, 2010).

**Reliability and Validity**

Several aspects of the Delphi technique were designed to increase trustworthiness of the method. The first is anonymity of the expert panel (Dalkey & Helmer, 1963). Direct contact between experts is avoided, ensuring more independent thought than other methods using experts. A second aspect is controlled feedback, in which responses from previous rounds are returned in a summarized format (Fisher, 1978). A third characteristic involves statistical analysis on the group response. Statistical scores computed for responses of the group along with controlled feedback help to prevent individuals conforming to a consensus from group pressure (Fisher, 1978). A study conducted by Tomasik (2010) found the Delphi technique to be reliable with satisfactory validity. Tomasik evaluated using the Delphi technique in a two-round study to develop physician guidelines for management of hypertension. Reliability and validity were measured using several methods including Cronbach's alpha, comparison of recommendations to other studies, and comparisons to data collected from different methods within the same study. Results showed good reliability and construct validity, but only satisfactory content validity and partial criterion validity. A recommendation from this study was that use of this method was acceptable with careful planning and when no or limited scientific evidence exists to guide decision making. The

Delphi technique may be a good first approach to reaching a consensus, developing a solution, or solving a problem. However, Skulmoski et al. (2007) recommend follow-up studies to verify results from a Delphi study.

## Application of the Delphi Technique

### Delphi Application in Dietetics Research

The Delphi technique has been applied in the dietetics field. Two recent studies (Ayres et al., 2012; Brody et al., 2012) applied this technique to reach consensus on competencies of dietetics practice. While topics of the studies were not related to leadership, the purpose and methods are similar to the proposed study to reach a consensus on leadership competencies.

The Academy of Nutrition and Dietetics established a Nutrition Informatics Committee, which studied nutrition informatics competencies using the Delphi technique (Ayres et al., 2012). The goals of the study were to reach a consensus for a definition of informatics competencies and agreement on appropriate competencies for six levels of nutrition and dietetics practice, including novice (student). Developing competencies for students was an outcome of the study. Five groups of experts (cohorts), with 30 participants in each group, completed three rounds of an electronic survey. The first round identified competencies; the second round assigned competencies to practice levels; and, the third round achieved consensus of assigned competencies. Results produced a list of competencies across practice levels for nutrition informatics. Considerations from this study are using multiple cohorts, and broadening the scope beyond students to address leadership competencies at different levels of practice. Of note regarding the study, rounds were all primarily quantitative data with researchers providing lists of competencies in round 1.

In another study, the Delphi technique was used to reach consensus on a definition for advanced level clinical dietetics practice (Brody et al., 2012). Similar to Ayres et al. (2012), three rounds were used to reach a consensus. Also similar was the sample size, over a hundred experts were invited to participate. In contrast, Brody et al.'s (2012) study incorporated a mix of both quantitative and open-ended qualitative questioning in round 1. However, in addition to open-ended questions in round 1, a previously developed model was used to identify competencies for advanced level practice that participants ranked similar to the Ayres et al. study.

Both studies used the Delphi technique to reach consensus on issues of competencies related to dietetics practice. This previous research supports the use of Delphi technique to reach consensus on leadership competencies for dietetics education and professional practice. Gerald and Cluskey (2008) recognized the Delphi technique as a research technique for application to dietetics practice with benefits of being both cost-effective and time-efficient.

**Use of Delphi Technique in Leadership**

Use of the Delphi technique has been seen in leadership literature as well. Lopopolo, Schafer, and Nosse (2004) studied leadership in physical therapy along with management, administration, and professionalism (LAMP) using a Delphi technique. Three rounds were used for experts to create a list of components in LAMP, determine perceived importance of each component to clinical practice, and identify essential knowledge and skills for new graduates within each component. Lopopolo et al. sought to identify components important to practice and determine which ones should be taught in education. Similar to some dietetic Delphi studies, Lopopolo et al. used a previous list of components as a reference for first round questioning, asking if the list was appropriate and comprehensive. Additionally,

participants were invited to identify levels of knowledge and skill needed by graduates but not included on the list provided. Eighty-one participants agreed to participate with 34 completing all three rounds. This illustrates the challenge of participants committing to multiple rounds of questioning.

The modified Delphi used by Lopopolo et al. (2004), Ayres et al. (2012), and Brody et al. (2012), is described by Couper (1984) and characterized by asking specific, targeted questions and providing informants with relevant practical knowledge. In contrast to the classical approach of round 1 data collection through open-ended questioning, Couper's modified technique allows for providing participants with a list of competencies to rank in the first round.

## Summary

As noted in the literature, more research is needed on leadership and dietetics. With the challenge for dietetic educators to prepare students to meet leadership competencies, strategies need to be identified for leadership development in dietetics education. While this topic has not been seen in dietetics literature, other fields such as nursing, medicine and engineering have published research related to leadership training, and development of a leadership curriculum that informed this study.

The Delphi technique has been studied and used substantially in research literature; dietetics literature includes and supports use of this research method. Using the Delphi technique for expert consensus regarding competencies has been used, and is supported by use in previous studies. Despite limitations, the literature indicates Delphi is an acceptable method for problem-solving and reaching consensus when little knowledge is available.

In Chapter 2 the literature related to dietetics and use of the Delphi technique to support the Identification of Leadership Priorities for Dietetics Education Delphi study was reviewed. The specific methods used in this study are detailed in Chapter 3.

# CHAPTER 3

# METHODOLOGY

Four guiding principles in any research study are a clear epistemology, theoretical framework, methodology, and methods (Crotty, 1998). The first two principles were discussed in Chapter 1. An epistemology of constructionism and an interpretive theoretical framework for the study was identified. The methodology used for the study was the Delphi technique with mixed-method application of both qualitative and quantitative approaches. A review of the Delphi technique was covered in Chapter 2. Chapter 3 explains the application of the Delphi technique and methods of the research study. The study was approved by the University of Idaho Institutional Review Board and a copy of the approval letter is available in Appendix A.

## Methodology

### Research Design

The problem that was investigated required a collaborative process for group consensus on leadership competencies for dietetics education and strategies for training effective leaders in the dietetics profession. The Delphi technique was selected because it allowed for a more appropriate problem solving approach than gathering data through a survey or interview format. A lack of research is available on leadership competencies and leadership development for dietetics education was addressed in Chapter 2. The Delphi technique is supported in the literature as an appropriate method for exploring problems when a lack of data is available (Skulmoski, et al., 2007).

A modified Delphi technique as outlined by Keeney, et al. (2011) was applied for this research study using an electronic format. The approach included repeated on-line

questionnaires to a panel of experts in order to reach a group consensus about leadership competencies for dietetics education. Three rounds of data collection were conducted.

**Characteristics of the Delphi Technique for this Research**

Using a modified Delphi approach, the study included common Delphi characteristics claimed as strengths by proponents of the technique. Three of these characteristics are anonymity among panelists, iteration, and statistical summary of group responses (Lopopolo et al., 2004). The characteristic of anonymity refers to the panelist remaining anonymous to each other throughout the research study. Anonymity helps ensure unbiased responses from the panel members since participants do not know each other and provide responses independently. Keeney et al. (2011) point out it is not possible for complete anonymity to be guaranteed in a classical Delphi. Not only does the researcher know who makes up the expert panel, the researcher sees their individual responses in order to provide controlled feedback. Anonymity from the researcher was not guaranteed to panelists, only confidentiality of responses. Group summary data was provided as controlled feedback on the round 3 questionnaire. In addition, panelists saved their own individual round 2 questionaire responses for reference during round 3 in order to maintain anonymity of responses. A second challenge to anonymity is the possibility panel members know one another. The panel members for this study may likely have known other leaders and educators in the dietetics field who participated in the study. To help ensure anonymity, panelists were not informed of the criteria for selection in the study which was serving as an affiliate president or a coordinated program director.

Iteration occurs through multiple rounds with a goal of reaching consensus. Use of multiple rounds is characteristic of the Delphi technique; however, the number of rounds

should not be excessive. While the classical Delphi technique originally used four rounds (Keeney et al., 2011), fewer rounds are more common without sacrificing results. The Delphi technique is seen by some as time-consuming for participants because of multiple rounds. For this study, three rounds were executed in order to reduce the time required of panelists and to improve attrition rates. A fourth round of the study was described as a possibility to panelists, but after review of the data, the study was concluded following round 3.

The process of providing controlled feedback in rounds is required to reach consensus; however, it also poses possible problems of researcher biases in selecting information to provide in subsequent rounds. It is critical that researcher biases do not determine selection of controlled feedback in an attempt to influence responses of panelists. Use of independent raters has been used to help eliminate potential biases within the feedback. For this study, two researchers were selected as independent raters to assist with the analysis and controlled feedback of data.

A third characteristic of the Delphi technique is the use of statistical summary of group responses to reach a consensus. Having a goal of consensus can create problems if the results are not viewed in an appropriate context. Using statistical summaries does not warrant a high reliance on results as seen with more rigorous statistical analysis (Keeney et al., 2011). Therefore, results of the study, particularly consensus statements, should be verified through follow-up research studies.

**Concerns of Delphi Studies Addressed for this Research Study**

Use of expert opinion is highly criticized in Delphi studies because of difficulties in defining “expert”. For purposes of this study, experts in dietetic leadership and education were defined as registered dietitians with leadership experience as either a dietetics education

program director or service as a president on an Academy of Nutrition and Dietetics state affiliate association. The expert panel consisted of both types of panelists to gather opinions from a educator perspective and a practitioner perspective. The goal was to reach a consensus or agreement from opinions of these experts in regards to leadership priorities for dietetics education.

Level of consensus is a final area of concern. As with other areas of the Delphi technique, a lack of guidelines exists for what constitutes consensus. Recommendations from 51% to 100% agreement exist for meeting a consensus, with little guidance for determining an appropriate consensus level (Keeney et al., 2011). The level of consensus desired for this study was identified at 80% prior to data collection. A high level was selected to provide justification for implementation of the leadership competencies in dietetics education programs. The goal sought in this study was less about reaching a consensus and more about generating recommended competencies and strategies for leadership development in dietetics education. Thus, not all statements were expected to reach consensus.

## Methods

### Expert Panelist Sample Selection and Recruitment

Leadership is difficult to define, and knowledge and skills are challenging to identify. To help develop the most accurate list of leadership recommendations for dietetics education, experts were chosen who possessed practical skills in both dietetic leadership and education. Individuals who met both criteria were limited; therefore, two groups of experts were established. As recommended by Keeney et al. (2011), essential characteristics were determined for qualification as an expert in both areas. Criteria for the first group, dietetics leadership, consisted of RDNs who were currently serving in a leadership position as a

president for one of the Academy of Nutrition and Dietetics state affiliate groups. Criteria for the second group, dietetics education, consisted of RDNs who were currently serving as a director for a coordinated dietetics program. Individuals meeting one of these requirements were invited to participate in the study. While two panels of experts were utilized, the study was conducted combining the two groups into a single panel.

A sample of 105 experts was invited to participate. As noted by Kendall et al. (2003), starting with a higher number of experts will help ensure that at least 15-20 complete all rounds of the study. Criteria established for each group of experts lends itself to using a population rather than a sample. All affiliate presidents (n=53) and all CPD directors (n=52) were invited to participate on the panel. Affiliate organizations and ACEND guidelines have standards in place to ensure individuals in these positions have appropriate leadership and educational experience required.

Names of individuals currently serving as affiliate presidents and CPD program directors were collected from the Academy of Nutrition and Dietetics website. Individuals were contacted by e-mail and invited to participate in the study by completing three to four rounds of Delphi questionnaires.

Attrition is common in Delphi studies due to multiple rounds of data collection required of panelists (Keeney et al., 2011). A high response rate was desired to provide a greater likelihood of capturing the understanding of leadership for dietetics education. To help improve participation rates and decrease attrition, gift certificate of $10 for round 1 and $20 for rounds 2 and 3 to Amazon.com were provided as an incentive for individuals completing each round of the Delphi study.

**Data Collection and Analysis**

The Delphi technique applied to the study involved three rounds using an on-line questionnaire through Qualtrics Research Suite© (2014). The data collection process followed a modified Delphi approach as outlined by Keeney et al. (2011) and an adapted implementation of the Delphi Sequence Model (Couper, 1984) illustrated in Figure 2.

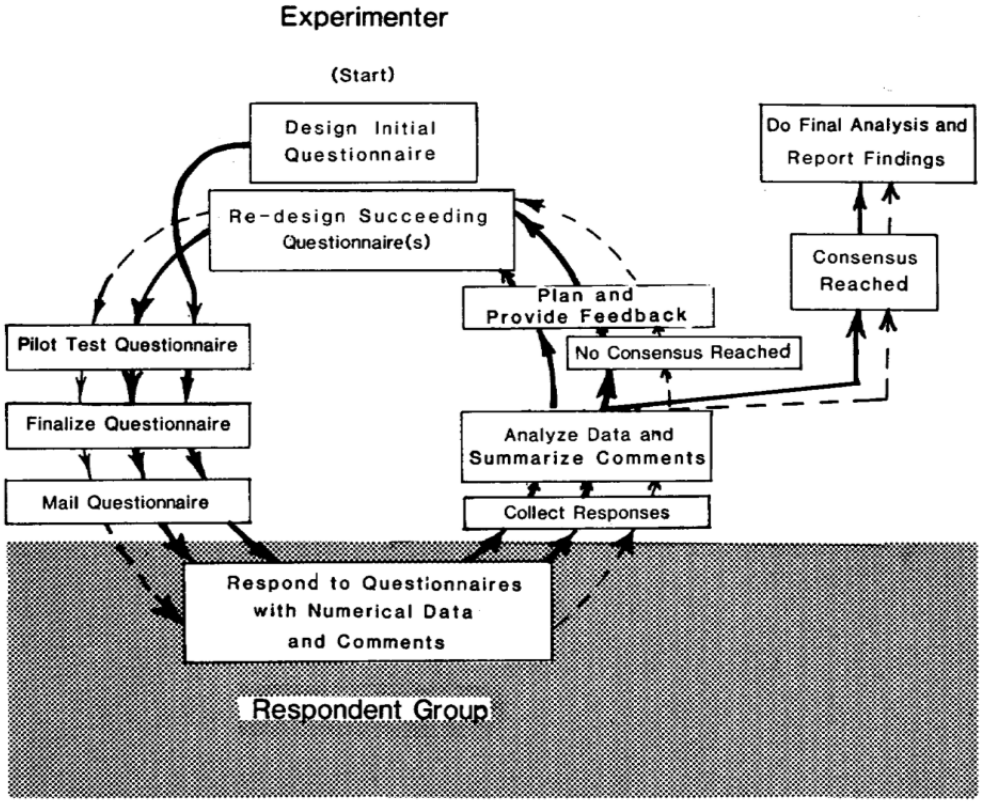


*Figure 2*. The Delphi Sequence Model (Couper, 1984). Used with permission from Lippincott Williams and Wilkins/Wolters Kluwer Health: The Delphi technique: Characteristics and sequence model. *Advances in Nursing Science, 7*9(1), 72-77, copyright (1984). The copyright license agreement is available in Appendix B.

Implementation of this Delphi study included the following alterations to the Delphi Sequence Model in Figure 2: (a) pre-testing was conducted instead of pilot testing; (b) the questionnaires were distributed by e-mail instead of mail; (c) items reaching consensus in

round 2 were not removed for round 3; and (d) the study was completed after 3 rounds, not after all items reached consensus. Details of these changes are discussed in the following methods sections.

**Overview of Data Collection Process.** Following a modified approach, open-ended questions were asked in round 1 to generate qualitative data. The data generated from the 1st round were coded into categories and then used to develop the 2nd round questionnaire. Rounds 2 and 3 were consensus rounds where panelists were asked to rate leadership statements collected during round 1. Each round required development of a questionnaire based on previous responses.

**Delphi questionnaire development and implementation.** Questionnaires were developed for each round of the Delphi study based on the research questions. Pretesting and pilot testing is not used for most Delphi studies reviewed in the literature; however, it is recommended by some to improve reliability and validity of questions (Keeney et al., 2011). For each round of the proposed study, pre-testing of the questions was conducted. Each questionnaire was reviewed for clarity by three outside reviewers. Reviewers were both dietetics leaders and dietetic educators with experience matching roles of panelists in the study. The reviewers were not included as panelists in the Delphi study. Revisions to each questionnaire were based upon feedback during pre-testing.

Administration of questionnaires for pre-testing and each round was through use of Qualtrics Research Suite© (2014). The "Qualtrics Mailer" feature provides assistance with survey distribution and tracking. It was used to distribute the questionnaires and reminders, and to track participation of panelists. Individuals completing a round of the study were

automatically invited to participate in the subsequent round. Invitations and thank you e-mails sent to panelists for each round are available in Appendices C – I.

**Round 1: Delphi questionnaire implementation.** For round 1, panelists received an e-mail invitation to participate, a letter of consent, and a link to the questionnaire (Appendix C). Voluntary participation in each round indicated implied consent to participate. Round 1 included demographic data about the panelists and the following questions for each group (Appendix J):

***Round 1 questions***.

1. How do you define leadership for the profession of dietetics?
2. What leadership knowledge is currently needed by entry-level dietitians?
3. What leadership skills are currently needed by entry-level dietitians?
4. What training in the classroom do you recommend for preparing dietetic students for entry-level roles?
5. What leadership experiences outside of the classroom do you recommend for preparing dietetic students for entry-level roles?

**Round 1: Data analysis.** Data analysis procedures outlined by Keeney et al. (2011) were followed for the Delphi study. Qualitative analysis for the first round involved reviewing comments and coding them into themes. The analysis process was conducted by two researchers of the study serving as independent raters. Each rater was provided with responses from panelists for each question and asked to categorize them and write titles for each category. Data then were organized into categories based on agreement from the independent raters. Inter-rater reliability and Kappa coefficients were calculated using IBM SPSS Statistics 22 (2013) to determine reliability. The main purpose of coding statements

was to present them in categories within the round 2 questionnaire. The second researcher reviewed the questionnaire to confirm agreement with categorization of statements.

Demographic information was analyzed using descriptive statistics to identify characteristics of the expert panel members. This analysis provided information about individuals serving as affiliate presidents and those in the position of coordinated program directors.

**Rounds 2 and 3: Delphi quesionnaire development and implementation.** Rounds 2 and 3 questionnaires (Appendices K and L) were developed based upon the qualitative data generated from round 1. The questionnaires were divided into several sections along with a clear statement of the instructions for each question. The questionnaire introduction included a statement of priorities for the research, which is recommended to help panelists work through the process of rating the statements (Keeney et al., 2011).

During rounds 2 and 3, controlled feedback from the previous round was provided to the panelists. Controlled feedback was group summary data formulated from previous responses with new requests asking panelists to comment further on the topic. Table 2 illustrates controlled feedback provided for round 2, along with related questions for the round.

Round 3 included the same statements as round 2. For both rounds, panelists were requested to rate each statement. Round 2 ratings were focused on agreement for entry-level practice, while round 3 ratings asked panelists to rate the requirement for dietetics education. Table 3 illustrates the rating scale used for each round.

Table 2

*Controlled Feedback and Questions for Round 2*

| Controlled Feedback from Round 1 | Round 2 Questions |
|---|---|
| Categories identified for leadership definitions. | Please rate your level of agreement on each **category as part of a definition** for leadership in dietetics. |
| Leadership characteristics identified as being needed for leaders in dietetics. | Please rate your level of agreement for each **characteristic** being important for leaders in dietetics. |
| Statements of leadership knowledge (by category) needed for entry-level dietetics practice. | Please indicate your level of agreement for each **knowledge area** being needed for entry-level dietitians. |
| Statements of leadership skills (by category) needed for entry-level dietetics practice. | Please indicate your level of agreement for each **leadership skill** as being needed for entry-level dietitians. |
| Statements of leadership training (by category) recommend for preparing dietetic students for entry-level roles. | Please indicate your level of agreement for each **training method** as being needed to prepare dietetics students entry-level roles. |
| Statements of leadership training (by category) recommend for preparing dietetic students for entry-level roles. | Please indicate your level of agreement for each **leadership experience** as being needed to prepare dietetics students entry-level roles. |

The controlled feedback for round 3 was the group agreement rating from round 2. An abbreviation of each rating was presented after each statement: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strong Disagree. In addition, panelists were asked to save a pdf of their questionnaire responses following completion of round 2. For round 3 they were reminded to review their previous responses and consider them in comparison to the group

response. Panelists were asked to consider both previous ratings then rate each statement for necessity within dietetic education programs.

Table 3

*Rating Scales for Round 2 and Round 3*

| | **Rating Criteria** | | | |
|---|---|---|---|---|
| Round 2: | Strongly Agree (SA) | Agree (A) | Disagree (D) | Strongly Disagree (SD) |
| | ○ ↓ | ○ ↓ | ○ ↓ | ○ ↓ |
| Median Score: | 1 | 2 | 3 | 4 |
| | ↑ | ↑ | ↑ | ↑ |
| Round 3: | **Absolutely Necessary:** Required for a dietetics education program | **Recommended:** Contributes highly to quality of a program | **Optional:** Not essential, does add some value to a program | **Not Necessary:** Adds no value to a program |
| | ○ | ○ | ○ | ○ |

*Note.* Rating criteria for round 2 and round 3 questionnaire responses: round 2 rating level of agreement for each statement; round 3 rating necessity for dietetics education programs. Reponses correlated to a numerical score used to calculate descriptive statistics. Round 2 response abbreviations: SA, S, D, SD, were provided as feedback in round 3.

**Rounds 2 and 3: data analysis.** Data collected from round 2 was analyzed using IBM SPSS Statistics 22 (2013). As recommended by Keeney et al. (2011) summary statistics were run on the data, including frequencies and descriptive statistics. Analysis for each statement included median, standard deviation, frequency and percent to determine statements where agreement had been reached with a consensus level of 80% as previously determined. Specifically, the rating for each statement was determined by the median and consensus was

determined by percent agreement (Keeney et al., 2011). The same analysis was conducted for round 3. Frequencies also were run for the entire data set to provide overall percentages for each statement. Additionally, a chi-square analysis was conducted using IBM SPSS Statistics 22 (2013) to determine dependency between round 2 and round 3 group responses.

Following round 3, panelist responses were separated into two groups: practitioners and educators. Medians were calculated to determine the ratings of statements for each panel group. Also, chi-square analysis was conducted to determine dependency between statement ratings from each panel group.

**Reaching consensus.** Three rounds are sufficient to reach a consensus in most Delphi studies (Skulmoski et al., 2007). However, possibility exists for needing an additional round. A Delphi study conducted by Golznyski (2001) needed a fourth round due to data collection problems in the first round. Likewise, after 3 rounds, consensus may not be reached in all areas of the study. For this study, data were reviewed after the 3rd round to determine if the study should be completed with data provided, or if an additional round was needed. Reaching consensus is desirable; however, statements not reaching consensus provide interesting data to report (Keeney et al., 2011). While many statements had not reached consensus after round 3, it was decided to conclude the study and report consensus statements recommended for dietetics education. Remaining statements may be further investigated through future research.

## Reliability and Validity

Reliability can be difficult to establish in a Delphi study, and the possibility has been questioned by some because the nature of a Delphi study is based on judgments (Keeney et al., 2011). Due to variations in Delphi techniques, it is recommended that reliability be

evaluated for each Delphi study. Several strategies were discussed that were intended to address reliability and validity of this research. The study used two strategies: (a) pre-testing of the questionnaires, and (b) using independent raters for coding round 1 data.

**Timeline**

The timeline which was followed for implementation of the study is outlined in Figure 3.

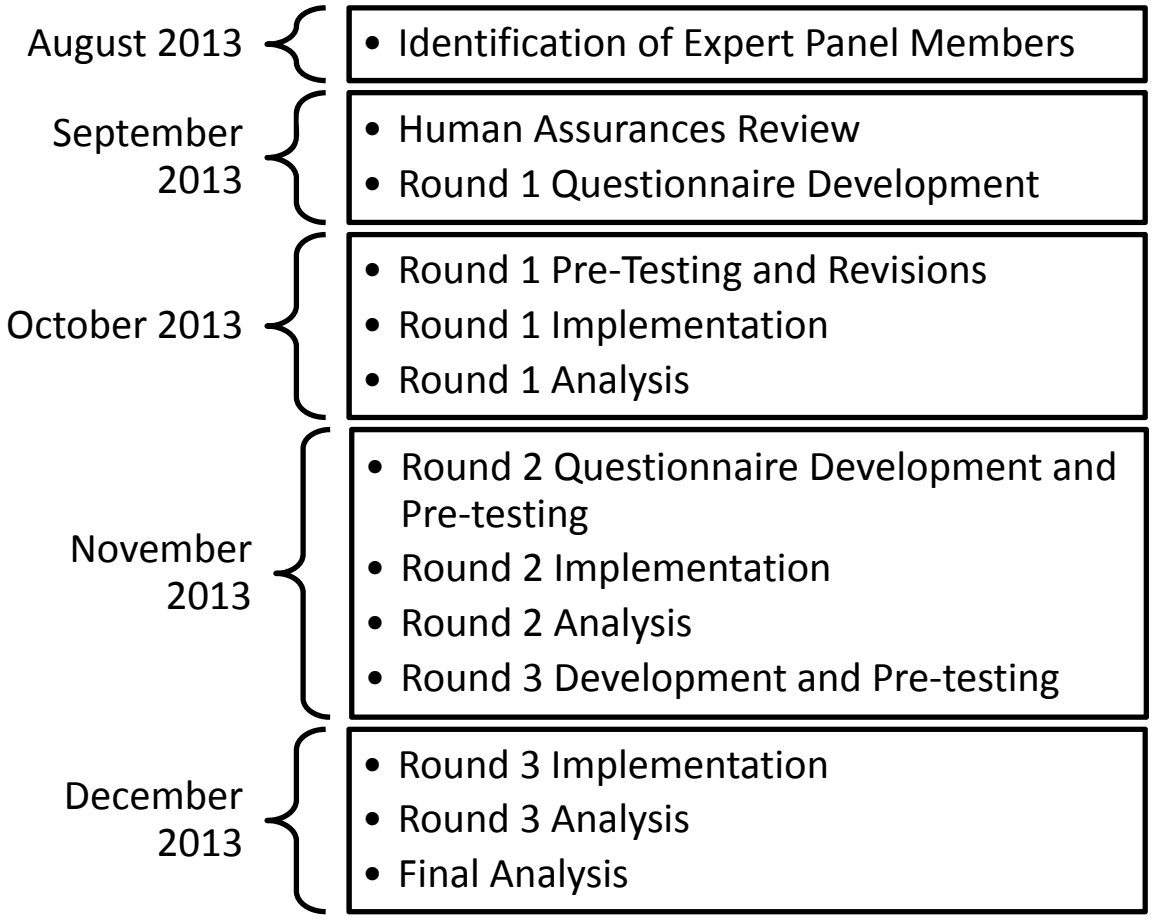


*Figure 3.*Timeline for implementation of the study.

**Assumptions and Presuppositions**

Several assumptions were based on the concept of leadership within the profession of dietetics. First, it was assumed that leadership competency is essential to dietetics practice

and entry-level dietetics practice. This assumption is supported by standards in the dietetics profession. For example, the mission of the Academy of Nutrition and Dietetics is "empowering members to be the nation's food and nutrition leaders" (Academy of Nutrition and Dietetics, 2013, para. 1). However, it is still an assumption that entry-level RDNs require leadership competence. A second assumption relates to dietetic students not being educated to be competent leaders. It was assumed that training for dietetic students within educational programs currently may not be sufficient; thus prompting investigation into competencies needed within educational programs.

The proposed study sought to better understand dietetic leadership and develop leadership knowledge, competencies, training and experiences recommended for dietetics education. In doing so, it was assumed that a Delphi study could reach a consensus on required leadership competencies and training strategies for dietetics education. It also was assumed panelists who were selected as experts in dietetics leadership and education had the knowledge and ability to identify competencies and training strategies. Finally, it was assumed that leadership competencies can be learned and developed. As competencies and strategies are identified, dietetic educators will be able to prepare dietetic students to learn leadership skills and meet leadership competencies for entry-level practice.

## Trustworthiness / Researcher as Instrument

In order to increase validity of the Delphi study, the researcher's voice must be transparent. Creswell (2013) describes this transparency as a validation strategy to increase trustworthiness. The worldview, axiology, and experiences, of the researcher are laid out in this section.

The roots of dietetics are strongly tied to a post-positivist view. Post-positivism is stated by Crotty (1998) to be a "humbler version of the scientific approach, one that no longer claims an epistemologically or metaphysically privileged position" (p. 40). Dietetics is a science-based profession that strives for evidence-based, best practice. Ethical standards are emphasized, and professionals abide by a code of ethics. The post-positive perspective seeks to find knowledge through adherence to the scientific method. This method can provide evidence, but not absolute truth because there is always opportunity for falsification. Because of my education and experience as an RDN, I tend toward a post-positivist view. I place a high value on the scientific method and experimental research.

Additional values within the dietetics profession exist related to leadership. First, registered dietitians are the nation's food and nutrition experts. Second, RDNs are needed to improve the nation's health and nutrition. In order for RDNs to accomplish this, they must possess leadership ability. The value of a RDN credential is important to the profession and to me as a researcher. My own experience is working as an RDN to lead the public in food and nutrition, leadership experience within the profession, and experience as an educator for dietetic students. I have worked in clinical, foodservice management, community, and education segments of the profession. My leadership roles include serving as a board member of the Idaho Academy of Nutrition and Dietetics, and working two years as the acting director of the University of Idaho Coordinated Program in Dietetics. I strongly value the position of RDNs as food and nutrition leaders and recognize the importance of training dietetic students to be competent in leadership. This stance must be acknowledged as a potential bias. My goal in conducting this study was to improve leadership within the dietetic profession.

## Summary

Chapter 3 reviewed the methodology and methods for the research study. The goal of this study was identification of leadership knowledge, skills, training and experiences recommended for dietetics education. A Delphi study was used to collect expert opinions from leaders and educators in the field. This study addressed the need for development of leaders in dietetics, and contributed to the dietetic leadership literature.

Results of the study are discussed in two manuscripts. First, the results that are focused on the primary research questions for this study are covered in Chapter 4 Identification of Leadership Priorities for Dietetics Education. Second, subsequent findings from comparisons of the two expert panel groups are presented in Chapter 5 Perspectives on Leadership from Practitioners vs. Educators in Dietetics. Additional results and discussion are provided in Chapter 6 along with a summary and conclusion.

# CHAPTER 4

# IDENTIFICATION OF LEADERSHIP PRIORITIES FOR DIETETICS EDUCATION

## Abstract

*(This abstract was submitted on February 20, 2014 for presentation at the 2014 Food and Nutrition Conference and Expo. Abstract authors: K.R. Miner, L.B. Holyoke, S.A. Ramsay*.)

Leadership is an important aspect of dietetics practice, and current educational requirements include demonstration of leadership skills for dietetic students. To determine expert recommendations for leadership priorities in dietetics education, a Delphi study was conducted. All coordinated program directors within the United States and all state affiliate presidents of the Academy were invited to participate (N=105). Forty panelists (38% response rate) participated by completing three rounds of questionnaires aimed at defining leadership and identifying leadership knowledge, skills, training and experiences. Content analysis of round 1 was conducted to generate themes. Rounds 2 and 3 were analyzed using descriptive statistics to identify priority statements reaching consensus of 80% or higher. Additionally, chi-square analysis was used to identify relationships between round 2 and round 3 responses. Experts identified promoting teamwork and collaboration, professionalism, and honesty as important in a definition of leadership. Twenty-five statements of leadership knowledge, skills, training, and experiences reached consensus as being absolutely necessary for dietetics education, particularly with an emphasis on communication, teamwork, critical thinking, professional ethics, life-long learning, evidence-based practice, nutritional science and medical nutrition therapy, organizational skills, goal setting, and nutrition education. Highly valued leadership priorities were observed ($p < 0.05$)

for knowledge of medical nutrition therapy; knowledge of how to speak confidently; written, oral, and electronic media communication skills; projects requiring critical thinking and decision making; projects requiring assessment, goal setting and implementation; and development of patient education materials. Identified priorities can be used to inform leadership curriculums in dietetics education programs.

## Introduction

The healthcare field faces rapid change, creating complex environments for registered dietitians and other healthcare professionals. Leadership requirements are needed by healthcare professionals to manage change and lead organizations, but are unclear (Center for Creative Leadership (CCL), 2010). Limited evidence is available from the healthcare literature supporting current leadership practices (Garmen & Lemak, 2011). Leadership has become an integral component to healthcare professions (Abdolijavad, Soudabeh, Reza, Ahmad, Ali, & Ali, 2012; CCL, 2010; Garman & Lemak, 2011), and importance of leadership has been emphasized for the dietetics profession (Barker, Arensberg, & Schiller, 1994; Gregoire & Arendt, 2005; Hunter, Lewis, & Ritter-Gooder, 2011; Smith-Edge, 2003). While an increased need for leadership has been recognized both in healthcare and specific to dietetics, leadership competencies needed to prepare dietitians for leadership roles have not been identified. Additionally, limited research has explored leadership requirements for dietetics education. A call for more emphasis on leadership within dietetics continues, including a need for leadership training for dietitians (DeMicco & Williams, 1999; Pace, 1995; Parks, 2002; Watson-Jarvis, 2000).

The mission of the Academy of Nutrition and Dietetics is “empowering members to be the nation’s food and nutrition leaders” (Academy of Nutrition and Dietetics, 2013, para. 1).

Preparing graduates of dietetic education programs as leaders will help fulfill this mission. Current educational standards for dietetics include the demonstration of leadership skills (Accreditation Council for Education in Nutrition and Dietetics, 2012; Skipper, Young, and Mitchell, 2008); however, guidance for leadership training of dietetic students is limited. One problem is a need for evidence-based leadership standards to prepare dietetic students for entry-level leadership roles. This study sought to identify leadership priorities for dietetics education. Research questions were: (a) How is leadership defined for dietetics education? (b) What leadership core knowledge and competencies are essential for dietetics education? and (c) What leadership training and experiences are needed for dietetics education to prepare students for leadership roles? A Delphi study was selected to explore these research questions.

## Methods

The Delphi technique is a group problem solving process and can be used for generating ideas and reaching group consensus (Dalkey & Helmer, 1963; Fisher 1978; Linstone & Turoff, 2002) and can be adapted to fit specific research questions (Skulmoski, Hartman, & Krahn, 2007). Delphi has been applied to dietetics research for identifying practice competencies (Ayres, Greer-Carney, Fatzinger-McShane, Miller, & Turner, 2012; Brody, Byham-Gray, Touger-Decker, Passannante, & O'Sullivan Maillet, 2012). A modified Delphi technique (Keeney, Hasson, & McKenna, 2011) was used with an adapted implementation of The Delphi Sequence Model (Couper, 1984) to identify leadership priorities for dietetics education. This study was approved by the Institutional Review Board at the University of Idaho.

**Subjects**

Two populations were selected as experts in dietetics education and leadership through purposive sample techniques recommended for Delphi studies (Ludwig, 1997; Skulmoski et al., 2007). Coordinated programs (CP) directors (N=53) were selected as dietetics education experts familiar with both didactic and supervised practice requirements. Presidents of Academy affiliates (N=52) were identified as dietetic leadership experts familiar with serving in leadership positions. Both groups were identified from the Academy of Nutrition and Dietetics website at www.eatright.org.

Recommendations vary on the number of experts to include on panels for Delphi studies, with 10-15 being noted as sufficient (Akins, Tolson & Cole, 2005; Skulmoski et al., 2007). Attrition is common using this technique (Keeney et al., 2011); therefore, a larger sample size (N=105) was selected to ensure adequate participation through a final round.

**Delphi Technique Implementation**

Opinions from expert panelists were collected during three sequences of on-line questionnaires administered through Qualtrics Research Suite© (2014). Qualtrics© is an on-line computer program available for developing and implementing surveys. Delphi techniques commonly use a mixed-method approach incorporating both qualitative and quantitative methods (Keeney et al., 2011, Skulmoski et al., 2007). Following a modified classical approach, qualitative responses were gathered in round 1, while rounds 2 and 3 solicited quantitative ratings (Ludwig, 1997). Figure 4 illustrates the Delphi implementation process for this study.

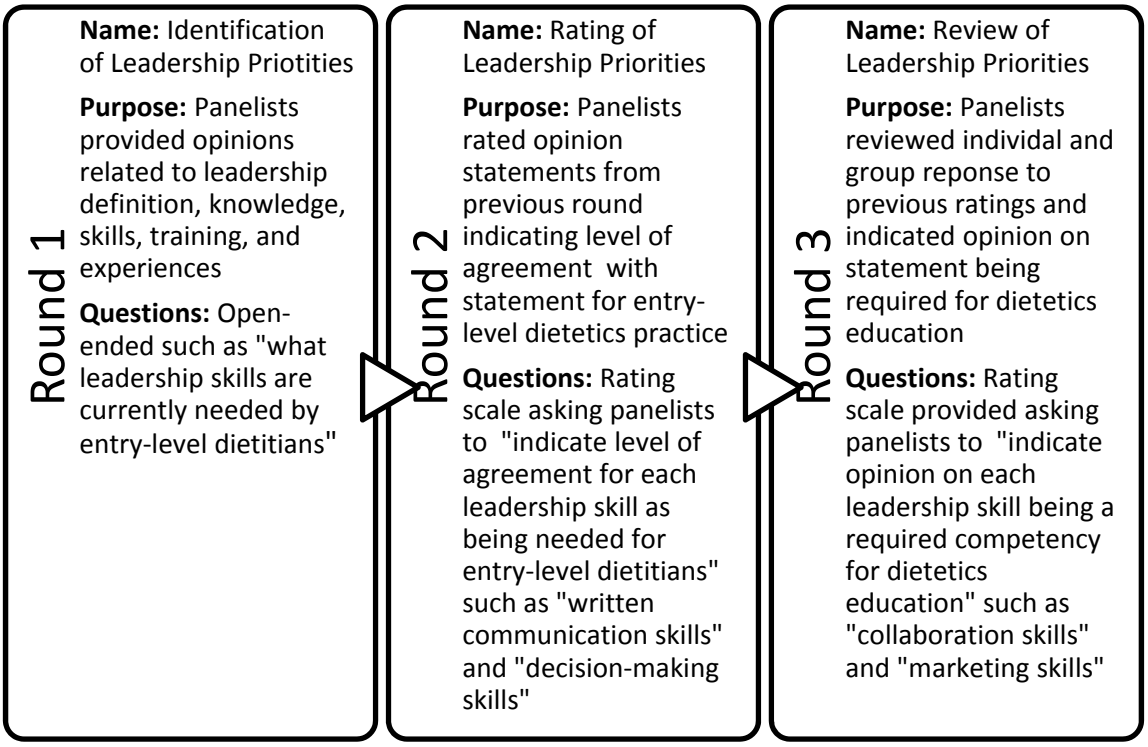


*Figure 4.* Implementation and Purpose of Delphi Rounds

As illustrated in Figure 4, the Delphi rounds moved through a progression starting with identification of leadership priorities, rating the priorities for entry-level practice, and review of the priorities for necessity in dietetics education programs. The goal of the study was to establish imperatives related to leadership for dietetics education.

**Data Collection**

Research questions guided development of the identification of leadership priorities questionnaire. Pre-testing with three outside experts was conducted followed by revision. In addition to demographic information collected, questions for the first round included:

1. How do you define leadership for the profession of dietetics?
2. What leadership knowledge is currently needed by entry-level dietitians?
3. What leadership skills are currently needed by entry-level dietitians?

4. What leadership training in the classroom do you recommend for preparing dietetic students for entry-level roles?
5. What leadership experiences outside of the classroom do your recommend for preparing dietetic students for entry-level roles?

Panelists were e-mailed an invitation and questionnaire link. An Amazon.com gift card incentive was provided for completing each questionnaire: $10 for round 1, and $20 for both, rounds 2 and 3. Completing the questionnaire implied consent to participate. Panelists' e-mail addresses were collected after each round to distribute gift cards and invitations for subsequent rounds of data collection. Questionnaire responses were confidential.

Following each round, data were analyzed and subsequent round questionnaires were developed during a two week time period between rounds. Leadership priority statements collected from experts were analyzed by content analysis using two researchers as independent raters. The researchers reviewed and agreed to the content analysis protocol outlined by Keeney et al (2011) prior to conducting content analysis. Comments were categorized and coded into themes. Inter-rater reliability was calculated at 0.64, which was not considered efficient. Therefore, themes not matching between raters were discussed and reviewed for agreement. Statements from panelists were presented by categories in the questionnaires for rating and review by panelists in subsequent rounds. Responses with identical meanings were eliminated.

Pre-testing was conducted for each questionnaire with 2-3 experts reviewing the instrument for clarity. Experts for pre-testing were selected from previous dietetic leaders and educators in Idaho. Table 4 provides rating criteria for rating and review by panelists. For the final rating and review for dietetics education programs, panelists were provided with the

overall group response and their previous individual response and asked to consider both in providing a recommendation for use of each statement in dietetics education.

Table 4

*Rating Scales for Round 2 and Round 3*

| | **Rating Criteria** | | | |
|---|---|---|---|---|
| Round 2: | Strongly Agree (SA) | Agree (A) | Disagree (D) | Strongly Disagree (SD) |
| | ↓ | ↓ | ↓ | ↓ |
| Median Score: | 1 | 2 | 3 | 4 |
| | ↑ | ↑ | ↑ | ↑ |
| Round 3: | **Absolutely Necessary:** Required for a dietetics education program | **Recommended:** Contributes highly to quality of a program | **Optional:** Not essential, does add some value to a program | **Not Necessary:** Adds no value to a program |

*Note.* Rating criteria for round 2 and round 3 questionnaire responses: round 2 rating level of agreement for each statement; round 3 rating necessity for dietetics education programs. Reponses correlated to a numerical score used to calculate descriptive statistics. Round 2 response abbreviations: SA, S, D, SD, were provided as feedback in round 3.

## Statistical Analysis

Panelist ratings were analyzed using IBM SPSS Statistics 22 (2013). Descriptive statistics were used to calculate median, standard deviation, and percentage of each response as recommended by Keeney et al. (2011) and Couper (1984). The median was used to determine the overall group rating as recommended by Keeney et al (2011). Percentages, calcuated as percent of panelists who chose a particular rating, were used to determine consensus level. A median of 1.00 indicated a statement was imperative for dietetics

education. Prior to data collection, consensus level was identified at 80%. Demands on dietetics programs are high; thus a high consensus level was selected to justify inclusion of leadership priorities in dietetics education. The Delphi Sequence model (Couper, 1984) directs removal of statements reaching consensus level for subsequent rounds; however, keeping them can be optional (Keeney et al., 2011). They were kept in the questionnaire for this study, because the rating scale changed between rounds. Statements reaching consensus were maintained in the questionnaire to analyze level of agreement for both rounds.

Following completion of the study, final analysis was conducted to identify total percentages and statements reaching consensus through combined rounds. In addition, Chi Square analysis was conducted to identify relationships between round 2 and round 3 responses that could imply strong associations and indicate a highly vowed leadership quality.

## Results

### Response Rate

Of the initial 105 expert CP directors and affiliate presidents invited to participate, 38% (n=40) completed round 1. From this panel, 73.5% (n=29) completed round 2 and 65% (n=26) completed round 3 with an overall 35% attrition rate.

Demographic information was collected during the first round questionnaire. Of the 40 panelists, 22 (55%) were affiliate presidents and 18 (45%) were CP directors. Additionally, 21 (52.5%) worked in education, nine (22.5%) in clinical dietetics, two (5%) in community dietetics, and seven (17.5%) in other areas with 100% of panelists identifying leadership experience in dietetics and 31 (77.5%) identifying leadership experience not related to dietetics. Most panelists held advanced degrees and credentials with 27 (67.5%) having a masters degree, seven (17.5%) a doctoral degree and six (15%) having an advanced

certification. Ninety-seven percent of panelists were female with age distribution of 65+ – 3%, 55-64 – 38%, 45-54 – 23%, 35-44 – 21%, and 25-34 – 15%. Ninety-three percent of panelists described themselves as white with 5% Hispanic or Latino and 2% Asian. Of the 26 panelists completing all three rounds, 15 (57.7%) were affiliate presidents and 11 (42.3%) were CP directors.

**Leadership Definitions**

Panel responses defining leadership for dietetics are included in Table 5. Fifteen themes or categories emerged from panelists' comments. Within definitions stated, 25 specific characteristics or traits were provided for dietetic leadership. When rated, at least eighty percent of panelists agreed or strongly agreed on importance of themes for a definition of leadership in dietetics. Promoting teamwork and collaboration themes reached consensus with 86.2% of panelists strongly agreeing on importance for dietetic leadership. High ratings were observed for leadership characteristics as well. Two statements reached consensus of panelists strongly agreeing on the importance: professionalism (89.7%) and honesty (86.2%).

**Leadership Priorities for Dietetics Education**

In round 1, panelists provided qualitative statements of leadership knowledge, skills, training, and experiences needed for entry-level dietitians. Review of statements through content analysis produced 202 total statements coded by category. Categories for statements of leadership knowledge, skills, training, and experience were:

- *Leadership knowledge* (69 statements): Categories included resources, teamwork, communication, management, general dietetics, dietetics profession, leadership qualities / characteristics, and leadership theory;

Table 5

*Round 1 Themes and Characteristics for a Definition of Leadership in Dietetics*

| Definition of Leadership in Dietetics Themes | Leadership Characteristics Identified as Important for Leaders in Dietetics |
|---|---|
| Having a vision | Knowing your own strengths |
| Being able to chart a course and move forward to achieve outcomes | Empathy |
| | Positive energy and momentum |
| Being able to see the big picture | Giving back and helping others |
| Being willing and able to make decisions | Appreciation for those who came before you |
| Acting in the best interest of others instead of oneself | |
| Advancing the profession of nutrition and dietetics | Willingness to volunteer and learn |
| Promoting the registered dietitian as the food and nutrition expert | Passion and interest in being a leader |
| | Confidence in holding a leadership position |
| Being an expert in one aspect of dietetics | |
| Staying current in knowledge | Professionalism* |
| Serving in professional organizations | Assertiveness |
| Holding leadership positions | Honesty* |
| Being involved in the community | Competence |
| Inspiring and motivating others | Open-mindedness |
| Promoting teamwork and collaboration* | Courageous |
| Mentoring students, interns and /or younger dietitians | Proactive |
| | Respectful of others |
| | Good humored |
| | Flexible |
| | Resilient |
| | Energetic / enthusiastic |
| | Creative |
| | Customer Aware |
| | Quality oriented / striving for excellence |
| | Risk-taking |
| | Commitment |

*Note.* Panelists rated all themes and characteristics "strongly agree" or "agree" combined at 80% at higher .

*Statement reached consensus level of at least 80% for "strongly agree" rating.

- *Leadership skills* (53 statements): Categories included communication, teamwork, management, and professional skills;
- *Leadership training methods* (44 statements): Categories included curriculum, activities / assignments, projects, discussions, and presentations; and

- *Leadership experiences* (36 statements): Categories included participation in organizations, participation in student organizations, volunteer experiences, mentoring, and supervised practice experiences.

**Round 2: Rating of Statements**

Rating of knowledge, skills, training and experiences indicated panelists viewed the statements as important for entry-level dietetics with 86% of statements having at least 80% of panelists rating agree or strongly agree. After the first rating, five statements reached the previously set 80% consensus level at strongly agree. These statements are included in Table 6.

Several qualitative comments from the second round reflected conflicting views of panelists related to the purpose of the study. For example, one panelist stated:

> We have so much to teach as professionals, we can't easily fit so much into a curriculum, and make it meaningful….leadership is something that is developed over time….adding even more competencies to the curriculum just makes it tougher for directors.

A second panelist added, "These are not entry-level skills, there is already too much else to learn and master." However, these thoughts were not demonstrated in group statement ratings.

**Round 3: Review of Statements**

Because of high agreement observed after the first rating, the rating criteria were changed for the next questionnaire. The same statements were presented; however, panelists were asked to indicate if the knowledge, skills, training, or experience should be required, recommended, optional, or not necessary in a dietetics program. Qualitative comments

Table 6

*Round 2 and 3 Statements Reaching Consensus of 80% or Higher*

| Delphi Round | Leadership Knowledge (% ) | Leadership Skills (%) | Leadership Training (%) | Leadership Experiences (%) |
|---|---|---|---|---|
| **Round 2** | Recognition that learning is on-going and never ending (86.2%)<br>Knowledge of Professional Ethics / Code of Ethics (82.8%)<br>Knowledge of how to think critically (93%) | Good listening skills (89.7%) | Projects requiring critical thinking and decision making (82.8%)* | |
| **Round 3** | Knowledge of when to reach out to someone more qualified to answer a question or solve a problem (80.8%)<br>Knowledge of how to work with others (80%)<br>Knowledge of communication methods and techniques (84.6%)<br>Knowledge of how to speak confidently with other individuals in health care and life (88.5%)*<br>Basic dietetics knowledge in all aspects of the profession (80.8%)<br>Basic knowledge in the sciences including nutrition science (96.2%)<br>Knowledge of medical nutrition therapy and impact of nutrition or lack of adequate nutrition on health and disease (92.3%)**<br>Understanding and application of evidence-based practice (96.2%) | Communication skills for a variety of audiences (92.3%)<br>Written communication skills (100%)**<br>Communication skills in electronic media (84.6%)*<br>Oral communication skills (100%)*<br>Ability to communicate with people at different levels (peers, clients, administrators) (84.6%)<br>Ability to listen to other team members (80.8%)<br>Strong work ethic (80.8%)<br>Organizational skills (80.8%)<br>Critical thinking and problem solving skills (92.3%) | Projects that allow students to assess a situation, write goals, and implement strategies to improve the situation (84.6%)*<br>Development of patient education materials, policies, and procedures or in-services (88.5%)* | Nutrition education programs in the community (84.6%) |

*Note.* Consensus statements for Round 2 with 80% of panelists or higher strongly agreeing the leadership knowledge, skills, training or experience was needed for entry-level dietitians. All statements reaching consensus in round 2 also reached consensus again in round 3. Consensus

statements for Round 3 with 80% of panelists or higher rating the leadership knowledge, skills, training or experiences as absolutely necessary for dietetics education.
*Chi Square analysis showed significant relationships between round 2 and 3; $p<.05$
**$p<.01$

provided in round 2 created an expectation of lower ratings for requirements in a dietetics program. Lower ratings were not observed, with less than 3% of statements having a median of >2.00 indicating a rating as optional or not necessary versus the majority of statements, 97.03% rated as required or recommended for dietetics education programs.

From the final rating, 20 statements reached consensus of "absolutely necessary" for dietetics education (Table 6). In addition, all previous consensus statements reached consensus again in the final rating, indicating panelists reported a high level of importance in dietetics education for these five statements. One statement reached consensus at the "recommended" level: Basic knowledge in social sciences (84%). Six statements had a median of 2.5 or 3.00 indicating a group response of "optional" for dietetics education. No leadership knowledge, skills, training, or experiences received a group rating of "not necessary" for dietetics education. The six statements rated as "optional" did not reach 80% consensus; however, they are presented since few statements received a low group rating:

1. Leadership Knowledge: Knowledge of job descriptions for all positions within an organization
2. Leadership Training: Writing a business plan
3. Leadership Training: Concept mapping assignments
4. Leadership Experiences: A required year of active leadership in a professional organization
5. Leadership Experiences: Extracurricular activities, such as sports

6. Leadership Experiences: Coaching a team for the community

Qualitative responses provided in the final round illustrate the conflicting views about including leadership knowledge and competency requirements for dietetics education. For example:

> There needs to be a base of leadership training and skills for all dietetics students. This profession means making decisions, affecting the lives of others and the job satisfaction occurs when goals are accomplished. A basic knowledge is needed if the individual has a desire to be an effective practitioner.

A second panelist stated, "Most students will not have a context for much of the information mentioned above. I don't think it needs to be included in the education process except in the broadest sense."

A final analysis was conducted on the statements using compiled responses from both rounds. When responses were combined and total percentages reviewed, no additional statements were identified that reached consensus. Chi square analysis between round 2 and round 3 found dependency between 16 statements, 8 of which reached consensus of being "absolutely necessary" for dietetics education (see Table 6). A significant chi-square value implies a strong relationship and indicates high value of the statement by expert panelists.

**Ratings and Consensus between Rounds**

This Delphi study was modified by changing rating criteria between rounds. It was expected that statements with high "strongly agree" ratings may not be considered "absolutely necessary" for dietetics education. However, more statements reached consensus when the focus was on dietetics education. No statements reaching consensus in round 2 failed to reach consensus after the rating criteria was changed. Even though more statements reached

consensus in round 3, the number of statements with a median indicating "strongly agree" (50%) was higher compared to the number of statements with a median of "absolutely necessary" (40%) indicating a drop in importance for nonconsensus statements when the context was changed. Statements that reached consensus and showed a significant association between rounds illustrated a high value from the expert panelist for those statements.

The consensus statements observed are leadership knowledge, skills, training, and experiences recommended for dietetics education. It should be noted that these are opinions of expert panelists and do not represent definitive approaches to leadership for dietetics education.

## Discussion

### Defining Leadership

The first research question asked how leadership was defined for dietetics education. Themes emerged from this study illustrating a complex view of leadership. Leadership in dietetics has been previously defined as "The ability to inspire and guide others toward building and achieving a shared vision" (Borra & Kunkel, 2002; Gregoire & Arendt, 2005). Several categories from this study are not present in the Academy's definition. Few studies have looked at a definition of leadership for dietetics. In one study dietetic students were asked to define leadership and five themes were identified: "(a) providing inspiration/motivation; (b) holding leadership positions; (c) advocating for the dietetics profession; (d) upholding practice standards; and (e) displaying specific skills/traits" (Miner & Ramsay, 2013 p. A19). Themes emerging from expert panelists agreed with those from dietetic students.

While a definition of leadership was not solidified from this study, the number of themes identified demonstrates a need for a more complete definition. Agreement was high for each statement; however, statements reaching consensus related to collaboration, teamwork, professionalism, and honesty should be noted as important for dietetic leadership and emphasized in dietetics education.

**Leadership Priorities for Dietetics Education**

Panelists were asked additional research questions about essential leadership core knowledge and competencies paramount for dietetics education and leadership training and experiences needed to prepare students for leadership roles. While consensus was not reached for most statements, many were still rated as important by the majority of panelists. However, qualitative statements illustrated conflicting views among panelists. Educators do have high demands to meet knowledge and competencies, and additional teaching requirements may be seen as a burden.

The high consensus level of 80% was selected to provide justification for additional requirements in dietetics education. Many statements reaching consensus are already reflected in current educational standards (Accreditation Council for Education in Nutrition and Dietetics, 2012). Because many panel members were dietetic educators, statements may reflect content areas already included in education. These leadership knowledge, skills, training, and experiences provided by panelists often began with "What I do…." illustrating their current practice. Thus, these consensus statements can help justify the importance of current practices in dietetics education.

**Entry-level Leadership Roles**

Some disagreement may exist about leadership roles of entry-level dietitians. Panelists commented, "the RD may never want to be upfront being the leader" and to "let them grow comfortable with who they are and mature. There is no substitute for time and experience, and you cannot build all these competencies into didactic or experiential learning." This idea of not pushing leadership at entry-level was repeated, "Be careful with pushing for more and more competencies for us to expose students to during their training, let them grow up first! Let them get really good at what they do through their employment first, and then let them spread their wings." These comments were a response to the extensive list of knowledge, skills, training, and experiences given to panelists on the rating questionnaires. Findings of resistance to additional educational requirements because of tightly constrained curriculum are consistent literature (Cox, Osman, & Adams, 2010).

While leadership skills may continue to develop through experience, initial responses gathered from the first questionnaire illustrate expectations of leadership at an entry-level dietetics role, making leadership education important. Professional standards for leadership roles of entry-level dietitians may not be clear. For example, leadership has been included as a competency of an expert practitioner (Clark et al., 2012) while at the same time, demonstrating leadership ability is a required competency for a dietetic student (Accreditation Council for Education in Nutrition and Dietetics, 2012). Mixed views and recommendations exist as to whether leadership is an entry-level role or an advanced practice skill.

**Clinical and Management Competency**

Many statements reaching consensus were related to general dietetics and nutrition practice. Management category statements did not reach consensus. In comparison to other

competency models being developed for various healthcare professions, an emphasis is being placed on more management skills (Abdolijavad et al., 2012; Kabir, Potty, & Sharma, 2008; NHS Institute of Innovation and Improvement, 2010; Wilkie, & Spurgeon, 2013; Willcocks & Milne, 2013). Dietetics education is advanced in incorporating this area into education. Emphasis on clinical skills, with little devotion to developing leadership/management skill, has been described as a weakness of many health professions (Abdolijavad et al., 2012; Kabir et al., 2008). The strength of management in dietetics education may not be recognized by all RDNs as indicated by lack of consensus for management statements. Panelists may have varying views regarding important skills for dietitians. For example, one panelist reinforced importance of nutrition sciences in education, "I am concerned that adding too many extra required activities will take away from training in science and nutrition", while other panelists viewed leadership as critical to the profession, "Being an RD without a foundation in leadership hinders the future of our profession." Part of including leadership priorities in dietetics education may require a rethinking of how to prepare RDs for leadership roles. Several panelists noted the demands within education programs; however, results of the study indicate most panelists do see leadership as important. As one panelist stated, "leadership is an extremely important topic, and it will be helpful for all of us to think outside of the box on how these skills can be taught to students."

As other healthcare professions are expanding beyond clinical skills, dietetics already has inclusion of management skills in educational standards (Accreditation Council for Education in Nutrition and Dietetics, 2012; Skipper, Young, and Mitchell, 2008). However, business skills have been maintained at a basic level while emphasis has been on expanding medical nutrition therapy skills (Nyland & Lafferty, 2012). Consensus statements from this

study illustrate the importance placed on nutrition and medical nutrition therapy skills while statements in management categories did not have any consensus. The need for competent dietitians is still an emphasis for education, but the increased need for leadership training has been noted (Jarratt & Mahaffie, 2002; Nyland & Lafferty, 2012; Porter, 2005).

A possibility exists that results of this study represent the status quo of dietetics education and do not reflect the leadership needs to advance the profession. Looking outside of the profession may be important to identify and validate competencies for dietetics leadership development. For example, leadership training in nursing, including mentorship support, resources and tools, increased confidence, project management competencies, and validation/affirmation of self, were found to help students in a nursing leadership training develop as leaders (MacPhee Skelton-Green, Bouthillette & Suryprakash, 2012). While some of these areas were identified in this Delphi study for dietetics, none reached consensus from the panelists. On the other hand, some of the priorities for dietetics education from this study are supported in the literature. For example, leadership competencies identified for maternal and child health professionals included communication skills, critical thinking skills, internal reflection and ethics/professionalism (Mouradian & Huebner, 2007), three of the four being areas for consensus statements in this study.

**Communication Competency**

One area emphasized for leadership was communication. The majority of the consensus statements related to the area of communication. One comment illustrated this, "dietitians need to have expertise in communication, the cornerstone of our profession." A second participate reinforced communication by stating, "communication skills is what students/entry level people need, because communication is central to leadership."

Communication standards are currently included in educational requirements (Accreditation Council for Education in Nutrition and Dietetics, 2012; Skipper, Young, & Mitchell, 2008). Consensus statements related to communication indicate this may be a key area of education for dietetic students to prepare them for leadership opportunities.

## Conclusions and Implications

The purpose of this study was to identify leadership priorities for inclusion in dietetics education programs. Current educational standards require demonstration of leadership without definition or guidelines for leadership development. This Delphi study contained a sample of panelists who are in dietetic leadership roles and education positions providing expert opinions on dietetics leadership. Leadership priorities for dietetics education were identified, but further study is recommendations before requiring additional knowledge and competencies for dietetics programs.

High group ratings for leadership statements indicate importance of including leadership training and experience in dietetics education. However, the demands on dietetic programs make the additional recommendations challenging to include. Following other healthcare fields, this data can be used to begin developing and evaluating leadership competency models and curriculums for dietetics education.

This study generated numerous statements and themes for dietetics leadership. While only 25 reached consensus to be required for dietetics education program, 196 statements were recommended for dietetics education (a larger number than can be reported). Recommended statements can be further studied for application in dietetics curriculums and competency models. In addition, follow-up studies could compare statements to current educational requirements and practices.

Results of this study provide an initial list of leadership priorities for dietetics education from expert panelists. Consensus statements illustrate leadership priorities that could be emphasized within dietetics education programs.

## References

Abdolijavad, K., Soudabeh, V., Reza, M. M., Ahmad, B., Ali, A., & Ali, H. (2012). Conceptual skill in physicians: An overlooked basic competency. *HealthMED, 6* (10), 3359-3365.

Academy of Nutrition and Dietetics (2013). Who we are and what we do. Retrieved from http://www.eatright.org/Media/content.aspx?id=7603

Accreditation Council for Education in Nutrition and Dietetics (2012). ACEND accreditation standards for dietitian education programs leading to the RD credential. Retrieved from http://www.eatright.org/ACEND/

Akins, R., Tolson, H., & Cole, B. R. (2005). Stability of response characteristics of a Delphi panel: Application of bootstrap data expansion. *BMC Medical Research Methodology, 5*, (37). Retrieved from http://www.biomedcentral.com/1471-2288/5/37

Ayres, E. J., Greer-Carney, J. L., Fatzinger McShane, P. E., Miller, A., & Turner, P. (2012). Nutrition informatics competencies across all levels of practice: A national Delphi study. *Journal of the Academy of Nutrition and Dietetics, 112,* 2042-2053. doi:10.1016/j.jand.2012.09.025

Barker, A. M., Arensberg, M. F., & Schiller, M. R. (1994). *Leadership in dietetics: Achieving a vision for the future.* Chicago: The American Dietetic Association.

Borra, S. & Kunkel, M.E. (2002). President's Page: ADA House and Board: Melding talents and enthusiasm. *Journal of the American Dietetic Association, 103,* 12.

Brody, R. A., Byham-Gray, L., Touger-Decker, R., Passannante, M. R., & O'Sullivan Maillet, J. (2012). Identifying components of advanced-level clinical nutrition practice: A Delphi study. doi: 10.1016/j.jand.2012.02.022

Center for Creative Leadership (2010). Addressing the leadership gap in healthcare: What's needed when it comes to leader talent? White Paper. Retrieved from http://www.ccl.org/leadership/pdf/research/addressingleadershipGapHealthcare.pdf

Clark, K. M., Moore, C., Trombley, L., Skates, J., Rogalski, M. J., Schofield, M., & Welch, J. (2012). Academy of nutrition and dietetics: Standards of professional performance for registered dietitians (competent, proficient, expert) in clinical nutrition management. *Journal of the Academy of Nutrition and Dietetics, 112,* 1662-1669e17. doi: 10.1016/j.jand.2012.07.030

Couper, M. R. (1984). The Delphi technique: Characteristics and sequence model. *Advances in Nursing Science, 7*9(1), 72-77.

Cox, M. F., Osman, C., & Adams, S. G. (2010). Developing leadership skills of undergraduate engineering students: Perspectives from engineering faculty. *Journal of STEM Education, 11*(3), 22-33.

Dalkey, N., & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. *Management Science, 9*(3), 458-467. Retrieved from http://www.jstor.org/stable/2627117

DeMicco, F. J., & Williams, J. A. (1999). Down-board thinking: What are our next moves? *Journal of the American Dietetic Association, 99,* 285-286.

Fisher, R. G. (1978). The Delphi method: A description, review and criticism. *The Journal of Academic Librarianship, 4*(2), 64-70.

Garman, A. N., & Lemak, C. H. (2011). Developing healthcare leaders: what we have learned, and what is next. *National Center for Healthcare Leadership* Retrieved from http://www.nchl.org/Documents/NavLink/NCHL_Developing_Healthcare_Leaders__Nov_2011_uid11212011137292.pdf

Gregoire, M. B., & Arendt, S. W. (2005). Leadership: Reflections over the past 100 years. *Journal of the American Dietetic Association, 104,* 395-403. doi: 10.1016/j.jada.2003.12.024

Hunter, A. B., Lewis, N. M., & Ritter-Gooder, P. K. (2011). Constructive developmental theory: An alternative approach to leadership. *Journal of the American Dietetic Association, 111*, 1804-1808. doi: 10.1016/j.jada.2011.10.009

Jarratt, J., & Mahaffie, J. B., (2002). Key trends affecting the dietetics profession and the American Dietetic Association, *102,* S1821 - 1839

Kabir, C., Potty, A., & Sharma, R. (2008). Current opportunities for the development of leadership skills for doctors. *The International Journal of Clinical Leadership, 16*, 115-19.

Keeney, S., Hasson, F., & McKenna, H. (2011). *The Delphi technique in nursing and health research.* United Kingdom: Wiley-Blackwell.

Linstone, H. A., & Turoff, M. (2002). The Delphi method techniques and applications. Retrieved from http://is.njit.edu/pubs/delphibook/

Ludwig, B. (1997). Predicting the future: Have you considered using the Delphi methodology? *Extension Journal, 25* (5). Retrieved from http://www.joe.org/joe/1997october/tt2.php

MacPhee, M., Skelton-Green, J., Bouthillette, F., & Suryaprakash, N. (2012). An empowerment framework for nursing leadership development: Supporting evidence. *Journal of Advanced Nursing, 68*(1), 159-169. doi: 10.1111/j.1365-2648.2011.05746.x

Miner, K. R., & Ramsay, S. A. (2013). Perceptions of leadership in dietetics from students in a coordinated dietetics program [Abstract]. *Journal of the Academy of Nutrition and Dietetics,113*(Suppl. 3), A19.

Mouradian, W. E., & Huebner, C. E. (2007). Future directions in leadership training of MCH professionals: cross-cutting MCH leadership competencies. *Maternal Child Health Journal, 11*, 211-218. doi: 10.1007/s10995-006-0170-3

NHS Institute for Innovation and Improvement (2010). *Medical leadership competency framework: Enhancing engagement in medical leadership* (3rd ed.) Coventry, United Kingdom: author. Retrieved from http://www.leadershipacademy.nhs.uk/wp-content/uploads/2012/11/NHSLeadership-Leadership-Framework-Medical-Leadership-Competency-Framework-3rd-ed.pdf

Nyland, N., & Lafferty, L. (2012). Implications of the dietetics workforce demand study. *Journal of the Academy of Nutrition and Dietetics, 112,* S92-94. doi: 10.1016/j.jand.2011.12.013

Pace, R. D. (1995). Mapping a course for the future: Dietetics leadership in the 21st century. *Journal of the American Dietetic Association, 95,* 536-537.

Parks, S. (2002). The fractured anthill: A new architecture for sustaining the future. *Journal of the American Dietetic Association, 102,* 33-38.

Porter, C. (2005). Are we training leaders? Conversations with three leaders. *Journal of the American Dietetic Association, 105,* 1204-1205.

Qualtrics Research Suite (2014) [Computer software]. Provo, UT: Qualtrics, LLC.

Skipper, A., Young, L. O., & Mitchell, B.E. (2008). 2008 Accreditation Standards for Dietetics Education. *Journal of the American Dietetic Association, 108,* 1732-1735.e5. doi: 10.1016/j.jada.2008.07.004

Skulmoski, G. J., Hartman, F. T., & Krahn, J. (2007). The Delphi method for graduate research. *Journal of Information Technology Education, 6*, 1-21.

Smith-Edge M. (2003) All ADA members are leaders. *Journal of the American Dietetic Association, 103,* 1452. doi: 10.1016/S0002-8223(03)01386-5

Watson-Jarvis, K. (2000). Shaping our future – Reflections on leadership and transformation. *Canadian Journal of Dietetics Practical Research, 61*, 135-138.

Wilkie, V., & Spurgeon, P. (2013). Translation of the Medical Leadership Competency Framework into a multisource feedback form for doctors in training using a verbal protocol technique. *Education for Primary Care, 24*, 36-44.

Willcocks, S. G., & Milne, P. (2013). The Medical Leadership Competency Framework: Challenges raised for GP educators by a pilot study of culture in general practice. *Education for Primary Care, 24*, 29-33.

# CHAPTER 5

# PERPECTIVES ON LEADERSHIP FROM PRACTITIONERS VS. EDUCATORS IN DIETETICS

## Abstract

Leadership perspectives of dietetic practitioners and educators were examined through a Delphi study with further analysis on differences between the two perspectives of practioner and educator. Three Delphi rounds were conducted to identify leadership priorities for dietetics education programs and to examine differences between practitioners and educators. Expert panelists were comprised of practitioners serving in professional leadership positions and educators in dietetics programs. Panelists were asked to define leadership for dietetics, and identify leadership knowledge, skills, training and experiences essential for educational programs in round 1. Content analysis was conducted to identify themes and compare differences in responses between panel groups. A slight difference in themes was observed between practitioners and educators in round 1. In rounds 2 and 3 panelists were asked to rate importance of each statement. A chi-square analysis was conducted to observe dependency between ratings of each panel. Discrepancies were observed between practitioners' and educators' ratings in 31 out of 202 leadership statements indicating contrasting leadership perspectives based on professional role. Results suggest different leadership perspectives exist between educators and practitioners serving in leadership roles. Educators should consider differences in leadership perspectives when preparing students for leadership positions to recognize priorities of those in practictioner roles.

## Introduction

Healthcare professions are emphasizing the importance of leadership and viewing it as a critical competency for practitioners (Abdolijavad, Soudabeh, Reza, Ahmad, Ali, & Ali 2012; Center for Creative Leadership [CCL], 2010; Garman & Lemak, 2011). A traditional emphasis for practitioners has been competency of clinical skills with limited consideration of business skills and leadership ability. Rapid and dramatic change has affected and continues to impact healthcare fields (CCL, 2010) creating a need to prepare professionals for leadership roles. Education programs in healthcare and other professional fields have begun to include leadership components beyond professional clinical skills (Abdolijavad et al., 2012; Kabir, Potty, & Sharma, 2008; Varkey, Peloquin, Reed, Lindor, & Harris, 2009). As professional education programs expand to include leadership, inquiry into views of both educators and practitioners may provide direction for curricular changes.

Many healthcare professions have adopted competency-based educational standards in order to prepare students for entry-level practice roles (Stefl, 2008). Such standards are developed through an evidence-based approach often including surveying practitioners to ensure competencies are similar to work environments. Leadership competencies are being implemented in educational requirements (Garmen, Butler, & Brinkmeyer, 2006; Stefl, 2008) and, in some cases, complex leadership competency models (NHS Institute of Innovation and Improvement, 2010; Wilkie & Spurgeon, 2013; Willcocks & Milne, 2013).

Dietetics is one healthcare profession beginning to recognize the importance of leadership (Gregoire & Arendt, 2005). Dietetics education prepares students for entry-level practice as registered dietitians. While management skills traditionally have been included in dietetics education, emphasis has been on clinical nutrition skills to prepare competent

practitioners (Nyland & Lafferty, 2012; Porter, 2005). A need for leadership in dietetics has been implored for decades (Arensberg, Schiller, Vivian, Johnson, & Strasser, 1996; Barker, Arensberg, & Schiller, 1994; Gregoire & Arendt, 2005) with only increased attention during the last 10 - 15 years.

Recent strides toward leadership in dietetics include implementation of leadership training for practitioners (Laramee, 2005; Smith-Edge, 2003) and a leadership competency for education programs (Skipper, Young, & Mitchell, 2008). Still, progress has been slow, due to limited research and practice guidelines. Dietetics education requires students to demonstrate the competency of applying leadership skills to achieve outcomes. However, curriculum requirements for teaching leadership knowledge or preparing students to meet this competency currently do not exist. A problem noted in healthcare leadership is insufficient evidence supporting most leadership practice (Garman & Lemak, 2011).

Differing opinions may exist related to both the importance of leadership and the leadership skill level required for entry-level practice. This study aimed to compare differences in leadership perspectives between two groups of dietetic leaders: educators in a professional program and practitioners serving in professional leadership positions. Research questions were: (a) What differences exist in leadership perspectives of educators vs. practitioners in regards to defining leadership? (b) How do leadership opinions of educators vs. practitioners differ in regards to leadership knowledge, skills, training and experiences required for entry-level practice? (c) What differences are observed between educators and practitioners recommendations of leadership knowledge, skills, training and experiences for education programs?

The Delphi technique was implemented to investigate leadership for dietetics education. This technique utilizes repeated questioning to a panel of experts (Dalkey & Helmer, 1963) to solve complex issues. Through use of two expert panels, comparison of different expert leadership opinions was possible. The approach of this study was through a lens of interpretivism; meaning, views of leadership are deeply connected to individual experiences. Construction of meaning from contextual experiences is one of interpretation (Slife & Williams, 1995). As opinions regarding leadership were gathered and reviewed, meaning was constructed as to perspectives of practitioners and educators.

## Methods

A modified Delphi technique (Keeney, Hasson, & McKenna, 2011) was used to explore expert opinions of leadership. The Delphi technique is a group process used for functions of problem solving, idea generating, and consensus forming with characteristics of anonymity, controlled feedback and repeated questioning (Dalkey & Helmer, 1963; Fisher 1978; Linstone & Turoff, 2002). An adapted Delphi model (Couper, 1984) was followed for implementation of the study. The University of Idaho Institutional Review Board approved this study.

### Subjects

Two expert panel groups were identified to participate and provide opinions of leadership. Panel group one consisted of practitioners currently serving in professional leadership positions. Registered dietitians functioning as presidents for state affiliate associations of the Academy of Nutrition and Dietetics in 2013 were invited to participate (N=52). Panel group two comprised of dietetic educators of dietetic professionals. Directors of Coordinated Dietetic programs (N=53) were invited to participate because they oversee

both knowledge and competency requirements for dietetics education compared to other types of program directors which oversee one or the other. Of 105 invited experts, 38% (n=40) completed round 1 with 22 affiliate presidents and 18 educators. Demographic information collected showed two affiliate presidents were employed in educator positions. Due to overlapping functions, these two samples were removed leaving 20 practitioners and 18 educators for comparison.

**Delphi Design and Implementation**

Opinions from panel groups were collected during three sequences of on-line questionnaires administered through Qualtrics Research Suite© (2014). Qualtrics© is an on-line computer program available for developing and implementing surveys. Delphi techniques commonly use a mixed-method approach incorporating both qualitative and quantitative methods (Keeney et al., 2011, Skulmoski et al., 2007). Following a modified classical approach, qualitative responses were gathered in round 1, while rounds 2 and 3solicited quantitative ratings (Ludwig, 1997).

Round 1 focused on generating opinions related to leadership. Panel members were asked to define leadership specific to dietetics, and identify knowledge, skills, training, and experiences required for entry-level practitioners. During rounds 2 and 3, panel members rated statements about knowledge, skills, training, and experiences on their importance for practice and being required for education programs, respectively. Figure 5 illustrates the Delphi implementation process with questions asked for each round.

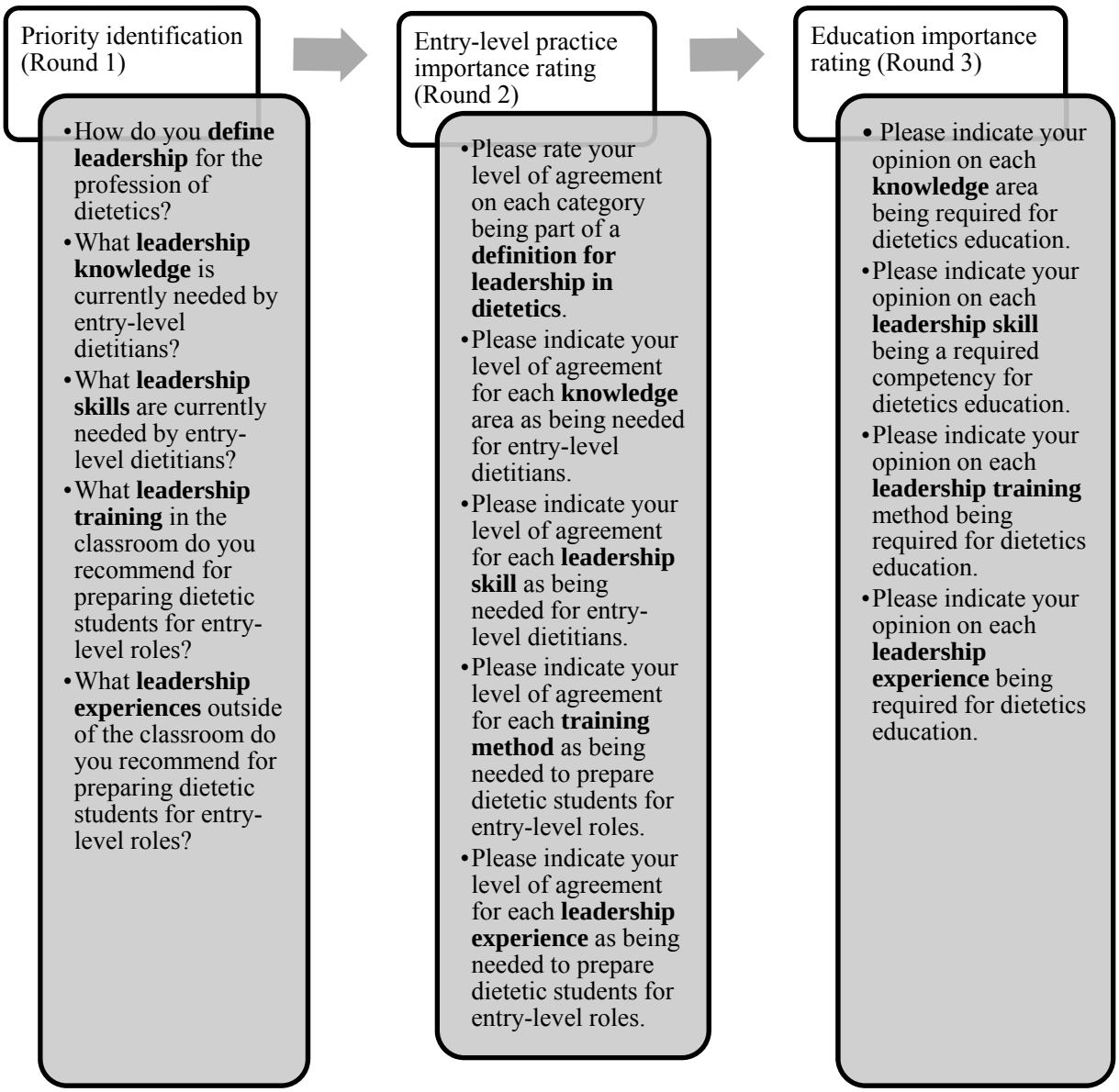


*Figure 5.* Flow chart illustrating Delphi implantation process with questions for each round.

Questionnaires were distributed over a period of two months. Data collection from each round were used to develop subsequent questionnaires with two weeks between rounds. Table 7 includes a sample statement and rating criteria from questionnaires used in rating rounds. Incentives were provided to panelists for completing each round.

Table 7

*Sample Statement and Rating Criteria for Rating Round Questionnaires*

| | Rating Criteria | | | |
|---|---|---|---|---|
| Round 2: Knowledge of resources for leadership opportunities | Strongly Agree (SA) ○ | Agree (A) ○ | Disagree (D) ○ | Strongly Disagree (SD) ○ |
| Round 3: Knowledge of resources for leadership opportunities | **Absolutely Necessary:** Required for a dietetics education program ○ | **Recommended:** Contributes highly to quality of a program ○ | **Optional:** Not essential, does add some value to a program ○ | **Not Necessary:** Adds no value to a program ○ |

*Note.* The questionnaire contained the same statements for each rating round. The rating criteria changed from agreement for entry-level dietetics to importance for education programs.

## Analysis

Content analysis was conducted on leadership priorities (round 1). Two independent raters, researchers of the study, reviewed and coded responses into categories. Kappa coefficients were calculated using IBM SPSS Statistics 22 (2013) for each question evaluated. Themes were noted and categories were used to develop the rating questionnaires. Analysis of priority ratings was conducted through a chi-square test for independence using IBM SPSS Statistics 22 (2013) to identify associations and significant relationships between ratings by panel groups.

## Results

A 38% response rate was observed for the first questionnaire. Demographic data collected indicated similarities and differences between panel groups. All panelists specified

current and previous leadership positions and experiences, both internal and external to dietetics, qualifying them for providing expert opinions related to leadership. Similarities were observed in gender with 97% of all panelists female and ethnicity with 92% describing themselves as white. Another similarity was in higher education with 93% of panelists having an advanced degree including 70% of practitioners and 56% of educators holding a master's degree. Differences were observed beyond the master's level with 5% of practitioners and 44% of educators holding a doctoral degree. Additionally, 45% of practitioners held advanced certifications indicating advanced professional specialization. Differences were observed in age of panel groups with a higher mean age for educators (78% age 45 or older) than practitioners (45% age 45 or older). The distinguishing factor between panel groups was professional role: (a) those currently working as practitioners and serving in affiliate president positions, or (b) those in an educator position and serving as program directors.

**Content Analysis of Leadership Themes**

Table 8 contains leadership themes that emerged from content analysis. To determine consistency between raters, statistical analysis using a Kappa coefficient was performed for each category. Inter-rater reliability was: (a) Kappa = 0.778 ($p < .001$) for definition; (b) Kappa = 0.556 ($p <. 001$) for knowledge; (c) Kappa = 0.597 ($p < .001$) for skills; (d) Kappa = .896 ($p < .001$) for training; and (e) Kappa = .753 ($p < .001$) for experiences.

Content analysis of leadership priorities found similar in themes between leaders and educators. However, three of the themes emerged from only one of the panel groups. In defining leadership, "being able to see the big picture" emerged from educators while practitioners identified "staying current in knowledge" as a theme. In identifying leadership experiences "mentoring" emerged from practitioners but not educators. All other themes in

leadership definition, knowledge, skills, training and experiences emerged from both groups. Table 8 includes percentages of responses by panel group for each theme. Most themes had even distributions of responses by panel group.

Table 8

*Leadership Definition Themes Identified by Practitioners and Educators*

| Category | % of Responses from Practitioners (N=20) | Themes Generated from Educators and Leaders (n) | % of Responses from Educators (N=18) |
|---|---|---|---|
| Leadership Definition | 50 | Having a vision (4) | 50 |
| | 50 | Being a to chart a course and move forward to achieve outcomes (8) | 50 |
| | 0 | **Being able to see the big picture (3)** | **100** |
| | 42.9 | Being willing and able to make decisions (7) | 57.1 |
| | 50 | Acting in the best interest of others instead of oneself (4) | 50 |
| | 50 | Advancing the profession of nutrition and dietetics (10) | 50 |
| | 50 | Promoting the registered dietitians as the food and nutrition expert (6) | 50 |
| | 66.7 | Being an expert in one aspect of dietetics (3) | 33.3 |
| | **100** | **Staying current in knowledge (4)** | 0 |
| | 40 | Serving in professional organizations (5) | 60 |
| | 50 | Holding leadership positions (6) | 50 |
| | 33.3 | Being involved in the community (3) | 66.7 |
| | 62.5 | Inspiring and motivating others (8) | 37.5 |
| | 60 | Promoting teamwork and collaboration (5) | 40 |
| | 66.7 | Mentoring students, interns, and/or younger dietitians (6) | 33.3 |
| Leadership Knowledge | 66.7 | Resources (3) | 33.3 |
| | 66.7 | Teamwork (3) | 33.3 |
| | 44.4 | Communication (9) | 55.6 |
| | 20 | Management (8) | 80 |
| | 60 | General Dietetics (10) | 40 |
| | 71.4 | Dietetics Profession (7) | 28.6 |
| | 54.5 | Leadership Qualities and Characteristics (11) | 45.5 |
| | 50 | Leadership Theory (6) | 50 |

| | | | |
|---|---|---|---|
| Leadership Skills | 50 | Communication (28) | 50 |
| | 62.5 | Teamwork (8) | 37.5 |
| | 50 | Management (16) | 50 |
| | 50 | Professional Skills (24) | 50 |
| Leadership Training | 63.6 | Curriculum (11) | 36.4 |
| | 50 | Activities and Assignments (24) | 50 |
| | 28.6 | Projects (14) | 71.4 |
| | 50 | Discussions (4) | 50 |
| | 60 | Presentations (10) | 40 |
| Leadership Experiences | 59.1 | Participation in Organizations (22) | 40.9 |
| | 33.3 | Participation in Student Organizations (9) | 66.7 |
| | 75 | Work Experience (8) | 25 |
| | 63.2 | Volunteer Experience (19) | 36.8 |
| | **100** | **Mentoring (4)** | 0 |
| | 44.4 | Supervised Practice Experience (9) | 55.6 |

*Note.* Themes emerging from only one panel group in boldface.

Dependency of panel group ratings were observed for leadership priority statements. Ten statements showed significance between panel groups in the level of rated importance for entry-level practice. Table 9 includes statements with dependency between panel group ratings along with agreement rating for each statement. Practitioners tended to rate definition themes, training, and experience higher than educators when a significant difference was found. An exception was skill statements, which educators rated higher.

Continuing into the final rating round, further dependency of ratings were identified between practitioners and educators. When asked to rate statements for inclusion in education programs, 22 statements showed significance relationships between panel groups. Table 10 includes statements with dependency between panel group ratings along with ratings for each statement. Practitioners gave higher ratings to statements related to the profession of dietetics and business skills. As with round 2, practitioners rated statements higher than educators. No

statements were rated significantly higher by educators than practitioners for inclusion in education programs.

Table 9

*Panel Group Ratings of Leadership Priority Statements in Importance for Entry-Level Practice (Round 2)*

| Statement | Priority Statements from Practitioners | | | Priority Statements from Educators | | |
|---|---|---|---|---|---|---|
| | Rating | $\chi^2$ (df) | *P* value | Rating | $\chi^2$ (df) | *P* value |
| **Leadership Definition** | | | | | | |
| Advancing the profession of dietetics | SA | 8.429(1) | 0.004 | | | |
| Staying current in knowledge | SA | 4.492(1) | 0.034 | | | |
| **Leadership Skills** | | | | | | |
| Public speaking skills | | | | SA | 8.513(2) | 0.014 |
| Presentation skills | | | | SA | 4.464(1) | 0.035 |
| Human Resources / People management skills | | | | SA | 10.786(2) | 0.005 |
| Vising skills: Ability to look forward | | | | SA | 4.492(1) | 0.034 |
| **Leadership Training** | | | | | | |
| Participating in Academy of Nutrition and Dietetics leadership training | A | 9.353(2) | 0.009 | | | |
| Discussion of organizational structures and how to make oneself invaluable to others utilizing offered services | SA | 7.545(2) | 0.023 | | | |
| **Leadership Experiences** | | | | | | |
| Attending a state or national dietetics meeting | SA | 6.655(2) | 0.036 | | | |
| Attending legislative day at the state capitol | SA | 11.156(2) | 0.004 | | | |

Note: SA = Strongly Agree; A = Agree. Higher ratings indicate significance in Chi Square.

Table 10

*Panel Group Ratings of Leadership Priority Statements in Necessity for Education Programs (Round 3)*

| Statement | Priority Statements from Practitioners | | |
|---|---|---|---|
| | Rating | $\chi^2$ (df) | *P* value |
| **Leadership Knowledge** | | | |
| Knowledge of career benefits of leadership | R | 7.475(2) | 0.024 |
| Awareness of the Academy of Nutrition and Dietetics organizational structure (state and national levels and how it impacts an individual RD | AN | 7.462(2) | 0.024 |
| Knowledge of leadership theories | R | 7.351(2) | 0.025 |
| Knowledge of personality traits of leaders | R | 9.672(2) | 0.008 |
| **Leadership Skills** | | | |
| Group management skills | R | 8.895(2) | 0.012 |
| Business development skills | R | 7.469(2) | 0.024 |
| Marketing skills | R | 8.962(2) | 0.011 |
| Budget skills | R | 6.261(2) | 0.044 |
| Committee skills (setting an agenda, Roberts Rules of Order, dealing with conflict, conducting a meeting, adhering to a time frame) | R | 9.566(3) | 0.023 |
| Public policy skills | R | 7.175(2) | 0.028 |
| **Leadership Training** | | | |
| Leadership coursework | R | 7.351(2) | 0.025 |
| Communications course | AN | 7.152(2) | 0.028 |
| Public policy training | R | 9.471(2) | 0.009 |
| Participating in Academy of Nutrition and Dietetics leadership training | R | 10.662(2) | 0.005 |
| Marketing projects requiring application of leadership skills | R | 8.250(2) | 0.016 |
| Group projects that include peer and instructor feedback on leader's performance | AN | 6.018(2) | 0.049 |
| Organizing and conducing a nutrition career fair each year | AN | 8.532(3) | 0.036 |
| **Leadership Experiences** | | | |
| Attending legislative day at the state capitol | AN | 6.749(2) | 0.034 |
| Assisting leaders of local professional | R | 10.731(2) | 0.005 |

| | | | |
|---|---|---|---|
| organizations with tasks | | | |
| A required year of active leadership in a professional organization | R | 8.679(3) | 0.034 |
| Extracurricular activities such as sports | R | 10.118(3) | 0.018 |
| Exposure to leaders in dietetics through shadowing experiences | R | 8.604(3) | 0.035 |

Note: Ratings: AN=Absolutely Necessary, R=Recommended. Significant difference of $p < .05$ observed between panel groups indicating a difference in opinion for the priority statement.

Qualitative comments during rating rounds provided an opportunity for panelists to elaborate on their views of leadership. Comments illustrated differing views of leadership depending upon professional role. While some views were stated within panel groups, trends emerged between groups. Practitioners more often stated necessity for leadership skills at entry-level and requirements in education. For example, one practitioner stated,

> There needs to be a base of leadership training and skills for all dietetics students. This profession means making decisions, affecting the lives of others and the job satisfaction occurs when goals are accomplished. A basic knowledge is needed if [an] individual [has] a desire to be an effective practitioner.

Agreement with this statement was reinforced through additional comments from practitioners such as "to be effective as a dietitian – you must have leadership skills" and "being an RD without a foundation in leadership hinders the future of our profession."

Educators expressed concerns over increased educational requirements for students. One educator explained these concerns:

> We have so much to teach entry level professionals, we can't easily fit so much into a curriculum, and make it meaningful and fit into a certain number of years. Leadership is something that is developed over time, and I don't believe you develop it by teaching theory, and when you have a limited number of preceptors, adding even more

> competencies to the curriculum just make[s] this tougher for directors. Please give some thought to what you are asking and what you are after. You can give some exposure to students, but a 20-year old may have exposure to leadership skills, but he/she still needs to mature professionally before being a strong leader. Be careful with pushing for more and more competencies for us to expose students to during their training, let them grow up first! Let them get really good at what they do through their employment first, and then let them spread their wings.

Another educator confirmed that leadership skills are needed, but felt additional educational requirements were unrealistic:

> It is always valuable to get exposure to leadership – however, I am concerned that adding too many extra required activities will take away from training in science and nutrition….I feel that leadership training is very important but not if it turns into a new list of tasks.

Additional demands to cover content in educational programs were expressed as a concern and an unreasonable expectation. For example, "Not all RDs need to become leaders. Having well trained followers is also important. Expecting all students/interns to demonstrate these skills/competencies is not reasonable or viable."

Similarities in panel group comments also were observed. Both groups indicated some uncertainty over the skill level required for entry-level professionals. A comment from a practitioner explained these concerns: "Many of these skills build as the entry-level RD grows; it is a lot to expect all of these skills in the beginning or the first 5 years." Agreement from educators was observed, "Skills come with practice and [I am] not certain entry-level dietitians have the 'academic preparation' to begin in a leadership role. Mentoring by a more

'seasoned' peer may be needed." Panelists from both groups provided similar comments that leadership skills should be a more advanced skillset.

The role of education in preparing students for leadership roles was questioned by panelists in both panel groups. One panelist perceived:

> Education prepares students/interns for entry level practice. Few will have a context for learning about the advanced concepts related to leadership. It makes much more sense to provide a depth of knowledge/skill/competency in entry level dietetics to students/interns and then allow them to learn more about leadership as they grow in the profession. Knowledge without context will be quickly forgotten.

Another panelist proclaimed, "I don't think you can teach leadership in a classroom," reinforcing this idea that leadership may not be a skill best obtained through educational programs. Still, panelists generated over 200 statements related to leadership skills, knowledge, training, and experiences for entry-level practice during the first round of the study. During rating rounds, high agreement from both panel groups was observed with 97% of statements being recommended or required for educational programs. While differences were identified, agreement between panelists was common in rating leadership priority statements. Qualitative responses tended to be negative, and conflicted with the overall positive trend of agreement with leadership priorities.

## Discussion

Overall, results from the study elucidated a few differences in opinions between panel groups. Observed differences in leadership perspectives between practitioners and educators demonstrate an importance for educators to recognize current practice issues. A progression occurred throughout the study related to differing perspectives. Slight variation transpired

during initial idea generating when both groups were asked open-ended questions. However, when feedback and results from previous rounds were provided, differences began to emerge in leadership opinions.

One notable difference was lower ratings by educators in statements along with concerns expressed over additional educational requirements. All areas of significant differences between groups were seen with practitioners indicating a higher rating than educators with an exception of leadership skill. While nearly all themes emerged from both panel groups, subsequent educator comments increased regarding the amount of potential competencies recommended for educational programs. One educator stated, "I don't think that entry level dietitians need to memorize leadership theories. Just be able to recognize old types of leadership (X,Y, etc.) and replace them with newer collaborative styles." Knowledge of leadership theory was one area practitioners rated higher than educators, indicating disagreement on necessity of leadership theory in educational programs.

The number of skill statements seemed concerning to educators. Comments indicated an unrealistic expectation for students to obtain all of the skills. Overall, practitioners rated several skills higher than educators. However, one practitioner did agree that such an extensive list of skills would be unrealistic for education programs. "Leadership comes from years of working with a program and developing the knowledge and best practices around a certain area. It would be unrealistic to expect an intern to have these higher level skills." Skills rated higher by practitioners were primarily business and management skills: group management, budget, marketing, committee, and public policy skills. Educators may not see value in areas which practitioners are finding useful for work and leadership roles. These areas may be important to include within educational programs.

Leadership training and experiences categories also had statements rated higher by practitioners. A concern again by educators may be pressure to include additional activities within a tight curriculum. Several practitioners mentioned activities beyond dietetics to expose students to people and experiences. For example, "Extracurricular activities such as sports, etc. which teaches time management and improved organizational skills" was recommended by a practitioner, but received a low rating from educators. One educator did agree that, "Students need to practice and be given leadership opportunities throughout their academic training." However, methods for such opportunities were not clearly seen from results of this study. Educators did not seem favorable to many training methods and experiences provided.

A broader approach to leadership education was recommended by educators. For example, one educator concluded, "It is difficult to think of leadership as a cognitive skill. Only a couple of things come to mind 1) the idea of informing students and interns about the leadership opportunities available to them and 2) assuring that students and interns experience some taste of management during their training." A practitioner agreed that perhaps expectations should be keep at a basic level:

> I think covering the importance of leadership and exposing students to mentors that are leaders and highlighting the resources that exist are more valuable than expecting interns who are a jack of all trades, master of none to lead initiatives. Continuing the discussion of what a good leader looks like and paring interns with mentors who are leaders is a powerful partnership that will last well beyond the internship experience.

Both groups indicated that leadership is important, but careful consideration should be given to expectations within an educational program.

**Professional Associations**

Practitioners participating in this study were serving as presidents of state affiliate organizations for the Academy of Nutrition in Dietetics. Several statements rated higher by practitioners were associated with involvement in a professional organization. For example, leadership training from the Academy was recommended and rated highly by practitioners, "My affiliate did the Academy's 'Developing your roles as a leader' which was a 4 part series but I thought it was very useful and helped prepare our board members for their leadership positions for the year." Other statements included public policy training from the Academy, participating in legislative day, assisting leaders of professional organizations, and one year of required active leadership in a professional organization.

Educators did not rate activities related to professional associations highly. Extra requirements for students in this area may place additional burdens on educators to organize these experiences. However, practitioners serving in these organizations may recognize a need for student involvement. As one practitioner indicated, "about 20% of the affiliate membership that I know is students. We need to involve them more than 1-2 student liaisons to the organization." Conceivably a partnership between educational programs and organizations could provide resources to organizations and leadership experiences for students.

Lack of involvement in organizations or education about leadership may lead to student indifference that could carry into professional opinions. As one practitioner emphasized:

> I fear that many dietitians do not understand the negative impact that lack of self and professional promotion is having on the future of our profession. Regardless of your

job description as a dietitian we each have a responsibility to advance the future professional opportunities.

Leadership is seen by some as a way to advance the profession and contribute to the future (DeMicco & Williams, 1999; Nyland & Lafferty, 2012; Pace, 1995; Parks, 2002; Watson-Jarvis, 2000). This theme emerged from both groups in definition of leadership. Leader expectations within a profession should be evaluated. One practitioner argued, "It's not necessarily worth teaching someone leadership skills if they aren't interested in being a leader. Leadership is not for everyone, which is a good thing since we can't all be leaders." This argument is true if leadership is viewed as optional. Leadership expectations of entry-level practitioners should be addressed at a professional level. In the case of dietetics, leadership has been claimed as essential to practice (Nyland & Lafferty, 2012; Porter, 2005) and is already included as a competency for education (Skipper et al., 2008).

**Use of Leadership Competency Models**

Competency based healthcare standards of dietetics and other healthcare professions may contribute to resistance from educators for additional educational recommendations. As research studies are conducted and practitioners surveyed (Stefl, 2008) additional competencies may become required for educational standards. Comments from educators emphasized a negative view of additional competency requirements on educational programs. In this study the topic was leadership, but addition of any new requirements may elicit a similar response. Observations throughout the research study support this conclusion. For example, initial requests regarding leadership did not result in negative perceptions; however, rating of priorities for education practice resulted in negative responses to leadership and lower ratings from educators.

Continued focus on clinical competency may still be an attitude of both educators and practitioners. While leadership is being emphasized by professional organizations as important, not all professionals may share that opinion. One practitioner confirmed, "A good foundation in nutrition in your chosen specialty will give you the confidence needed to face challenges. As your career matures, your knowledge will grow" indicating the nutritional competency was still the foundation for leadership and entry-level practice. Educators agreed with this view. One stating, "Some of these items would be difficult to measure as a competency or seem to be more than is necessary for entry-level." An additional comment reinforced difficulty of meeting leadership competencies:

> Let them grow comfortable with who they are and mature. There is no substitute for time and experience, and you cannot build all these competencies into didactic or experiential learning. These are not entry level skills, there is already too much else to learn and master.

While clinical skills are essential, necessity of leadership skills is debated. Both practitioners and educators expressed views on importance of leadership as well as those against it for entry-level roles. One practitioner stated, "Dietetic students need to understand how leadership skills will help them in dealing with their boss and other professionals that they work with." An educator stated a value of leadership was "Recognizing when things need to change to keep pace with the profession." Perchance confines of competency-based curriculums are limiting willingness and flexibility of educators to recognize when changes should take place.

**Inclusion of Leadership in Education Programs**

The question of whether leadership should be included in educational programs seems unanswered. As one practitioner claimed, students "should have taken leadership course work." On the other hand, many educators were saying leadership coursework is unnecessary. Some opinions question the interest and ability of students related to leadership knowledge and skills. Both practitioners and educators expressed this concern. One practitioner stated:

> I think our current didactic programs and supervised practice programs contain many elements that train or prepare students to take a leadership role. However, I think that students often don't know how to apply the knowledge that they are acquiring or realize that there is a reason why they are required to do something. I think an important part of training should just be emphasizing the applications of things that they are already learning.

If leadership training is included, students may not recognize its value. One educator pointed out a lack of context for students limiting their ability to understand leadership:

> Most students will not have a context for much of the information mentioned above. I don't think it needs to be included in the education process except in the broadest sense. It should be made available through the Academy at FNCE and at state and local academies.

If leadership training is included in education, extra efforts would need to be made to create this context for students and make information relevant. Educators may need to be creative in including leadership within a curriculum:

> Leadership experiences vary depending on the individual's strengths. I think as dietetic educators we need to think 'outside' the box and look for nontraditional ways or places where dietetic students can volunteer or work. There is a lot 'out there' that the profession hasn't necessarily tapped into for training our students.

Educators who see value in leadership will be more likely to look for nontraditional methods. A model within physician education incorporated leadership training through a partnership between a professional association and a business school (Kabir, Potty, & Sharma, 2008). Exploring partnerships may create opportunities for leadership training.

Barriers to including leadership in professional curriculums have been cited in the literature. In assessing possible addition of leadership to an engineering curriculum, faculty did not support inclusion of additional courses (Cox, Osman, & Adams, 2010). Educator responses to this study reinforced the resistance of educators to additional coursework. Curriculums are tightly constrained with scarce room for the addition of new courses. While practitioners recommended leadership coursework, educators are less likely to support new course requirements.

**Panelists Education and Experience**

Panelists of this study were those with leadership experience in dietetics. One demographic observation was the number of panelists with advanced degrees. Advanced degrees were expected for educators; however, practitioners serving as affiliate presidents also had a high percentage of advanced degrees (only three did not have a least a master's degree and only one did not have any advanced certifications). An advanced level of education may have influenced perceptions of leadership. Consequently, additional questions are noted from this characteristic of dietetic leaders. Professionals with advanced training and

education may be more likely to accept leadership positions. It may be possible that leadership training is occurring through continued education beyond entry-level. One panelist noted, "I think a leadership class will become an important part of the master's curriculum when that is implemented, but there is little room for it in undergraduate education." Following many healthcare professions, dietetics has announced a change to a master's requirement for all practitioners. Leadership and its place in graduate curriculums may be included in discussions as transitions take place. Continued assessment of these opinions of educators vs. practitioners may be useful in guiding this discussion.

## Conclusion

Leadership perspectives show some differences between educators and practitioners. Implications of this study suggest educators should seek input into roles of practitioners in developing leadership curriculums. Differences noted from this study can be useful in developing leadership training in education programs. This study was limited to expert panel views in the profession of dietetics. Additional research in other profession fields is useful for application to specific educational segments.

Evidence-based leadership practices are a continued need for professional fields. Investigation into leadership continues to be a need to inform leadership education and training of practitioners. Additionally, development and evaluation of leadership curriculums will support leadership training in educational programs by providing resources to educators.

Finally, a need exists for continued discussion related to leadership roles of practitioners in professional fields. Varying views exist on leadership expectations for entry-level professionals and necessity of leadership competencies within educational programs.

Professional organizations may play key roles in facilitating leadership discussions and seeking consensus on leadership expectations required within a profession.

## References

Abdolijavad, K., Soudabeh, V., Reza, M. M., Ahmad, B., Ali, A., & Ali, H. (2012). Conceptual skill in physicians: An overlooked basic competency. *HealthMED, 6* (10), 3359-3365.

Arensberg, M. B., Schiller, M. R., Vivian, V. M., Johnson, W. A., & Strasser, S. (1996). Transformational leadership of clinical nutrition managers. *Journal of the American Dietetic Association, 96,* 39-45.

Barker, A. M., Arensberg, M. F., & Schiller, M. R. (1994). *Leadership in dietetics: Achieving a vision for the future.* Chicago: The American Dietetic Association.

Center for Creative Leadership (2010). Addressing the leadership gap in healthcare: What's needed when it comes to leader talent? White Paper. Retrieved from http://www.ccl.org/leadership/pdf/research/addressingleadershipGapHealthcare.pdf

Couper, M. R. (1984). The Delphi technique: Characteristics and sequence model. *Advances in Nursing Science, 7*9(1), 72-77.

Cox, M. F., Osman, C., & Adams, S. G. (2010). Developing leadership skills of undergraduate engineering students: Perspectives from engineering faculty. *Journal of STEM Education, 11*(3), 22-33.

Dalkey, N., & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. *Management Science, 9*(3), 458-467. Retrieved from http://www.jstor.org/stable/2627117

DeMicco, F. J., & Williams, J. A. (1999). Down-board thinking: What are our next moves? *Journal of the American Dietetic Association, 99,* 285-286.

Fisher, R. G. (1978). The Delphi method: A description, review and criticism. *The Journal of Academic Librarianship, 4*(2), 64-70.

Garman, A. N., Butler, P., & Brinkmeyer, L. (2006). Leadership. *Journal of Healthcare Management, 51*(6), 360-364.

Garman, A. N., & Lemak, C. H. (2011). Developing healthcare leaders: what we have learned, and what is next. *National Center for Healthcare Leadership* Retrieved from http://www.nchl.org/Documents/NavLink/NCHL_Developing_Healthcare_Leaders__Nov_2011_uid11212011137292.pdf

Gregoire, M. B., & Arendt, S. W. (2005). Leadership: Reflections over the past 100 years. *Journal of the American Dietetic Association, 104,* 395-403. doi: 10.1016/j.jada.2003.12.024

Kabir, C., Potty, A., & Sharma, R. (2008). Current opportunities for the development of leadership skills for doctors. *The International Journal of Clinical Leadership, 16*, 115-19.

Keeney, S., Hasson, F., & McKenna, H. (2011). *The Delphi technique in nursing and health research.* United Kingdom: Wiley-Blackwell.

Laramee, S. H. (2005). Leadership development: Preparing dietetics professionals for success. *Journal of the American Dietetic Association, 105,* 17. doi: 10.1016/j.jada.2004.11.024

Linstone, H. A., & Turoff, M. (2002). The Delphi method techniques and applications. Retrieved from http://is.njit.edu/pubs/delphibook/

NHS Institute for Innovation and Improvement (2010). *Medical leadership competency framework: Enhancing engagement in medical leadership* (3rd ed.) Coventry, UK: author. Retrieved from http://www.leadershipacademy.nhs.uk/wp-content/uploads/2012/11/NHSLeadership-Leadership-Framework-Medical-Leadership-Competency-Framework-3rd-ed.pdf

Nyland, N., & Lafferty, L. (2012). Implications of the dietetics workforce demand study. *Journal of the Academy of Nutrition and Dietetics, 112,* S92-94. doi: 10.1016/j.jand.2011.12.013

Pace, R. D. (1995). Mapping a course for the future: Dietetics leadership in the 21st century. *Journal of the American Dietetic Association, 95,* 536-537.

Parks, S. (2002). The fractured anthill: A new architecture for sustaining the future. *Journal of the American Dietetic Association, 102,* 33-38.

Porter, C. (2005). Are we training leaders? Conversations with three leaders. *Journal of the American Dietetic Association, 105,* 1204-1205.

Qualtrics Research Suite (2014) [Computer software]. Provo, UT: Qualtrics, LLC.

Slife, B. D., & Williams, R. N. (1995). *What's behind the research? Discovering hidden assumptions in the Behavioral Sciences.* Thousand Oaks: Sage.

Skipper, A., Young, L. O., & Mitchell, B.E. (2008). 2008 Accreditation Standards for Dietetics Education. *Journal of the American Dietetic Association, 108,* 1732-1735.e5. doi: 10.1016/j.jada.2008.07.004

Smith-Edge M. (2003) All ADA members are leaders. *Journal of the American Dietetic Association, 103,* 1452. doi: 10.1016/S0002-8223(03)01386-5

Stefl, M. E. (2008). Common competencies for all healthcare managers: The healthcare leadership alliance model. *Journal of Healthcare Management, 53*(6), 360-374.

Varkey, P., Peloquin, J., Reed, D., Lindor, K., & Harris, I. (2009). Leadership curriculum in undergraduate medical education: A study of student and faculty perspectives. *Medical Teacher, 31*, 244-250.

Watson-Jarvis, K. (2000). Shaping our future – Reflections on leadership and transformation. *Canadian Journal of Dietetics Practical Research, 61*, 135-138.

Wilkie, V., & Spurgeon, P. (2013). Translation of the Medical Leadership Competency Framework into a multisource feedback form for doctors in training using a verbal protocol technique. *Education for Primary Care, 24*, 36-44.

Willcocks, S. G., & Milne, P. (2013). The Medical Leadership Competency Framework: Challenges raised for GP educators by a pilot study of culture in general practice. *Education for Primary Care, 24*, 29-33.

# CHAPTER 6

## EXPANDED RESULTS, DISCUSSION, SUMMARY AND CONCLUSIONS

Chapters 4 and 5 were written as manuscripts for submission to journals based on results of the identification of leadership priorities for dietetics education Delphi study. The first manuscript, presented in chapter 4 showcased themes of leadership definitions and consensus statements for leadership knowledge, skills, training, and experiences for dietetics education programs, hereafter referred to as Leadership Manuscript. The Leadership Manuscript is intended for submission to the Journal of the Academy of Nutrition and Dietetics as a qualitative research article. Chapter 5 represents a second manuscript highlighting findings of differences between two groups of panelists: practitioners and educators; hereafter referred to as Comparison Manuscript. The Comparison Manuscript is intended for submission to the Journal of Leadership Studies. Chapter 6 is an expansion of the results and provides reflection and discussion on findings highlighted in the individual manuscripts, and presents implications of the research. Finally, a summary and conclusion will complete both the chapter and dissertation.

### Expansion upon Research Results

The leadership manuscript contained results answering primary research questions of this study. Themes of leadership definitions generated in round 1 were included along with priority statements of knowledge, skills, training and experiences reaching 80% consensus from panelists. Additionally, high priority statements were identified where significant relationships were found between round 2 and 3 responses based on chi-square analysis. These results can be applied to dietetics education.

**Application of Consensus Statements to Dietetics Education**

Consensus statements can be applied to dietetics education through incorporation of leadership knowledge, skills, training, and experiences. Figure 6 illustrates a leadership development model for dietetic students through use of priority statements. This figure includes the priority leadership statements for knowledge, skills, training, and experiences. The model also includes continuation of leadership development beyond dietetics education programs. Panelists emphasized that leadership development is on-going. While educational programs should begin the process of leadership development, it should grow and continue throughout professional practice.

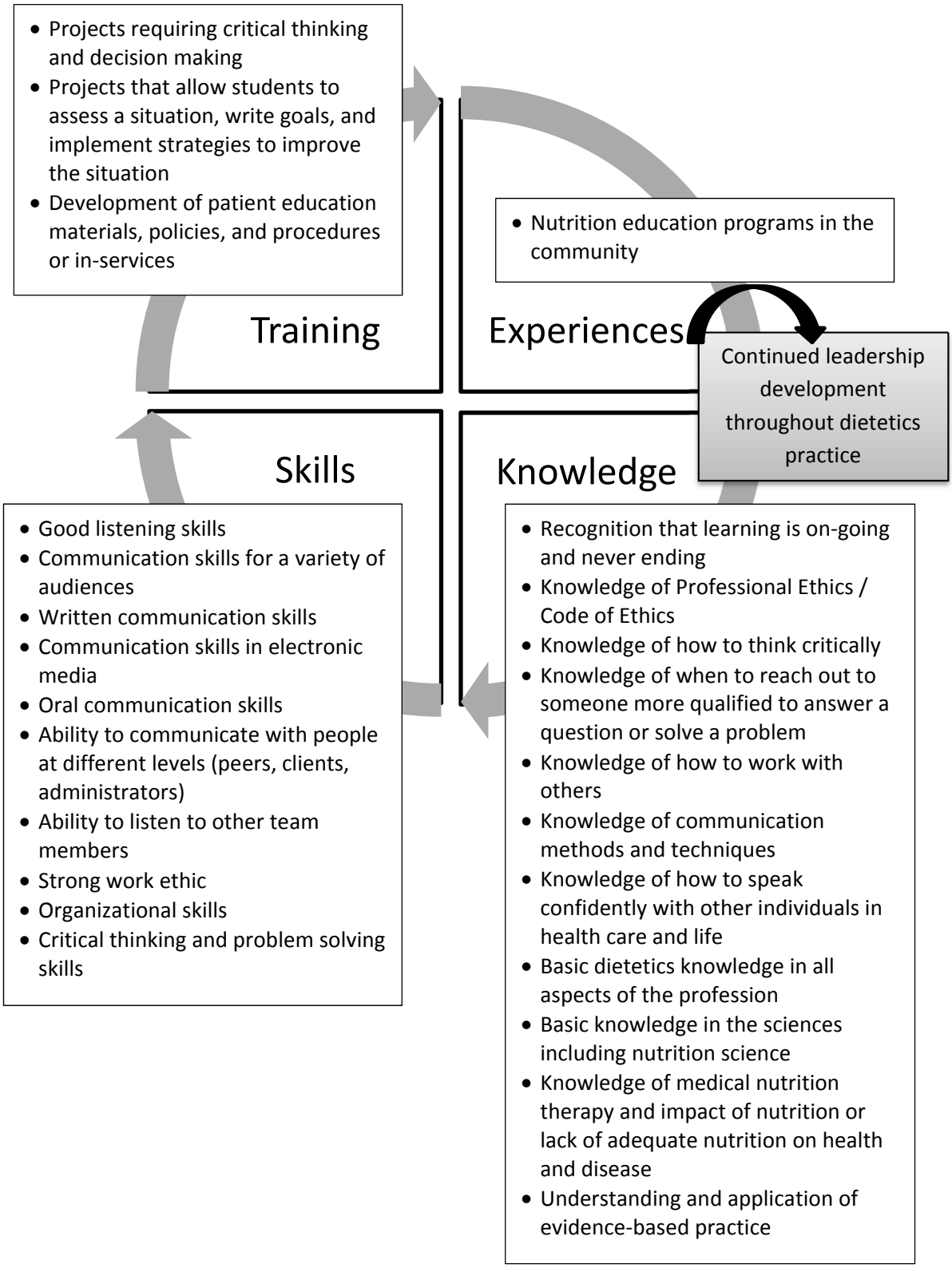


*Figure 6*. Leadership Development Model for Dietetics Education.

**Additional Leadership Results**

Along with leadership themes generated, content analysis of round 1 produced 202 statements regarding leadership knowledge, skills, training, and experiences identified for entry-level dietetic practice. Because of the number of statements generated, there are too many to include. However, statements can be viewed as categorized and presented to panelists within the round 2 questionnaire in Appendix L. Likewise, statements included in round 3 are available in Appendix M (identical statements as round 2 with the exception of leadership definitions). Statistical analysis was conducted after rounds 2 and 3 to determine a rating from percent of responses, mean and standard deviation. Results for each statement are presented in Appendix N.

Panelists also provided supplementary comments in rounds 2 and 3 in addition to rating statements. Many of these comments were highlighted to illustrate themes in the leadership manuscript and perceptions from practitioners and educators in the comparison manuscript. Table 11 includes emerging themes from panelists' comments and corresponding sample statements.

Table 11

*Round 2 and Round 3 Themes from Qualitative Responses with Sample Panelist Comments*

| Theme | Sample Panelist Comments |
|---|---|
| Additional leadership characteristics, knowledge, skills, training, and experiences | • Appreciation for those who came before you, but also recognizing when things need to change to keep pace with the profession.<br>• Integrity in practice<br>• Taking risks to accomplish goals |

| | |
|---|---|
| Comprehensive list of leadership characteristics, knowledge, skills, training, and experiences | • You gave a comprehensive list. I can't think of any that wouldn't be a duplicate.<br>• None, but some of the above appear to be duplicates. |
| Views related to leadership development | • Many of these skills develop through involvement. Many of these skills build as the entry-level RD grows, it is a lot to expect all of these skills in the beginning or the first 5 years.<br>• Leadership is something that is developed over time, and I don't believe you develop it by teaching theory.<br>• Some of the knowledge gained on leadership emerges in several course contents and may be implied, not so much structured as part of a course or the curriculum. |
| Food and Nutrition Role Model | • Recognize that your personal eating patterns will always be observed.<br>• There is a focus shift now from "nutrition expert" to "nutrition leader." If we can improve the leadership skills we are helping people. If we stay as "experts" we are perceived as "above the public." We are trying to improve a basic need – let's be leaders! |
| Clarifications / thoughts regarding specific statements | • I only believe in using role playing if the audience is other than the students for a real feeling of the role.<br>• More roles plays and simulations than discussions.<br>• Leadership experiences vary depending on the individual's strengths.<br>• Peer evaluation at this level is not terribly honest. |
| Dietetic education requirements and pressure on educators | • We have so much to teach entry-level professionals, we can't easily fit so much into a curriculum and make it meaningful.<br>• You cannot build all these competencies into didactic or experiential learning. There is already too much else to learn and master.<br>• As dietetic educators we need to think "outside" the box and look for nontraditional ways or places where dietetic students can volunteer or work.<br>• There needs to be a base of leadership training and skills for all dietetic students. A basic knowledge is needed if this |

| | |
|---|---|
| | individual has a desire to be an effective practitioner. |
| Value of leadership | • I fear that many dietitians do not understand the negative impact that lack of self and professional promotion is having on the future of our profession. Regardless of your job description as a dietitian we each have a responsibility to advance the future professional opportunities.<br>• Not all RDs need to become leaders.<br>• Dietetics students need to understand how leadership skills will help them in dealing with their boss and other professional that they work with.<br>• Being an RD without a foundation in leadership hinders the future of our profession. |

**Comparison Results and Application**

The comparison manuscript highlighted quantitative and qualitative results illustrating differences between practitioner and educator experts in dietetics leadership. Results included a handful of differences in themes generated from round 1 and significant relationships between panel groups in both round 2 and round 3 ratings. Statements with significant differences were included in chapter 5 results. Overall, practitioners rated several statements for leadership knowledge, skills, training, and experiences higher than educators. This may reflect resistance of educators to meet additional teaching expectations. Additionally, practitioners may have different insights into leadership requirements than educators. Table 12 includes practitioner priority statements required or recommended by practitioners for dietetics education from round 3. Review of practitioner priority areas may be valuable to educators in preparing dietetic students for leadership roles. Priorities from practitioners may provide justification to educators for including leadership areas in dietetics education.

Table 12

*Required and Recommended Leadership Priority Statements for Dietetics Education from Practitioners*

| Category | Required for Dietetics Education | Recommend for Dietetics Education |
|---|---|---|
| Leadership Knowledge | Awareness of the Academy of Nutrition and Dietetics organizational structure (state and national levels and how it impacts an individual RD | Knowledge of career benefits of leadership<br>Knowledge of leadership theories<br>Knowledge of personality traits of leaders |
| Leadership Skills | | Group management skills<br>Business development skills<br>Marketing skills<br>Budget skills<br>Committee skills (setting an agenda, Roberts Rules of Order, dealing with conflict, conducting a meeting, adhering to a time frame)<br>Public policy skills |
| Leadership Training | Communications course<br>Group projects that include peer and instructor feedback on leader's performance<br>Organizing and conducing a nutrition career fair each year | Leadership coursework<br>Public policy training<br>Participating in Academy of Nutrition and Dietetics leadership training<br>Marketing projects requiring application of leadership skills |
| Leadership Experiences | Attending legislative day at the state capitol | Assisting leaders of local professional organizations with tasks<br>A required year of active leadership in a professional organization<br>Extracurricular activities such as sports<br>Exposure to leaders in dietetics through shadowing experiences |

Appendix O includes chi-square value and p-value for each of the statements. While differences were noted in 31 statements during rounds 2 and 3, 84.65% of the statements contained consistencies.

### Summary of Results

The Leadership and Comparison manuscripts in chapters 4 and 5 highlighted significant results as reviewed above. These results included leadership priority statements reaching consensus and comparisons between practitioner and educator panel groups. Additional results summarized above and presented in detail through appendices show the number of statements generated from this study. Despite not reaching consensus of a single rating or producing significant results, most statements in round 2 and round 3 received high congruity with 86% of statements being rated as agree or strongly agree by 80% of panelists.

## Discussion

The Delphi study aimed to explore leadership opinions from dietetic experts and to identify leadership priorities for dietetics education. Through a lens of interpretivism and constructionism, meaning was constructing from opinions of leadership experts. Of notable importance is the interpretive nature of this study and reliance on experiences from practitioners. Results stem directly from leadership and educational understandings of expert panelists and do not present a single truth finding. Leadership statements can be used to provide guidance for dietetics education and future study on dietetics leadership.

### Comparison of Statements to Existing Competency Models

Panelists generated a comprehensive list of leadership knowledge, skills, training, and experiences. While this list may not be exhaustive, panelists did generate statements reflective of other competency models. For example, Mouradian and Huebner (2007)

identified communication skills, critical thinking, internal reflection, and ethics/professionalism as core competencies of leadership. Each of these competencies emerged from comments panelists made during this Delphi study with statements relating to communication skills, critical thinking, and ethics/professionalism reaching consensus.

The Medical Leadership Competency Framework (MLCF) is a more comprehensive leadership competency model for medical education (NHS Institute of Innovation and Improvement, 2010; Wilkie & Spurgeon, 2013; Willcocks & Milne, 2013). Panelists identified statements matching all MLCF categories of (a) demonstrating personal qualities, (b) working with others, (c) managing services, (d) improving services, and (c) setting direction. With the exception of teamwork, most of these statements did not reach consensus. The MLCF is structured for development of competencies to occur within the first five years of professional practice. Additional leadership knowledge, skills, training, and experiences identified from dietetic leadership experts may reach consensus if applied at practice levels beyond entry-level.

**Inclusion of Statements in Dietetics Education**

Current dietetic education standards were reviewed and compared to the consensus statements generated from this study. Many of the consensus statements are already reflected in current core knowledge and core competency requirements for dietetics education. Table 13 includes current knowledge and competency requirements matched to leadership priority statements (those reaching consensus) identified in this study. The table illustrates how leadership priorities identified from expert panelists are currently being translated into educational programs. For example, panelists identified “knowledge of professional ethics / code ethics” as a leadership priority for dietetics education. This statement is reflected in the

current curriculum standards for both core knowledge (KRD 2.3) and core competency (CRD 2.1) requirements as listed in Table 13.

Table 13

*Leadership Priority Statements Related to Current Educational Knowledge and Competency Requirements for Dietetics Education*

| Leadership Statement | Core Knowledge Requirement | Core Competency Requirement |
|---|---|---|
| Recognition that learning is on-going and never ending | | |
| Knowledge of professional ethics / code of ethics | KRD 2.3 The curriculum must include opportunities to understand governance of dietetics practice such as …the Code of Ethics for the Profession of Dietetics… | CRD 2.1 Practice …in accordance with …Code of Ethics for the Profession of Dietetics |
| Knowledge of how to think critically | | CRD 2.11 Demonstrate professional attributes within various organizational cultures |
| Knowledge of when to reach out to someone more qualified to answer a question or solve a problem | | CRD 2.7 Refer clients and patients to other professional and services when needs are beyond individual scope of practice |
| Knowledge of how to work with others | | CRD 2.5 Demonstrate active participation, teamwork, and contributions in group settings |
| Knowledge of communication methods and techniques | KRD 2.1 The curriculum must include opportunities to develop a variety of communication skills sufficient for entry into pre-professional practice | |

| | | |
|---|---|---|
| Knowledge of how to speak confidently with other individuals in health care and life | KRD 2.1 The curriculum must include opportunities to develop a variety of communication skills sufficient for entry into pre-professional practice | |
| Basic dietetics knowledge in all aspects of the profession | KRD 5.1 The food and food systems foundation of the dietetics profession must be evident in the curriculum. | |
| Basic knowledge in the sciences including nutrition science | KRD 1.1The curriculum must reflect the scientific basis of the dietetics …<br>KRD 5.1 The physical and biological science foundation of the dietetics profession must be evident in the curriculum… | |
| Knowledge of medical nutrition therapy and impact of nutrition or lack of adequate nutrition on health and disease | KRD 3.1 The curriculum must reflect the principles of Medical Nutrition Therapy and the practice of the nutrition care process… | CRD 3.1 Perform the Nutrition Care Process… |
| Understanding and application of evidence-based practice | KRD 1.1 The curriculum … must include research methodology, interpretation of research literature and integration of research principles into evidence-based practice | CRD 1.1 Apply evidence-based guidelines, systematic reviews, and scientific literature ….in the nutrition care process model and other areas of dietetics practice |
| Good listening skills | KRD 2.1 The curriculum must include opportunities to develop a variety of communication skills sufficient for entry into pre-professional practice | CRD 3.2 Demonstrate effective communication skills for clinical and customer services in a variety of formats |

| | | |
|---|---|---|
| Communication skills for a variety of audiences | KRD 2.1 The curriculum must include opportunities to develop a variety of communication skills sufficient for entry into pre-professional practice | CRD 3.2 Demonstrate effective communication skills for clinical and customer services in a variety of formats |
| Written communication skills | KRD 2.1 The curriculum must include opportunities to develop a variety of communication skills sufficient for entry into pre-professional practice | CRD 2.2 Demonstrate professional writing skills in preparing professional communications |
| Communication skills in electronic media | KRD 2.1 The curriculum must include opportunities to develop a variety of communication skills sufficient for entry into pre-professional practice | CRD 4.5 Use current informatics technology to develop, store, retrieve, and disseminate information and data |
| Oral communication skills | KRD 2.1 The curriculum must include opportunities to develop a variety of communication skills sufficient for entry into pre-professional practice | CRD 3.2 Demonstrate effective communication skills for clinical and customer services in a variety of formats |
| Ability to communicate with people at different levels (peers, clients, administrators) | KRD 2.1 The curriculum must include opportunities to develop a variety of communication skills sufficient for entry into pre-professional practice | CRD 3.2 Demonstrate effective communication skills for clinical and customer services in a variety of formats |
| Ability to listen to other team members | KRD 2.1 The curriculum must include opportunities to develop a variety of communication skills sufficient for entry into pre-professional practice | CRD 2.5 Demonstrate active participation, teamwork, and contributions in group settings<br>CRD 3.2 Demonstrate effective communication skills for clinical and customer services in a variety of formats |

| | | |
|---|---|---|
| Strong work ethic | | CRD 2.11 Demonstrate professional attributes within various organizational cultures |
| Organizational skills | | CRD 2.11 Demonstrate professional attributes within various organizational cultures |
| Critical thinking and problem solving skills | | CRD 2.11 Demonstrate professional attributes within various organizational cultures |
| Projects requiring critical thinking and decision making | | CRD 4.8 Conduct feasibility studies for products, programs or services with consideration of costs and benefits |
| Projects that allow students to assess a situation, write goals, and implement strategies to improve the situation | | CRD 1.1 Select indicators of program quality and/or customer service and measure achievement of objectives<br>CRD 4.6 Analyze quality, financial or productivity date and develop a plan for intervention<br>CRD 4.10 Develop a plan to provide or develop a product, program or service that includes a budget, staffing needs, equipment and supplies |
| Development of patient education materials, policies, and procedures or in-services | KRD 3.3 The curriculum must include education …theories and techniques | CRD 2.2 Demonstrate professional writing skills in preparing professional communications |

| | | |
|---|---|---|
| Nutrition education programs in the community | KRD 3.3 The curriculum must include education …theories and techniques | CRD 2.3 Design, implement and evaluate presentations to a target audience<br>CRD 2.4 Use effective education…to facilitate behavior change |

*Note.* Knowledge and competency statements from Accreditation Council for Education in Nutrition and Dietetics (2012, p. 54-58). ACEND accreditation standards for dietitian education programs leading to the RD credential. Retrieved from http://www.eatright.org/ACEND/ .

As seen in Table 13, most of the priority statements from this study are currently reflected in education standards with the expection of the knowledge statement "Recognition that learning is on-going and never ending." A panelist recognized this and stated, "the leadership knowledge content areas identified in the preceding question [behavior change theories, communication basics, leadership styles and strategies, cultural diversity awareness, ethics, how to clarify problems and needs, how to write goals and objectives, and desired outcomes] are currently related to competencies as listed in the 2012 ACEND standards of education: CRD 2.4, CRD 2.1, CRD 2.10, CRD 2.13, CRD 2.3, CRD 2.5, and CRD 2.11." This comment illustrates recognition by panelists that many statements were already reflected in current standards.

While most of the consensus statements are reflected in current educational standards, the contents are covered broadly by a single core knowledge or core competency statement. For example, panelists prioritized nine different statements related to communication knowledge and skills; however, only one current competency covers communication: "KRD 2.1 The curriculum must include opportunities to develop a variety of communication skills sufficient for entry into pre-professional practice" (Accreditation Council for Education in Nutrition and Dietetics (2012, p. 54-58). In addition, many competencies are included with

no knowledge requirements to prepare students to demonstrate the competency. Careful assessment of educational programs may be needed to identify where elements of leadership are being taught and in dietetics curriculums. Programs are likely already including leadership knowledge to prepare students to demonstrate competency. However, identification and evaulation of these practices is needed to establish guidelines for leadership development in dietetics education.

The large number of consensus statements reflected in current standards indicates panelists responses may reflect status quo of leadership training in dietetics education. Meaning, panelists may not have thought about leadership training required for future needs of the profession. Also, several leadership knowledge and skill statements from panelists, such as negotiation skills, and public policy, did not reach consensus, but are already included as competencies in current education standards. Possibly, panelists may not see the value of competencies currently in the curriculum for leadership development.

**Value of the Research**

The primary value of this research is to the dietetics profession. Leadership is identified as important for dietetics practice (Barker et al., 1994; Gregoire & Arendt, 2005; Hunter et al., 2011; Smith-Edge, 2003). This research fills a gap in the literature related to leadership for dietetics education. Limited evidence is available to support leadership development of dietetic students through education programs. This study contributes to the literature by first, increasing understanding of leadership requirements for entry-level practitioners. Second, consensus statements identified from panelists provide guidelines for educators developing leadership curriculums. Third, a leadership definition can be refined using themes identified from this study. Finally, this study provides evidence to support both

a need for leadership in the profession and pressures on dietetic educators to meet required competencies. As observed from panelist comments, leadership is viewed as important, but training dietetic students for leadership provides a challenge for educators.

An unintended benefit of the study was value to leadership theory. Leadership themes may be applicable beyond dietetics, particularly to other healthcare professions. These themes can contribute to a leadership model for healthcare education. Additionally, differences were observed between practitioners and educators indicating distinctive views of professionals toward leadership.

This research suggests leadership competencies may be specific to individual professions. For dietetic leadership, panelists included knowledge and skills related to nutrition. In other fields, this likely would not be a leadership competency. For example, the priority statement related to medical nutrition therapy indicates leadership for dietetics includes critical knowledge of nutrition. Leadership theory may need to be broadened to encompass specific content practice areas. Perhaps leadership effectiveness could be evaluated based on knowledge base within a given profession. Further exploration of these ideas is warranted. A question that may be asked is "What is the connection of leadership effectiveness and success to expertise in a specific practice area?"

## Implications and Future Applications

Primary outcomes of this study are useable consensus statements for leadership education in dietetics. The 25 statements reaching consensus are recommended for inclusion in dietetics education. Of these statements, 24 are already reflected in educational standards for core knowledge and core competency requirements; however, this study provides more specific recommendations for leadership development. Leadership perspectives identified

provide evidence for continued awareness of leadership importance in dietetics. In addition, evidence of a need for clarification of leadership definition at entry-level may prompt future discussions in the profession. It is hoped that this research will be reviewed as part of the process for competency revisions in educational standards as well as new guidelines for masters' level dietetic curriculums.

Leadership statements generated from this study can be used as a starting point for additional research. Due to the expansiveness of statements made in regards to leadership knowledge, skills, training, and experiences, additional exploration can be conducted to assess importance for dietetics education. Focus groups of experts may be a good first step to condense statements to key areas. Second, surveying a larger sample of dietetic leaders and educators to rate statements may provide a wider perspective of opinions. Since views varied on importance for entry-level practice, including views of entry-level practitioners may better assess importance of each statement for entry-level.

The priority statements reaching consensus through this study lead to the development of a leadership competency model for dietetics education illustrated in Figure 6. As future evidence is gathered, additional leadership knowledge, skill, training and experience statements can be evaluated for inclusion in the model. Given panelists' comments categorizing leadership as an advanced level skill, a competency model across practice levels may be more useful. Identification of competencies required for each dietetics practice level is recommended instead of limiting leadership development to one stage. Professional practice levels include novice, beginner, competent, proficient, specialist and expert (Ayres et al., 2012). Since opinions about leadership skills for practice levels were stated, a model illustrating progression expected of leadership throughout dietetics practice would be helpful.

Finally, results can be used to develop leadership curriculums for dietetics education programs. As curriculums are developed, evaluation should occur to assess effectiveness of leadership development. In addition, evaluation of current leadership education practices may be a first step to better identify what is currently taking place.

## Summary and Conclusions

Identification of Leadership Priorities for Dietetics Education was a Delphi study exploring expert opinions. Experts in dietetics serving both as educators and in leadership positions were invited to participate. Results generated themes related to a leadership definition, as well as 202 statements related to leadership knowledge, skills, training, and experiences. Following 2 consensus rounds, twenty-five statements reached consensus as being absolutely necessary for dietetics education. In addition, leadership perspectives differed between educators and practitioners. This research reaffirms the importance of leadership for dietetics practice, provides evidence to support leadership curriculum develop for dietetics programs, and sets ground work for future exploration of leadership development both within education programs and for dietetic practitioners.

## REFERENCES

Abdolijavad, K., Soudabeh, V., Reza, M. M., Ahmad, B., Ali, A., & Ali, H. (2012). Conceptual skill in physicians: An overlooked basic competency. *HealthMED, 6* (10), 3359-3365.

Academy of Nutrition and Dietetics (2013). Who we are and what we do. Retrieved from http://www.eatright.org/Media/content.aspx?id=7603

Academy of Nutrition and Dietetics Academy Member Center (2013). Leadership institute. Retrieved from http://www.eatright.org/Members/content.aspx?id=5307

Academy of Nutrition and Dietetics Student Center (2013). Get started. Retrieved from http://www.eatright.org/BecomeanRDorDTR/content.aspx?id=8092

Accreditation Council for Education in Nutrition and Dietetics (2013). Accredited dietetics education programs. Retrieved from http://www.eatright.org/ACEND/content.aspx?id=73

Accreditation Council for Education in Nutrition and Dietetics (2012). ACEND accreditation standards for dietitian education programs leading to the RD credential. Retrieved from http://www.eatright.org/ACEND/

ADA's House of Delegates (2002). Key trends affecting the dietetics profession and the American Dietetic Association. *Journal of the American Dietetic Association, 102,* S1821-S1839.

Arendt, S. W., & Gregoire, M. B. (2005). Dietetic students perceive themselves as leaders and report they demonstrate leadership in a variety of contexts. *Journal of the American Dietetic Association, 105,* 1289-1294. doi: 10.1016/j.jada.2005.05.005

Arensberg, M. B., Schiller, M. R., Vivian, V. M., Johnson, W. A., & Strasser, S. (1996). Transformational leadership of clinical nutrition managers. *Journal of the American Dietetic Association, 96,* 39-45.

Akins, R., Tolson, H., & Cole, B. R. (2005). Stability of response characteristics of a Delphi panel: Application of bootstrap data expansion. *BMC Medical Research Methodology, 5*, (37). Retrieved from http://www.biomedcentral.com/1471-2288/5/37

Ayres, E. J., Greer-Carney, J. L., Fatzinger McShane, P. E., Miller, A., & Turner, P. (2012). Nutrition informatics competencies across all levels of practice: A national Delphi study. *Journal of the Academy of Nutrition and Dietetics, 112,* 2042-2053. doi:10.1016/j.jand.2012.09.025

Barker, A. M., Arensberg, M. F., & Schiller, M. R. (1994). *Leadership in dietetics: Achieving a vision for the future.* Chicago: The American Dietetic Association.

Borra, S., & Kunkel, M.E. (2002). President's Page: ADA House and Board: Melding talents and enthusiasm. *Journal of the American Dietetic Association, 103,* 12.

Brody, R. A., Byham-Gray, L., Touger-Decker, R., Passannante, M. R., & O'Sullivan Maillet, J. (2012). Identifying components of advanced-level clinical nutrition practice: A Delphi study. doi: 10.1016/j.jand.2012.02.022

Calabro, K. S., Bright, K. A., & Bahl, S. (2001). International perspectives: The profession of dietetics. *Nutrition, 17(7/8),* 594-599.

Capra, S. (2012). Dietitians as leaders, past, present and future. *Nutrition & Dietetics, 69,* 179-182. doi: 10.1111/j.1747-0080.2012.01613.x

Center for Creative Leadership (2010). Addressing the leadership gap in healthcare: What's needed when it comes to leader talent? White Paper. Retrieved from http://www.ccl.org/leadership/pdf/research/addressingleadershipGapHealthcare.pdf

Clark, K. M., Moore, C., Trombley, L., Skates, J., Rogalski, M. J., Schofield, M., & Welch, J. (2012). Academy of nutrition and dietetics: Standards of professional performance for registered dietitians (competent, proficient, expert) in clinical nutrition management. *Journal of the Academy of Nutrition and Dietetics, 112,* 1662-1669e17. doi: 10.1016/j.jand.2012.07.030

CNN Money (2011). Best jobs in America. Retrieved from http://www.eatright.org/BecomeanRDorDTR/content.aspx?id=8092

Corby, L. (1997). Assessment of community development and leadership skills required by Caribbean nutritionists and dietitians: Research and international collaboration in action. *Journal of Nutrition Education, 29 (5),* 250-257.

Couper, M. R. (1984). The Delphi technique: Characteristics and sequence model. *Advances in Nursing Science, 7*9(1), 72-77.

Cox, M. F., Osman, C., & Adams, S. G. (2010). Developing leadership skills of undergraduate engineering students: Perspectives from engineering faculty. *Journal of STEM Education, 11*(3), 22-33.

Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches.* (3rd ed.). Thousand Oaks, CA: Sage.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process.* Thousand Oaks, CA: Sage.

Dalkey, N., & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. *Management Science, 9*(3), 458-467. Retrieved from http://www.jstor.org/stable/2627117

DeMicco, F. J., & Williams, J. A. (1999). Down-board thinking: What are our next moves? *Journal of the American Dietetic Association, 99,* 285-286.

Evans, S. (2003). Evolution, evidence, and enterprise: Women in leadership in the Australian healthcare industry. *Nutrition & Dietetics, 60*(4), 253-257.

Fisher, R. G. (1978). The Delphi method: A description, review and criticism. *The Journal of Academic Librarianship, 4*(2), 64-70.

Fleming-Castaldy, R. P., & Patro, J. (2012). Leadership in occupational therapy: Self-perceptions of occupational therapy managers. *Occupational Therapy in Health Care, 26*(2-3), 187-202.

Garman, A. N., Butler, P., & Brinkmeyer, L. (2006). Leadership. *Journal of Healthcare Management, 51*(6), 360-364.

Garman, A. N., & Lemak, C. H. (2011). Developing healthcare leaders: what we have learned, and what is next. *National Center for Healthcare Leadership* Retrieved from http://www.nchl.org/Documents/NavLink/NCHL_Developing_Healthcare_Leaders__Nov_2011_uid11212011137292.pdf

Gerald, B. L., & Cluskey, M. (2008). Research in foodservice management. In E.R. Monsen, & L. Van Horn (Eds.). *Research: Successful approaches* (3rd ed.). Chicago, IL: American Dietetic Association.

Gilsenan, M. B., & Korver, O. (2009). 15th Anniversary of the European Nutrition Leadership Programme: A seminar for young nutrition professionals. *European Journal of Clinical Nutrition, 63,* 1458-1459. doi:10.1038/ejcn.2009.98

Golzynski, D. L. (2001). *Defining professionalism for dietetic education* (Doctoral dissertation, Michigan State University). Available from ProQuest Dissertations and Theses database. (UMI No. 3036678)

Gregoire, M. B. (2013). *Food service organizations: A managerial and systems approach* (8th ed.). Upper Saddle River, NJ: Prentice Hall.

Gregoire, M. B., & Arendt, S. W. (2005). Leadership: Reflections over the past 100 years. *Journal of the American Dietetic Association, 104,* 395-403. doi: 10.1016/j.jada.2003.12.024

Gregoire, M. B., Sames, K., Dowling, R. A., & Lafferty, L. J (2005). Are registered dietitians adequately prepared to be hospital foodservice directors? *Journal of the American Dietetic Association, 105,* 1215-1222. doi:10.1016/j.jada.2005.05.007

Gonzales, T. L. (1996). Leadership in dietetics: Achieving a vision for the future by Anne M. Barker, Mary Beth Foltz Arensberg, and M. Rosita Schiller. *Sacred Heart University Review, 16*(1), article 6. Retrieved from http://digitalcommons.sacredheart.edu/shureview/vol16/iss1/6

Hacker, J. J., Kurowski, A. L., & Burzminski, N. H. (2012). Developing professional leadership skills through international education in partial fulfillment of dietetic internship supervised practice requirement. *Journal of the Academy of Nutrition and Dietetics, 112 (S3),* A-21.

Healthcare Leadership Alliance (HLA) (2010). HLA Competency Directory. Retrieved from http://www.healthcareleadershipalliance.org/directory.htm

Hunter, A. B., Lewis, N. M., & Ritter-Gooder, P. K. (2011). Constructive developmental theory: An alternative approach to leadership. *Journal of the American Dietetic Association, 111*, 1804-1808. doi: 10.1016/j.jada.2011.10.009

Jarratt, J., & Mahaffie, J. B., (2002). Key trends affecting the dietetics profession and the American Dietetic Association, *102,* S1821 - 1839

Jones, G. (2010). The European Nutrition Leadership Programme (ENLP) – is it more than just a 1-week training course? *Nutrition Bulletin, 35*, 337-339.

Kabir, C., Potty, A., & Sharma, R. (2008). Current opportunities for the development of leadership skills for doctors. *The International Journal of Clinical Leadership, 16*, 115-19.

Keeney, S., Hasson, F., & McKenna, H. (2011). *The Delphi technique in nursing and health research.* United Kingdom: Wiley-Blackwell.

Kelly, C. (2001). The European Nutrition Leadership Programme: Nurturing future leaders in human nutrition. *Nutrition Bulletin, 26*, 235-239.

Kendall, P., Medeiros, L.C., Hillers, V., Chen, G., & DiMascola, S. (2003). Food handling behaviors of special importance for pregnant women, infants, and young children, the elderly, and immune-compromised people. *Journal of the American Dietetic Association, 103,* 1646-1649. doi: 10.1016/j.jada.2003.09.027

Kouzes, J. & Posner, B. (2012). Leadership challenge. *Leadership Excellence 29* (8), 3-4.

Laramee, S. H. (2005). Leadership development: Preparing dietetics professionals for success. *Journal of the American Dietetic Association, 105,* 17. doi: 10.1016/j.jada.2004.11.024

Legislature of the State of Idaho (2013). House Concurrent Resolution No. 19. Retrieved from http://www.legislature.idaho.gov/legislation/2013/HCR019.pdf

Linstone, H. A., & Turoff, M. (2002). The Delphi method techniques and applications. Retrieved from http://is.njit.edu/pubs/delphibook/

Lopopolo, R. B., Schafer, D. S., & Nosse, L. J. (2004). Leadership, administration, management, and professionalism (LAMP) in physical therapy: A Delphi study. *Physical Therapy, 84*(2), 137 – 150.

Ludwig, B. (1997). Predicting the future: Have you considered using the Delphi methodology? *Extension Journal, 25* (5). Retrieved from http://www.joe.org/joe/1997october/tt2.php

MacPhee, M., Skelton-Green, J., Bouthillette, F., & Suryaprakash, N. (2012). An empowerment framework for nursing leadership development: Supporting evidence. *Journal of Advanced Nursing, 68*(1), 159-169. doi: 10.1111/j.1365-2648.2011.05746.x

Miner, K. R., & Ramsay, S. A. (2013). Perceptions of leadership in dietetics from students in a coordinated dietetics program [Abstract]. *Journal of the Academy of Nutrition and Dietetics,113*(Suppl. 3), A19.

Mouradian, W. E., & Huebner, C. E. (2007). Future directions in leadership training of MCH professionals: cross-cutting MCH leadership competencies. *Maternal Child Health Journal, 11*, 211-218. doi: 10.1007/s10995-006-0170-3

NHS Institute for Innovation and Improvement (2010). *Medical leadership competency framework: Enhancing engagement in medical leadership* (3rd ed.) Coventry, United Kingdom: author. Retrieved from http://www.leadershipacademy.nhs.uk/wp-content/uploads/2012/11/NHSLeadership-Leadership-Framework-Medical-Leadership-Competency-Framework-3rd-ed.pdf

Northouse, P. G. (2007). *Leadership: Theory and practice* (4th ed.). Thousand Oaks, CA: Sage.

Nyland, N., & Lafferty, L. (2012). Implications of the dietetics workforce demand study. *Journal of the Academy of Nutrition and Dietetics, 112,* S92-94. doi: 10.1016/j.jand.2011.12.013

Pace, R. D. (1995). Mapping a course for the future: Dietetics leadership in the 21st century. *Journal of the American Dietetic Association, 95,* 536-537.

Parks, S. (2002). The fractured anthill: A new architecture for sustaining the future. *Journal of the American Dietetic Association, 102,* 33-38.

Payne-Palacio, J. R., & Canter, D. D. (2014). *The profession of dietetics: A team approach* (5th ed.). Burlington, MA: Jones & Bartlett Learning.

Payne-Palacio, J., & Theis, M. (2012). *Foodservice management: Principles and practices* (12th ed.). Upper Saddle River, NJ: Prentice-Hall.

Porter, C. (2005). Are we training leaders? Conversations with three leaders. *Journal of the American Dietetic Association, 105,* 1204-1205.

Qualtrics Research Suite (2014) [Computer software]. Provo, UT: Qualtrics, LLC.

Rodriguez, J. C. (2010). Courage of the over- and underrepresented. *Journal of the American Dietetic Association, 110,* 1793. doi: 10.1016/j.jada.2010.10.026

Rowe, G., & Wright G. (1999). The Delphi technique as a forecasting tool: Issues and analysis. *International Journal of Forecasting, 15*, 353-375

Schiller, M. R., Foltz, M. B., & Campbell, S. M. (1993). Dietitians' self-perceptions: Implications for leadership. *Journal of the American Dietetic Association, 93*, 868-874.

Skipper, A., Young, L. O., & Mitchell, B. E. (2008). 2008 Accreditation Standards for Dietetics Education. *Journal of the American Dietetic Association, 108,* 1732-1735.e5. doi: 10.1016/j.jada.2008.07.004

Skulmoski, G. J., Hartman, F. T., & Krahn, J. (2007). The Delphi method for graduate research. *Journal of Information Technology Education, 6*, 1-21.

Slife, B. D., & Williams, R. N. (1995). *What's behind the research? Discovering hidden assumptions in the Behavioral Sciences.* Thousand Oaks, CA: Sage.

Smith-Edge, M. (2003) All ADA members are leaders. *Journal of the American Dietetic Association, 103,* 1452. doi: 10.1016/S0002-8223(03)01386-5

Smith-Edge, M. (n.d.) Leadership: The key ingredient to success in dietetics. Power Point presentation. Retrieved from www.eatright.org.

Stefl, M. E. (2008). Common competencies for all healthcare managers: The healthcare leadership alliance model. *Journal of Healthcare Management, 53*(6), 360-374.

Supamanee, T., Krairiksh, M., Signhakhumfu, L., & Turale, S. (2011). Preliminary clinical nursing leadership competency model: A qualitative study from Thailand. *Nursing & Health Studies, 13*, 433-439. doi: 10.1111/j.1442-2018.2011.00649.x

Tomasik, T. (2010). Reliability and validity of the Delphi method in guideline development for family physicians. *Quality in Primary Care, 18*, 317-326.

United States Department of Labor Bureau of Labor Statistics (2013). Dietitians and nutritionists. Retrieved from http://www.eatright.org/BecomeanRDorDTR/content.aspx?id=8092

Varkey, P., Peloquin, J., Reed, D., Lindor, K., & Harris, I. (2009). Leadership curriculum in undergraduate medical education: A study of student and faculty perspectives. *Medical Teacher, 31*, 244-250.

Watson-Jarvis, K. (2000). Shaping our future – Reflections on leadership and transformation. *Canadian Journal of Dietetics Practical Research, 61*, 135-138.

Wilkie, V., & Spurgeon, P. (2013). Translation of the Medical Leadership Competency Framework into a multisource feedback form for doctors in training using a verbal protocol technique. *Education for Primary Care, 24*, 36-44.

Willcocks, S. G., & Milne, P. (2013). The Medical Leadership Competency Framework: Challenges raised for GP educators by a pilot study of culture in general practice. *Education for Primary Care, 24*, 29-33.

Williams, K. A., Keim, K. S., & Johnson, C. A. (2004). Patterns of continuing professional education in registered dietitians and dietetic technicians, registered. *Journal of the American Dietetic Association, 104*, 437-441.

Winterfeldt, E. A., Bogle, M. L., & Ebro, L. L. (2014). *Nutrition and dietetics: Practice and future trends*. Burlington, MA: Jones & Bartlett Learning.

# APPENDIX A

## INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

University of Idaho

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September 18, 2013

To: Katie Miner
Cc: Laura Holyoke

From: Traci Craig, PhD
Chair, University of Idaho Institutional Review Board
University Research Office
Moscow, ID 83844-3010

Title: 'Development of a Leadership Competency Model for Dietetics Education'

Project: 13-227

Approved: 09/18/13
Expires: 09/17/14

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On behalf of the Institutional Review Board at the University of Idaho, I am pleased to inform you that the protocol for the above-named research project is approved as offering no significant risk to human subjects.

This approval is valid for one year from the date of this memo. Should there be significant changes in the protocol for this project, it will be necessary for you to resubmit the protocol for review by the Committee.

Traci Craig

Traci Craig

# APPENDIX B

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# APPENDIX C

## ROUND 1 INVITATION E-MAIL AND LETTER OF CONSENT

Dear [PARTICIPANT NAME]:

You have been identified as an expert in dietetics leadership or education with valuable insights to contribute to the topic of leadership development for dietetic students. I invite you to take part in a research study to identify leadership competencies for dietetics education. This research will be conducted using the Delphi technique consisting of 3-4 rounds. Each round will involve completing a questionnaire. The University of Idaho Institutional Review Board has approved this project.

**As a thank you for providing your opinion, a $10 gift certificate to Amazon.com will be provided for each round of the Delphi Study completed.**

Responses to the questions are confidential. Apart from your e-mail address collected to receive your gift card, your name will not be recorded on Delphi rounds. Each participant will be allocated a unique code. You will remain anonymous to the other participants throughout the Delphi study and only the researcher will be able to identify your specific answers. In addition, if you feel any discomfort during the study or do not want to answer a particular question, you may skip it. During the course of this study, you may stop at any time.

If you are willing to participate, please follow the link below to complete the first round questionnaire for the study. Completion of the questionnaire implies your consent to participate in this study. In order for the results to be an accurate representation, it is important that each question is completed. The questionnaire should take less than 30 minutes to complete. Please click on the link below to complete the survey no later than 10/29/2013.

**Follow this link to the Survey:**

Take the Survey

**Or copy and paste the URL below into your internet browser:**
https://uidahoed.qualtrics.com/WRQualtricsSurveyEngine/?Q_SS=3r3ekIE3WUPHWTj_9z8Jmf2E10dffX7&_=1

The results of this research will be used to identify leadership competencies and priorities for dietetics education. Your expert opinion will help dietetic education programs better prepare students for future leadership roles.

I am happy to answer any questions. Please contact me by e-mail at kminer@uidaho.edu or by phone at 208-885-7747.

Sincerely,

Katie Miner

Katie R. Miner, MS, RDN, LD, Doctoral Candidate
Senior Instructor, Food and Nutrition

School of Family and Consumer Sciences
University of Idaho
Moscow, ID 83844-3183
(208) 885-7747
kminer@uidaho.edu

# APPENDIX D

## ROUND 1 THANK YOU E-MAIL

Dear [PARTICIANT NAME]:

Thank you for completing Round 1 of the Leadership Priorities for Dietetics Education Delphi Study. A $10 Amazon.com gift certificate has been purchased and sent to the e-mail address you provided in the questionnaire. Please watch for an e-mail from Amazon.com.

You are invited to continue participating in this study. The Round 2 questionnaire will be e-mailed to you within the next two weeks.

Thank you again for your participation. I appreciate your contribution to this research study.

Sincerely,

*Katie*

Katie R. Miner, MS, RDN, LD, Doctoral Candidate
Senior Instructor, Food and Nutrition
Coordinated Program in Dietetics
School of Family and Consumer Sciences
University of Idaho
Moscow, ID 83844-3183
(208) 885-7747
kminer@uidaho.edu

# APPENDIX E

## ROUND 2 INVITATION E-MAIL

Dear [PARTICIPANT NAME]:

Thank you for participating in the Leadership Priorities for Dietetics Education research study by completing the round 1 questionnaire. You are invited to continue participating in this study by completing the round 2 questionnaire.

Round 2 involves the most time commitment during this study. The estimated completion time is 30 to 45 minutes. **As a thank you for your time and participation, you will receive a $20 gift certificate to Amazon.com for completion of this round.** Gift certificates will be distributed after the questionnaire is closed on 12/3/13. Please provide your e-mail address at the end of the questionnaire to receive your gift certificate.

After completion of this questionnaire, you will be directed to a PDF document of your responses. Please save this file. You will be asked to refer back to your responses during round 3 of the study.

Please select the link below to complete the questionnaire no later than 12/3/2013.

**Follow this link to the Survey:**

Take the Survey

Or copy and paste the URL below into your internet browser:
https://uidahoed.qualtrics.com/WRQualtricsSurveyEngine/?Q_SS=cNFJDXUdQ5DUOAl_7OtE6TruFO2OHNb&_=1

The University of Idaho Institutional Review Board has approved this project. Completion of the questionnaire implies your consent to participate in this study. I am happy to answer any questions. Please contact me by e-mail at kminer@uidaho.edu or by phone at 208-885-7747.

Again, thank you for your participation in this research study.

Sincerely,

Katie Miner

Katie R. Miner, MS, RDN, LD, Doctoral Candidate
Senior Instructor, Food and Nutrition
School of Family and Consumer Sciences
University of Idaho
Moscow, ID 83844-3183
(208) 885-7747
kminer@uidaho.edu

# APPENDIX F

## ROUND 2 THANK YOU E-MAIL

Dear [PARTICIPANT NAME]:

Thank you for completing Round 2 of the Leadership Priorities for Dietetics Education Research Study. A $20 Amazon.com gift certificate has been purchased and sent to the e-mail address you provided in the questionnaire. Please watch for an e-mail from Amazon.com.

You are invited to continue participating in this study. The Round 3 questionnaire will be e-mailed to you within the next two weeks.

Thank you again for your participation. I appreciate your contribution to this research study.

Sincerely,

*Katie*

Katie R. Miner, MS, RDN, LD
Senior Instructor, Food and Nutrition
Coordinated Program in Dietetics
School of Family and Consumer Sciences
University of Idaho
Moscow, ID 83844-3183
(208) 885-7747
kminer@uidaho.edu

# APPENDIX G

## ROUND 3 INVITATION E-MAIL

Dear [PARTICIPANT NAME]:

Thank you for participating in the Leadership Priorities for Dietetics Education research study by completing round 2. Last week you received an invitation to continue participating in this study by completing the round 3 questionnaire.

**As a thank you for your time and participation, you will receive a $20 gift certificate to Amazon.com for completion of this round.** Gift certificates will be distributed after the questionnaire is closed on 12/24/13. Please provide your e-mail address at the end of the questionnaire to receive your gift certificate.

Please select the link below to complete the questionnaire no later than 12/23/2013.
**Follow this link to the Survey:**

Take the Survey

Or copy and paste the URL below into your internet browser:
https://uidahoed.qualtrics.com/WRQualtricsSurveyEngine/?Q_SS=dnHr2tZDmFOYlnv_5AsEd99Y9NmcIdL&_=1

The University of Idaho Institutional Review Board has approved this project. Completion of the questionnaire implies your consent to participate in this study. I am happy to answer any questions. Please contact me by e-mail at kminer@uidaho.edu or by phone at 208-885-7747.

Again, thank you for your participation in this research study.

Sincerely,

Katie Miner

Katie R. Miner, MS, RDN, LD, Doctoral Candidate
Senior Instructor, Food and Nutrition
School of Family and Consumer Sciences
University of Idaho
Moscow, ID 83844-3183
(208) 885-7747
kminer@uidaho.edu

# APPENDIX H

## ROUND 3 THANK YOU E-MAIL

Dear [PARTICIPANT NAME]

Thank you for completing Round 3 of the Leadership Priorities for Dietetics Education Research Study. A $20 Amazon.com gift certificate has been purchased and sent to the e-mail address you provided in the questionnaire. Please watch for an e-mail from Amazon.com.

You will receive an e-mail within the next four weeks either inviting you to participate in the 4th round of the study or informing you of the completion of the study.

Thank you again for your participation. I appreciate your contribution to this research study.

Sincerely,

*Katie*

Katie R. Miner, MS, RDN, LD, Doctoral Candidate
Senior Instructor, Food and Nutrition
Coordinated Program in Dietetics
School of Family and Consumer Sciences
University of Idaho
Moscow, ID 83844-3183
(208) 885-7747
kminer@uidaho.edu

# APPENDIX I

## FINAL THANK YOU E-MAIL

Dear [PARTICPANT NAME}:

Thank you for taking part in the research study Identification of Research Priorities for Dietetics Education. The study has concluded after 3 rounds of data collection.

I greatly appreciate your contribution to this study. Please contact me if you have additional questions related to this research.

Sincerely,

*Katie*

Katie R. Miner, MS, RDN, LD, Doctoral Candidate
Senior Instructor, Food and Nutrition
Coordinated Program in Dietetics
School of Family and Consumer Sciences
University of Idaho
Moscow, ID 83844-3183
(208) 885-7747
kminer@uidaho.edu

# APPENDIX J

## DELPHI ROUND 1 QUESTIONNAIRE: IDENTIFICATION OF LEADERSHIP PRIORITIES FOR DIETETICS EDUCATION

**Delphi Round 1: Identification of Leadership Priorities for Dietetics Education**

This study is seeking your expert opinion on dietetics leadership. The results of this research will be used to identify leadership competencies and priorities for dietetics education. Your expert opinion on this topic will help dietetic education programs better prepare students for leadership roles.

The University of Idaho Institutional Review Board has approved this project. Completion of the questionnaire implies your consent to participate in this study. Please select the link below to begin the questionnaire.

As a thank you, a $10 gift certificate to Amazon.com will be e-mailed to you for participating in the first round of this Delphi study.

**Please reflect on your knowledge and experience in dietetics leadership and education to answer the following questions. Consider both current and future needs of the dietetics profession in your answers.**

**You may list as many answers as you wish for each question.**

How do you define leadership for the profession of dietetics?

What leadership knowledge is currently needed by entry-level dietitians?

What leadership skills are currently needed by entry-level dietitians?

What leadership training in the classroom do you recommend for preparing dietetic students for entry-level roles?

What leadership experiences outside of the classroom do you recommend for preparing dietetic students for entry-level roles?

**Please provide additional information about yourself.**

Please list your past and current leadership positions related to dietetics.

Please list your past and current leadership positions not related to dietetics.

What is your current job title?

Please list any advanced degrees (e.g., MS, PhD) with cognate area (e.g., Nutrition, Education) and/or credentials you have received.

What is your current age?

- ❍ < 25
- ❍ 25-34
- ❍ 35-44
- ❍ 45-54
- ❍ 55-64
- ❍ 65+

What is your gender?

- ❍ Male
- ❍ Female

Which group best describes you?

- ❍ Hispanic or Latino
- ❍ American Indian or Alaska Native
- ❍ Asian
- ❍ Black or African American
- ❍ Native Hawaiian or Other Pacific Islander
- ❍ White

**Thank you for participating in round 1 of this Delphi study. Your time and contributions are appreciated. As a thank you for providing your opinion, a $10 gift certificate to Amazon.com will be provided for participating in each round of the Delphi study.**

**Please enter your e-mail address to receive your gift certificate.**

**All responses will remain confidential, and you will remain anonymous to other participants throughout the Delphi study.**

**E-mail address:**

**Thank you for providing your e-mail address. The 2nd round questionnaire will be sent to you via e-mail within the next 3 to 4 weeks.**

# APPENDIX K

## DELPHI ROUND 2 QUESTIONNAIRE: RATING OF LEADERSHIP PRIORITIES FOR DIETETICS EDUCATION

**Delphi Round 2: Rating of Leadership Priorities for Dietetics Education**

Thank you for participating in the Leadership Priorities for Dietetics Education research study by completing the round 1 questionnaire. You are invited to continue in round 2 of this study.

Round 2 involves the most time commitment during this study. The estimated completion time is 30 to 45 minutes. As a thank you for your time and participation, you will receive a $20 gift certificate to Amazon.com for completion of this round. Gift certificates will be distributed after the questionnaire is closed on 12/3/13. Please provide your e-mail address at the end of the questionnaire to receive your gift certificate.

After completion of this questionnaire, you will be directed to a PDF document of your responses. Please save this file. You will be asked to refer back to your responses during round 3 of the study.

The University of Idaho Institutional Review Board has approved this project. Completion of the questionnaire implies your consent to participate in this study. Please select the link below to begin the questionnaire.

**Questionnaire Directions**

In round 1 you were asked to define leadership for dietetics and identify leadership knowledge, skills, training, and experiences currently needed by entry-level dietitians. Responses were content analyzed by two independent raters and coded into categories. Duplicate and similar statements have been combined to reduce the questionnaire length.

The round 2 questionnaire will provide information collected in round 1. You will be asked to rate statements in five areas:

1. Definition of Leadership for Dietetics
2. Leadership Knowledge
3. Leadership Skills
4. Leadership Training
5. Leadership Experience

Each area has been divided into subsections for ease of completion. For each section please rate your level of agreement with the statements provided.

The purpose of this study is to identify leadership priorities for dietetics education. As you rate the statements, please consider leadership requirements for entry-level dietitians.

**Leadership Definition**

Please rate your level of agreement on each category as part of a definition for leadership in dietetics.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Having a vision | ❍ | ❍ | ❍ | ❍ |
| Being able to chart a course and move forward to achieve outcomes | ❍ | ❍ | ❍ | ❍ |
| Being able to see the big picture | ❍ | ❍ | ❍ | ❍ |
| Being willing and able to make decisions | ❍ | ❍ | ❍ | ❍ |
| Acting in the best interest of others instead of oneself | ❍ | ❍ | ❍ | ❍ |
| Advancing the profession of nutrition and dietetics | ❍ | ❍ | ❍ | ❍ |
| Promoting the registered dietitian as the food and nutrition expert | ❍ | ❍ | ❍ | ❍ |
| Being an expert in one aspect of dietetics | ❍ | ❍ | ❍ | ❍ |
| Staying current in knowledge | ❍ | ❍ | ❍ | ❍ |
| Serving in professional organizations | ❍ | ❍ | ❍ | ❍ |
| Holding leadership positions | ❍ | ❍ | ❍ | ❍ |
| Being involved in the community | ❍ | ❍ | ❍ | ❍ |
| Inspiring and motivating others | ❍ | ❍ | ❍ | ❍ |
| Promoting teamwork and collaboration | ❍ | ❍ | ❍ | ❍ |
| Mentoring students, interns | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| and / or younger dietitians | | | | |

**Leadership Definition**

Please list additional categories you think should be included in a definition of leadership for dietetics.

**Leadership Definition: Leadership Characteristics**

Please rate your level of agreement for each characteristic being important for leaders in dietetics.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Knowing your own strengths | ❍ | ❍ | ❍ | ❍ |
| Empathy | ❍ | ❍ | ❍ | ❍ |
| Positive energy and momentum | ❍ | ❍ | ❍ | ❍ |
| Giving back and helping others | ❍ | ❍ | ❍ | ❍ |
| Appreciation for those who came before you | ❍ | ❍ | ❍ | ❍ |
| Willingness to volunteer and learn | ❍ | ❍ | ❍ | ❍ |
| Passion and interest in being a leader | ❍ | ❍ | ❍ | ❍ |
| Confidence in holding a leadership position | ❍ | ❍ | ❍ | ❍ |
| Professionalism | ❍ | ❍ | ❍ | ❍ |
| Assertiveness | ❍ | ❍ | ❍ | ❍ |
| Honesty | ❍ | ❍ | ❍ | ❍ |
| Competence | ❍ | ❍ | ❍ | ❍ |
| Open-Mindedness | ❍ | ❍ | ❍ | ❍ |
| Courageous | ❍ | ❍ | ❍ | ❍ |
| Proactive | ❍ | ❍ | ❍ | ❍ |
| Respectful of others | ❍ | ❍ | ❍ | ❍ |
| Good humored | ❍ | ❍ | ❍ | ❍ |
| Flexible | ❍ | ❍ | ❍ | ❍ |
| Resilient | ❍ | ❍ | ❍ | ❍ |
| Energetic / enthusiastic | ❍ | ❍ | ❍ | ❍ |
| Creative | ❍ | ❍ | ❍ | ❍ |
| Customer aware | ❍ | ❍ | ❍ | ❍ |
| Quality oriented / Striving for excellence | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| Risk-taking | ❍ | ❍ | ❍ | ❍ |
| Commitment | ❍ | ❍ | ❍ | ❍ |

**Leadership Definition: Leadership Characteristics**

Please list additional characteristics you think are needed by leaders in dietetics.

**Leadership Knowledge: Resources**

Please indicate your level of agreement for each knowledge area as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Knowledge of resources for leadership opportunities | ❍ | ❍ | ❍ | ❍ |
| Knowledge of resources for leadership training | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to get involved in leadership organizations and roles | ❍ | ❍ | ❍ | ❍ |
| Knowledge of when to reach out to someone more qualified to answer a question or solve a problem | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Teamwork**

Please indicate your level of agreement for each knowledge area as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Knowledge of team or group dynamics | ❍ | ❍ | ❍ | ❍ |
| Knowledge of team building techniques | ❍ | ❍ | ❍ | ❍ |
| Knowledge of group processes | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to work with others | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to support others to get a job done | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Communication**

Please indicate your level of agreement for each knowledge area as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Knowledge of communication methods and techniques | ❍ | ❍ | ❍ | ❍ |
| Knowledge of communication tools and techniques for various media | ❍ | ❍ | ❍ | ❍ |
| Knowledge of communication styles | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to lead a facilitative discussion | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to do demonstrations | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to speak confidently with other individuals in health care and life | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Management**

Please indicate your level of agreement for each knowledge area as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Knowledge of management and organizational theories and principles | ❍ | ❍ | ❍ | ❍ |
| Knowledge of planning and organizing | ❍ | ❍ | ❍ | ❍ |
| Knowledge of economics | ❍ | ❍ | ❍ | ❍ |
| Knowledge of institutional / industry hospitality | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to conduct meetings and Roberts Rules of Order | ❍ | ❍ | ❍ | ❍ |
| Knowledge of job descriptions for all positions within an organization | ❍ | ❍ | ❍ | ❍ |
| Knowledge of business and business plan development | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how leadership is different from management | ❍ | ❍ | ❍ | ❍ |
| Knowledge of budgets | ❍ | ❍ | ❍ | ❍ |
| Knowledge of procurement and use of resources | ❍ | ❍ | ❍ | ❍ |
| Knowledge of marketing | ❍ | ❍ | ❍ | ❍ |
| Knowledge of mission, vision and goal setting: how to write goals, | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| objectives, and desired outcomes | | | | |
| Knowledge of how to be fair and consistent with expectations, coaching, counseling, and disciplinary action | ❍ | ❍ | ❍ | ❍ |
| Knowledge of cultural diversity and generational differences | ❍ | ❍ | ❍ | ❍ |
| Knowledge of conflict resolution | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to gain consensus and build alliance | ❍ | ❍ | ❍ | ❍ |
| Knowledge of policy development | ❍ | ❍ | ❍ | ❍ |
| Knowledge of human dynamics of the workplace | ❍ | ❍ | ❍ | ❍ |
| Knowledge of the role of evaluation and development of evaluation tools | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: General Dietetics**

Please indicate your level of agreement for each knowledge area as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Basic dietetics knowledge in all aspects of the profession | ❍ | ❍ | ❍ | ❍ |
| Basic knowledge in the sciences including nutrition science | ❍ | ❍ | ❍ | ❍ |
| Knowledge of foods, how to cook, and how to teach simple cooking skills | ❍ | ❍ | ❍ | ❍ |
| Understanding of current trends and consumer desires | ❍ | ❍ | ❍ | ❍ |
| Knowledge of community health | ❍ | ❍ | ❍ | ❍ |
| Knowledge of counseling theory and techniques | ❍ | ❍ | ❍ | ❍ |
| Knowledge of food service and safety | ❍ | ❍ | ❍ | ❍ |
| Knowledge of behavior change theories | ❍ | ❍ | ❍ | ❍ |
| Knowledge of medical nutrition therapy and impact of nutrition or lack of adequate nutrition on health and disease | ❍ | ❍ | ❍ | ❍ |
| Knowledge of health care systems | ❍ | ❍ | ❍ | ❍ |
| Basic knowledge in social sciences | ❍ | ❍ | ❍ | ❍ |
| Knowledge of basic research techniques | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| Understanding and application of evidence-based practice | ❍ | ❍ | ❍ | ❍ |
| Recognition that learning is on-going and never ending | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Dietetics Profession**

Please indicate your level of agreement for each knowledge area as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Knowledge of career benefits of leadership | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how and when to advocate for the profession | ❍ | ❍ | ❍ | ❍ |
| Knowledge of Professional Ethics / Code of Ethics | ❍ | ❍ | ❍ | ❍ |
| Knowledge of current issues facing the dietetics community | ❍ | ❍ | ❍ | ❍ |
| Knowledge of benefits an RD can provide to a project, business, or organization | ❍ | ❍ | ❍ | ❍ |
| Knowledge of the value and expectation of professional contributions for the advancement of dietetics and client care | ❍ | ❍ | ❍ | ❍ |
| Awareness of the Academy of Nutrition and Dietetics organizational structure (state and national levels) and how it impacts an individual RD | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Leadership Qualities and Characteristics**

Please indicate your level of agreement for each knowledge area as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Knowledge of how to network | ❍ | ❍ | ❍ | ❍ |
| Knowledge of the importance of being assertive | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to think critically | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to be resilient | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to navigate difficult situations | ❍ | ❍ | ❍ | ❍ |
| Knowledge of techniques to motivate and influence individuals | ❍ | ❍ | ❍ | ❍ |
| Self-awareness of individual leadership style and qualitites | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Leadership Theory**

Please indicate your level of agreement for each knowledge area as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Knowledge of leadership theories | ❍ | ❍ | ❍ | ❍ |
| Knowledge of personality traits of leaders | ❍ | ❍ | ❍ | ❍ |
| Knowledge of leadership skills | ❍ | ❍ | ❍ | ❍ |
| Knowledge of leadership styles | ❍ | ❍ | ❍ | ❍ |
| Knowledge of leadership strategies and techniques | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to be an effective leader | ❍ | ❍ | ❍ | ❍ |
| Knowledge of challenges and barriers of leadership | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge**

Please list additional leadership knowledge areas you think are needed by entry-level dietitians.

**Leadership Skills: Communication**

Please indicate your level of agreement for each leadership skill as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Public speaking skills | ❍ | ❍ | ❍ | ❍ |
| Communication skills for a variety of audiences | ❍ | ❍ | ❍ | ❍ |
| Good listening skills | ❍ | ❍ | ❍ | ❍ |
| Facilitative discussion skills | ❍ | ❍ | ❍ | ❍ |
| Written communication Skills | ❍ | ❍ | ❍ | ❍ |
| Communication skills in electronic media | ❍ | ❍ | ❍ | ❍ |
| Oral communication skills | ❍ | ❍ | ❍ | ❍ |
| Presentation skills | ❍ | ❍ | ❍ | ❍ |
| Communication skills for groups | ❍ | ❍ | ❍ | ❍ |
| Supportive communication and counseling skills | ❍ | ❍ | ❍ | ❍ |
| Ability to express opinion on a variety of current nutrition topics | ❍ | ❍ | ❍ | ❍ |
| Ability to communicate with people at different levels (peers, clients, administrators) | ❍ | ❍ | ❍ | ❍ |

**Leadership Skills: Teamwork**

Please indicate your level of agreement for each leadership skill as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Group management skills | ❍ | ❍ | ❍ | ❍ |
| Collaboration skills | ❍ | ❍ | ❍ | ❍ |
| Ability to listen to other team members | ❍ | ❍ | ❍ | ❍ |
| Ability to work with other team members to accomplish tasks | ❍ | ❍ | ❍ | ❍ |
| Ability to express solutions to the team | ❍ | ❍ | ❍ | ❍ |
| The ability to lead in some cases and guide people who lead in other cases | ❍ | ❍ | ❍ | ❍ |

**Leadership Skills: Management**

Please indicate your level of agreement for each leadership skill as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Basic management skills | ❍ | ❍ | ❍ | ❍ |
| Business development skills | ❍ | ❍ | ❍ | ❍ |
| Marketing skills | ❍ | ❍ | ❍ | ❍ |
| Budget skills | ❍ | ❍ | ❍ | ❍ |
| Negotiation skills | ❍ | ❍ | ❍ | ❍ |
| Delegation skills | ❍ | ❍ | ❍ | ❍ |
| Resource conservation skills | ❍ | ❍ | ❍ | ❍ |
| Grant writing skills | ❍ | ❍ | ❍ | ❍ |
| Entrepreneurial skills | ❍ | ❍ | ❍ | ❍ |
| Human resources / people management skill | ❍ | ❍ | ❍ | ❍ |
| Program planning, implementation and evaluation skills | ❍ | ❍ | ❍ | ❍ |
| Committee skills (setting an agenda, Roberts Rules of Order, dealing with conflict, conducting a meeting, adhering to a time frame) | ❍ | ❍ | ❍ | ❍ |

**Leadership Skills: Professional Skills**

Please indicate your level of agreement for each leadership skill as being needed for entry-level dietitians.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Strong interpersonal skills | ❍ | ❍ | ❍ | ❍ |
| Strong work ethic | ❍ | ❍ | ❍ | ❍ |
| Decision-making skills | ❍ | ❍ | ❍ | ❍ |
| Organizational skills | ❍ | ❍ | ❍ | ❍ |
| Time management skills | ❍ | ❍ | ❍ | ❍ |
| Networking skills | ❍ | ❍ | ❍ | ❍ |
| Motivational skills | ❍ | ❍ | ❍ | ❍ |
| Multi-tasking skills | ❍ | ❍ | ❍ | ❍ |
| Technology skills | ❍ | ❍ | ❍ | ❍ |
| Stress management skills | ❍ | ❍ | ❍ | ❍ |
| Prioritization skills | ❍ | ❍ | ❍ | ❍ |
| Public policy skills | ❍ | ❍ | ❍ | ❍ |
| Ability to take initiative | ❍ | ❍ | ❍ | ❍ |
| Visioning skills: Ability to look forward | ❍ | ❍ | ❍ | ❍ |
| Goal-Setting skills: Able to write and obtain goals | ❍ | ❍ | ❍ | ❍ |
| Critical thinking and problem solving skills | ❍ | ❍ | ❍ | ❍ |
| Ability to collect input from stake holders | ❍ | ❍ | ❍ | ❍ |
| Ability to identify and recognize strengths in others | ❍ | ❍ | ❍ | ❍ |
| The ability to critique research | ❍ | ❍ | ❍ | ❍ |
| Skilled in navigating the health care system | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| Ability to assess or identify emerging issues | ❍ | ❍ | ❍ | ❍ |
| Ability to enhance well-being of individuals and communities | ❍ | ❍ | ❍ | ❍ |
| Ability to apply medical nutrition therapy principles to individuals, groups, and communities | ❍ | ❍ | ❍ | ❍ |

**Leadership Skills**

Please list additional leadership skills you think are needed by entry-level dietitians.

**Leadership Training Methods: Curriculum**

Please indicate your level of agreement for each training method as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Leadership coursework | ❍ | ❍ | ❍ | ❍ |
| Communications course | ❍ | ❍ | ❍ | ❍ |
| Public policy training | ❍ | ❍ | ❍ | ❍ |
| Participating in Academy of Nutrition and Dietetics leadership training | ❍ | ❍ | ❍ | ❍ |
| Management course (including hiring, firing, interviewing, dealing with coworkers, time management skills) | ❍ | ❍ | ❍ | ❍ |
| Interprofessional education and events involving students from different programs learning about leadership together | ❍ | ❍ | ❍ | ❍ |
| Exposure to successful organizations and leaders through observation and guest speakers to find out what they are doing, why they are doing it and how they define and maintain success | ❍ | ❍ | ❍ | ❍ |

**Leadership Training Methods: Activities and Assignments**

Please indicate your level of agreement for each training method as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Writing a business plan | ❍ | ❍ | ❍ | ❍ |
| Writing letters to the editor | ❍ | ❍ | ❍ | ❍ |
| Concept mapping assignments | ❍ | ❍ | ❍ | ❍ |
| Skills inventory of personality traits, and leadership style | ❍ | ❍ | ❍ | ❍ |
| Proposal plans for assuming a leadership role | ❍ | ❍ | ❍ | ❍ |
| Service learning outside of the classroom | ❍ | ❍ | ❍ | ❍ |
| Self-directed exercises where students must chart their own course | ❍ | ❍ | ❍ | ❍ |
| Having students determine what they need to land a job (certifications needed, etc.) | ❍ | ❍ | ❍ | ❍ |
| Case Studies related to leadership, ethics, and conflict scenarios | ❍ | ❍ | ❍ | ❍ |
| Role Play involving handling difficult situations and communication | ❍ | ❍ | ❍ | ❍ |
| Simulations involving communication with a variety of receivers (clients, patients, consumers, etc.) | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| Guided activities in the classroom to support learning and development of leadership skills | ❍ | ❍ | ❍ | ❍ |
| Learning activity examining cultural diversity beyond differences of ethnicity | ❍ | ❍ | ❍ | ❍ |
| Assignments including all forms of written and oral communication especially around giving and receiving feedback | ❍ | ❍ | ❍ | ❍ |

**Leadership Training Methods: Projects**

Please indicate your level of agreement for each training method as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Projects requiring critical thinking and decision making | ❍ | ❍ | ❍ | ❍ |
| Marketing projects requiring application of leadership skills | ❍ | ❍ | ❍ | ❍ |
| Student planned and conducted community needs assessment | ❍ | ❍ | ❍ | ❍ |
| Projects that allow students to assess a situation, write goals, and implement strategies to improve the situation | ❍ | ❍ | ❍ | ❍ |
| Development of patient education materials, policies, and procedures or in-services | ❍ | ❍ | ❍ | ❍ |
| Projects with different focus allowing for multiple students to feel comfortable taking the lead | ❍ | ❍ | ❍ | ❍ |
| Group work in which students / interns take on different roles such as leader, group member, and moderator. | ❍ | ❍ | ❍ | ❍ |
| Reflection on successes and challenges with group projects | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| Group projects that include peer and instructor feedback on leader's performance | ❍ | ❍ | ❍ | ❍ |
| Organizing and conducting a nutrition career fair each year: students identify who to invite, do the invitations, set up the room, provide hospitality, and survey the participants in order to adjust plans for the next year | ❍ | ❍ | ❍ | ❍ |

**Leadership Training Methods: Discussions**

Please indicate your level of agreement for each training method as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Ethics group discussion | ❍ | ❍ | ❍ | ❍ |
| Class discussion about leadership | ❍ | ❍ | ❍ | ❍ |
| Team-based approach discussions | ❍ | ❍ | ❍ | ❍ |
| Discussion on constructive criticism | ❍ | ❍ | ❍ | ❍ |
| Discussions about communication styles and conflict management | ❍ | ❍ | ❍ | ❍ |
| Discussion boards to encourage collaborations and written communications | ❍ | ❍ | ❍ | ❍ |
| Discussion of organizational structures and how to make oneself invaluable to others utilizing offered services | ❍ | ❍ | ❍ | ❍ |

**Leadership Training Methods: Presentations**

Please indicate your level of agreement for each training method as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Individual and group presentations of leadership scenarios | ❍ | ❍ | ❍ | ❍ |
| Presentations and demonstrations to a variety of audiences | ❍ | ❍ | ❍ | ❍ |
| Presenting research (Power Point presentations and / or posters) | ❍ | ❍ | ❍ | ❍ |
| Peer performance evaluation (using rubric) on student oral presentations. | ❍ | ❍ | ❍ | ❍ |
| Incorporation of improvement strategies for professional communication based on peer evaluation | ❍ | ❍ | ❍ | ❍ |
| Follow-up on peer performance evaluation with a new presentation demonstrating reflection on previous evaluation comments | ❍ | ❍ | ❍ | ❍ |

**Leadership Training Methods**

Please list additional leadership training you think is needed to prepare dietetic students for entry-level roles.

**Leadership Experiences: Participation in Organizations**

Please indicate your level of agreement for each leadership experience as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Attending professional organization board meetings | ❍ | ❍ | ❍ | ❍ |
| Attending a state or national dietetics meeting | ❍ | ❍ | ❍ | ❍ |
| Attending legislative day at the state capitol | ❍ | ❍ | ❍ | ❍ |
| Assisting leaders of local professional organizations with tasks | ❍ | ❍ | ❍ | ❍ |
| Leadership role in a local or state dietetic association | ❍ | ❍ | ❍ | ❍ |
| Leadership role in a professional or community organization | ❍ | ❍ | ❍ | ❍ |
| A required year of active leadership in a professional organization | ❍ | ❍ | ❍ | ❍ |
| Representing student dietetic groups at affiliate board, district annual or other meetings | ❍ | ❍ | ❍ | ❍ |
| Service to community and professional organizations to observe and participate in the program planning process | ❍ | ❍ | ❍ | ❍ |

**Leadership Experiences: Participation in Student Organizations**

Please indicate your level of agreement for each leadership experience as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Participating in organizations on campus | ❍ | ❍ | ❍ | ❍ |
| Participating in leadership roles in student campus organizations | ❍ | ❍ | ❍ | ❍ |
| Leadership positions in state student dietetic associations | ❍ | ❍ | ❍ | ❍ |
| Extracurricular activities such as sports | ❍ | ❍ | ❍ | ❍ |

**Leadership Experiences: Work Experience**

Please indicate your level of agreement for each leadership experience as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Full or part-time job in any area of foodservice | ❍ | ❍ | ❍ | ❍ |
| Leadership and supervisory roles in paying jobs | ❍ | ❍ | ❍ | ❍ |
| Work experience as a diet tech | ❍ | ❍ | ❍ | ❍ |
| Working with other professionals in different fields | ❍ | ❍ | ❍ | ❍ |
| Any job which allows them to take on a decision making capacity or manage others | ❍ | ❍ | ❍ | ❍ |

**Leadership Experiences: Volunteer Experience**

Please indicate your level of agreement for each leadership experience as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Volunteering in any setting, not just dietetics | ❍ | ❍ | ❍ | ❍ |
| Volunteering in dietetic related organizations | ❍ | ❍ | ❍ | ❍ |
| Volunteering at a work setting | ❍ | ❍ | ❍ | ❍ |
| Coaching a team for the community | ❍ | ❍ | ❍ | ❍ |
| Volunteering in community setting such as food banks, churches, after school programs, soup kitchens, and Meals on Wheels | ❍ | ❍ | ❍ | ❍ |

**Leadership Experiences: Mentoring**

Please indicate your level of agreement for each leadership experience as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Exposure to leaders in dietetics though shadowing experiences | ❍ | ❍ | ❍ | ❍ |
| Mentoring from established professionals in the field | ❍ | ❍ | ❍ | ❍ |
| Attending several meetings of a group that is new to them with an experienced member of the group agreeing to be a mentor. | ❍ | ❍ | ❍ | ❍ |
| Reflecting on shadowing activities and identifying how to apply knowledge and skills learned in the future as a professional | ❍ | ❍ | ❍ | ❍ |

**Leadership Experiences: Supervised Practice Experience**

Please indicate your level of agreement for each leadership experience as being needed to prepare dietetic students for entry-level roles.

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| Management experience | ❍ | ❍ | ❍ | ❍ |
| Staff relief experiences | ❍ | ❍ | ❍ | ❍ |
| Interaction with consumers, clients, and patients | ❍ | ❍ | ❍ | ❍ |
| Nutrition education presentations in the community | ❍ | ❍ | ❍ | ❍ |
| Opportunities for students in community and public health entities | ❍ | ❍ | ❍ | ❍ |
| Planning and coordinating events (budgeting, timeline, implementation, evaluation) | ❍ | ❍ | ❍ | ❍ |
| Collaborating with local agencies or organizations to work with them on areas of need | ❍ | ❍ | ❍ | ❍ |
| Nontraditional supervised practice settings such as private practice, primary care, restaurants | ❍ | ❍ | ❍ | ❍ |
| Traditional supervised practice experiences in hospitals, WIC clinics, long-term care facilities, institutional food service | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| departments | | | | |

**Leadership Experiences**

Please list additional leadership experiences you think are needed to prepare dietetic students for entry-level roles.

**Thank you for participating in round 2 of this Delphi study. Your time and contributions are appreciated. As a thank you for providing your opinion, a $20 gift certificate to Amazon.com will be provided for participating in round 2 of the Delphi study.**

**Please enter your e-mail address to receive your gift certificate. Gift certificates will be distributed after the questionnaire is closed on 12/3/13.**

**All responses will remain confidential, and you will remain anonymous to other participants throughout the Delphi study.**

**E-mail address:**

Thank you for providing your e-mail address. The 3rd round questionnaire will be sent to you via e-mail within the next 3 to 4 weeks.

**After completion of this questionnaire, you will be directed to a PDF document of your responses. Please save this file. You will be asked to refer back to your responses during round 3 of the study.**

# APPENDIX L

## DELPHI ROUND 3 QUESTIONNAIRE: REVIEW OF LEADERSHIP PRIORITIES FOR DIETETICS EDUCATION

**Delphi Round 3: Review of Leadership Priorities for Dietetics Education**

Thank you for participating in the Leadership Priorities for Dietetics Education research study by completing the round 2 questionnaire. You are invited to continue in round 3 of this study. Following round 2 you were asked to save a PDF file of your responses. Please refer to your previous responses while completing round 3.

If you were unable to save the file, please contact Katie Miner at kminer@uidaho.edu and request a copy e-mailed to you. Individual PDF files of responses will only be generated and sent to the participant if requested. All individual responses to the questions are confidential.

As a thank you for your time and participation, you will receive a $20 gift certificate to Amazon.com for completion of this round. Gift certificates will be distributed after the questionnaire is closed on 12/24/13. Please provide your e-mail address at the end of the questionnaire to receive your gift certificate.

After completion of this questionnaire, you will be directed to a PDF document of your responses. Please save this file. If a 4th round is conducted for this study, you may be asked to refer back to your responses.

The University of Idaho Institutional Review Board has approved this project. Completion of the questionnaire implies your consent to participate in this study. Please select the link below to begin the questionnaire.

**Questionnaire Directions**

In round 2 you were asked to rate statements about leadership requirements for entry-level dietitians. Round 3 presents the same statements and asks you to consider them in the context of dietetics education. Please note, questions related to the definition of leadership for dietetics have been removed for round 3.

For each statement you will be asked if the leadership knowledge, skill, training or experience should be included in dietetics education programs. The following choices will be available:

1 = Absolutely Necessary: Required for a dietetics education program
2 = Recommended: Contributes highly to quality of a program
3 = Optional: Not essential, does add some value to a program
4 = Not Necessary: Adds no value to a program

For each statement, you are provided with the overall group response from round 2, presented as an abbreviation in parenthesis after each statement:

Strongly Agree = (SA)
Agree = (A)
Disagree = (D)
Strongly Disagree = (SD)

The overall group response reported will allow you to compare your previous ratings to those of the other expert panel members. To make this comparison, please refer to the PDF file of your responses from round 2. During this round please consider your previous response and the overall group response. Next, rate the statements in the context of dietetics education programs.

At the end of each section, you will have the opportunity to provide comments related to dietetics leadership and education.

**Leadership Knowledge: Resources**

Please indicate your opinion on each knowledge area being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Knowledge of resources for leadership opportunities (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of resources for leadership training (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to get involved in leadership organizations and roles (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of when to reach out to someone more qualified to answer a question or solve a problem (SA) | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Teamwork**

Please indicate your opinion on each knowledge area being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Knowledge of team or group dynamics (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of team building techniques (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of group processes (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to work with others (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to support others to get a job done (SA) | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Communication**

Please indicate your opinion on each knowledge area being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Knowledge of communication methods and techniques (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of communication tools and techniques for various media (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of communication styles (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to lead a facilitative discussion (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to do demonstrations (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to speak confidently with other individuals in health care and life (SA) | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Management**

Please indicate your opinion on each knowledge area being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Knowledge of management and organizational theories and principles (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of planning and organizing (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of economics (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of institutional / industry hospitality (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to conduct meetings and Roberts Rules of Order (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of job descriptions for all positions within an organization (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of business and business plan development (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how leadership is different from management (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of budgets (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of procurement and use of resources (A) | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| Knowledge of marketing (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of mission, vision and goal setting: how to write goals, objectives, and desired outcomes (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to be fair and consistent with expectations, coaching, counseling, and disciplinary action (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of cultural diversity and generational differences (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of conflict resolution (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to gain consensus and build alliances (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of policy development (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of human dynamics of the workplace (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of the role of evaluation and development of evaluation tools (A) | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: General Dietetics**

Please indicate your opinion on each knowledge area being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Basic dietetics knowledge in all aspects of the profession (SA) | ❍ | ❍ | ❍ | ❍ |
| Basic knowledge in the sciences including nutrition science (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of foods, how to cook, and how to teach simple cooking skills (A) | ❍ | ❍ | ❍ | ❍ |
| Understanding of current trends and consumer desires (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of community health (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of counseling theory and techniques (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of food service and safety (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of behavior change theories (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of medical nutrition therapy and impact of nutrition or lack of adequate nutrition on health and disease | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| (SA) | | | | |
| Knowledge of health care systems (A) | ❍ | ❍ | ❍ | ❍ |
| Basic knowledge in social sciences (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of basic research techniques (A) | ❍ | ❍ | ❍ | ❍ |
| Understanding and application of evidence-based practice (SA) | ❍ | ❍ | ❍ | ❍ |
| Understanding that learning is on-going and never ending (SA) | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Dietetics Profession**

Please indicate your opinion on each knowledge area being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Knowledge of career benefits of leadership (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how and when to advocate for the profession (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of professional ethics / Code of Ethics (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of current issues facing the dietetics community (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of benefits an RD can provide to a project, business, or organization (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of the value and expectation of professional contributions for the advancement of dietetics and client care (SA) | ❍ | ❍ | ❍ | ❍ |
| Awareness of the Academy of Nutrition and Dietetics organizational structure (state and national levels) and how it impacts an | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| individual RD (A) | | | | |

**Leadership Knowledge: Leadership Qualities and Characteristics**

Please indicate your opinion on each knowledge area being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Knowledge of how to network (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of the importance of being assertive (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to think critically (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to be resilient (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to navigate difficult situations (SA) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of techniques to motivate and influence individuals (SA) | ❍ | ❍ | ❍ | ❍ |
| Self-awareness of individual leadership style and qualities (SA) | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge: Leadership Theory**

Please indicate your opinion on each knowledge area being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Knowledge of leadership theories (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of personality traits of leaders (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of leadership skills (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of leadership styles (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of leadership strategies and techniques (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of how to be an effective leader (A) | ❍ | ❍ | ❍ | ❍ |
| Knowledge of challenges and barriers of leadership (A) | ❍ | ❍ | ❍ | ❍ |

**Leadership Knowledge**

Please provide comments related to leadership knowledge and dietetics education.

**Leadership Skills: Communication**

Please indicate your opinion on each leadership skill being a required competency for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Public speaking skills (A) | ❍ | ❍ | ❍ | ❍ |
| Communication skills for a variety of audiences (SA) | ❍ | ❍ | ❍ | ❍ |
| Good listening skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Facilitative discussion skills (A) | ❍ | ❍ | ❍ | ❍ |
| Written communication skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Communication skills in electronic media (SA) | ❍ | ❍ | ❍ | ❍ |
| Oral communication skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Presentation skills (A) | ❍ | ❍ | ❍ | ❍ |
| Communication skills for groups (A) | ❍ | ❍ | ❍ | ❍ |
| Supportive communication and counseling skills (A) | ❍ | ❍ | ❍ | ❍ |
| Ability to express opinion on a variety of current nutrition topics (A) | ❍ | ❍ | ❍ | ❍ |
| Ability to communicate with people at different levels (peers, | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| clients, administrators) (SA) | | | | |

**Leadership Skills: Teamwork**

Please indicate your opinion on each leadership skill being a required competency for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Group management skills (A) | ❍ | ❍ | ❍ | ❍ |
| Collaboration skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Ablility to listen to other team members (SA) | ❍ | ❍ | ❍ | ❍ |
| Ability to work with other team members to accomplish tasks (SA) | ❍ | ❍ | ❍ | ❍ |
| Ability to express solutions to the team (A) | ❍ | ❍ | ❍ | ❍ |
| The ability to lead in some cases and guide people who lead in other cases (A) | ❍ | ❍ | ❍ | ❍ |

**Leadership Skills: Management**

Please indicate your opinion on each leadership skill being a required competency for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Basic management skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Business development skills (A) | ❍ | ❍ | ❍ | ❍ |
| Marketing skills (A) | ❍ | ❍ | ❍ | ❍ |
| Budget skills (A) | ❍ | ❍ | ❍ | ❍ |
| Negotiation skills (A) | ❍ | ❍ | ❍ | ❍ |
| Delegation skills (A) | ❍ | ❍ | ❍ | ❍ |
| Resource conservation skills (A) | ❍ | ❍ | ❍ | ❍ |
| Grant writing skills (A) | ❍ | ❍ | ❍ | ❍ |
| Entrepreneurial skills (A) | ❍ | ❍ | ❍ | ❍ |
| Human resources / people management skill (A) | ❍ | ❍ | ❍ | ❍ |
| Program planning, implementation and evaluation skills (A) | ❍ | ❍ | ❍ | ❍ |
| Committee skills (setting an agenda, Roberts Rules of Order, dealing with conflict, conducting a meeting, adhering to a time frame) (A) | ❍ | ❍ | ❍ | ❍ |

**Leadership Skills: Professional Skills**

Please indicate your opinion on each leadership skill being a required competency for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Strong interpersonal skills(SA) | ❍ | ❍ | ❍ | ❍ |
| Strong work ethic (SA) | ❍ | ❍ | ❍ | ❍ |
| Decision-making skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Organizational skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Time management skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Networking skills (A) | ❍ | ❍ | ❍ | ❍ |
| Motivational skills (A) | ❍ | ❍ | ❍ | ❍ |
| Multi-tasking skills (A) | ❍ | ❍ | ❍ | ❍ |
| Technology skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Stress management skills (A) | ❍ | ❍ | ❍ | ❍ |
| Prioritization skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Public policy skills (A) | ❍ | ❍ | ❍ | ❍ |
| Ability to take initiative (SA) | ❍ | ❍ | ❍ | ❍ |
| Visioning skills: Ability to look forward (A) | ❍ | ❍ | ❍ | ❍ |
| Goal-setting skills: Able to write and obtain goals (SA) | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| Critical thinking and problem solving skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Ability to collect input from stake holders (A) | ❍ | ❍ | ❍ | ❍ |
| Ability to identify and recognize strengths in others (A) | ❍ | ❍ | ❍ | ❍ |
| The ability to critique research (A) | ❍ | ❍ | ❍ | ❍ |
| Skilled in navigating the health care system (A) | ❍ | ❍ | ❍ | ❍ |
| Ability to assess or identify emerging issues (A) | ❍ | ❍ | ❍ | ❍ |
| Ability to enhance well being of individuals and communities (A) | ❍ | ❍ | ❍ | ❍ |
| Ability to apply medical nutrition therapy principles to individuals, groups, and communities (SA) | ❍ | ❍ | ❍ | ❍ |

**Leadership Skills**

Please provide comments related to leadership skills / competencies and dietetics education.

**Leadership Training Methods: Curriculum**

Please indicate your opinion on each leadership training method being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Leadership coursework (A) | ❍ | ❍ | ❍ | ❍ |
| Communications course (A) | ❍ | ❍ | ❍ | ❍ |
| Public policy training (A) | ❍ | ❍ | ❍ | ❍ |
| Participating in Academy of Nutrition and Dietetics leadership training (A) | ❍ | ❍ | ❍ | ❍ |
| Management course (including hiring, firing, interviewing, dealing with coworkers, time management skills) (A) | ❍ | ❍ | ❍ | ❍ |
| Interprofessional education and events involving students from different programs learning about leadership together (A) | ❍ | ❍ | ❍ | ❍ |
| Exposure to successful organizations and leaders through observation and guest speakers to find out what they are doing, why they are doing it and how they | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| define and maintain success (SA) | | | | |

**Leadership Training Methods: Activities and Assignments**

Please indicate your opinion on each leadership training method being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Writing a business plan (A) | ❍ | ❍ | ❍ | ❍ |
| Writing letters to the editor (A) | ❍ | ❍ | ❍ | ❍ |
| Concept mapping assignments (A) | ❍ | ❍ | ❍ | ❍ |
| Skills inventory of personality traits, and leadership style (A) | ❍ | ❍ | ❍ | ❍ |
| Proposal plans for assuming a leadership role (A) | ❍ | ❍ | ❍ | ❍ |
| Service learning outside of the classroom (SA) | ❍ | ❍ | ❍ | ❍ |
| Self-directed exercises where students must chart their own course (A) | ❍ | ❍ | ❍ | ❍ |
| Having students determine what they need to land a job (certifications needed, etc.) (A) | ❍ | ❍ | ❍ | ❍ |
| Case studies related to leadership, ethics, and conflict scenarios (A) | ❍ | ❍ | ❍ | ❍ |
| Role play involving handling difficult situations and communication | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| (A)<br>Simulations involving communication with a variety of receivers (clients, patients, consumers, etc.) (SA) | ❍ | ❍ | ❍ | ❍ |
| Guided activities in the classroom to support learning and development of leadership skills (SA) | ❍ | ❍ | ❍ | ❍ |
| Learning activity examining cultural diversity beyond differences of ethnicity (A) | ❍ | ❍ | ❍ | ❍ |
| Assignments including all forms of written and oral communication especially around giving and receiving feedback (SA) | ❍ | ❍ | ❍ | ❍ |

**Leadership Training Methods: Projects**

Please indicate your opinion on each leadership training method being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Projects requiring critical thinking and decision making (SA) | ❍ | ❍ | ❍ | ❍ |
| Marketing projects requiring application of leadership skills (A) | ❍ | ❍ | ❍ | ❍ |
| Student planned and conducted community needs assessment (A) | ❍ | ❍ | ❍ | ❍ |
| Projects that allow students to assess a situation, write goals, and implement strategies to improve the situation (SA) | ❍ | ❍ | ❍ | ❍ |
| Development of patient education materials, policies, and procedures or in-services (SA) | ❍ | ❍ | ❍ | ❍ |
| Projects with different focus allowing for multiple students to feel comfortable taking the lead (SA) | ❍ | ❍ | ❍ | ❍ |
| Group work in which students / interns take on different roles | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| such as leader, group member, and moderator. (SA) | | | | |
| Reflection on successes and challenges with group projects (SA) | ❍ | ❍ | ❍ | ❍ |
| Group projects that include peer and instructor feedback on leader's performance (SA) | ❍ | ❍ | ❍ | ❍ |
| Organizing and conducting a nutrition career fair each year: students identify who to invite, do the invitations, set up the room, provide hospitality, and survey the participants in order to adjust plans for the next year (SA) | ❍ | ❍ | ❍ | ❍ |

**Leadership Training Methods: Discussions**

Please indicate your opinion on each leadership training method being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Ethics group discussion (A) | ❍ | ❍ | ❍ | ❍ |
| Class discussion about leadership (A) | ❍ | ❍ | ❍ | ❍ |
| Team-based approach discussions (A) | ❍ | ❍ | ❍ | ❍ |
| Discussion on constructive criticism (A) | ❍ | ❍ | ❍ | ❍ |
| Discussions about communication styles and conflict management (A) | ❍ | ❍ | ❍ | ❍ |
| Discussion boards to encourage collaborations and written communications (A) | ❍ | ❍ | ❍ | ❍ |
| Discussion of organizational structures and how to make oneself invaluable to others utilizing offered services (SA) | ❍ | ❍ | ❍ | ❍ |

**Leadership Training Methods: Presentations**

Please indicate your opinion on each leadership training method being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Individual and group presentations of leadership scenarios (A) | ❍ | ❍ | ❍ | ❍ |
| Presentations and demonstrations to a variety of audiences (SA) | ❍ | ❍ | ❍ | ❍ |
| Presenting research (Power Point presentations and / or posters) (SA) | ❍ | ❍ | ❍ | ❍ |
| Peer performance evaluation (using rubric) on student oral presentations. (A) | ❍ | ❍ | ❍ | ❍ |
| Incorporation of improvement strategies for professional communication based on peer evaluation (A) | ❍ | ❍ | ❍ | ❍ |
| Follow-up on peer performance evaluation with a new presentation demonstrating reflection on previous evaluation comments (A) | ❍ | ❍ | ❍ | ❍ |

**Leadership Training Methods**

Please provide comments related to leadership training and dietetics education.

**Leadership Experiences: Participation in Organizations**

Please indicate your opinion on each leadership experience being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Attending professional organization board meetings (A) | ❍ | ❍ | ❍ | ❍ |
| Attending a state or national dietetics meeting (SA) | ❍ | ❍ | ❍ | ❍ |
| Attending legislative day at the state capitol (SA) | ❍ | ❍ | ❍ | ❍ |
| Assisting leaders of local professional organizations with tasks (A) | ❍ | ❍ | ❍ | ❍ |
| Leadership role in a local or state dietetic association (A) | ❍ | ❍ | ❍ | ❍ |
| Leadership role in a professional or community organization (A) | ❍ | ❍ | ❍ | ❍ |
| A required year of active leadership in a professional organization (D) | ❍ | ❍ | ❍ | ❍ |
| Representing student dietetic groups at affiliate board, district annual or other meetings (A) | ❍ | ❍ | ❍ | ❍ |
| Service to community and | ❍ | ❍ | ❍ | ❍ |

| | | | | |
|---|---|---|---|---|
| professional organizations to observe and participate in the program planning process (SA) | | | | |

**Leadership Experiences: Participation in Student Organizations**

Please indicate your opinion on each leadership experience being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Participating in organizations on campus (SA) | ❍ | ❍ | ❍ | ❍ |
| Participating in leadership roles in student campus organizations (A) | ❍ | ❍ | ❍ | ❍ |
| Leadership positions in state student dietetic associations (A) | ❍ | ❍ | ❍ | ❍ |
| Extracurricular activities such as sports (A) | ❍ | ❍ | ❍ | ❍ |

**Leadership Experiences: Work Experience**

Please indicate your opinion on each leadership experience being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Full or part-time job in any area of foodservice (A) | ❍ | ❍ | ❍ | ❍ |
| Leadership and supervisory roles in paying jobs (A) | ❍ | ❍ | ❍ | ❍ |
| Work experience as a diet tech (D) | ❍ | ❍ | ❍ | ❍ |
| Working with other professionals in different fields (A) | ❍ | ❍ | ❍ | ❍ |
| Any job which allows them to take on a decision making capacity or manage others (SA) | ❍ | ❍ | ❍ | ❍ |

**Leadership Experiences: Volunteer Experience**

Please indicate your opinion on each leadership experience being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Volunteering in any setting, not just dietetics (SA) | ❍ | ❍ | ❍ | ❍ |
| Volunteering in dietetic related organizations (A) | ❍ | ❍ | ❍ | ❍ |
| Volunteering at a work setting (A) | ❍ | ❍ | ❍ | ❍ |
| Coaching a team for the community (D) | ❍ | ❍ | ❍ | ❍ |
| Volunteering in community setting such as food banks, churches, after school programs, soup kitchens, and Meals on Wheels (A) | ❍ | ❍ | ❍ | ❍ |

**Leadership Experiences: Mentoring**

Please indicate your opinion on each leadership experience being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Exposure to leaders in dietetics though shadowing experiences (A) | ❍ | ❍ | ❍ | ❍ |
| Mentoring from established professionals in the field (A) | ❍ | ❍ | ❍ | ❍ |
| Attending several meetings of a group that is new to them with an experienced member of the group agreeing to be a mentor. (A) | ❍ | ❍ | ❍ | ❍ |
| Reflecting on shadowing activities and identifying how to apply knowledge and skills learned in the future as a professional (A) | ❍ | ❍ | ❍ | ❍ |

**Leadership Experiences: Supervised Practice Experience**

Please indicate your opinion on each leadership experience being required for dietetics education. The overall group response from round 2 on the importance for entry-level dietitians is provided after each statement (Strongly Agree = SA; Agree = A; Disagree = D; Strongly Disagree = SD).

| | Absolutely Necessary: Required for a dietetics education program | Recommended: Contributes highly to quality of a program | Optional: Not essential, does add some value to a program | Not Necessary: Adds no value to a program |
|---|---|---|---|---|
| Management experience (A) | ❍ | ❍ | ❍ | ❍ |
| Staff relief experiences (A) | ❍ | ❍ | ❍ | ❍ |
| Interaction with consumers, clients, and patients (SA) | ❍ | ❍ | ❍ | ❍ |
| Nutrition education presentations in the community (SA) | ❍ | ❍ | ❍ | ❍ |
| Opportunities for students in community and public health entities (SA) | ❍ | ❍ | ❍ | ❍ |
| Planning and coordinating events (budgeting, timeline, implementation, evaluation) (SA) | ❍ | ❍ | ❍ | ❍ |
| Collaborating with local agencies or organizations to work with them on areas of need (SA) | ❍ | ❍ | ❍ | ❍ |
| Nontraditional supervised practice settings such as private practice, primary care, restaurants (A) | ❍ | ❍ | ❍ | ❍ |
| Traditional supervised practice experiences in hospitals, WIC clinics, long-term care facilities, | ❍ | ❍ | ❍ | ❍ |

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|---|---|---|---|---|
| institutional food service departments (SA) | | | | |

**Leadership Experiences**

Please provide comments related to leadership experiences and dietetics education.

**Please provide any additional comments related to the topic of leadership and dietetics education.**

**Thank you for participating in round 3 of this Delphi study. Your time and contributions are appreciated. As a thank you for providing your opinion, a $20 gift certificate to Amazon.com will be provided for participating in round 3 of the Delphi study.**
**Please enter your e-mail address to receive your gift certificate. Gift certificates will be distributed after the questionnaire is closed on 12/24/13.**
**All responses will remain confidential, and you will remain anonymous to other participants throughout the Delphi study.**

**E-mail address:**

Thank you for providing your e-mail address. You will receive an e-mail within the next 4 to 6 weeks either inviting you to participate in the 4th round of the study or informing you of the completion of the study**.**

**After completion of this questionnaire, you will be directed to a PDF document of your responses. Please save this file. You may be asked to refer back to your responses during round 4 of the study.**

# APPENDIX M

## TABLE A1 STATISTICAL RESULTS FOR ROUND 2 AND ROUND 3 STATEMENTS

Table A1

*Statistical Results for Round 2 and Round 3 Statements*

| Statement | Round 2 | | | Round 3 | | | Final | |
|---|---|---|---|---|---|---|---|---|
| | Median | SD | Rating (%) | Median | SD | Rating (%) | $\chi^2$ | P-Value |
| **Leadership Knowledge** | 2.00 | .628 | A (44.8) | 2.00 | .628 | R (61.5) | 4.025 | 0.134 |
| Knowledge of resources for leadership opportunities | | | | | | | | |
| Knowledge of resources for leadership training | 2.00 | .774 | A (37.9) | 2.00 | .560 | R (69.2) | 7.038 | 0.030* |
| Knowledge of how to get involved in leadership organizations and roles | 2.00 | .649 | A (51.7) | 2.00 | .562 | R (57.7) | 0.887 | 0.642 |
| Knowledge of when to reach out to someone more qualified to answer a question or solve a problem | 1.00 | .501 | SA (58.6) | 1.00 | .514 | AN** (80.8) | 5.273 | 0.072 |
| Knowledge of team or group dynamics | 1.00 | .501 | SA (58.6) | 1.00 | .571 | AN (65.4) | 1.641 | 0.440 |
| Knowledge of team building techniques | 2.00 | .752 | A (44.8) | 2.00 | .667 | R (50.0) | 0.839 | 0.657 |
| Knowledge of group processes | 2.00 | .636 | A (55.2) | 2.00 | .588 | R (65.4) | 0.869 | 0.648 |
| Knowledge of how to work with others | 1.00 | .412 | SA (79.3) | 1.00 | .523 | AN** (80.0) | 1.320 | 0.517 |
| Knowledge of how to support others to get a job done | 1.00 | .632 | SA (62.1) | 1.00 | .647 | AN (53.8) | 0.390 | 0.823 |
| Knowledge of communication methods and techniques | 1.00 | .494 | SA (62.1) | 1.00 | .368 | AN** (84.6) | 3.513 | 0.061 |
| Knowledge of communication tools and techniques for various media | 2.00 | .591 | A (58.6) | 2.00 | .471 | R (69.2) | 2.093 | 0.351 |
| Knowledge of communication styles | 2.00 | .604 | A (55.2) | 2.00 | .578 | R (50.0) | 0.525 | 0.769 |
| Knowledge of how to lead a facilitative discussion | 2.00 | .751 | A (37.9) | 2.00 | .700 | R (40.0) | 0.293 | 0.864 |
| Knowledge of how to do demonstrations | 2.00 | .639 | A (58.6) | 2.00 | .618 | R (53.8) | 1.019 | 0.601 |
| Knowledge of how to speak confidently with other individuals in health care and in life | 1.00 | .484 | SA (65.5) | 1.00 | .326 | AN** (88.5) | 3.998 | 0.046* |
| Knowledge of management and organizational theories and principles | 2.00 | .707 | A (51.7) | 2.00 | .675 | R (53.8) | 0.758 | 0.685 |
| Knowledge of planning and organizing | 1.00 | .572 | SA (58.6) | 1.00 | .578 | AN (61.5) | 0.067 | 0.967 |
| Knowledge of economics | 2.00 | .581 | A (65.5) | 2.00 | .567 | R (65.4) | 0.148 | 0.929 |

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|---|---|---|---|---|---|---|---|---|
| Knowledge of institutional / industry hospitality | 2.00 | .581 | A (65.5) | 2.00 | .618 | R (65.4) | 1.953 | 0.582 |
| Knowledge of how to conduct meetings and Roberts Rules of Order | 2.00 | .806 | A (37.9) | 2.00 | .736 | R (50.0) | 0.934 | 0.817 |
| Knowledge of job descriptions for all positions within an organization | 2.00 | .825 | A (37.9) | 3.00 | .812 | O (57.5) | 1.980 | 0.577 |
| Knowledge of business and business plan development | 2.00 | .731 | A (48.3) | 2.00 | .662 | R (57.5) | 0.642 | 0.725 |
| Knowledge of how leadership is different from management | 2.00 | .561 | A (55.2) | 2.00 | .736 | R (50.0) | 1.194 | 0.755 |
| Knowledge of budgets | 2.00 | .673 | A (55.2) | 2.00 | .637 | R (46.2) | 2.501 | 0.286 |
| Knowledge of procurement and use of resources | 2.00 | .651 | A (58.6) | 2.00 | .577 | R (52.0) | 3.814 | 0.149 |
| Knowledge of marketing | 2.00 | .753 | A (44.8) | 2.00 | .567 | R (65.4) | 3.408 | 0.182 |
| Knowledge of mission, vision, and goal setting: how to write goals, objectives, and desired outcomes | 1.00 | .738 | SA (62.1) | 1.00 | .707 | AN (61.5) | .097 | 0.953 |
| Knowledge of how to be fair and consistent with expectations, coaching, counseling, and disciplinary action | 1.00 | .688 | SA (62.1) | 1.00 | .643 | AN (65.4) | 0.132 | 0.936 |
| Knowledge of cultural diversity and generational differences | 1.00 | .494 | SA (62.1) | 1.00 | .582 | AN (57.7) | 1.160 | 0.560 |
| Knowledge of conflict resolution | 1.00 | .686 | SA (55.2) | 1.00 | .618 | AN (76.9) | 3.061 | 0.216 |
| Knowledge of how to gain consensus and build alliance | 1.50 | .685 | A (37.9) | 2.00 | .710 | R (46.2) | 0.780 | 0.677 |
| Knowledge of policy development | 2.00 | .598 | A (65.5) | 2.00 | .693 | R (53.8) | 0.778 | 0.678 |
| Knowledge of human dynamics of the workplace | 2.00 | .677 | A (41.4) | 2.00 | .445 | R (50.0) | 0.545 | 0.762 |
| Knowledge of the role of evaluation and development of evaluation tools | 2.00 | .721 | A (37.9) | 2.00 | .614 | R (56.0) | 1.827 | 0.401 |
| Basic dietetics knowledge in all aspects of the profession | 1.00 | .435 | SA (75.9) | 1.00 | .402 | AN** (80.8) | .0194 | 0.660 |
| Basic knowledge in the sciences including nutrition science | 1.00 | .541 | SA (72.4) | 1.00 | .196 | AN** (96.2) | 5.701 | 0.058 |
| Knowledge of foods, how to cook, and how to teach simple cooking skills | 2.00 | .501 | A (58.6) | 1.00 | .504 | AN (57.7) | 1.460 | 0.227 |

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|---|---|---|---|---|---|---|---|---|
| Understanding of current trends and consumer desires | 2.00 | .468 | A (75.4) | 1.00 | .647 | AN (53.8) | 7.893 | 0.019* |
| Knowledge of community health | 1.00 | .509 | SA (51.7) | 1.00 | .496 | AN (61.5) | 0.537 | 0.464 |
| Knowledge of counseling theory and techniques | 1.00 | .561 | SA (65.5) | 1.00 | .430 | AN (76.9) | 1.466 | 0.480 |
| Knowledge of food service and safety | 2.00 | .509 | A (51.7) | 1.00 | .647 | AN (53.8) | 2.845 | 0.241 |
| Knowledge of behavior change theories | 1.00 | .494 | SA (55.2) | 1.00 | .452 | AN (73.1) | 2.416 | 0.299 |
| Knowledge of medical nutrition therapy and impact of nutrition or lack of adequate nutrition on health and disease | 1.00 | .494 | SA (62.1) | 1.00 | .272 | AN** (92.3) | 6.945 | 0.008* |
| Knowledge of health care systems | 2.00 | .577 | A (62.1) | 2.00 | .471 | R (69.2) | 1.901 | 0.387 |
| Basic knowledge in social sciences | 2.00 | .541 | A (62.1) | 2.00 | .374 | R** (84.0) | 3.525 | 0.172 |
| Knowledge of basic research techniques | 2.00 | .559 | A (65.5) | 2.00 | .533 | R (65.4) | 0.282 | 0.869 |
| Understanding and application of evidence-based practice | 1.00 | .541 | SA (72.4) | 1.00 | .196 | AN** (96.2) | 5.701 | 0.058 |
| Recognition that learning is on-going and never ending | 1.00 | .351 | SA** (86.3) | 1.00 | .408 | AN** (80.0) | 0.372 | 0.542 |
| Knowledge of career benefits of leadership | 2.00 | .658 | A (55.2) | 2.00 | .711 | R (50.0 | 0.318 | 0.853 |
| Knowledge of how and when to advocate for the profession | 2.00 | .501 | A (58.6) | 2.00 | .504 | R (57.7) | 0.005 | 0.944 |
| Knowledge of professional ethics / Code of Ethics | 1.00 | .384 | SA** (82.8) | 1.00 | .079 | AN** (80.8) | 0.036 | 0.849 |
| Knowledge of current issues facing the dietetics community | 2.00 | .509 | A (51.7) | 1.00 | .577 | AN (64.0) | 2.984 | 0.225 |
| Knowledge of benefits an RD can provide to a project business or organization | 1.00 | .455 | SA (72.4) | 1.00 | .533 | AN (76.9) | 1.558 | 0.459 |
| Knowledge of the value and expectation of professional contributions for the advancement of dietetics and client care | 1.00 | .632 | SA (62.1) | 1.00 | .643 | AN (65.4) | 0.115 | 0.944 |
| Awareness of the Academy of Nutrition and Dietetics organizational structure (state and national levels and how it impacts an individual RD) | 2.00 | .561 | A (55.2) | 2.00 | .652 | R (53.8) | 1.402 | 0.496 |
| Knowledge of how to network | 2.00 | .572 | A (48.3) | 2.00 | .652 | R (53.8) | 1.929 | 0.381 |
| Knowledge of the importance of being assertive | 2.00 | .559 | A (65.5) | 2.00 | .634 | R (57.7) | 0.508 | 0.776 |

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|---|---|---|---|---|---|---|---|---|
| Knowledge of how to think critically | 1.00 | .258 | SA** (93.1) | 1.00 | .272 | AN** (92.3) | 0.013 | 0.910 |
| Knowledge of how to be resilient | 1.00 | .574 | SA (51.7) | 1.50 | .582 | R (46.2) | 0.019 | 0.990 |
| Knowledge of how to navigate difficult situations | 1.00 | .622 | SA (69.0) | 1.00 | .578 | AN (61.5) | 0.867 | 0.648 |
| Knowledge of techniques to motivate and influence individuals | 1.00 | .628 | SA (65.5) | 1.00 | .629 | AN (73.1) | 0.530 | 0.767 |
| Self-awareness of individual leadership style and qualities | 1.00 | .572 | SA (58.6) | 1.00 | .569 | AN (68.0) | 0.596 | 0.742 |
| Knowledge of leadership theories | 2.00 | .593 | A (65.5) | 2.00 | .662 | R (57.7) | 0.800 | 0.670 |
| Knowledge of personality traits of leaders | 2.00 | .620 | A (58.6) | 2.00 | .693 | R (53.8) | 1.732 | 0.421 |
| Knowledge of leadership skills | 2.00 | .628 | A (44.8) | 1.50 | .582 | R (46.2) | 0.247 | 0.884 |
| Knowledge of leadership styles | 2.00 | .600 | A (55.2) | 2.00 | .604 | R (57.7) | 0.011 | 0.995 |
| Knowledge of leadership strategies and techniques | 2.00 | .649 | A (51.7) | 2.00 | .578 | R (50.0) | 1.026 | 0.599 |
| Knowledge of how to be an effective leader | 2.00 | .677 | A (41.4) | 1.00 | .583 | AN (53.8) | 0.882 | 0.642 |
| Knowledge of challenges and barriers of leadership | 2.00 | .553 | A (58.6) | 2.00 | .577 | R (64.0) | 0.962 | 0.618 |
| **Leadership Skills** | 2.00 | .553 | A (48.3) | 1.00 | .471 | AN (69.2) | 2.982 | 0.225 |
| Public speaking skills | 1.00 | .435 | SA (75.9) | 1.00 | .272 | AN** (92.3) | 2.709 | 0.100 |
| Communication skills for a variety of audiences | 1.00 | .310 | SA** (89.7) | 1.00 | .272 | AN** (92.3) | 0.117 | 0.733 |
| Good listening skills | 2.00 | .593 | A (65.5) | 2.00 | .634 | R (57.7) | 0.738 | 0.692 |
| Facilitative discussion skills | 1.00 | .455 | SA (72.4) | 1.00 | .000 | AN** (100.0) | 8.393 | 0.004* |
| Written communication skills | 1.00 | .632 | SA (51.7) | 1.00 | .491 | AN** (84.6) | 6.915 | 0.032* |
| Communication skills in electronic media | 1.00 | .412 | SA (79.3) | 1.00 | .000 | AN** (100.0) | 6.038 | 0.014* |
| Oral communication skills | 2.00 | .509 | A (51.7) | 1.00 | .476 | AN (68.0) | 2.136 | 0.144 |
| Presentation skills | 2.00 | .501 | A (58.6) | 1.00 | .582 | AN (57.7) | 2.993 | 0.224 |
| Communication skills for groups | 1.50 | .576 | A (44.8) | 1.00 | .571 | AN (65.4) | 1.409 | 0.494 |
| Supportive communication and counseling skills | 2.00 | .682 | A (48.3) | 1.50 | .582 | R (46.2) | 2.033 | 0.566 |
| Ability to express opinion on a variety of current nutrition topics | 1.00 | .528 | SA (75.9) | 1.00 | .491 | AN** (84.6) | 0.839 | 0.657 |
| Ability to communicate with people at different levels (peers, clients, administrators) | 2.00 | .704 | A (51.7) | 2.00 | .599 | R (65.4) | 1.057 | 0.590 |
| Group management skills | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|
| Collaboration skills | 1.00 | .471 | SA (62.1) | 1.00 | .571 | AN (65.4) | 1.343 | 0.511 |
| Ability to listen to other team members | 1.00 | .471 | SA (69.0) | 1.00 | .402 | AN** (80.8) | 1.007 | 0.316 |
| Ability to work with other members to accomplish tasks | 1.00 | .494 | SA (62.1) | 1.00 | .430 | AN (76.9) | 1.416 | 0.234 |
| Ability to express solutions to the team | 2.00 | .506 | A (55.2) | 1.00 | .583 | AN (53.8) | 1.805 | 0.406 |
| The ability to lead in some cases and guide people who lead in other cases | 2.00 | .604 | A (55.2) | 2.00 | .637 | R (46.2) | 0.453 | 0.797 |
| Basic management skills | 1.00 | .506 | SA (55.2) | 1.00 | .571 | AN (65.4) | 2.063 | 0.356 |
| Business development skills | 2.00 | .618 | A (62.1) | 2.00 | .599 | R (65.4) | 0.199 | 0.905 |
| Marketing skills | 2.00 | .516 | A (72.4) | 2.00 | .653 | R (57.7) | 1.585 | 0.453 |
| Budget skills | 2.00 | .618 | A (62.1) | 2.00 | .724 | R (42.3) | 2.422 | 0.298 |
| Negotiation skills | 2.00 | .711 | A (48.3) | 2.00 | .694 | R (50.0) | 0.037 | 0.982 |
| Delegation skills | 2.00 | .658 | A (55.2) | 2.00 | .710 | R (46.2) | 0.462 | 0.794 |
| Resource conservation skills | 2.00 | .539 | A (69.0) | 2.00 | .667 | R (50.0) | 2.057 | 0.358 |
| Grant writing skills | 2.00 | .769 | A (41.4) | 2.00 | .567 | R (65.4) | 3.692 | 0.297 |
| Entrepreneurial skills | 2.00 | .682 | A (48.3) | 2.00 | .549 | R (61.5) | 1.737 | 0.629 |
| Human resources / people management skills | 2.00 | .693 | A (51.7) | 2.00 | .645 | R (56.0) | 0.299 | 0.861 |
| Program planning, implementation and evaluation skills | 2.00 | .670 | A (44.8) | 1.00 | .647 | AN (61.5) | 1.542 | 0.463 |
| Committee skills (setting an agenda, Roberts Rules of Order, dealing with conflict, conducting a meeting, adhering to a time frame) | 2.00 | .724 | A (58.6) | 2.00 | .824 | R (46.2) | 1.486 | 0.685 |
| Strong interpersonal skills | 1.00 | .471 | SA (69.0) | 1.00 | .571 | AN (65.4) | 1.142 | 0.565 |
| Strong work ethic | 1.00 | .435 | SA (75.9) | 1.00 | .514 | AN** (80.8) | 1.683 | 0.431 |
| Decision-making skills | 1.00 | .501 | SA (58.6) | 1.00 | .562 | AN (69.2) | 2.187 | 0.335 |
| Organizational skills | 1.00 | .494 | SA (62.1) | 1.00 | .514 | AN** (80.8) | 4.347 | 0.114 |
| Time management skills | 1.00 | .471 | SA (69.0) | 1.00 | .533 | AN (76.9) | 1.985 | 0.371 |
| Networking skills | 2.00 | .553 | A (58.6) | 2.00 | .652 | R (53.8) | 1.331 | 0.514 |
| Motivational skills | 2.00 | .591 | A (58.6) | 2.00 | .567 | R (65.4) | 0.367 | 0.832 |

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|---|---|---|---|---|---|---|---|---|
| Multi-tasking skills | 2.00 | .721 | A (48.3) | 2.00 | .841 | R (44.0) | 2.465 | 0.482 |
| Technology skills | 1.00 | .574 | SA (51.7) | 1.00 | .583 | AN (53.8) | 0.038 | 0.981 |
| Stress management skills | 2.00 | .614 | A (51.7) | 2.00 | .744 | R (46.2) | 2.979 | 0.226 |
| Prioritization skills | 1.00 | .471 | SA (69.0) | 1.00 | .629 | AN (73.1) | 3.014 | 0.222 |
| Public policy skills | 2.00 | .626 | A (62.1) | 2.00 | .812 | R (36.0) | 3.945 | 0.139 |
| Ability to take initiative | 1.00 | .494 | SA (62.1) | 1.00 | .629 | AN (73.1) | 4.126 | 0.127 |
| Visioning skills: Ability to look forward | 2.00 | .501 | A (58.6) | 2.00 | .749 | R (42.3) | 6.323 | 0.042* |
| Goal-setting skills: Able to write and obtain goals | 1.00 | .572 | SA (58.6) | 1.00 | .549 | AN (73.1) | 1.422 | 0.491 |
| Critical thinking and problem solving skills | 1.00 | 4.35 | SA (75.9) | 1.00 | .431 | AN** (92.3) | 5.440 | 0.066 |
| Ability to collect input from stake holders | 2.00 | .620 | A (58.6) | 2.00 | .634 | R (57.7) | 0.020 | 0.990 |
| Ability to identify and recognize strengths in others | 2.00 | .622 | A (48.3) | 2.00 | .637 | R (58.3) | 1.542 | 0.463 |
| The ability to critique research | 2.00 | .566 | A (69.0) | 2.00 | .562 | R (57.7) | 0.009 | 0.996 |
| Skills in navigating the health care system | 2.00 | .566 | A (69.0) | 2.00 | .567 | R (65.4) | 1.083 | 0.582 |
| Ability to assess or identify emerging issues | 2.00 | .602 | A (69.0) | 2.00 | .600 | R (64.0) | 0.108 | 0.948 |
| Ability to enhance well-being of individuals and communities | 2.00 | .659 | A (48.3) | 1.00 | .582 | AN 57.7) | 2.211 | 0.331 |
| Ability to apply medical nutrition therapy principles to individuals, groups, and communities | 1.00 | .634 | SA (58.6) | 1.00 | .436 | AN (76.0) | 2.830 | 0.243 |
| **Leadership Training** | 2.00 | .763 | A (34.5) | 2.00 | .628 | R (61.5) | 4.006 | 0.135 |
| Leadership coursework | | | | | | | | |
| Communications course | 2.00 | .561 | A (55.2) | 1.00 | .706 | AN (57.7) | 3.848 | 0.146 |
| Public policy training | 2.00 | .686 | A (48.3) | 2.00 | .662 | R (57.7) | 2.030 | 0.362 |
| Participating in Academy of Nutrition and Dietetics leadership training | 2.00 | .726 | A (44.8) | 2.00 | .778 | R (34.6) | 0.609 | 0.738 |
| Management course (including hiring, firing, interviewing, dealing with coworkers, time management skills) | 2.00 | .628 | A (44.8) | 2.00 | .679 | R (46.2) | 0.438 | 0.803 |
| Interprofessional education and events involving students from different programs learning about leadership together | 2.00 | .806 | A (37.9) | 2.00 | .874 | R (42.3) | 1.327 | 0.723 |
| Exposure to successful | 1.00 | .736 | SA | 1.00 | .703 | AN | 2.176 | 0.537 |

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| organizations and leaders through observation and guest speakers to find out what they are doing, why they are doing it, and how they define and maintain success | | | (55.2) | | | (53.8) | | |
| Writing a business plan | 2.00 | .778 | A (41.4) | 2.00 | .816 | R (46.2) | 1.508 | 0.681 |
| Writing letters to the editor | 2.00 | .739 | A (41.4) | 2.00 | .804 | R (46.2) | 2.773 | 0.428 |
| Concept mapping assignments | 2.00 | .639 | A (58.6) | 2.00 | .774 | R (42.3) | 1.946 | 0.378 |
| Skills inventory of personality traits and leadership style | 2.00 | .702 | A (44.8) | 2.00 | .688 | R (65.4) | 4.048 | 0.256 |
| Proposal plans for assuming a leadership role | 2.00 | .707 | A (51.7) | 2.00 | .863 | R (46.2) | 2.510 | 0.473 |
| Service learning outside of the classroom | 1.00 | .688 | SA (62.1) | 1.00 | .578 | AN (61.5) | 1.016 | 0.602 |
| Self-directed exercise where students must chart their own course | 2.00 | .581 | A (65.5) | 2.00 | .675 | R (53.8) | 0.806 | 0.668 |
| Having students determine what they need to land a job (certifications needed, etc.) | 2.00 | .541 | A (62.1) | 2.00 | .604 | R (57.7) | 0.497 | 0.780 |
| Case studies related to leadership, ethics, and conflict scenarios | 2.00 | .751 | A (44.8) | 2.00 | .571 | R (53.8) | 1.043 | 0.594 |
| Role play involving handling difficult situations and communication | 2.00 | .751 | A (37.9) | 2.00 | .816 | R (46.2) | 1.723 | 0.632 |
| Simulations involving communication with a variety of receivers (clients, patients, consumers, etc.) | 1.00 | .632 | SA (51.7) | 1.00 | .562 | AN (69.2) | 1.763 | 0.414 |
| Guided activities in the classroom to support learning and development of leadership skills | 1.00 | .682 | SA (51.7) | 1.00 | .703 | AN (69.3) | 2.366 | 0.3016 |
| Learning activity examining cultural diversity beyond differences of ethnicity | 2.00 | .677 | A (41.4) | 2.00 | .667 | R (50.0) | 0.545 | 0.762 |
| Assignments including all forms of written and oral communication especially around giving and receiving feedback | 1.00 | .628 | SA (65.5) | 1.00 | .618 | AN (76.9) | 1.199 | 0.549 |
| Projects requiring critical thinking and decision making | 1.00 | .384 | SA** (82.8) | 1.00 | .000 | AN** (100.0) | 4.931 | 0.026* |
| Marketing projects requiring application of leadership skills | 2.00 | .630 | A (55.2) | 2.00 | .688 | R (53.8) | 0.810 | 0.667 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Student planned and conducted community needs assessment | 2.00 | .614 | A (51.7) | 2.00 | .533 | R (65.4) | 1.098 | 0.578 |
| Projects that allow students to assess a situation, write goals, and implement strategies to improve the situation | 1.00 | .497 | SA (58.6) | 1.00 | .491 | AN** (84.6) | 6.147 | 0.046* |
| Development of patient education materials, policies, and procedures or in-services | 1.00 | .688 | SA (58.6) | 1.00 | .464 | AN** (88.5) | 6.209 | 0.045* |
| Projects with different focus allowing for multiple students to feel comfortable taking the lead | 1.00 | .506 | SA (55.2) | 1.00 | .648 | AN (57.7) | 2.604 | 0.272 |
| Group work in which students / interns take on different roles such as leader, group member, and moderator | 1.00 | .686 | SA (55.2) | 1.00 | .647 | AN (61.5) | 0.259 | 0.878 |
| Reflection on successes and challenges with group projects | 1.00 | .506 | SA (55.2) | 1.00 | .504 | AN (57.7) | 0.035 | 0.851 |
| Group projects that include peer and instructor feedback on leader's performance | 1.00 | .508 | SA (51.7) | 1.00 | .654 | AN (68.0) | 4.549 | 0.103 |
| Organizing and conducting a nutrition career fair each year: students identify who to invite, do the invitations, set up the room, provide hospitality, and survey the participants in order to adjust plans for next year | 2.00 | .939 | A (24.1) | 2.00 | .927 | R (40.0) | 5.166 | 0.160 |
| Ethics group discussion | 2.00 | .506 | A (55.2) | 2.00 | .578 | R (50.0) | 1.190 | 0.551 |
| Class discussion about leadership | 2.00 | .620 | A (58.6) | 2.00 | .613 | R (61.5) | 0.117 | 0.943 |
| Team-based approach discussions | 2.00 | .559 | A (55.2) | 2.00 | .549 | R (61.5) | 0.126 | 0.939 |
| Discussion on constructive criticism | 2.00 | .675 | A (51.7) | 2.00 | .652 | R (53.8 | 0.067 | 0.967 |
| Discussions about communication styles and conflict management | 2.00 | .568 | A (51.7) | 2.00 | .629 | R (50.0) | 0.481 | 0.786 |
| Discussion boards to encourage collaborations and written communication | 2.00 | .753 | A (44.8) | 2.00 | .744 | R (57.7) | 2.463 | 0.482 |
| Discussion of organizational structures and how to make oneself invaluable to others utilizing offered services | 1.00 | .769 | SA (51.7) | 2.00 | .645 | R (44.0) | 1.531 | 0.465 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Individual and group presentations of leadership scenarios | 2.00 | .636 | A (55.2.) | 2.00 | .662 | R (57.7) | 1.373 | 0.503 |
| Presentations and demonstrations to a variety of audiences | 1.00 | .568 | SA (62.1) | 1.00 | .452 | AN (73.1) | 1.397 | 0.497 |
| Presenting research (Power Point presentations and / or posters) | 1.00 | .632 | SA (62.1) | 1.00 | .485 | AN (65.4) | 1.871 | 0.392 |
| Peer performance evaluation (using rubric on student oral presentation) | 2.00 | .726 | A (44.8) | 2.00 | .675 | R (53.8) | 0.460 | 0.795 |
| Incorporation of improvement strategies for professional communication based on peer evaluation | 2.00 | .726 | A (44.8) | 2.00 | .599 | R (65.4) | 2.739 | 0.254 |
| Follow-up on peer performance evaluation with a new presentation demonstrating reflection on previous evaluation comments | 2.00 | .845 | A (31.0) | 2.00 | .688 | R (53.8) | 3.129 | 0.209 |
| **Leadership Experiences** | 2.00 | .712 | A (44.8) | 2.00 | .736 | R (50.0) | 9.076 | 0.028* |
| Attending professional organization board meetings | | | | | | | | |
| Attending a state or national dietetics meeting | 1.00 | .733 | SA (55.2) | 1.50 | .643 | R (42.3) | 1.016 | 0.602 |
| Attending legislative day at the state capitol | 1.00 | .688 | SA (58.6) | 2.00 | .710 | R (46.2) | 2.229 | 0.328 |
| Assisting leaders of local professional organizations with tasks | 2.00 | .675 | A (51.7) | 2.00 | .735 | R (48.0) | 0.972 | 0.615 |
| Leadership role in a local state dietetic association | 2.00 | .799 | A (48.3) | 2.00 | .898 | R (42.3) | 2.087 | 0.554 |
| Leadership role in a professional or community organization | 2.00 | .753 | A (55.2) | 2.00 | .852 | R (50.0) | 4.250 | 0.236 |
| A required year of active leadership in a professional organization | 3.00 | .949 | D (37.9) | 3.00 | .891 | O (34.6) | 4.107 | 0.250 |
| Representing student dietetic groups at affiliate board, district annual or other meetings | 2.00 | .744 | A (44.8) | 2.00 | .884 | R (38.5) | 3.264 | 0.353 |
| Service to community and professional organizations to observe and participate in the program planning process | 1.00 | .688 | SA (62.1) | 1.00 | .809 | AN (61.5) | 1.150 | 0.563 |
| Participating in organizations on campus | 1.00 | .506 | SA (55.2) | 2.00 | .710 | R (46.2) | 5.277 | 0.071 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Participating in leadership roles in student campus organizations | 2.00 | .721 | A (37.9) | 2.00 | .613 | R (61.5) | 8.724 | 0.013* |
| Leadership positions in state student dietetic associations | 2.00 | .774 | A (37.9) | 2.00 | .804 | R (57.7) | 10.626 | 0.014 |
| Extracurricular activities such as sports | 2.00 | .833 | A (41.4) | 3.00 | .951 | O (30.6) | 7.624 | 0.054 |
| Full or part-time job in any areas of foodservice | 2.00 | .875 | A (34.5) | 2.50 | .706 | O (42.3) | 5.861 | 0.119 |
| Leadership and supervisory roles in paying jobs | 2.00 | .889 | A (31.0) | 2.00 | .761 | R (50.0) | 7.230 | 0.065 |
| Work experience as a diet tech | 3.00 | .736 | D (58.6) | 3.00 | .707 | O (52.0) | 7.133 | 0.068 |
| Working with other professionals in different fields | 2.00 | .789 | A (48.3) | 2.00 | .804 | R (46.2) | 6.034 | 0.110 |
| Any job which allows them to take on a decision making capacity or manage others | 1.00 | .882 | SA (51.7) | 2.00 | .891 | R (46.2) | 2.979 | 0.395 |
| Volunteering in any setting not just dietetics | 1.00 | .686 | SA (55.2) | 2.00 | .952 | R (23.1) | 4.020 | 0.259 |
| Volunteering in dietetic related organizations | 2.00 | .751 | A (37.9) | 2.00 | .634 | R (69.2) | 10.624 | 0.014* |
| Volunteering at a work setting | 2.00 | .805 | A (44.8) | 2.00 | .706 | R (53.8) | 3.789 | 0.285 |
| Coaching a team for the community | 3.00 | .867 | D (44.8) | 3.00 | .706 | O (50.0) | 13.209 | 0.004* |
| Volunteering in community setting such as food banks, churches after school programs, soup kitchens, and Meals on Wheels | 2.00 | .660 | A (48.3) | 2.00 | .720 | R (61.5) | 4.007 | 0.261 |
| Exposure to leaders in dietetics through shadowing experiences | 2.00 | .660 | A (48.3) | 2.00 | .816 | R (46.2) | 1.566 | 0.667 |
| Mentoring from established professionals in the field | 2.00 | .577 | A (62.1) | 2.00 | .816 | R (46.2) | 2.711 | 0.438 |
| Attending several meetings of a group that is new to them with an experienced member of the group agreeing to be a mentor | 2.00 | .724 | A (48.3) | 2.00 | .689 | R (53.8) | 2.845 | 0.416 |
| Reflecting on shadowing activities and identifying how to apply knowledge and skills learned in the future as a professional | 2.00 | .833 | A (41.4) | 2.00 | .675 | R (65.4) | 5.286 | 0.152 |
| Management experiences | 2.00 | .726 | A (44.8) | 2.00 | .693 | R (53.8) | 1.439 | 0.487 |
| Staff relief experiences | 2.00 | .712 | A (41.4) | 2.00 | .744 | R (57.7) | 3.122 | 0.373 |
| Interaction with consumers, clients, and patients | 1.00 | .412 | SA (79.3) | 1.00 | .452 | AN (73.1) | 0.295 | 0.587 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Nutrition education presentations in the community | 1.00 | .455 | SA (72.4) | 1.00 | .491 | AN** (84.6) | 3.142 | 0.208 |
| Opportunities for students in community and public health entities | 1.00 | .501 | SA (58.6) | 1.00 | .562 | AN (69.2) | 2.187 | 0.335 |
| Planning and coordinating events (budgeting, timeline, implementation, evaluation) | 1.00 | .494 | SA (62.1) | 1.00 | .549 | AN (73.1) | 2.341 | 0.310 |
| Collaboration with local agencies or organizations to work with them on areas of need | 1.00 | .634 | SA (58.6) | 1.00 | .578 | AN (61.5) | 0.253 | 0.881 |
| Nontraditional supervised practice settings such as private practice, primary care, restaurants | 2.00 | .850 | A (41.4) | 2.00 | .562 | R (57.7) | 2.845 | 0.416 |
| Traditional supervised practice experiences in hospitals, WIC clinics, long-term care facilities, institutional food service departments | 1.00 | .484 | SA (65.5) | 1.00 | .436 | AN (76.0) | 0.708 | 0.400 |

*Note:* SD=Standard Deviation, $\chi^2$ = Chi-square. Median scores determined rating. Round 2 ratings: SA = Strongly agree, A = Agree, D = Disagree, SD = Strongly disagree; Round 3 ratings: AN = Absolutely Necessary, R = Recommended, O = Optional, N = Not necessary.
*significant at $p<.05$ indicates strong relationships between round 2 and 3 ratings.
**Consensus was reached at 80% or higher

# APPENDIX N

## TABLE A2 ANALYSIS OF STATEMENTS FOR PRACTITIONERS AND EDUCATORS

Table A2

*Analysis of Statements for Practitioners and Educators*

| Statement | Round 2 | | | | Round 3 | | | |
|---|---|---|---|---|---|---|---|---|
| | $\chi^2$ | P-value | Rating | | $\chi^2$ | P-value | Rating | |
| | | | P1 | P2 | | | P1 | P2 |
| **Leadership Knowledge** | 3.383 | 0.184 | A | SA | 0.906 | 0.636 | R | R |
| Knowledge of resources for leadership opportunities | | | | | | | | |
| Knowledge of resources for leadership training | 1.183 | 0.554 | A | A | 3.919 | 0.141 | R | R |
| Knowledge of how to get involved in leadership organizations and roles | 3.368 | 0.186 | A | A | 1.410 | 0.494 | R | R |
| Knowledge of when to reach out to someone more qualified to answer a question or solve a problem | 0.022 | 0.883 | SA | SA | 1.175 | 0.556 | AN | AN |
| Knowledge of team or group dynamics | 1.033 | 0.310 | A | SA | 1.410 | 0.494 | AN | AN |
| Knowledge of team building techniques | 3.125 | 0.210 | A | A | 4.308 | 0.116 | R | R |
| Knowledge of group processes | 2.967 | 0.227 | A | A | 0.772 | 0.680 | R | R |
| Knowledge of how to work with others | 0.678 | 0.410 | SA | SA | 1.863 | 0.394 | AN | AN |
| Knowledge of how to support others to get a job done | 0.523 | 0.770 | SA | SA | 0.022 | 0.989 | AN | AN |
| Knowledge of communication methods and techniques | 2.095 | 0.148 | A | SA | 0.034 | 0.855 | AN | AN |
| Knowledge of communication tools and techniques for various media | 0.994 | 0.608 | A | A | 0.056 | 0.813 | R | R |
| Knowledge of communication styles | 0.964 | 0.617 | A | A | 1.266 | 0.531 | R | R |
| Knowledge of how to lead a facilitative discussion | 3.501 | 0.174 | A | SA | 4.055 | 0.132 | R | R |
| Knowledge of how to do demonstrations | 1.494 | 0.474 | A | A | 3.660 | 0.145 | R | R |
| Knowledge of how to speak confidently with other individuals in health care and in life | 0.422 | 0.516 | SA | SA | 0.216 | 0.642 | AN | AN |
| Knowledge of management and organizational theories and principles | 0.326 | 0.850 | A | A | 0.503 | 0.777 | R | R |
| Knowledge of planning and organizing | 1.122 | 0.571 | A | SA | 1.239 | 0.538 | AN | AN |
| Knowledge of economics | 1.643 | 0.440 | SA | A | 0.043 | 0.979 | R | R |
| Knowledge of institutional / industry hospitality | 0.970 | 0.616 | SA | A | 2.853 | 0.415 | R | R |
| Knowledge of how to conduct meetings and Roberts Rules of Order | 2.724 | 0.436 | D | A | 3.895 | 0.273 | R | O |
| Knowledge of job descriptions for all positions within an organization | 2.700 | 0.440 | D | A | 1.443 | 0.695 | O | O |
| Knowledge of business and business plan development | 2.085 | 0.353 | A | A | 0.523 | 0.770 | R | R |
| Knowledge of how leadership is different from management | 1.122 | 0.571 | A | A | 3.189 | 0.363 | R | R |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Knowledge of budgets | 0.950 | 0.622 | A | A | 1.779 | 0.411 | AN | R |
| Knowledge of procurement and use of resources | 0.373 | 0.830 | A | A | 1.359 | 0.507 | R | R |
| Knowledge of marketing | 0.308 | 0.857 | A | A | 4.192 | 0.123 | R | R |
| Knowledge of mission, vision, and goal setting: how to write goals, objectives, and desired outcomes | 1.691 | 0.429 | SA | SA | 0.235 | 0.889 | AN | A N |
| Knowledge of how to be fair and consistent with expectations, coaching, counseling, and disciplinary action | 0.499 | 0.779 | SA | SA | 0.503 | 0.777 | AN | A N |
| Knowledge of cultural diversity and generational differences | 0.894 | 0.345 | SA | SA | 0.917 | 0.632 | AN | A N |
| Knowledge of conflict resolution | 1.899 | 0.387 | SA | A | 0.839 | 0.657 | AN | A N |
| Knowledge of how to gain consensus and build alliance | 1.485 | 0.476 | A | SA | 0.036 | 0.982 | R | R |
| Knowledge of policy development | 0.422 | 0.810 | A | A | 2.394 | 0.302 | R | R |
| Knowledge of human dynamics of the workplace | 1.193 | 0.551 | A | SA | 0.280 | 0.869 | R | R |
| Knowledge of the role of evaluation and development of evaluation tools | 1.442 | 0.486 | A | A | 1.419 | 0.492 | R | R |
| Basic dietetics knowledge in all aspects of the profession | 0.678 | 0.410 | SA | SA | 0.087 | 0.769 | AN | A N |
| Basic knowledge in the sciences including nutrition science | 0.106 | 0.745 | SA | SA | 0.883 | 0.347 | AN | A N |
| Knowledge of foods, how to cook, and how to teach simple cooking skills | 0.030 | 0.863 | A | A | 0.235 | 0.628 | AN | A N |
| Understanding of current trends and consumer desires | 4.436 | 0.109 | A | A | 0.022 | 0.989 | AN | A N |
| Knowledge of community health | 1.899 | 0.168 | A | SA | 0.906 | 0.341 | AN | A N |
| Knowledge of counseling theory and techniques | 0.964 | 0.617 | SA | SA | 2.741 | 0.098 | AN | A N |
| Knowledge of food service and safety | 0.040 | 0.842 | A | SA | 2.931 | 0.231 | AN | A N |
| Knowledge of behavior change theories | 1.122 | 0.571 | A | SA | 2.741 | 0.098 | AN | A N |
| Knowledge of medical nutrition therapy and impact of nutrition or lack of adequate nutrition on health and disease | 3.635 | 0.057 | A | SA | 1.846 | 0.174 | AN | A N |
| Knowledge of health care systems | 4.998 | 0.082 | A | SA | 0.509 | 0.476 | R | R |
| Basic knowledge in social sciences | 0.297 | 0.586 | A | A | 0.084 | 0.772 | R | R |
| Knowledge of basic research techniques | 0.994 | 0.608 | A | A | 3.584 | .167 | R | R |
| Understanding and application of evidence-based practice | 1.160 | 0.560 | SA | SA | 0.883 | 0.347 | AN | A N |
| Recognition that learning is on-going and never ending | 1.356 | 0.244 | SA | SA | 0.031 | 0.859 | AN | A N |
| Knowledge of career benefits of leadership | 2.220 | 0.330 | A | A | 7.475 | 0.024 | R | R |
| Knowledge of how and when to advocate for the profession | 3.240 | 0.072 | SA | A | 1.731 | 0.188 | AN | R |
| Knowledge of professional ethics / Code of Ethics | 0.345 | 0.557 | SA | SA | 1.698 | 0.193 | AN | A N |

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|---|---|---|---|---|---|---|---|---|
| Knowledge of current issues facing the dietetics community | 0.898 | 0.343 | A | SA | 2.291 | 0.318 | AN | R |
| Knowledge of benefits an RD can provide to a project business or organization | 0.016 | 0.901 | SA | SA | 2.323 | 0.313 | AN | A N |
| Knowledge of the value and expectation of professional contributions for the advancement of dietetics and client care | 0.994 | 0.608 | SA | SA | 0.084 | 0.959 | AN | A N |
| Awareness of the Academy of Nutrition and Dietetics organizational structure (state and national levels and how it impacts an individual RD) | 2.817 | 0.245 | A | A | 7.462 | 0.024* | AN | R |
| Knowledge of how to network | 1.118 | 0.572 | A | A | 0.749 | 0.688 | R | R |
| Knowledge of the importance of being assertive | 0.523 | 0.770 | A | A | 0.749 | 0.688 | R | R |
| Knowledge of how to think critically | 2.326 | 0.127 | SA | SA | 0.015 | 0.902 | AN | A N |
| Knowledge of how to be resilient | 1.298 | 0.523 | A | SA | 0.917 | 0.632 | AN | A N |
| Knowledge of how to navigate difficult situations | 0.328 | 0.849 | SA | SA | 1.410 | 0.494 | AN | A N |
| Knowledge of techniques to motivate and influence individuals | 1.473 | 0.479 | SA | SA | 1.734 | 0.420 | AN | A N |
| Self-awareness of individual leadership style and qualities | 1.215 | 0.545 | SA | SA | 1.995 | 0.369 | AN | A N |
| Knowledge of leadership theories | 0.022 | 0.989 | A | A | 7.351 | 0.025* | R | R |
| Knowledge of personality traits of leaders | 1.009 | 0.604 | A | A | 9.672 | 0.008* | R | R |
| Knowledge of leadership skills | 0.374 | 0.830 | A | SA | 2.273 | 0.321 | AN | R |
| Knowledge of leadership styles | 0.178 | 0.915 | A | A | 2.637 | 0.267 | R | R |
| Knowledge of leadership strategies and techniques | 4.474 | 0.107 | A | SA | 1.319 | 0.517 | R | A N |
| Knowledge of how to be an effective leader | 3.266 | 0.195 | A | SA | 1.319 | 0.517 | AN | R |
| Knowledge of challenges and barriers of leadership | 2.366 | 0.306 | A | A | 3.332 | 0.189 | R | A N |
| **Leadership Skills** | 8.513 | 0.014* | A | SA | 1.343 | 0.247 | AN | A N |
| Public speaking skills | 0.106 | 0.745 | SA | SA | 0.015 | 0.902 | AN | A N |
| Communication skills for a variety of audiences | 3.134 | 0.077 | SA | SA | 0.015 | 0.902 | AN | R |
| Good listening skills | 1.161 | 0.560 | A | A | 2.997 | 0.223 | R | A N |
| Facilitative discussion skills | 1.451 | 0.228 | SA | SA | 0.0 | 0.0 | AN | A N |
| Written communication skills | 3.929 | 0.140 | A | SA | 1.271 | 0.530 | AN | A N |
| Communication skills in electronic media | 1.947 | 0.163 | SA | SA | 0.0 | 0.0 | AN | A N |
| Oral communication skills | 4.464 | 0.035* | A | SA | 0.178 | 0.673 | AN | A N |
| Presentation skills | 0.304 | 0.581 | A | A | 1.239 | 0.538 | AN | A N |
| Communication skills for groups | 2.206 | 0.363 | SA | A | 2.044 | 0.360 | AN | A |
| Supportive communication and | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| counseling skills | | | | | | | | N |
| Ability to express opinion on a variety of current nutrition topics | 5.113 | 0.078 | SA | A | 1.266 | 0.531 | AN | R |
| Ability to communicate with people at different levels (peers, clients, administrators) | 1.832 | 0.400 | SA | SA | 1.271 | 0.530 | AN | A N |
| Group management skills | 3.891 | 0.143 | A | A | 8.895 | 0.012* | R | R |
| | 1.033 | 0.310 | A | SA | 1.410 | 0.494 | AN | A |
| Collaboration skills | | | | | | | | N |
| Ability to listen to other team members | 0.074 | 0.785 | SA | SA | 0.511 | 0.475 | AN | A N |
| Ability to work with other members to accomplish tasks | 0.422 | 0.516 | SA | SA | 0.511 | 0.475 | AN | A N |
| Ability to express solutions to the team | 0.898 | 0.343 | A | SA | 1.319 | 0.517 | AN | A N |
| The ability to lead in some cases and guide people who lead in other cases | 4.035 | 0.133 | A | A | 2.762 | 0.251 | R | R |
| | 1.899 | 0.168 | A | SA | 1.990 | 0.370 | AN | A |
| Basic management skills | | | | | | | | N |
| Business development skills | 0.106 | 0.948 | A | A | 7.469 | 0.024* | R | R |
| Marketing skills | 2.967 | 0.227 | A | A | 8.962 | 0.011* | R | R |
| Budget skills | 4.505 | 0.105 | A | A | 6.261 | 0.044* | R | R |
| Negotiation skills | 1.858 | 0.395 | A | A | 5.706 | 0.058 | R | R |
| Delegation skills | 0.030 | 0.985 | A | A | 5.691 | 0.058 | R | R |
| Resource conservation skills | 0.016 | 0.992 | A | A | 4.196 | 0.123 | R | R |
| Grant writing skills | 1.875 | 0.599 | D | A | 2.769 | 0.250 | R | R |
| Entrepreneurial skills | 3.933 | 0.269 | D | A | 1.947 | 0.378 | R | R |
| Human resources / people management skills | 10.786 | 0.005* | A | SA | 1.327 | 0.515 | R | R |
| Program planning, implementation and evaluation skills | 2.967 | 0.227 | A | SA | 3.668 | 0.160 | AN | R |
| Committee skills (setting an agenda, Roberts Rules of Order, dealing with conflict, conducting a meeting, adhering to a time frame) | 1.215 | 0.749 | A | A | 9.566 | 0.023* | R | O |
| | 0.516 | 0.472 | SA | SA | 2.134 | 0.344 | AN | A |
| Strong interpersonal skills | | | | | | | | N |
| | 0.306 | 0.580 | SA | SA | 3.171 | 0.205 | AN | A |
| Strong work ethic | | | | | | | | N |
| | 1.033 | 0.310 | A | SA | 1.372 | 0.504 | AN | A |
| Decision-making skills | | | | | | | | N |
| | 3.240 | 0.072 | A | SA | 3.171 | 0.205 | AN | A |
| Organizational skills | | | | | | | | N |
| | 1.187 | 0.276 | SA | SA | 1.936 | 0.380 | AN | A |
| Time management skills | | | | | | | | N |
| Networking skills | 1.215 | 0.545 | A | A | 4.308 | 0.116 | R | R |
| Motivational skills | 2.327 | 0.312 | A | A | 3.208 | 0.201 | R | R |
| Multi-tasking skills | 1.658 | 0.437 | SA | A | 6.258 | 0.100 | R | O |
| Technology skills | 1.298 | 0.523 | A | SA | 1.536 | 0.464 | AN | R |
| Stress management skills | 0.340 | 0.844 | A | A | 4.636 | 0.098 | R | R |
| | 1.187 | 0.276 | SA | SA | 0.567 | 0.753 | AN | A |
| Prioritization skills | | | | | | | | N |
| Public policy skills | 0.422 | 0.810 | A | A | 7.175 | 0.028* | R | O |
| | 1.033 | 0.310 | A | SA | 2.741 | 0.254 | AN | A |
| Ability to take initiative | | | | | | | | N |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Visioning skills: Ability to look forward | 4.492 | 0.034 | A | SA | 3.368 | 0.186 | R | R |
| Goal-setting skills: Able to write and obtain goals | 1.215 | 0.545 | SA | SA | 1.936 | 0.380 | AN | A N |
| Critical thinking and problem solving skills | 1.451 | 0.228 | SA | SA | 2.579 | 0.275 | AN | A N |
| Ability to collect input from stake holders | 2.967 | 0.227 | A | A | 4.054 | 0.132 | R | R |
| Ability to identify and recognize strengths in others | 0.990 | 0.610 | A | SA | 5.059 | 0.080 | R | R |
| The ability to critique research | 1.850 | 0.396 | A | A | 1.239 | 0.538 | R | R |
| Skills in navigating the health care system | 4.770 | 0.092 | A | A | 3.668 | 0.160 | R | R |
| Ability to assess or identify emerging issues | 3.968 | 0.137 | A | A | 5.270 | 0.072 | R | R |
| Ability to enhance well- being of individuals and communities | 0.583 | 0.747 | A | A | 1.239 | 0.538 | AN | A N |
| Ability to apply medical nutrition therapy principles to individuals, groups, and communities | 2.967 | 0.227 | SA | SA | 1.433 | 0.231 | AN | A N |
| **Leadership Training** | 4.911 | 0.086 | A | SA | 7.351 | 0.025* | R | R |
| Leadership coursework | | | | | | | | |
| Communications course | 1.250 | 0.535 | A | A | 7.152 | 0.028* | AN | R |
| Public policy training | 5.077 | 0.079 | A | A | 9.471 | 0.009* | R | O |
| Participating in Academy of Nutrition and Dietetics leadership training | 9.353 | 0.009* | A | D | 10.662 | 0.005* | R | O |
| Management course (including hiring, firing, interviewing, dealing with coworkers, time management skills) | 2.376 | 0.305 | A | A | 3.457 | 0.178 | AN | R |
| Interprofessional education and events involving students from different programs learning about leadership together | 1.723 | 0.632 | A | A | 3.347 | 0.341 | R | R |
| Exposure to successful organizations and leaders through observation and guest speakers to find out what they are doing, why they are doing it, and how they define and maintain success | 2.433 | 0.488 | SA | SA | 3.860 | 0.145 | AN | A N |
| Writing a business plan | 2.566 | 0.277 | A | A | 1.663 | 0.645 | R | R |
| Writing letters to the editor | 3.701 | 0.157 | A | D | 2.777 | 0.427 | R | R |
| Concept mapping assignments | 1.565 | 0.457 | A | A | 0.235 | 0.889 | R | R |
| Skills inventory of personality traits and leadership style | 0.054 | 0.973 | A | A | 2.048 | 0.563 | R | R |
| Proposal plans for assuming a leadership role | 1.918 | 0.383 | A | A | 3.189 | 0.363 | R | R |
| Service learning outside of the classroom | 0.297 | 0.862 | SA | SA | 0.951 | 0.622 | AN | A N |
| Self-directed exercise where students must chart their own course | 1.187 | 0.552 | A | A | 1.204 | 0.548 | R | R |
| Having students determine what they need to land a job (certifications needed, etc.) | 5.571 | 0.062 | SA | A | 1.194 | 0.550 | R | R |
| Case studies related to leadership, ethics, and conflict scenarios | 3.635 | 0.162 | A | A | 2.528 | 0.283 | AN | R |
| Role play involving handling difficult | 2.676 | 0.262 | A | A | 3.174 | 0.366 | R | R |

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| situations and communication | | | | | | | | |
| Simulations involving communication with a variety of receivers (clients, patients, consumers, etc.) | 0.040 | 0.980 | A | A | 4.400 | 0.111 | AN | R |
| Guided activities in the classroom to support learning and development of leadership skills | 0.583 | 0.747 | SA | A | 2.656 | 0.265 | AN | R |
| Learning activity examining cultural diversity beyond differences of ethnicity | 0.465 | 0.793 | A | A | 0.749 | 0.688 | R | AN |
| Assignments including all forms of written and oral communication especially around giving and receiving feedback | 2.999 | 0.223 | SA | SA | 4.867 | 0.088 | AN | R |
| Projects requiring critical thinking and decision making | 0.163 | 0.686 | SA | SA | 0.00 | 0.00 | AN | AN |
| Marketing projects requiring application of leadership skills | 0.580 | 0.748 | A | A | 8.250 | 0.016* | R | AN |
| Student planned and conducted community needs assessment | 0.340 | 0.844 | A | A | 1.443 | 0.486 | R | R |
| Projects that allow students to assess a situation, write goals, and implement strategies to improve the situation | 0.650 | 0.420 | SA | SA | 1.271 | 0.530 | AN | R |
| Development of patient education materials, policies, and procedures or in-services | 4.583 | 0.101 | SA | A | 2.029 | 0.363 | AN | AN |
| Projects with different focus allowing for multiple students to feel comfortable taking the lead | 0.898 | 0.343 | SA | A | 2.637 | 0.267 | AN | AN |
| Group work in which students / interns take on different roles such as leader, group member, and moderator | 1.009 | 0.604 | SA | A | 2.637 | 0.267 | AN | AN |
| Reflection on successes and challenges with group projects | 0.326 | 0.568 | SA | A | 0.734 | 0.392 | R | AN |
| Group projects that include peer and instructor feedback on leader's performance | 2.476 | 0.116 | SA | A | 6.018 | 0.049* | AN | R |
| Organizing and conducting a nutrition career fair each year: students identify who to invite, do the invitations, set up the room, provide hospitality, and survey the participants in order to adjust plans for next year | 3.572 | 0.312 | A | D | 8.532 | 0.036* | AN | O |
| Ethics group discussion | 0.326 | 0.568 | A | SA | 1.319 | 0.517 | R | R |
| Class discussion about leadership | 4.970 | 0.083 | A | A | 4.531 | 0.104 | R | R |
| Team-based approach discussions | 2.250 | 0.325 | A | A | 1.410 | 0.494 | R | R |
| Discussion on constructive criticism | 5.894 | 0.052 | A | A | 4.308 | 0.116 | R | R |
| Discussions about communication styles and conflict management | 1.735 | 0.420 | SA | A | 2.585 | 0.275 | R | R |
| Discussion boards to encourage collaborations and written communication | 2.343 | 0.310 | A | A | 3.946 | 0.267 | R | R |
| Discussion of organizational | 7.545 | 0.023* | SA | A | 3.837 | 0.147 | AN | R |

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| structures and how to make oneself invaluable to others utilizing offered services | | | | | | | | |
| Individual and group presentations of leadership scenarios | 0.697 | 0.706 | A | A | 3.581 | 0.167 | R | R |
| Presentations and demonstrations to a variety of audiences | 1.134 | 0.567 | Sa | SA | 1.186 | 0.276 | AN | AN |
| Presenting research (Power Point presentations and / or posters) | 2.496 | 0.287 | SA | SA | 1.343 | 0.247 | AN | AN |
| Peer performance evaluation (using rubric on student oral presentation) | 2.099 | 0.350 | A | A | 2.182 | 0.336 | R | R |
| Incorporation of improvement strategies for professional communication based on peer evaluation | 0.898 | 0.638 | A | A | 2.719 | 0.257 | R | R |
| Follow-up on peer performance evaluation with a new presentation demonstrating reflection on previous evaluation comments | 0.975 | 0.614 | A | A | 2.671 | 0.263 | R | R |
| **Leadership Experiences** | 1.658 | 0.437 | SA | A | 6.210 | 0.102 | R | O |
| Attending professional organization board meetings | | | | | | | | |
| Attending a state or national dietetics meeting | 6.655 | 0.036* | SA | A | 3.189 | 0.203 | AN | R |
| Attending legislative day at the state capitol | 11.156 | 0.004* | SA | A | 6.749 | 0.034* | AN | R |
| Assisting leaders of local professional organizations with tasks | 5.224 | 0.073 | A | A | 10.731 | 0.005* | R | O |
| Leadership role in a local state dietetic association | 5.027 | 0.170 | A | A | 6.277 | 0.099 | R | O |
| Leadership role in a professional or community organization | 2.633 | 0.452 | A | A | 6.354 | 0.096 | R | O |
| A required year of active leadership in a professional organization | 2.557 | 0.465 | A | D | 8.679 | 0.035 | R | N |
| Representing student dietetic groups at affiliate board, district annual or other meetings | 2.624 | 0.269 | A | A | 6.657 | 0.084 | R | O |
| Service to community and professional organizations to observe and participate in the program planning process | 3.718 | 0.156 | SA | SA | 0.523 | 0.770 | AN | AN |
| Participating in organizations on campus | 0.898 | 0.343 | SA | A | 2.450 | 0.294 | AN | R |
| Participating in leadership roles in student campus organizations | 1.784 | 0.410 | A | A | 2.805 | 0.246 | R | R |
| Leadership positions in state student dietetic associations | 1.450 | 0.484 | A | A | 7.121 | 0.068 | R | O |
| Extracurricular activities such as sports | 1.219 | 0.749 | A | A | 10.118 | 0.018* | R | N |
| Full or part-time job in any areas of foodservice | 3.468 | 0.325 | A | A | 3.347 | 0.341 | R | O |
| Leadership and supervisory roles in paying jobs | 1.619 | 0.655 | A | A | 1.378 | 0.711 | R | O |
| Work experience as a diet tech | 4.111 | 0.250 | D | D | 1.510 | 0.470 | O | O |
| Working with other professionals in | 2.770 | 0.428 | A | A | 2.786 | 0.426 | R | O |

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| different fields | | | | | | | | |
| Any job which allows them to take on a decision making capacity or manage others | 2.319 | 0.509 | A | SA | 0.036 | 0.998 | R | R |
| Volunteering in any setting not just dietetics | 1.966 | 0.374 | SA | A | 1.663 | 0.645 | AN | R |
| Volunteering in dietetic related organizations | 0.898 | 0.638 | A | A | 3.055 | 0.383 | R | R |
| Volunteering at a work setting | 1.298 | 0.730 | A | A | 2.040 | 0.564 | R | O |
| Coaching a team for the community | 0.365 | 0.947 | D | A | 2.859 | 0.239 | O | N |
| Volunteering in community setting such as food banks, churches after school programs, soup kitchens, and Meals on Wheels | 0.465 | 0.793 | A | A | 2.920 | 0.404 | R | R |
| Exposure to leaders in dietetics through shadowing experiences | 0.630 | 0.730 | A | A | 8.604 | 0.035* | R | R |
| Mentoring from established professionals in the field | 2.496 | 0.287 | A | A | 3.174 | 0.366 | R | R |
| Attending several meetings of a group that is new to them with an experienced member of the group agreeing to be a mentor | 0.774 | 0.679 | A | A | 3.285 | 0.350 | R | R |
| Reflecting on shadowing activities and identifying how to apply knowledge and skills learned in the future as a professional | 2.858 | 0.414 | A | A | 3.189 | 0.363 | R | R |
| Management experiences | 1.899 | 0.387 | A | A | 2.641 | 0.267 | R | R |
| Staff relief experiences | 1.116 | 0.572 | A | SA | 5.299 | 0.151 | R | R |
| Interaction with consumers, clients, and patients | 0.163 | 0.686 | SA | SA | 0.087 | 0.769 | AN | AN |
| Nutrition education presentations in the community | 0.306 | 0.580 | SA | SA | 2.901 | 0.234 | AN | AN |
| Opportunities for students in community and public health entities | 3.240 | 0.072 | A | SA | 1.570 | 0.456 | AN | AN |
| Planning and coordinating events (budgeting, timeline, implementation, evaluation) | 0.422 | 0.516 | SA | SA | 1.936 | 0.380 | AN | AN |
| Collaboration with local agencies or organizations to work with them on areas of need | 0.430 | 0.806 | A | SA | 0.951 | 0.622 | AN | AN |
| Nontraditional supervised practice settings such as private practice, primary care, restaurants | 4.111 | 0.250 | SA | A | 1.846 | 0.397 | R | R |
| Traditional supervised practice experiences in hospitals, WIC clinics, long-term care facilities, institutional food service departments | 0.297 | 0.586 | SA | SA | 1.776 | 0.183 | AN | AN |

*Notes.* $\chi^2$ =Chi-square, P1 = Panel group 1 of practitioners, P2 = Panel group 2 of educators
*Significance of $p<.05$ observed for dependence between panel groups ratings.