Measuring dietetic students' perceptions of management skill competency gained during school food service practicum experience: A competing values framework method - A national study

Beth Treat Gankofskie

Iowa State University

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Measuring dietetic students’ perceptions of management skill competency gained during school food service practicum experience: A competing values framework method - A national study

by

Beth Treat Gankofskie

A dissertation submitted to the graduate faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Hospitality Management

Program of Study Committee:
Robert Bosselman, Major Professor
Mary Lynn Damhorst
Thomas Schrier
Mack Shelley
Roger Smith

Iowa State University
Ames, Iowa
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ABSTRACT

The purpose of the study was to determine how coordinated dietetic program (CDP) senior students and program directors perceived students gain management skills, and competencies during school food service practicum experience. A self-assessment instrument, Competing Values Leadership Instrument (CVLI), was used to measure perceived management competencies and roles within in the Competing Values Framework (CVF), and a self-reported skills survey compared number and type of management skills of 192 students and 37 directors. It is important to fully understand if dietetic students are gaining the management skill competency needed for the changing school nutrition environment whether in the school food service practicum or in broader food service management. Results indicate students and program directors perceive their own management competencies to be developed in the same managerial roles for two areas, Control and Compete, with one exception on a subscale: Emphasizing, while there was a significant difference in the scales and subscale managerial roles for student and directors as reported in the roles of Collaborate and Create. Except on subscale Acknowledging and Anticipating, directors had perceived strengths in managerial competencies in the roles of Collaborate and Create that were significantly higher compared to the students. Students perceived they gain management skills from direct contact with managers and in work experience environments. Students perceived a need for actually performing management roles or observing them during a practicum experience. The outcome of this research should be used to review how dietetic students are gaining management competencies in a food service practicum and how this management framework can contribute to a dietetics education.
CHAPTER I. INTRODUCTION

Managing a school food service child nutrition program is a complex task that balances managerial, professional, and interpersonal skills (Martin & Oakley, 2008). The role of the entry-level school food service manager is evolving in conjunction with a number of trends in child nutrition, coordinated school health, and wellness (Gross & Cinelli, 2004). A great deal of research on management theory and the appropriate amount of preparedness and background are necessary to manage a type of organization that requires bridging hard science with soft practice (Cameron & Quinn, 1999).

Background

Profile of a School Food Service Child Nutrition Manager

The school food service child nutrition program manager must have the skills, knowledge, and competencies to manage all procedural changes for preparing and serving food (American Dietetic Association [ADA], 2008) as well as the traditional demands of production, purchasing, forecasting, human resources, and budgeting (National Food Service Management Institute [NFSMI], 2003). Applying the skills of a dietitian can be necessary when writing nutrition related policy, selecting allergy free foods, lowering fat and sugar on menus, standardizing recipes, increasing vitamins and minerals in meals, and preparing diabetic and gluten-free meal patterns (U.S. Department of Agriculture [USDA], 2011a; according to Commission on Accreditation for Dietetics Education [CADE], 2008b. In the last 20 years, meal patterns have changed to include: (a) more choices, (b) nutritional analysis, (c) offer vs. serve (Meyer, 2000), and (d) revisions of the Dietary Guidelines for Americans (DGA) (U.S. Department of Health and Human Services [USDHHS] & USDA,
2005, 2011). Quinn (1988) identifies these as competing values: managers having to prioritize and still provide good direction for the organization.

The job tasks and knowledge necessary for an entry-level manager in the school food service child nutrition management industry is continually changing (Martin & Oakley, 2008). Successful managers have enthusiasm to respond to the changing needs, new demands, and challenging regulations, and to respond to their organization. Kantor (1998, 2006) identifies the need for an innovative manager to have a good relationship and communication skills.

Perceived Value of the Registered Dietitian in Management

According to the ADA website, as of January 2011, there are nearly 70,000 members, and a smaller network of 1,132 of those members are participating in the Dietary Practice Group (DPG) of school nutrition services (SNS) professionals. Another 7.1% (2,034) work in management in food and nutrition systems (MFNS) contracted food management (ADA, 1997; Rogers, 2003). According to the ADA Compensation and Benefits Survey (ADA, 2009), dietitians in business, management, or consulting were making average salaries at or above $86,000, compared to the average dietitian salary with five years or less experience, which was in the range of $42,000 to $55,000 (p. S30). Dietitians with business skills are being recognized for their talent. The perception of the employer is that management and business skills have higher compensation value than clinical skills. A dietitian who fosters those business management skills will likely command higher salary and benefits.

Dietetics Education

Employability skills of graduates of higher education are essential to success. Lordly (2008) reports that the term “transferability” of skills used in dietetics practices that later are
used to achieve competency needs to be fully understood through more research. Experiential learning (Kolb & Kolb, 2005) reinforces didactic principles and allows the dietetic students to learn through acting in management situations and then reflecting on their duties. In a study of education preparation based on job competencies of entry-level dietetic practitioners (Gilmore, O’Sullivan Maillet, & Mitchell, 1997), it was found that 56% of competencies learned in college were not used in their first position of employment. Only 6% of the dietitians were using competencies at the manager level according to (Gilmore et al. 1997). When educators were surveyed about the competencies dietetic students achieved, they rated the students much higher comparatively than their students perceived themselves (Gilmore et al. 1997).

As Registered Dietitians (RD) envision the future of the dietetics profession, practitioners and educators must evaluate management competencies of both hard and soft skills (Gould & Canter, 2008). Dietetic educators and preceptors are mentoring, and they should be as enthusiastic about management practice and evidence-based research as in the clinical practice (Gould & Cantor).

Opportunity in the Industry

School food service professionals are retiring in record numbers, and there is concern that these positions will be filled by unqualified candidates (American School Food Service Association [ASFSA], 2003; Lipowski, 1999; School Nutrition Association [SNA], 2004, 2005).

Consequently, when a senior dietetic student is placed in a school food service child nutrition supervised practicum, it is an opportunity for school food service professionals to encourage dietetic students to learn experientially and to become interested in management.
It is necessary to attract capable, well-trained, and competent managers for the management positions of the future (De Micco, Williams, Maurice, Oh, McElwaine, & Boss, 1997).

**Management**

Managing and the act of management has been the subject of continuous human reflection, study, and speculation for most of the last century. As societal values change, existing viewpoints have been altered and new models of management have emerged (Fabian, 2000). The first 25 years of the 20th century ended with high prosperity and tremendous growth often referred to as the Roaring Twenties. This was an era of cheap labor and the discovery of oil in Texas. There was energy advancement, and it was a time of innovation and invention. Henry Ford implemented his vision to produce the Model T automobile, but he also applied the assembly line principles for mass production derived by Fredrick Taylor’s (1913) scientific management techniques. These principles revolutionized automobile manufacturing and the principles were applied to assembly lines in many other industries.

The next twenty-five years brought the stock market crash, the Great Depression, and World War II; events which shaped the economy and commerce for decades. The largest growth areas were in technology, agriculture, transportation, and consumer goods. The internal process model was still evident as the work of Max Weber (1997) was used to draw principles for an ideal bureaucratic organization. Henri Fayol’s (1949) work was more directed toward the management layer during this earlier period. As the war ended unions became a significant force focusing on an economic agenda. Labor saving devices were introduced and this in turn increased the demand for consumable goods. The dynamics of management were changing as workers had more protected rights and this changed
performance (Mayo, 1945; Roethlisberger & Dickson, 1939). Mayo (1945) completed the Hawthorne studies of human productivity and the term *Hawthorne Effect* was popularized by Henry Landsberger (1958). The study indicated employees are more productive when they are being studied or have attention.

The third quarter of the 20th century was an economic roller coaster. In 1951 the United States was the economic world leader, but the 1973 oil embargo and a sizable national debt left the American economy struggling to compete. Earlier in the century products made in Japan were considered to be low quality; however, by the end of the fourth quarter of the 20th century Japan had begun to compete with American business for market share in consumer goods. Televisions and computers were the primary technology advances. Katz and Kahn (1978) and Lawrence and Lorsch (1986) began writing about the need for managers to change in a rapidly changing, technologically driven world. Mintzberg (1973) found managers needed to perform in highly unpredictable environments and have little time to organize and plan. Managers were instead forced to make rapid decisions.

The late part of the 20th century was an awakening for American management. Japan was very competitive and United States job security became a constant issue in negotiation. *In Search of Excellence* (Peters & Waterman, 1982) was published in a decade when managers needed to revitalize often-stagnant organizations. What emerged from the technology advances, political, business, and institutional changes of the 1990’s were managers needing to address diverse problems. According to Quinn, Kahn and Mandl (1994), it had become clear there was no one model sufficient to answer all of the necessary management questions and guide managers. It was necessary for there to be a larger managerial competency framework consisting of a combination of the four models that
represent many different models and themes from other research (Quinn, 1988). The CVF is a conglomerate of many researchers work put together.

*Background of American Dietetics Association*

The ADA surveys their membership every five years to determine the needs of the organization. From 1993 to 1999 the membership working in food and nutrition management decreased from 20% to 16% (Rogers et al., 2002). The 1995 Dietetics Practice Audit reported more dietitians (46%) having managerial responsibilities but in the 2000 audit they found only 16% of dietitians reporting managerial responsibility (Rogers et al, 2002). The demand for skilled managers in nutrition was on the rise in the 1990’s; however, fewer dietitians reported being responsible for managerial decision-making in 2000. Dietetics professionals were being passed over for promotions to management. Prior research has indicated dietitians have strengths in soft skills, such as patient screening, assessment, counseling, and nutrition therapy (Gilmore et al., 1997) yet are perceived to be weak in the management skills necessary to lead as strong department managers. Hard skills used to generate profits in healthcare such as: budget analysis, catering, human resource experience, and food production technology (Silverman et al., 2000).

To provide an economic perspective of how industry values different skills it is useful to compare the salaries of dietitians and food service directors who often serve as the department manager. ADA’s Compensation and Benefits Survey (2009) showed the annualized full-time salary for a registered dietitian was $56,700 per year. In a mid-western state government salary survey (Nebraska, 2009) a food service director with management, sanitation and safety, budget, cost reporting, procurement responsibility, serving 500 to 1000 meals per day, had a salary range of $60,900 to 76,500.
The purpose of this research was to assess whether United States (U.S.) college students enrolled in Coordinated (undergraduate) Dietetic Programs (CDP) (accredited by the American Dietetic Association) perceive themselves as: (a) practicing management skills; (b) gaining management skills during their supervised practicum experience in school food service child nutrition management; and (c) knowing from what activity(ies) they perceive they gain management experience. A second part to the research did assess the perceptions of the CDP Directors/Contact Persons as to their perception of their own management skills and their perceptions of what project or activity that CDP students perform during a supervised practicum in school food service child nutrition management to gain management skills.

NFSMI developed two summaries of management competencies for school food service programs, one for directors and supervisors (NFSMI, 2003); and one for managers (Cater & Carr, 2003; Cater & Carr, 2007; NFSMI, 1995). This research used these competencies, knowledge, and skills of effective school nutrition managers (Cater & Carr, 2003; Cater & Carr, 2007) to select the management theory framework and assessment tool to gain the perceptions of CDP graduating senior students enrolled in the ADA’s Commission on Accreditation of Dietetic Education approved programs in nationally recognized colleges and universities. The theoretical framework of competing values theory will form the background for using the self-assessment of management skills Competing Values Leadership Instrument (CVLI) to gain student perceptions (Di Padavo, 1990; Quinn, 1988; Lawrence, Lenk, & Quinn, 2009).
Theoretical Framework

Identifying an appropriate theoretical framework to measure students’ perception of their management competencies and skills was an important component to the success of this research. Researchers in the past have considered the issues of generic verses industry specific competencies. Pavesic (1993) states that the foundation of management principles should be industry wide and remain sound over time. The competing values framework (CVF) has been developed through research and actual use since 1988. The 2009 updates to the CVF allow the most current management behavioral practices to be used for this research (Belasen & Frank, 2008; Lawrence et al., 2009).

The NFSMI-SNA established Competencies, Knowledge, and Skills of Effective School Nutrition Managers (Rogers, 2003). There is much to support that these competencies are based on general management functions that are not unique to school food service management. Therefore, a generic framework of management competencies for use in the empirical stages of this study was appropriate.

Why Use a Theoretical Framework?

The CVF is the choice for this research (Lawrence et al., 2009; Quinn & Rohrbaugh, 1981). Organizational theorists Di Padova & Faerman (1993) merged four organizational theory models together to formulate the CVF is a metatheory that was originally developed to explain the differences in values underlying various organizational and effectiveness models (Quinn & Rohrbaugh, 1981). The framework focuses on competing tensions and conflicts inherent in any human system; primary emphasis is placed on the conflict between stability and change and the conflict between the internal organization and external environment. The framework is divided into four models: (a) Rational-Compete Goal Model, (b) Human
Resource-Collaborate Model, (c) Internal Process-Control Model, and (d) Open System-Create Model (Quinn, Thompson, Faerman, & McGrath, 1990; Quinn, Thompson, Faerman, & McGrath, 2003).

Two management roles or behaviors are associated with each of the four models of management, creating eight characteristic roles within the CVF (Quinn, 1988; Quinn and Rohrbaugh, 1983). Each role of management complements the roles next to the other and contrasts the roles directly opposite on the axis (refer to Appendix A). Each specific competency area has eight management roles that must be performed. The relationship between the competencies is shown on an axis with a vertical and a horizontal model creating a four-quadrant diagram. Each of the four quadrants contains the criteria necessary to master the roles, competencies and skills to master the managerial components of those characteristics of the competing values framework (Quinn, Faerman, Thompson, McGrath, & St. Clair, 2007). Each quadrant allows for very diverse managerial characteristics that can incorporate managerial tasks identified by both the NFSMI and ADA (Figure 1). To illustrate the characteristics from one quadrant, the upper left, “human relations-collaborate-model” which lists two of the following competencies that master managers strive to achieve include the following: managing conflict and communicating effectively (Quinn et al., 2003).

Most management literature incorporates 24 similar competencies. Literature shows managers strive to achieve to become a master manager by developing the competencies. The competencies yield different themes (Katz, 1974; Miner, 1973) and of those themes those identified in the CVF were aligned with the competencies identified with dietetic or school nutrition professionals. The capacity to incorporate the National Food Service Management Institute (NFSMI) (2003) and the ADA (2002) competency areas within the 24 competencies
into the CVF (as discussed in Chapter 2) allowed for the established competencies of ADA and NSFMI to be used in a business management application.

One advantage of using the CVF (Quinn & Rohrbaugh, 1983) for this study was it had been tested in hospitality and tourism organization, and university extension (Barrio, 2003; Walo, 2001). Using an established assessment tool—an instrument used for assessing individual competencies and skills, which is the focus of this management research—increases the reliability and validity of the instrument (Lawrence et al., 2009; Thompson, 2006). The CVLI has evolved over time from 16 questions (Di Padova, 1990; Quinn, 1988; Lawrence et al., 2009), and now has developed into a 36-question instrument to assess management in relation to eight managerial roles for a total of 24 skills (Appendix B). A framework provides a foundation or base to use as a standard measure that could be used in further research. It also allows the researcher to have an instrument that is recognized to bridge the soft and hard aspects of management and apply it for the first time to school food service child nutrition management and dietetic education.

Reasons to Use Competing Values Framework

1. It has a well-researched theoretical base and offers an opportunity to examine managerial skills and competencies based on management theory. The model uses eight identified management roles and competencies that reflect competencies and skills identified by the NFSMI and ADA (see Figure 1, p 30).

2. Little empirical research has been performed specifically relating to school food service child nutrition management, with most research focused on competencies in the hospital (ADA, 2002) and hospitality food service management (Walo, 2001).
3. The self-assessment was a proven valid and reliable survey instrument that assesses an individual’s perception of skills and competency in the roles associated with management (Belasen & Frank, 2008; Lawrence et al., 2007, 2009; Quinn, 1988; Quinn et al., 1990, 2003).

4. Competing values management demonstrates the struggles managers have deciding role paths; each decision may counteract another (Quinn et al., 1990). According to an ADA (1997) membership survey, registered dietitians are qualified to direct healthcare food and nutrition departments and should have the professional preparation to manage nutrition services departments. Gregoire, Sames, Dowling, and Lafferty (2005) found that less than half of hospital food service departments were under the direction of a dietetic professional. The Gregoire et al. (2005) survey asked hospital executives to rate the competencies of RDs. The hospital executives rated the competency statements of developing a budget, managing food service operations, and managing change; as highly important but did not perceive RDs to have highest competence in these areas. Conversely, those competencies that were rated least important by the executives were perceived as those in which RDs were most competent such as serving as a nutrition resource or practicing self-regulation. This healthcare research demonstrates the need to explore how CDP senior students are gaining the knowledge and developing competency and skills to become confident school food service managers. This hospitality management research was to determine if the supervised practice in school service food management child nutrition/food service management and any specific component of the coordinated practicum program in dietetics prepares students for the management roles identified in the CVF or reflect those of NFSMI and ADA competencies.
Research Purpose

The purpose of the study was to assess the perceptions of U.S. dietetic students and Coordinated Program Directors (CDP) on the management skills and competencies students learn and use in their practicum as well as compare students and directors on the Competing Values Framework (CVF). The skills survey did provide information on the management strengths and weaknesses of students and directors and provided perceptions of what activity during the senior practicum helped gain management skills. The dietetic students surveyed were active members of the American Dietetic Association (ADA) and participated in a dietetic program (CDP) in colleges throughout the United States. The Coordinated Program Directors were ADA members actively instructing in CDP’s in the past or present school year.

The study is significant to the dietetic field to understand the perceptions of directors and students about specific activities and skills learned in practicum experience to assist students in acquiring management skills. The CVF identifies areas of management strengths that can be used to determine if there is a pattern in management strengths among dietetic students and program directors, and what suggested management skills might be needed to be taught in the future as part of dietetic management education programs.

Research Objectives

The following objectives were posed to accomplish the purpose of the study:

Objective One: From the dietetic students’ and directors’ perspective determine the activity or project that helped students gain management skills while placed in school food service child nutrition management and food service management supervised practicums.
**Objective Two:** To determine if there are differences in the scores of directors and dietetic students on the Competing Values Framework.

**Objective Three:** Identify whether demographic characteristics of students (GPA, age, gender, rotation selection practicum) predict scores on the Competing Values Framework.

**Objective Four:** Identify if there are any particular dietetic students who perceive themselves as wanting to manage and not wanting to manage.

**Research Questions and Hypotheses**

The study addresses the area of school food service child nutrition management, and food service management. The study did assess the perceptions of two groups of stakeholders associated with school and food service management and dietetics education: (a) CDP dietetic students, and (b) CDP department directors/contacts. The following four research questions and hypotheses were addressed:

**RQ1:** Are there differences on the subscale and second order subscales on the CVLI for dietetic students and directors?

**Ho1:** There will be no differences on the subscale and second order subscales on the CVLI for dietetic students and directors.

**RQ2:** Does age, grade point average, interest in management, interest in school food service child nutrition management, and practicum placement statistically predict the scores on the four quadrants or subscales of the CVLI?

**Ho2:** Age, grade point average, interest in management, interest in school food service child nutrition/food service management, and practicum placement will statistically predict the scores on the four quadrants or subscales of the CVLI.
RQ3. Are there differences in the scores on Collaborate, Create, Control or Compete when dietetic students are compared by interest in management career and their practicum was in food service management?

Ho3: There will be no statistical differences in scores on Collaborate, Create, Control or Compete when dietetic students are compared by interest in management career and their practicum was in food service management.

RQ4: Are there differences in the scores on Collaborate, Create, Control, and Compete when dietetic students are compared by interest in management career and their practicum was in school food service management?

Ho4: There will be no statistical differences in the scores on Collaborate, Create, Control, and Compete when dietetic students are compared by interest in management career and their practicum was in school food service management.

RQ5. What project do directors and students identify as the project or activity helping dietetic students to gain management skill in their practicum experience?

Identifying Colleges and Universities with CDP

The ADA’s Commission on Dietetic Education maintains an active list of qualifying institutions of higher education. This list will be obtained. The names, addresses and email addresses of program directors should have been current for this recent academic school year according to an ADA spokesman (telephone call, January 13, 2010). The list is available to ADA members on the ADA website: http://www.eatright.org/cps/rde/xch/ada/hs.xs/career.
Significance of the Study

This study should contribute to the existing body of knowledge in the professions of school food service child nutrition management and dietetic education. Dietetic education emphasizes allied health and science as the core of the academic preparation for the clinical dietitian (CADE, 2008a). The rigor of the curriculum may limit what students are allowed to elect to add to their depth in knowledge of management. The two opportunities to develop management skills are in Introduction to Food Service Management (a junior course) and again during Senior Seminar with a supervised practice component: a practicum.

Senior year of the CDP allows for 12 credit hours of supervised practice. Research to support experiential learning or practical work experience (Barr, Walters, & Hagan, 2002; Cano-Garcia & Hughes, 2000) reinforces the need for more skill development through experience in management education (McKnight, Dundas, & Girvan, 2002). To the knowledge of this researcher, there is no published research in school food service child nutrition management and dietetics education that has empirically tested changes that may occur in dietetic students’ skill competencies as a result of practicum experiences in school food service child nutrition management placements. The reason to explore this research stems from two dynamics: (a) school food service is becoming a more sophisticated industry that needs well trained child nutrition managers to combat childhood obesity; and (b) food service managers at second tier level (directors) are some of the highest paid dietitians. Determining dietetic students’ management competencies is essential to providing graduates, preceptors, and future managers with perceptions of what management skills students perceive themselves to have and what activity or project helped students gain management skills from their practicum experiences. The strength of the research is that it will provide
valid reinforcement for supervised practicum students’ success with practicum placements and may forge more interest in school food service child nutrition as an opportunity for skill development.

**Definition of Terms**

The following terms are operationally defined as they apply to this study:

**Competency:** Activities and skills judged essential to perform the duties of a specific position (Tas, 1988).

**Dietitian:** A professional whose training is in the science of food and nutrition to enhance the health and well being of individuals and groups (ADA, 2009).

**Dietetics Practice Group (DPG):** Organized group of dietitians with similar interests in an area of practice or a particular subject area.

**Employability:** Employability is “the relative chance of acquiring and retaining different kinds of employment” (Brown, Hasketh, & Williams, 2003, p. 111).

**Employability skills:** Employability skills are transferable core skill groups that represent essential functional and enabling knowledge, skills, and attitudes required by the 21st century workplace. They are necessary for career success at all levels of employment (Overtoom, 2000).

**Entry-level Manager:** A management position given to individuals who have attained the necessary theoretical basics for performing a management function.

**Skill:** A present, observable competence to perform a learned behavior between a mental activity, and bodily movement, or excellence in the knowledge, practice and aptitude of a task.
**Coordinated Dietetics Program (CDP):** A professional undergraduate studies program approved by the ADA Commission on Accreditation for Dietetics Education (CADE) that prepares undergraduates to be eligible to take the Registered Dietitian’s Exam upon graduation.

**Registered Dietitian (RD):** A dietitian meeting the eligibility requirements of the Commission on Dietetic Registration (CDR).

**The American Dietetics Association (ADA):** The professional organization for dietitians.

**Assumptions**

The following assumptions were made with regard to the study:

1. Participants shall provide correct information based on fair and candid perception of their experience.

2. Dietetic students and program directors/contact persons will voluntarily participate in the research.

3. Dietetic CDP programs all have some school community/food service component that provides experience for all students to develop management perception and knowledge.

**Limitations**

The research subjects were a group of senior dietetic students participating in the CDP in accredited colleges or universities in the spring semester of 2010. This demographic profile may not represent all dietetic CDP programs throughout the United States. The research did depend on the cooperation of ADA affiliates for contact with CD Program directors/contact people and dietetic students to participate in the survey.
CHAPTER II. REVIEW OF LITERATURE

This study was to determine the perceived management skills, and competencies of coordinated dietetic program senior dietetic students and program directors as reported on the CVLI and self reported skills survey, and compare management scores of the students and the directors of the programs. It is important to fully understand if dietetic students are gaining the management experience needed for the changing school nutrition environment whether in the school food service environment or in the broader community nutrition and food service management environment. The following review of literature is divided into nine categories and includes:

1. Defining Competency
2. Dietitians in Management
3. Management Competencies
4. Historical View of Models of Management Competencies
5. Competing Values Framework
   a. Rational Goal
   b. Internal Process Model
   c. Human Relation Model
   d. Open System Model
6. The Four Quadrants of Managerial Activity
7. Preceptors and Practicum Placement
8. Coordinated Dietetics Program Directors
Defining Competency

Competencies are broad, functional statements of skills supporting knowledge and professional values necessary to begin independent professional practice (Chambers, 1994). The term competency is used to describe a specific range of skills, knowledge, or ability. In the dietetics profession, competency is often defined with the term evidence-based practice, which relies on the best available science as the basis for practice decisions and is a core competency for dietetic professionals.

The dietetics profession has a clearly defined educational program that is guided by the ADA’s Commission on Dietetic Registration (CDR). In order to become a registered dietitian, a student must complete a four-year college degree program required either in the Coordinated Dietetic Program or through an approved internship or alternate route; all eligible candidates must then pass the American Dietetic Association Registration examination. Students in the dietetic program must meet the program’s core competencies in order to graduate. The core competencies are a product of the ADA Educational Competencies Steering Committee and previously approved Commission on Accreditation/Approval for Dietetics Education (CAADE) (ADA, 2002; Karp & Lawrence, 1999). Competencies are performances expected of entry-level practitioners (Chambers, 1994; Karp & Lawrence, 1999). They are context specific to environments where dietetics practitioners perform independently and not to the educational settings where they learn. If a dietitian gives nutrition information without understanding its biomedical and social science foundation, that dietitian is not competent (Chambers, Gilmore, O’Sullivan Maillet, & Mitchell, 1996).
The theoretical basis for competency education is designed on a continuum of learning. The formal piece to dietetic education is the beginning of the continuum, which is defined as novice, and is expected to expand in competency with professional growth over five stages: (a) novice, (b) beginner, (c) competence, (d) proficiency, and (e) expert or mastery (Chambers, 1994). Dietetic students should transition from novice and beginner to competent as they graduate and begin their career as an entry-level dietitian.

Gaining competency depends on building a foundation from a didactic content and simple isolated skill and traditional evaluation methods to progressing to the level of a beginner. At this stage of the continuum, dietetic students are taught through more seminars, and problem-based learning and evaluation should include simulation of actual cases and projects and synthesis from allied health fields or departments that influence dietetics.

The final stage of competency for dietetic students incorporates the practicum in realistic settings with opportunities for independent performance. The evaluation should be in an authentic evaluation setting using an actual project that is necessary at a work site (Linn, Baker, & Dunbar, 1991). In a food service placement, the project may consist of developing a business plan for a new serving line; this can be part of a portfolio that can be used to document a students progress throughout the semester (Linn et al., 1991).

**Dietitians in Management**

According to the School Nutrition Association (SNA), school nutrition professionals will be retiring in record numbers over the next decade (SNA, 2004). The ADA has 70,000 members, and 3.2 % are members in the school nutrition practice group (ADA, 2009). There is no data to show if these members belong to both SNA and ADA, but these school nutrition professionals are potentially the link between the two professions. The CAADE study on
professional placements for dietetic students was far below necessary demand (Caldwell-Freeman & Mitchell, 2000), meaning both undergraduate practicum and graduate internship placements fall short of demand. Those who practice as a registered dietitian and a school nutrition professional can help shape the future of both dietetics and school food service child nutrition management by mentoring student dietitians in undergraduate coordinated dietetic programs who need practicum placements to develop management, food service, and child nutrition experience (Caldwell et al., 2000).

The ADA membership (in the 2000 data: 58,198) was surveyed with a 77% response rate (Rogers, Loenburg & Broadhurst, 2002). The results found that from 1993 to 1999, a decrease from 20% of the members to 16% of those responding reported working in food and nutrition management. More dietitians reported working in clinical and community service, indicating a trend in fewer dietitians initially obtaining and being promoted to management or food management (Bryk, & Kornblum, 1999).

In the 1995 Dietetics Practice Audit, there was more participation in management level responsibilities than in the 2000 Dietetics Practice Audit. In 1995, 46% of entry-level dietitians reported human resource responsibility, and only 16% had that responsibility in 2000 (Rogers et al, 2002). Reported in the audit year 1995, 39% of entry-level RDs had financial management responsibility; in the 2000 audit only 11% of entry-level dietitians had fiscal management responsibility (Rogers et al., 2002). The 2005 Commission on Dietetic Registration Entry-Level Dietetics Practice Audit reported the roles of 26% of surveyed entry-level members were in positions as directors, supervisors, or coordinators, 15% managed budgets, and only 9% reported having human resource responsibility (Rogers & Fish, 2006).
There is limited research that focuses on dietitians in foodservice management and even less that actually has collected data on dietitians practicing in the specialty of school nutrition and food service management. Silverman, Gregoire, Lafferty, and Dowling (2000) reviewed future and current practices of hospital foodservice directors in a random sample of 500 general medical-surgical hospitals with a 43% response rate. Thirty-eight percent of respondents were registered dietitians; most (82%) of the foodservice directors reported only managing foodservices currently, but expected change in responsibility and anticipated management of more departments within their hospital in the future (Silverman et al, 2000).

Canter and Nettles (2003) surveyed dietitians who served as multi-department managers in healthcare settings. The participants were asked how to position oneself to be seen as a multi-department leader; their responses included: (a) participate in organizational committees, (b) be a team player, (c) network, (d) work closely with human resources and hospital administration, and (e) find a mentor (Cater & Carr, 2003).

In a 2005 journal article, Gregoire et al. reported surveying 500 registered dietitians employed as foodservice directors and 500 hospital executives to whom the directors reported. From the data they determined perceived importance of selected competencies for the role of foodservice director. The results indicated that the perception of hospital executives was that the competencies that are most important for the role of hospital foodservice director were not the area in which RDs were perceived to be highly competent. Some of the areas identified that RDs lacked competency were leadership and operations management skills (Gregoire et al., 2005).

Cluskey, Gerald, and Gregoire (2007) found that in the most recent practice audit, current food and nutrition professionals are stronger in technical skills than in business or
management related skills including negotiation, persuasion, communication, and financial management. Management skills and supervisory responsibility added $2.65 per hour in wages according to the 2002 Compensation and Benefits Survey (Rogers, 2003).

Child Nutrition Management-Dietary Guidelines

In 2005 and 2010, the DGA were revised providing an opportunity for RDs to disseminate nutrition information and for RDs in school food service management positions to continue to modify existing practices, translate, and implement the DGA’s (Kris-Etherton & Weber, 2005). The Coordinated School Health Program at Center for Disease Control (CDC, 2010) and the USDA Wellness Policy (USDA, 2011b) instructs school districts to set goals for nutrition education, physical activity, campus food provision, and other school-based activities designed to promote student wellness in hopes of addressing unhealthy weight gain and promoting healthy eating behaviors in schools. Current child nutrition programs and school food services need to go beyond classroom nutrition education and attempt to alter the school environment, including school food service, physical education, and competitive foods (Gross & Cinelli, 2004).

Dietitians: Management Competencies

The ADA has identified management competencies for dietitians that work in food and nutrition services in healthcare. The following core competencies that directly reflect food management and preparation are those competencies that a professional must be able to master (ADA, 2002, 2008; Karp & Lawrence, 1999):

- manage change and transition
- develop menus and foodservices that exceed customer expectations
- identify, develop, and evaluate new business opportunities
• lead teams of culturally diverse members
• incorporate new information technologies
• ensure service of safe food to customers through HACCP
• analyze and improve production and service processes through the application of appropriate operations management quantitative business analysis techniques
• measure customer satisfaction, accurately interpret data, and make appropriate operational changes
• lead in a constantly changing environment

The core competencies for school nutrition managers as identified by NFSMI (2003) are as follows:

• provides an atmosphere that ensures the purpose of the school nutrition program
• ensures all meals served meet current nutritional standards and meal patterns
• maintains integrity and accountability through compliance with federal, state, and local regulations
• ensures accountability of recorded documentation
• provides an environment conducive to protecting the health and well-being of the school’s children through high levels of sanitation
• responds to hold and recall in an expedient, effective, and efficient manner
• provides a safe environment for performance of work
• provides leadership to ensure a secure work environment during an emergency or crisis
• establishes administrative responsibility for all foodservice equipment through proper use and care
• observes energy conservation principles
• conducts the procurement process within the boundaries of state, federal, and local school purchasing guidelines
• ensures proper receiving procedures and storage techniques are followed

• applies management principles to establishing and maintaining high standards of control for quality food production and distribution

• provides a system for preparing and maintaining records

• ensures credibility through daily monitoring

• responds to student food preferences

• develops standards of excellence for providing and maintaining quality

• provides leadership that the meals will be served in a pleasant and courteous environment

• operates the program within guidelines for financial management with cost-effective methods and program integrity

• provides cost effective office management

• manages business functions of office management

• implements a marketing plan to create an attractive atmosphere

• provides leadership and interest in the role of school foodservice in the community

• manages the school nutrition staff according to laws and regulations

• communicates effectively

• creates an atmosphere for employee productivity

• implements organizational efficiency

• implements standardized training

• provides leadership to effectively manage diversity

• develops high professional standards

• establishes the SNP role as a professional in the school community
James, Hohnbaum, and Schwartz (2008) recognized the need for creative enhancement of the dietetics student’s core competencies and skills. James et al. (2008) found entry-level dietitians would need additional skills in cultural competencies, utilizing motivational coaching, and conducting social marketing campaigns. A new course was developed in 2007 that provided an online video component, traditional lecture, and a practicum that matched students with mentor dietitians. Sixty hours are spent in the field managing a project, implementing a component of the project, and measuring its effectiveness. The mentors provide feedback so the students with the experience are better prepared for entry-level dietetics positions (James et al., 2008).

Competencies can be described in generalities or given specified technical descriptions as shown in the examples that follow. Rodgers (2006) stated that a competency can be categorized by expertise such as technical competency to have the knowledge and skills for producing large quantities of high quality meals with safe, nutritious, and appealing outcomes. These skills require higher technological understanding in cook-chill and cook-freeze service systems that require competency to manage both the system and produce a safe nutritionally superior meal for customers. According to Rodgers (2006), numerous fundamental steps must be thoroughly understood, to assure the correct temperature; depth of product, time, and length of storage is maintained during the cook-chill process.

In 2005, the ADA provided its members with a Scope of Dietetics Practice Framework, which serves as a cornerstone for the profession. The framework is a decision making chart that defines practice guidelines and health care services. One of the five main characteristics is service, which includes: (a) managing food and material resources, (b) marketing, (c) managing human resources, (d) managing facilities, (e) teaching dietitians and
students, and (f) conducting research. This reinforces the significance of the portion of the dietetic practice that is devoted to management services (O’Sullivan Maillet, Skates, & Prichett, 2005).

Moore (1995) recognized that individual dietetic programs determined admission on criteria that is believed to focus on the characteristics students need to succeed in a field in science. Carruth and Sneed (1991) surveyed dietetic program directors and found emphasis was placed on academic performance, letters of recommendation, and paid or volunteer hospital work experience. They reported that extracurricular activities, clinical/community management work experience, offices held, and volunteer work experiences were of lesser importance. Moore analyzed traits developed by dietetic training programs as compared with those most valued by employers, and creative thinking skills were encouraged for advanced management learning experience (Jackson & Hynak-Hankinson, 1989). Moore concluded that although the Standards of Education have been in place since 1988, there was still an imbalance in skill development perhaps through the pre-professional admission selection process.

**Historical Review of Models of Management Competencies**

After an extensive review of management models, the CVF (Quinn, Faerman, Thompson, & McGrath, 1990) was selected for this study. There are more than four hundred identified management models in the literature. For the sake of establishing a foundation for this research, only the management researchers that established relevance to the CVF model are reviewed here.

The ultimate research question asked is “What is it managers do?” (Miller, 1992). Miller reviewed management over fifty years in which time the position of manager has
evolved from a task oriented manufacturing work environment to a more unstructured interpersonal work structure. The classic management functions identified then—planning, organizing, communicating, coordinating—remain primary functions in later models. Luthans, Rosenkranz, & Hennessy (1985) had observed successful managers balanced more functions.

Ghiselli (1963) enhanced management research by introducing psychological traits he considered important to managerial performance. Ghiselli’s psychological traits—intelligence, supervisory ability, initiative, self assurance, and level of occupation attainment—helped to form management competency frameworks as it was first developed for psychological traits.

Miner (1973) researched the patterns of characteristics of successful managers. Over a 15-year period, Miner recorded differences in motivation of students who selected a career in management and those of employed people. Miner found six characteristics that successful managers possess: (a) favorable attitude toward authority; (b) desire to compete; (c) assertive motivation; (d) desire for distinctive position; (e) a sense of responsibility and (f) managing conflict.

Mintzberg (1975) made significant contributions to the competency and skill development research in management. Mintzberg studied the role and behavior of a manager by studying chief executives in five different venues: (a) a school, (b) a technology company, (c) a consumer goods company, (d) a hospital, and (e) a consulting firm. He categorized a manager’s job into ten roles under three headings: interpersonal, informational, and decisional. Some of the roles that were identified became essential components for effective management principles such as developing relationships, resolving conflict, disseminating
information, and allocating resources. He also identified that managers should be lifelong learners with continuous improvement through learning (Mintzberg, 1973).

Mintzberg (1975) identified the need for skills training and emphasized that teaching management theory is necessary, yet without the application of the skill practice and a feedback loop for students to gain competency, the cognitive portion is lost. Mintzberg (1975) states that “management schools should clearly identify what management competencies the student needs, teach the competencies, and then provide opportunities for students to practice the skills and be evaluated in an environment that allows for improvement” (p. 47).

Katz (1974) researched the need for skill development of managers. Katz established that all managers need skills that require technical, human, and conceptual skills, while how the skill set is emphasized will depend on at what level of management the person is employed. Technical skills are needed for entry-level positions, and conceptual skills are most frequently used at the higher management level (Katz, 1974; Miner, 1973).

The work of Boyatzis (1982) established the first management competency framework. Boyatzis used over 2,000 generic management competencies that applied to the identified levels of management to develop the Job Competence Assessment Method (p. 49). These became usable documents that managers or educators could adapt to their level of management to characterize effective performance competencies applied to their organization.

In 1986, Hales wrote about the expanding demands on managerial tasks (Hales & Nightingale, 1986). Hales and Nightingale (1986) based their management framework on former theorists to establish that previous work was too narrowly focused and needed to
include the behavior patterns of managers and organization functions. Hales (1986) developed a framework with nine common strands, which included managerial functions identified by previous researchers but combined the functions in new categories. The Hales framework includes: figurehead, liaison, monitoring, allocating resources, handling disturbances, negotiating, innovating, planning, and directing subordinates.

In the late 1980s, Luthans et al. (1985) asked the question: “What do real managers do?” Their research distinguished between the managers who were success driven (meaning the individuals were promoted) and the other managers who were effective (meaning they had measurable performance). Luthans et al. identified twelve activities often performed by managers. These duties were then grouped into four categories, similar to the competencies identified in the CVF (Quinn et al, 1990), the theoretical framework selected for this research.

Leadership and entrepreneurial competencies are emphasized in the management literature. Kotter (1988) established that effective managers have intuitive attributes with strong leadership aptitude and excel in motivational skills, which are entrepreneurial in nature. Leadership and motivation are both characteristics that are components of the CVF.

By 1994, Hyden had suggested a paradigm shift in management research. Managers had focused on control, while the strength had shifted to empowering employees through encouraging training and leadership. Hyden (1994) identified six core competencies of leaders: (a) creating more leaders, (b) empowerment, (c) communication, (d) vision, (e) patience, and (f) strategic thinking.

To summarize, in considering the evolution of management competencies, it is apparent there has been a paradigm shift from the factory worker management style of
competencies to applied teaching and learning competencies in all organizations. There has been an expansion from the traditional competencies of planning, organizing, and controlling to additional competencies of interpersonal communication, vision, change, and management that are all dependent on what level of management the individual performs.

This review of literature selected studies that pertain to the development of management competencies and demonstrates how CVF is a theoretically grounded framework (Quinn et al., 1990, 2003) (see Table 1). This establishes the theoretical framework and its application to using competency to test gains in dietetic students’ development of their management skills during a school foodservice practicum experience.

**The Competing Values Framework**

The competing values model first developed by Quinn and Rohrbaugh (1983) was used to categorize general organizational phenomena in relation to organizational effectiveness. Cameron and Ettington (1988) used the model to describe organizational behavior better. The competing values model is two-dimensional: (a) one is internal, person oriented, and (b) one is external, organization oriented. The first dimension
Table 1

*The Eight Managerial Leadership Roles and Their Key Competencies*

<table>
<thead>
<tr>
<th>Role</th>
<th>Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentor role</td>
<td>1. Understand self and others (New: shows concern)</td>
</tr>
<tr>
<td></td>
<td>2. Communicate effectively</td>
</tr>
<tr>
<td></td>
<td>3. Developing employees (New: developing people)</td>
</tr>
<tr>
<td>(New: Empathizer)</td>
<td></td>
</tr>
<tr>
<td>Facilitator role</td>
<td>1. Building teams</td>
</tr>
<tr>
<td></td>
<td>2. Managing collective performance and process (New: encourages participation)</td>
</tr>
<tr>
<td></td>
<td>3. Analyzing information with critical thinking</td>
</tr>
<tr>
<td>Monitor role</td>
<td>1. Monitoring individual performance (New: expecting accurate work)</td>
</tr>
<tr>
<td></td>
<td>2. Managing collective performance</td>
</tr>
<tr>
<td></td>
<td>3. Analyzing information with critical thinking</td>
</tr>
<tr>
<td>Director</td>
<td>1. Developing and communicating a vision (New: emphasizing speed)</td>
</tr>
<tr>
<td></td>
<td>2. Setting goals and objectives</td>
</tr>
<tr>
<td></td>
<td>3. Designing and organizing</td>
</tr>
<tr>
<td>Coordinator role</td>
<td>1. Managing projects (New: controlling projects)</td>
</tr>
<tr>
<td>(New: Regulator)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Designing work (New: clarifying policy)</td>
</tr>
<tr>
<td></td>
<td>3. Managing time and stress</td>
</tr>
<tr>
<td>Producer role</td>
<td>1. Working productively (New: modeling hard work)</td>
</tr>
<tr>
<td>(New: Competitor)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Fostering a productive work environment</td>
</tr>
<tr>
<td></td>
<td>3. Managing time and stress (New: focusing on the competition)</td>
</tr>
<tr>
<td>Broker role (Old)</td>
<td>1. Building and maintaining a power base</td>
</tr>
<tr>
<td>(New: Motivator)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Negotiating agreement and commitment</td>
</tr>
<tr>
<td></td>
<td>3. Presenting ideas (New: Anticipating customers needs)</td>
</tr>
<tr>
<td>Innovator role (New: Visionary)</td>
<td>1. Living with change (New: Inspire people to exceed expectations)</td>
</tr>
<tr>
<td></td>
<td>2. Thinking creatively</td>
</tr>
<tr>
<td></td>
<td>3. Managing change (New: Initiating significant change)</td>
</tr>
</tbody>
</table>

*(Taken from: *Becoming a master manager: A competency framework*, Quinn, Faerman, Thompson, & McGrath, 2003; Lawrence et al., 2007)*
The Competing Values Framework and Roles (with Characteristics)

<table>
<thead>
<tr>
<th>Flexible (+)</th>
<th>Stable (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Structured Dimensions</strong></td>
<td><strong>Stable (-)</strong></td>
</tr>
<tr>
<td>Flexible (++)</td>
<td>Stable (-)</td>
</tr>
<tr>
<td><strong>Focus Dimensions</strong></td>
<td><strong>Stable (-)</strong></td>
</tr>
<tr>
<td><strong>Internal (-)</strong></td>
<td><strong>External (+)</strong></td>
</tr>
<tr>
<td>~Provides leadership during crisis and in daily production and operation (N)</td>
<td>~Provides leadership during crisis (N)</td>
</tr>
<tr>
<td>~Provides standardized training for employees which includes Diversity (N)</td>
<td>~Conducts procurement within guidelines (N)</td>
</tr>
<tr>
<td>~Provides safe work environment (N)</td>
<td>~Ensures purpose for program (N)</td>
</tr>
<tr>
<td>~Establishes administrative responsibility for equipment use and conservation (N)</td>
<td>~Ensures meals meet nutrition standards/safety + sanitation (N)</td>
</tr>
<tr>
<td>~Maintain proper food handling from purchasing to storage (N)</td>
<td>~Provides health and well being of children (N)</td>
</tr>
<tr>
<td>• Lead teams of cultural diversity (A)</td>
<td>• Manages change and transition (A)</td>
</tr>
<tr>
<td><strong>HUMAN RELATIONS- Collaborate</strong></td>
<td>• Ensures service of safe food HACCP (A)</td>
</tr>
<tr>
<td><strong>Organizational effectiveness</strong></td>
<td>• Measure customer satisfaction (A)</td>
</tr>
<tr>
<td><strong>Commitment, contribution</strong></td>
<td>• Lead in a constantly changing environment (A)</td>
</tr>
<tr>
<td><strong>Dialogue</strong></td>
<td>• Incorporates New IT (A)</td>
</tr>
<tr>
<td><strong>Participation, Training</strong></td>
<td><strong>OPEN SYSTEM – Create</strong></td>
</tr>
<tr>
<td><strong>Facilitator/Mentor</strong></td>
<td><strong>Organizational – Innovator/Visionary/Motivator</strong></td>
</tr>
<tr>
<td><strong>Facilitator/Mentor/Empathizer</strong></td>
<td><strong>Survival</strong></td>
</tr>
<tr>
<td>Facilitates interaction</td>
<td>Initiating significant change*</td>
</tr>
<tr>
<td>Encouraging participation*</td>
<td><strong>Management Activities</strong></td>
</tr>
<tr>
<td>Shows consideration * show concern/ develop people*</td>
<td><strong>Inspiring people to exceed expectations</strong></td>
</tr>
<tr>
<td><strong>INTERNAL PROCESS- Control</strong></td>
<td><strong>Insight</strong></td>
</tr>
<tr>
<td><strong>Organizational Effectiveness</strong></td>
<td>Broker*</td>
</tr>
<tr>
<td><strong>Stability</strong></td>
<td><strong>Innovation</strong></td>
</tr>
<tr>
<td><strong>Equilibrium</strong></td>
<td><strong>Acquires resources</strong></td>
</tr>
<tr>
<td><strong>Management Activities</strong></td>
<td><strong>Adaptation</strong></td>
</tr>
<tr>
<td><strong>Measurement</strong></td>
<td><strong>RATIONAL GOAL- Compete</strong></td>
</tr>
<tr>
<td><strong>Documentation</strong></td>
<td><strong>Organizational Effectiveness</strong></td>
</tr>
<tr>
<td><strong>Information Management</strong></td>
<td><strong>Produce and Compete</strong></td>
</tr>
<tr>
<td><strong>Monitor</strong></td>
<td><strong>Productiveness</strong></td>
</tr>
<tr>
<td><strong>Monitor/Coordinator/Regulator</strong></td>
<td>Modeling a hard work ethic*</td>
</tr>
<tr>
<td>• Provides information</td>
<td><strong>Profit maximization</strong></td>
</tr>
<tr>
<td>*</td>
<td>Focusing on the competition*</td>
</tr>
<tr>
<td><strong>Maintains structure</strong></td>
<td><strong>Management Activities</strong></td>
</tr>
<tr>
<td><strong>Controlling projects</strong></td>
<td>Emphasizing speed*</td>
</tr>
<tr>
<td><strong>Clarifying policy</strong></td>
<td><strong>Planning</strong></td>
</tr>
<tr>
<td><strong>Directing</strong></td>
<td><strong>Goal Setting</strong></td>
</tr>
</tbody>
</table>

Key:
(N): competency from NFSMI
(A): competency from ADA
Italicized: CVF original roles and behaviors
Italicized and*: CVF new roles and behaviors

Figure 1. Theoretical Framework CVF (Quinn, 1988; Lawrence et al., 2007) with Combined Competency Statements from ADA and NFSMI Adapted Model by B. Gankofskie.
is more pliable and deals with change, and the second dimension is more inflexible and stable. The two axes form a four-quadrant typology of organizational culture. Each quadrant represents some group of the managerial role. The four quadrant expanded diagram is an adapted model with an extraction of both ADA and NFSMI competencies combined to see how the blending of roles and competencies for entry-level dietitians/food service managers would appear.

Since its development, the CVF has been used numerous times by researchers to assess development of organizational culture, managerial behavior, human resource practice, core competencies, financial performance, and organizational effectiveness (Cameron & Quinn, 1999, 2005; Quinn, 1988). The CVF uses action imperatives such as compete, control, collaborate, and create with the inclusion of the ends and the means of achieving balance within each action. Gifford, Zammuto, Goodman, and Hill (2002) state that the CVF precisely captures the tension between the different models, are highlighting the paradoxes that manager’s face. The CVF emphasizes both control and flexibility and both internal and external factors (Whitley, 2007). Because the CVF can be used at multiple levels of analysis, it can be helpful in promoting the type of culture needed for successful quality improvement efforts and in explaining an organization’s performance more consistently (Reich & Benbasat, 2000).

The CVF model evolved from four other models: (a) the rational goal model; (b) the internal process model; (c) the human relations model, and (d) the open systems model. Taylor ‘s (1913) motion study tracked productivity of workers in the factory shop for efficiency and determined that managers did not match worker ability with the task to be completed. Taylor (1913) developed management science and the best way to get the work
done. This method of management science recognized that having the right person complete
the task increased productivity and improved motivation. Many of these principles are still
used today in the food service industry (Keiser, 1998).

**Rational Goal Model: The Director and Producer Roles**

The rational goal model is based on the premise that managers are responsible for all
decisions, all decisions are driven by “the bottom line,” and managers assume the role of
director and producer (Quinn et al., 1990). This period of time in the early 1900s had
predominately uneducated and unskilled labor often exploited for the sake of profits.

As a director, a manager is expected to clarify expectations through processes, such
as planning, goal setting and serving as a decisive moderator who defines problems, selects
alternatives, establishes objectives, defines roles and tasks and generates the rules from
policy (Quinn et al., 2003). The director role is often described as hard driving and a person
who is no-nonsense with a take-charge attitude. The producer role is task oriented and
focused, with high interest and motivation in success and great personal drive (Quinn et al.
2003).

**Internal Process Model: Monitor and Coordinator Roles**

The internal process model is a variation of the rational goal model. Two theorists,
Weber (1997) and Fayol (1949), both used classical administration principles to form a
model. Weber developed a well-defined division of labor, and Fayol considered tasks that
could be divided among various levels of labor and across organizations (Weber, 1997;
Fayol, 1949). The framework identified planning, organizing, commanding, coordinating,
and controlling as essential elements for effective management (Fayol, 1949, 1950). The
model continues to define responsibility, measurement, documentation, and record keeping,
all within a hierarchy of management and governed by well-defined rules (Quinn et al., 1990).

In the monitor role a manager is expected to know what is going on in the business, to determine if employees are complying with rules and regulations and to determine if the business is productive and profitable (Quinn et al., 2003). The coordinator trait is organized and can facilitate work schedules, managing crises, attending to technology, bookkeeping and other logistical tasks (Quinn et al., 2003).

Human Relations Model: The Facilitator and Mentor Role

After World War II, workers had more training and skills and could earn more money. Consumable goods production increased, and employees desired more leisure time. The work of Elton Mayo and the Hawthorne Studies of 1945 provided research on human nature in a study on the effect of illumination in the Western Electric Company’s Hawthorne Works in Illinois (as cited in Keiser, 1989). The study found that illumination intensity did not directly relate to group productivity, but the attention to group needs did change motivation. Thus, the human relation model emerged, recognizing that workers are more productive when treated differently, both positive and negative, by management (Keiser, 1989).

The facilitator is a team builder who manages interpersonal conflict and fosters collective effort for the good of the whole work team (Quinn et al., 2003). Mentors characteristics are considered the more humanistic role of a manager, which include more sensitive, open, fair and approachable traits. These roles or traits would be useful for example when a manager is determining if an employee’s request for time off is legitimate, or an employee needs encouragement for work well done (Quinn et al., 2003).
Open Systems Model: The Innovator and Broker Roles

During the 1950s, the open systems model emerged in an attempt to keep pace with the rapidly changing industry. The foodservice industry had begun its seemingly endless growth that changed from sit down service to quick service to drive-thru service. Open systems are an attempt to adapt to the changing climate of societal values, technology, and the need to know how to acquire new knowledge and adjust management to changes. Consequently, a contingency theory emerged that helped to develop the open systems model (Quinn et al., 1990). The contingency theory recognized that no one approach applies to all situations or environments. Both external and internal variables determine managerial decisions and actions and are different for each organization (Robins & Mukerji, 1990).

The role of innovator is to be aware of the trends and changes in the market and conceptualize and project where changes need to be made (Quinn et al., 2003). Innovators are usually people with vision. The broker role carries characteristic traits that express an ability to negotiate outside their field with good influence and persuasion for stakeholders to commit to contributing to a goal for the good of an organization (Quinn et al., 2003). In summary, the CVF is well grounded in prior research and provides a perspective to the development of managerial competencies based on management theory.

The Four Quadrants: Managerial Activities

What is most significant about the four quadrants (see Appendix A) is that each quadrant represents a competing value or assumption that could be defined as competency. Each continuum shows the development of the performance criteria on each end of the axis that are polar opposites such as flexibility versus stability, and internally focused as opposed to externally focused. The two upper quadrants are human relations model and open model
reading from left to right. The cohesion and morale is focused internally and then moves to externally as the focus becomes growth oriented and prepared for readiness. For example, the didactic learning that occurs is an internally focused program. As CDP directors plan to place dietetic students in management practicum experiences the program becomes externally focused. As the model is shifted from quadrant to quadrant the outcomes are different. The lower two quadrants are the internal process model on the left which controls internal communication for an organization (i.e., explaining what is to be accomplished). As the framework is moved along the axis to the right, the exercise becomes more external in the rational goal model, using productivity measures and setting standards for competency for a dietetic student or class. The continuum can be adjusted vertically upward or downward on the axis for flexibility and control (as shown in Figure 1, p. 30).

The framework is as dynamic and pliable as the organization using the framework needs to apply the roles and characteristics on the continuum. Some organization may find it more useful to apply the framework as stable and consistent, while others may need the more pliable or flexible quadrants (Quinn & Kimberly, 1984). Retail, entertainment, fashion, and public relations all need to be changing and flexible, yet there are institutions, religious orders, banking, financial institutions, and government agencies that are structured and change slowly that would be placed on the stable end of the continuum.

The management activities that reflect the human relations contribution are: (a) creating dialogue between employees to enhance interpersonal communication, (b) participation in daily work activities, and (c) developing training (Quinn & Rohrbaugh, 1983). When flexibility is applied to the open systems, management activities include: (a)
insight to organizational effectiveness in providing the service that is stated, (b) product innovation, and (c) adaptation to changes in market needs (Quinn & Rohrbaugh, 1983).

Mirvis (1988) viewed the management activities in the rational goal model as the planning element that allowed the manager to develop direction and to set goals for the department or entire organization. Cooper and Quinn (1993) state that the last quadrant, internal process, has the managerial focus on measurement and documentation, often the management of information and technology.

The CVF was updated to reflect new roles and behaviors in managerial leadership by measuring psychometric properties through structural equation modeling. The results showed some new roles associated with management in the CVF model (Figure 1) such as visionary, who anticipates customer needs, or motivator, who inspires people to exceed expectations (Lawrence et al., 2007, 2009). These can be adaptations of the ADA (2002) competency of measuring customer satisfaction. NFSMI (2003) ensures purpose for the program and leads in a constantly changing environment (ADA, 2002). For this reason the competing values framework and CVLI instrument were selected for this research. The roles, characteristics or managerial behaviors were assigned quadrants by their flexibility, themes, and focus (as demonstrated in Figure 1, p. 37).

**Preceptors and Practicum Placements**

Preceptors provide supervised practice experiences for participants in dietetics education programs and are an essential part of the future of dietetics practice. There are approximately 432 CDP dietetics students each year in need of supervised practice experience. Each student placed in four rotations could mean more than 1,728 placements annually.
Preceptor as described by Wilson (2002) is a professional in a practice site who guides an intern’s learning experience and provides direction and evaluation aimed at a specific performance. Preceptors help to transition the student from beginner to novice to expert ready for the role of entry-level practitioner.

In a study of dietetic preceptors, Wilson (2002) found that the role of the preceptors was somewhat undefined, and they (the preceptors) perceive themselves as on a continuum somewhere between instructor and mentor. Wilson found that preceptors mentored or facilitated learning by making wise choices in how information is conveyed for the benefit of the learner. In the Wilson study (2002) 87.9% of the preceptors indicated that training materials for their position in supervised practice would be beneficial. If programs fail to provide adequate support and enthusiasm for the preceptor role, burn out exists without appropriate rewards and recognition (Hill, Wolf, Bossetti, & Saddam, 1999). For preceptors, working with students is another job responsibility (Dilbert & Goldenberg, 1995), with some preceptors reporting an average of up to 8.65 hours per week with students (Marincic & Francfort, 2002).

Coordinated Dietetic Program Directors

The CDP directors/contacts can often oversee the coordination of the combined program of academics (didactic) and the supervised practice, which are combined into the CDP for students to graduate with a baccalaureate degree. Increasingly, academic programs at colleges and universities are evaluated on the extent to which they prepare graduates for success upon graduation (Parkham, Robinson, & Quinn, 2001). Programs with graduates who are unable to enter their chosen profession or meet the needs of the economy may be considered failing.
Educators are in a unique position to find placements that can build an alliance with child nutrition school food service programs and introduce students to the management experience that blends two practice specialties together: child nutrition and food service management. Sneed, Scheule, and Gregoire (1999) recommend using nutrition integrity as it applies as continuous quality improvement indicators. In 1990, the ASFSA adopted the term nutrition integrity as it was defined from research at the NFSMI “a guaranteed level of performance that assures that all foods available in schools for children are consistent with recommended dietary allowances and dietary guidelines and, when consumed, contribute to the development of lifelong, healthy eating habits” (Gregoire & Sneed, 1994, p.126). The ASFSA developed 11 core concepts related to the implementation of nutrition integrity. These core concepts could be ways to have management objectives that bridge the gap between clinical dietetic knowledge and management skills (Figure 2).

**Combining Competency Statements**

The CVF is theoretical and therefore allows for combining competency statements to determine if dietetic students can accomplish both goals simultaneously: (a) the dietetic competencies for entry-level dietitians, and (b) the school nutrition competencies for managers. The theoretical framework has clear roles and management activities such that the competencies could be divided into one of the four quadrants. In Figure 1, there is a compilation of both the ADA (Karp & Lawrence, 1999) and the NFSMI (2003) competency statements have been matched to one of the managerial roles in the CVF four quadrants.

**Summary**

The intent of this study was twofold: (a) to assess the perceptions of dietetic students and program directors to determine what project or activity helped them gain management
skills during their practicum and (b) and to determine the scores of the students and directors on the CVLI and if there is a difference between the managerial behavior scores. It is

1. Nutrition standards will be based on the Dietary Guidelines for Americans and the Food Guide Pyramid
2. Student preferences will be considered in menu planning. Since foods must be eaten to provide nutrients, menu changes will be gradual to ensure acceptance.
3. Meals will contain adequate calories and variety of foods to support growth, development, and healthy weight.
4. The nutritional value of schools meals will be evaluated over a period of days, rather than a single meal or food item.
5. Purchasing practices will ensure the use of high quality ingredients and prepared products to maximize flavor and acceptance. School foodservice and nutrition professionals will work with industry to develop appealing, affordable products that meet nutrition standards.
6. Foods will be prepared in ways that ensure a balance between optimal nutrition and student acceptance.
7. Foods offered in addition to meals will be selected to ensure optimal nutrition and student acceptance.
8. Pleasant eating environments will be provided. This includes adequate time and space to eat school meals, positive supervision, and role modeling at meal times.
9. Nutrition education will be an integral part of the curriculum from preschool to twelfth grade. The school cafeteria will serve as a laboratory for applying knowledge and skills taught in the classroom.
10. Professional development will be provided for school foodservice and nutrition personnel and other school community members to build teams of competent, caring individuals with common goals.
11. Promoting nutrition integrity in Child Nutrition Programs will be a cooperative effort between nutrition professionals and other school community members working with legislative and other government agencies.

*Eleven core concepts for nutrition integrity developed by the ASFSA Nutrition Standards and Education Committee and adopted by the ASFSA Executive Board, 1991-1992

Figure 2. Nutrition Integrity Core Concepts (Gregoire & Sneed, 1994)

necessary to provide research that documents the perceptions of these identified stakeholders who participate in educating the future dietitians who may become interested in child nutrition. The literature over the past 15 years indicates there has been a steady decline in registered dietitians entering management positions in the field of food service and dietetics. The research also showed that dietitians with management, financial, and human resource responsibility were compensated at higher pay rates.
CHAPTER III. METHOD

This chapter describes the method used in addressing the research questions posed by the study. The purpose of the study was to assess the perceptions of dietetic students and Coordinated Program Directors (CDP) in the United States on management skills and competencies students learn and use in their practicum as well as compare students and directors on the Competing Values Framework (CVF) (Lawrence et al., 2007). The study did provide information on the number and type of management skills used by students and directors. The chapter includes a description of the research design, study participants and sampling, the instrument used, the data collection procedure, and data analysis.

The method used in the study was designed to address the following research questions.

RQ1: Are there differences on the subscale and second order subscales on the CVLI for dietetic students and directors?

RQ2: Does age, grade point average, interest in management, interest in school food service child nutrition management and practicum placement statistically predict the scores on the four quadrants or subscales of the CVLI?

RQ3. Are there differences in the scores on Collaborate, Create, Control or Compete when dietetic students are compared by interest in management career and their practicum was in food service management?

RQ4. Are there differences in the scores on Collaborate, Create, Control, and Compete when dietetic students are compared by interest in management career and their practicum was in school food service management?
RQ5. What project do directors and students identify as the project or activity helping dietetic students to gain management skill in their practicum experience?

**Research Design**

The study employed a mixed method survey design using descriptive cross sectional data. A mixed methodology study using both qualitative and quantitative data is appropriate for gathering information from a large number of participants about attitudes and perceptions on a topic. A narrower qualitative only design or using words and interviews from a small number of individuals would not have addressed the goal of the study of identifying the attitudes and perceptions of a large number of dietetic students and directors on management skills. Mixed methodology combines quantitative and qualitative data in a complimentary format and allows respondents to comment or provide additional information not addressed in the survey items.

The study utilized a cross sectional survey design. Cross sectional studies are used as an alternative to longitudinal designs or following a group of people over a long period of time. Cross sectional designs can gather information from a larger number of people at different ages and stages in their personal or professional development (Gall, Gall, & Borg, 2006). In cross-sectional research, data are obtained at one time from respondents of different stages of development in their personal and professional lives. One advantage of cross-sectional research is that sample attrition is not an issue as the data are collected at one point in time (Gall et al., 2006). The cross-sectional approach is much less expensive due to the short time span of the study (Ary, Jacobs, Razavieh, & Sorenson, 2009). The surveys were administered in a short time span to dietetic students and directors to reflect their current opinions and attitudes.
The study was also descriptive and explored the beliefs and attitudes about the management skills learned and used by a group of dietetic students and directors. While descriptive studies are simple in design and execution, they can yield important data and information for informing policy and the direction of future research (Gall et al., 2006). Survey or questionnaire collection of data from a wide variety of sources in a timely and concise manner is easy (Dillman, Smyth & Christian, 2008). Various methods of survey data collection include personal interviews, telephone interviews, mailed questionnaires, and directly administered questionnaires (Ary et al., 2009). More recently, the Internet has proved to be a valuable tool in designing and administering surveys (Dillman et al., 2008).

Regardless of the method chosen, the six basic steps involved in conducting survey design research are planning, defining the population, sampling, constructing the instrument, conducting the survey, and processing the data (Ary et al., 2009).

**Study Participants and Sampling**

A non-probability sample was used in the study consisting of dietetic undergraduate students and CDP directors. The students asked to participate in the study were student members of the ADA and enrolled in the 2010 class of CDP dietetic undergraduate students. Directors were currently employed as supervising CDP programs and members of the American Dietetic Association.

This research used a non-probability sample of CDP dietetic students and directors of the CDP. A non-probability sample is a sample group accessible to the researcher and selected for their ability to meet criteria established for the study. A non-probability sample meets the purpose of the study and the parameters identified for participation (Gall et al., 2006). A non-probability sample indicates there is no way to calculate an individual’s chance
of being a member of the sample. While this type of sample makes it easier to conduct research, there are limitations. There is no precise way of generalizing from the sample to any type of population and the generalizability of the findings is limited to characteristics of the respondents. While there can be problems with non-probability samples, sometimes they are the only way to conduct a study, and the findings may need to be viewed with caution (Gall et al., 2006).

There are currently 42 accredited CD programs in colleges and universities in the United States. Each program enrolls between 12 and 18 students per class (junior-senior). It was anticipated there could be a pool of between 456 and 684 students enrolled in CDP with ADA membership. CD directors were identified as ADA members and associated with a college or university.

Sample size was determined using the Sample Size Table (Fowler, 1988). A rigorous confidence level of 95% was chosen for the group sample to fall within 95 out of 100 times. Also the data should have a low error rate so a small percentage of the time the sample group will differ from the population mean by using the 50/50 column and selecting 6 out of 100 times or 6% of the sample size for variability should be 300.

Informed Consent

The informed consent form was a part of the electronic survey (Appendix C). The consent form was the first statement on the survey page. The participant must tick a box and agree to consent to participate in the study. The consent to participate protects their privacy and their participation is voluntary. If at any time they are uncomfortable they may withdraw from the study while the consent acknowledges this research will be used for research.
Confidentiality

It is important to protect the privacy and confidentiality of participants in the research study. No names or institutions were used for data analysis or publication purpose. This research passed the review of the Iowa State University Institution Review Board.

Instrument

Two management skills surveys were used one version for students and one for directors. Dietetic students and directors completed the School Food Service Child Nutrition and Food Service Skills Survey-S or D (Appendix B). The student and director surveys consist of three instruments to address questions posed by the study including: the Competing Values Leadership Instrument (CVLI), managerial skills, and demographic items.

Competing Values Leadership Instrument

The researcher selected the newly revised version of the Competing Values Leadership Instrument: Becoming a Master Manager (CVLI) (Lawrence et al, 2007, 2009). The authors provided written permission to use the instrument for this graduate research (Appendix D). Quinn and Rohrbaugh (1981) used the organizational research of Campbell (1977) to develop the original characteristics that evolved to form the competing values framework. Campbell created an extensive list of criteria previously used to measure organizational behavior (see Table 2). The list supported research for developing the competing values framework.

Using a research approach to organizational effectiveness, Quinn and Rohrbaugh’s (1981) initial research question was “How do individuals, theorists, and researchers actually think about the construct of effectiveness?” (p. 132).
Table 2.  

*Campbell’s Organizational Effectiveness Criteria (1977)*

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<tr>
<th>Organizational Effectiveness Criteria</th>
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<tr>
<td>Overall Effectiveness</td>
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<td>Productivity</td>
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<td>Efficiency</td>
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<tr>
<td>Profit</td>
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<td>Quality</td>
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<td>Accidents</td>
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<td>Absenteeism</td>
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<td>Job Satisfaction</td>
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<td>Motivation</td>
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<td>Morale</td>
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<td>Control</td>
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<tr>
<td>Conflict/Cohesion</td>
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<td>Flexibility/Adaptation</td>
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</table>

The researchers had executives, union leaders, and academics determine whether a criterion from Campbell’s list was applied at the organizational level and if not then the criterion was eliminated, or if not a criterion of a particular organization or performance, it was eliminated.
If six of the nine panelists were in an agreement, the criterion was eliminated. Nearly half of
the original list was removed, and 17 characteristics were left (Quinn & Rohrbaugh).

The second stage of developing the framework involved expert panelists comparing
scenarios of the criteria (Quinn & Rohrbaugh, 1981). The authors used a paired comparison
ratings and algorithmically analyzed them. They then were able to identify three
dimensions representing 16 effectiveness criteria. One criterion was found to be an isolate
and was eliminated. The first dimension was a horizontal or X-axis, representing the people-
oriented or organizational-oriented focus. The second dimension was represented by the
vertical or Y-axis and was scaled from flexible to stable organization. The third dimension
was a reflection on output (end results) or the managerial process (Quinn & Rohrbaugh).

Quinn et al. (1990) used the instrument in an earlier version to study 295 part-time
business administration graduate students to obtain their perceptions of managerial leadership
behaviors. The instrument used in the study was the Competing Values Leadership
Instrument (CVLI)(Lawrence et al., 2007, 2009). The CVLI developed to measure
management behaviors using two question items for each of the eight roles of the CVF.
Quinn noted the early version of the CVLI had both high-test validity and high-test reliability
(1988). The initial instrument had two versions: a 16-question peer reported version and a
16-question self-assessment version. An extended version of the 36-item instrument was
developed and had two peer reported instruments (Quinn, 1988). Both use a 7-point Likert-
like scale of Almost Never (1) to Almost Always (7).

Scales developed by the Likert method will ordinarily include from six to thirty
declarative statements. Some of these statements were worded in a positive manner and
others worded in a negative manner. In this manner the responses to the various items are
quantified and may be summed across statements to give a total score for the individual on
the scale. It is necessary, of course, that the assigned numbers are consistent with the
meaning of the response. For example, the first statement could be scored at 1 and the second
statement scored at 7 and has the same meaning.

Both the competing value instrument and the CVF have been based on established
managerial models (Quinn et al., 1990). Dennison, Hooijberg and Quinn (1995) used the 16-
item peer-reported version of the CVLI and recorded evidence of instrument reliability for a
sample of 176 executive managers from 84 different public utilities. Reliability coefficients
ranged from .61 to .87 (p 534-35). After years of use in research and increasing success as an
established theory in management, organizational theory, leadership, and organizational
culture, the CVF has been used for organizational management theory with new
characteristic names (Cameron & Quinn, 1999).

Management Skills

The management skills section of the School Food Service Child Nutrition and Food
Service Skills Survey-S and D consists of 30 management skills answered with a yes or a no
response. The director or student indicated whether the skill was learned or used during the
practicum by marking yes. A Yes/No response was selected for the responses because the
student either had or had not learned or used the skill during the practicum. The list of
management skills was developed from the core competencies for School Nutrition
Managers as identified by NFSMI (2003) and ADA core competencies for food and nutrition
services in healthcare and food service management (ADA, 2002, 2008; Karp & Lawrence,
1999).
Demographics

Students and directors were asked to provide some demographic information. The data was used to develop a rich description of the survey’s respondents and provide data to be used in the analysis of the data. Students were asked to provide their age, gender, and grade point average (GPA). Students were asked several yes/no questions about interest in a career in management, interest in a career in school food services, and directors were asked how many students they placed in a practicum each year and the number of students supervised in the practicum. Directors were also asked their present job title and highest level of completed education. Directors and students were also asked an open-ended question addressing about what projects they think helped students to acquire management skills in their practicum experience.

A dichotomous scale was chosen for the management skills survey as a Yes/No scale is often used when it allows respondents to move more easily to the next question. The survey was sent out electronically to dietetic students and the first 36 questions were scaled with a 7-point Likert type scale. Once the respondent progressed to the Management Skills Survey it was a very long survey using a Likert scale for both. It was determined from the pilot study that using a dichotomous scale for the second part would increase ease of use and increase response rate (Dilman et al., 2008). The object was not to determine how much or how often they might have learned or used the management skill, only to assess whether or not it had been used or learned during the practicum.
Data Collection Procedure

Prior to sending the School Food Service Child Nutrition and Food Service Skills Survey to students and directors, the survey instrument was reviewed for clarity, instructions, and reading ease by the researcher’s doctoral committee. A separate pilot test was administered to 11 individuals working in school or food management services to assess reliability and content. Both groups were asked to comment on the School Food Service Child Nutrition and Food Service Skills Survey and suggestions were considered and incorporated into the surveys if appropriate.

The ADA student affiliate email list and the university academic affiliate membership lists were used through association contacts. Students and directors with their electronic contact information were entered into a spreadsheet to facilitate administering the survey. An electronic survey website, www.surveymonkey.com, was used to administer the survey through email distribution. A cover letter /email was sent to all potential participants and it contained a link to the survey. The first page of the survey had an informed consent statement and the respondent had to tick a box providing consent. If the box was not ticked then the respondent was thanked and access to the survey was not possible. When respondents tick consent to participate in the survey, they were taken to the survey that was designed for the respondent: student or director (Dillman et al., 2008). Directors were taken to the surveymonkey link for CDP directors once they clicked on the link and their address was recognized by surveymonkey the respondent was not allowed to re-enter the survey. The students were taken to a separate link for surveymonkey for dietetic student survey and once they were entered into the survey they were not allowed back. The survey website was confidential, does not collect any personally identifying information, and responses are
anonymous. The survey was for a period of two and a half weeks with reminders sent to
director and student non-respondents after one week and again after two weeks.

**Data Analysis**

When access to www.surveymonkey.com website link was closed for collecting data,
the data was downloaded to a spreadsheet, and edited to clean the data. Randomly assigned
identification numbers were provided for each respondent. The qualitative open-ended
responses were separated from numerical data and pertinent descriptive data retained to
provide descriptors for the qualitative responses.

The data analysis for the study did occur in a series of steps. The first step was to
inspect the data using descriptive statistics (mean, median, mode, standard deviation, and
frequency) to gain a general understanding of the data. Cronbach’s alpha reliability
coefficients were calculated for each of the scale on the CVLI. Ascertaining the psychometric
properties of any instrument can be important in any research because of the differences in
different study groups. The CVLI was scored according to instructions provided by
Lawrence et al., (2009). Summing across the yes responses for directors and students to
create a managerial skills score did score the management skills.

Research questions and hypotheses 1-3 were tested using a general linear model
ANOVA to test for differences in the means of the groups. The assumptions of ANOVA
were checked to ensure the data met the assumptions. The assumptions of ANOVA include
normal distribution, independence of observation, and homogeneity of variance.
Assumptions were checked using the Levene’s test and the Kolmogorov-Smirnov test for
normality as well as checking a skewness and kurtosis. A probability level of \( p = .05 \) or less
was used as the criteria for rejecting or failing to reject the null hypothesis.
Research question 4 was tested using stepwise multiple regression. The independent or predictor variables were age, grade point average, interest in management, interest in school food service child nutrition management, and the dependent variable were the four scores on the CVLI. Simple linear regression and multiple regressions served to answer predictive types of questions. Simple linear regression involves a single independent variable (IV) and a single DV. The goal of simple regression was to create a linear equation that can predict the value of the DV if there was a value for the IV. The idea behind simple regression is to obtain the best fitting line through a series of points. The regression analysis is the means to develop the best fitting line also called a regression line. The regression line is the simple single straight line that lies closest to all points in a given scatter plot and said to pass through the centroid of the center of the scatter plot (Sprinthall, 2000).

According to Sprinthall (2000) there are three facts to be aware of when using regression lines, and the point at which the line crosses the y-axis. In multiple regression a set of predictor variables were selected (IV) as potential predictors of the dependent variable as is the case in this study. Multiple regressions are an extension of simple linear regression involving more than one predictor variable. It is used to predict the value of a single DV from a weighted linear combination of IVs.

One problem with multiple regression may be the existence of multicollinearity. Multicollinearity is a problem when there are moderate to high intercorrelations among predictor variables. The possibility for error can occur because there may be two or more variables that are measuring essentially the same information (Sprinthall, 2000). There is not much additional strength gained by adding variables to a regression analysis measuring the same thing but also multicollinearity can cause problems with the analysis itself. Stevens
(1992) pointed out three reasons why multicollinearity can cause problems. They include: (a) multicollinearity limits the size of the R since the IVs are attempting to predict the same variability as predicted to be seen in the DV; (b) multicollinearity can cause difficulty because influential effects are confounded when there is overlapping information; and (c) multicollinearity tends to increase the variances of the regression coefficients resulting in unstable prediction equations. The simplest method is to inspect the variance inflation factor (VIF) (Mertler & Vannatta, 2001). VIF indicates whether there is strong linear relationship between a predictor and all the other predictors (Stevens, 1992). Stevens also notes there is no exact rule but VIF values greater than 10 are generally cause for concern. The data for the regression analyses was checked to ensure multicollinearity did not present a problem in the analysis. If multicollinearity does exist, a variable may be deleted or variables may be combined to create a single construct. The data for the regression analysis was checked to ensure compliance with the assumption of regression. The assumptions of regression include: (a) the independent variables are fixed (the same values would be found if the study were replicated), (b) the IVs are measured without error, (c) the relationship between the IVs and DV is co-linear, (d) the mean of the residuals for each observation on the DV is zero, (e) errors on the DV are independent, (f) errors are not correlated with IV, (g) variance across all values of the IV is constant, and (h) (i) errors are normally distributed (Mertler & Vannata, 2001).

Forward, stepwise, and backward regressions are methods of entering and keeping variables in the model. In using a stepwise selection method, at each step tests are performed to determine the significance of each IV already in the equation as if it were the last to enter. If a variable were entered into the analysis and is measuring much the same construct as
another, a reassessment of the variables may conclude the first variable is no longer contributing anything to the analysis. In the stepwise selection procedure, the variable would then be dropped out of the analysis even though it might have been a good predictor at one time. The variable may not be found to provide a substantial contribution to the model (Mertler & Vannatta, 2001).

The open-ended responses on the School Food Service Child Nutrition and Food Service Survey were analyzed using content analysis. Content analysis typically is used to identify certain words or concepts in the data or text and the text is coded based on the content of the text. The process of coding is one of selective analysis and reduction. The text is reduced to categories with categories emerging from the data (Gall et al.2006). The additional remarks by students and directors were coded and grouped together.

**Summary**

Chapter 3 provided an overview of the method to be used in food service management research of CDP students and director’s perceptions of management skill development gained by dietetic students participating in a practicum experiences as well as compare the students and directors on the CVF (Lawrence et al, 2009). It reviewed the five research questions and developed the history of the research design. The study is a mixed method survey design using descriptive cross sectional data that allows for gathering data at one point in time (Gall et el., 2006). The study did incorporate a qualitative element allowing a descriptive component that allows participants to express their management beliefs and attitudes.
A non-probability sample was used from the ADA affiliate student and academic membership lists. A sample size of 300 was determined using a Sample Size Table (Fowler, 1988) with a rigorous confidence level of 95%.

Dietetic students and directors did complete the School Food Service Child Nutrition and Food Service Skills Survey-S or D; Competing Values Leadership Instrument: Becoming a Master Manager (Lawrence et al, 2009). Also, a section of the survey consists of 30 management questions and a short demographic component.

Data collection procedures were described as using first a pilot study to review clarity and assess reliability. For the actual research the ADA affiliate membership email lists were used to contact participants and the survey was administered through www.surveymonkey.com. The survey was open for two and half weeks.

Data analysis did begin with descriptive statistics then Cronbach’s alpha reliability coefficient was calculated and the CVLI was scored for management responses (Lawrence et al., 2009). Research questions 1-3 used ANOVA and research question 4 was tested with multiple regressions. Research question five was coded and analyzed using content analysis.
CHAPTER IV. RESULTS

Introduction

The purpose of the study was to assess whether college students enrolled in coordinated (undergraduate) dietetic programs (CDP) in the United States perceived themselves to be: (a) practicing management skills; (b) improving their management skills during a supervised practicum experience, and (c) if they were aware of where and how they gained management experience. Along with students, CDP Directors were also asked their perceptions of where and how students gained management skills as well as what activities improved students’ management skills. The study used a national sample to measure perceptions of management skills. A pilot study was conducted and the results of the pilot are reported in the chapter followed by a description of the study participants, the instruments used in the study are detailed, and the analysis conducted to address the research questions and hypotheses posed by the study are presented.

Pilot Study

An expert panel of school food service professionals served as the participants for the pilot study. An electronic survey was sent to eleven participants consisting of registered dietitians, school food service professionals, and college dietetic program professors. The information from the pilot study provided feedback about the ease of use of the survey link, suggestions on wording of questions, and adding a zip code locator to track regional representation. A total of 8 surveys were completed with 7 (87.5%) of the participants located in the Northeast and 1 (12.5%) in the Midwest. The expert panel provided insight for distribution of the survey and the foresight participants might skip personal data. The pilot
study indicated there were no major changes needed based on pilot study participants’ responses and comments.

The study survey was sent to dietetic students and dietetic professional educators through an electronic survey site. The student survey was posted to statewide organizations’ email lists and list servs across the United States and students were located in seven regions of the United States Department Agriculture (USDA) for Food and Nutrition (2011). The directors were identified through the ADA Web site (http://eatright.org/cps/rde/xchg/ada/career2193_ENU_HTMLevents.htm) and the survey was sent to directors at each of the 42 accredited programs in colleges and universities. The survey was completed by 37 of the 42 program directors resulting in a response rate of 88.09%. It was estimated that approximately 500 dietetic students could be participating in practicum/internships in any given semester. The 192 respondents constitute a response rate of approximately 38.4% of the students participating in practicum/internships.

**Study Participants**

As suggested by Dillman et al. (2008), socio-demographics were placed at the end of the electronic survey. Dillman et al. suggested this placement so as not to detract from the content of the survey questions until the end of the questionnaire. Not all of the students or all of the directors completed all of the demographic items and this is reflected in the data presented. Missing data was treated as missing and no attempt was made to impute missing values for the demographic data or survey data. Students volunteering to participate in the study are described first followed by directors.
Student Survey

A total of 192 dietetic students opted to participate in the study including 8 males (4.3%) and 178 females (95.7%). The majority of students \((n=105, 56.8\%)\) were interested in a career in management while 80 (43.2\%) of the students responding were not interested in management. Only 83 students (44.9\%) were interested in a career in school food service child nutrition management and the majority of the students \((n=102, 55.1\%)\) were not interested in school food management. When asked whether their practicum experience was in school food management, 39 (21.5\%) indicated it was, and 142 (78.5\%) did their practicum in another area. However, 110 of the students (60.8\%) indicated their practicum was in food service management and 71 (39.2\%) indicated their practicum was in another area.

Students ranged in age from 19 to 66 years of age \((M=27.62, SD=9.355)\). The median age was 23 with a mode of 23. Interestingly there were 22 students between the ages of 40 and 66, indicating that a number of the students were returning to school to possibly change careers or were pursuing a first degree. Students were also asked to provide their grade point average and this ranged between a 2.5 to a 4.0 with a mean of 3.573 \((SD=.311)\) indicating the students on average had a fairly high grade point average. The median was 3.50 and the mode was 3.60. Students represented each of the regions as identified by USDA with the majority of the students \((n=96, 50.8\%)\) currently attending schools in the Midwest and the fewest students were from the Mountain region \((n=3, 1.6\%)\). Table 3 presents the student respondents by USDA region.
**Director Survey**

Directors or contact person for the CDP programs consisted of 37 participants and all 37 participants were females. The directors ranged in age from 22 to 68 with a mean of 49.31 (SD=12.116). Directors had supervised dietetic student practicum for between 1 and 39 years (M=13.34, SD=9.241) and supervised between 3 and 100 students (M=21.55, SD=21.561). The median number of students supervised was 14 and the mode was 10.

### Students by USDA Region

<table>
<thead>
<tr>
<th>Region</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>11</td>
<td>6.2</td>
</tr>
<tr>
<td>Mid Atlantic</td>
<td>10</td>
<td>5.6</td>
</tr>
<tr>
<td>Southeast</td>
<td>8</td>
<td>5.0</td>
</tr>
<tr>
<td>Midwest</td>
<td>96</td>
<td>50.8</td>
</tr>
<tr>
<td>Southwest</td>
<td>24</td>
<td>13.5</td>
</tr>
<tr>
<td>Mountain</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td>Western</td>
<td>24</td>
<td>13.5</td>
</tr>
<tr>
<td>Total</td>
<td>177</td>
<td>100</td>
</tr>
</tbody>
</table>

Educational level ranged between a Bachelor’s degree (n=1, 2.7%), a Master’s degree (n=14, 37.8%), and a doctoral degree (n=22, 59.5%). Directors had a number of different job titles (see Table 4).
Table 4.

*Distribution of Directors by Job Title*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietetic Prof/Associate Prof</td>
<td>4</td>
<td>10.8</td>
</tr>
<tr>
<td>Didactic Program Directors</td>
<td>22</td>
<td>59.5</td>
</tr>
<tr>
<td>Coordinate Program Dir.</td>
<td>9</td>
<td>24.3</td>
</tr>
<tr>
<td>Dietetic Internship Director</td>
<td>1</td>
<td>2.7</td>
</tr>
<tr>
<td>Culinary Nutrition Director</td>
<td>1</td>
<td>2.7</td>
</tr>
</tbody>
</table>

**Instrument**

The instrument used for the study was the Competing Values Leadership Instrument: Becoming a Master Manager (CVLI) (Lawrence et al., 2007). The CVLI consists of four major subscales (Collaborate, Crate, Control, and Compete) with each of these subscales being further factor analyzed into three second order subscales of 3 items each (*Encourage, Develop, Acknowledge, Anticipate, Initiate, Inspire, Clarify, Expect, Control, Focus, Show,* and *Emphasize*). The CVLI utilizes a 7 point Likert type response scale of *Almost Never* (1) to *Almost Always* (7). The calculated Cronbach’s alpha for the 36 items in the CVLI was $\alpha = .974$. While the CVLI is an established instrument, it was important to ensure the CVLI continued to be a reliable instrument for this group of individuals. As can be seen in Table 5, the Cronbach’s alpha reliability coefficients indicate the scale has a high level of internal consistency and reliability for the subscales and second order subscales.
Table 5.

Reliability Coefficients for the CVLI

<table>
<thead>
<tr>
<th></th>
<th>Study Alpha</th>
<th>Previous Subscale Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborate</td>
<td>.917</td>
<td></td>
</tr>
<tr>
<td>Encouraging</td>
<td>.892</td>
<td>.71</td>
</tr>
<tr>
<td>Developing</td>
<td>.859</td>
<td>.68</td>
</tr>
<tr>
<td>Acknowledging</td>
<td>.880</td>
<td>.67</td>
</tr>
<tr>
<td>Create</td>
<td>.937</td>
<td></td>
</tr>
<tr>
<td>Anticipating</td>
<td>.902</td>
<td>.75</td>
</tr>
<tr>
<td>Initiating</td>
<td>.938</td>
<td>.81</td>
</tr>
<tr>
<td>Inspiring</td>
<td>.903</td>
<td>.77</td>
</tr>
<tr>
<td>Control</td>
<td>.946</td>
<td></td>
</tr>
<tr>
<td>Clarifying</td>
<td>.868</td>
<td>.86</td>
</tr>
<tr>
<td>Expecting</td>
<td>.948</td>
<td>.79</td>
</tr>
<tr>
<td>Controlling</td>
<td>.921</td>
<td>.85</td>
</tr>
<tr>
<td>Compete</td>
<td>.929</td>
<td></td>
</tr>
<tr>
<td>Focusing</td>
<td>.922</td>
<td>.77</td>
</tr>
<tr>
<td>Showing</td>
<td>.944</td>
<td>.79</td>
</tr>
<tr>
<td>Emphasizing</td>
<td>.917</td>
<td>.64</td>
</tr>
</tbody>
</table>

The responses of directors and students were also inspected and means and standard deviations were calculated for each group. The items in the subscales and second order
subscales were summed and a mean score calculated for each individual for each of the subscales and second order subscales. Tables 6 and 7 present the instrument descriptive data for student and director respondents by major subscale and minor subscale.

**Table 6.**

*Student CLVI Descriptive Data*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborate</td>
<td>192</td>
<td>5.27</td>
<td>1.15</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Encouraging</td>
<td>192</td>
<td>5.55</td>
<td>1.21</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Developing</td>
<td>192</td>
<td>4.87</td>
<td>1.43</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Acknowledging</td>
<td>192</td>
<td>5.44</td>
<td>1.29</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Create</td>
<td>192</td>
<td>4.89</td>
<td>1.21</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Anticipating</td>
<td>192</td>
<td>5.44</td>
<td>1.29</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Initiating</td>
<td>192</td>
<td>4.71</td>
<td>1.45</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Inspiring</td>
<td>192</td>
<td>4.85</td>
<td>1.40</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Control</td>
<td>192</td>
<td>5.30</td>
<td>1.22</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Clarifying</td>
<td>192</td>
<td>5.14</td>
<td>1.38</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Expecting</td>
<td>192</td>
<td>5.75</td>
<td>1.28</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Controlling</td>
<td>192</td>
<td>5.00</td>
<td>1.35</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Compete</td>
<td>192</td>
<td>5.05</td>
<td>1.28</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Focusing</td>
<td>192</td>
<td>4.30</td>
<td>1.64</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Showing</td>
<td>192</td>
<td>5.60</td>
<td>1.41</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Emphasizing</td>
<td>192</td>
<td>5.27</td>
<td>1.43</td>
<td>1.00-7.00</td>
</tr>
</tbody>
</table>
Table 7.

**Director CLVI Descriptive Data**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborate</td>
<td>36</td>
<td>5.29</td>
<td>1.15</td>
<td>4.00-7.00</td>
</tr>
<tr>
<td>Encouraging</td>
<td>36</td>
<td>6.19</td>
<td>.89</td>
<td>4.00-7.00</td>
</tr>
<tr>
<td>Developing</td>
<td>36</td>
<td>6.17</td>
<td>.79</td>
<td>4.00-7.00</td>
</tr>
<tr>
<td>Acknowledging</td>
<td>36</td>
<td>6.01</td>
<td>.76</td>
<td>4.00-7.00</td>
</tr>
<tr>
<td>Create</td>
<td>36</td>
<td>4.89</td>
<td>1.21</td>
<td>3.33-7.00</td>
</tr>
<tr>
<td>Anticipating</td>
<td>35</td>
<td>5.80</td>
<td>.86</td>
<td>3.00-7.00</td>
</tr>
<tr>
<td>Initiating</td>
<td>36</td>
<td>5.69</td>
<td>1.04</td>
<td>3.00-7.00</td>
</tr>
<tr>
<td>Inspiring</td>
<td>36</td>
<td>5.62</td>
<td>.86</td>
<td>4.00-7.00</td>
</tr>
<tr>
<td>Control</td>
<td>36</td>
<td>5.65</td>
<td>.85</td>
<td>4.00-7.00</td>
</tr>
<tr>
<td>Clarifying</td>
<td>36</td>
<td>5.68</td>
<td>.99</td>
<td>3.67-7.00</td>
</tr>
<tr>
<td>Expecting</td>
<td>36</td>
<td>6.16</td>
<td>.78</td>
<td>4.00-7.00</td>
</tr>
<tr>
<td>Controlling</td>
<td>36</td>
<td>5.10</td>
<td>1.27</td>
<td>1.67-7.00</td>
</tr>
<tr>
<td>Compete</td>
<td>36</td>
<td>5.34</td>
<td>1.01</td>
<td>2.78-7.00</td>
</tr>
<tr>
<td>Focusing</td>
<td>36</td>
<td>4.50</td>
<td>1.58</td>
<td>1.00-7.00</td>
</tr>
<tr>
<td>Showing</td>
<td>36</td>
<td>6.20</td>
<td>.95</td>
<td>3.33-7.00</td>
</tr>
<tr>
<td>Emphasizing</td>
<td>36</td>
<td>5.25</td>
<td>1.11</td>
<td>2.33-7.00</td>
</tr>
</tbody>
</table>
Findings

Prior to commencing the analysis to address the questions posed by the study, the data was inspected to ensure it met the assumptions of the proposed statistical analysis. Responses for major and minor subscales reflected the constructs of management behavior and management practices focusing on the theoretical characteristics for established management roles (Lawrence et al., 2009). Frequencies, analysis of variance (ANOVA) and multiple regression analysis were used to address the research questions and null hypotheses posed by the study using the mean scores for students and directors. Missing data was treated as missing data throughout the analysis, as no attempt was made to impute data or infer what respondents might have meant when they left a response blank. The research questions and the analysis used to address the questions and hypothesis follow.

Research Question 1

The first research question and null hypothesis were as follows:

RQ1. Are there differences on the subscale and second order subscales on the CVLI for dietetic students and directors?

HO1. There will be no difference in the subscale and second order subscales on the CVLI for dietetic students and directors.

Analysis of variance (ANOVA) was used to test for differences on the subscale and second order subscales of the CVLI. The assumptions of ANOVA were assessed and found to be within acceptable limits. The analysis required multiple ANOVAs using the same data set. Therefore, a Bonferroni adjustment was applied to the probability level (p/number of tests or 05/16) to reduce the chance of making a Type I error in rejecting or failing to reject the null hypothesis. This resulted in a probability level of $p=.003$ for rejecting or failing to
reject the null hypothesis. The results of this analysis can be found in Table 8 and the means and standard deviations for directors and students can be found in Tables 6 and 7.

As can be seen in Table 8, there were statistically significant differences between directors and students on two of the major subscales (Collaborate and Create) and the Encouraging, Developing, Initiating, Inspiring and, Emphasizing second order subscales. Directors consistently had higher mean scores on the subscales and second order subscales than did students, and the null hypothesis was rejected for the 2 subscales and 4 second order subscales. Director responses were higher and closer to Almost Always than were student mean scores, which were slightly above a middle point. There were no differences in the means scores for students and directors for the Control or Compete subscales or for the Acknowledging, Anticipating, Clarifying, Expecting, Controlling, Focusing, and Showing second order subscales and the null hypotheses were not rejected.

Research Question 2

The second research question and hypothesis posed by the study was as follows:

RQ2. Does age, grade point average, interest in management, interest in school food service child nutrition management and practicum placement statistically predict the scores on the four quadrants or subscales of the CVLI?

HO2: Age, grade point average, interest in management, interest in school food service child nutrition management and practicum placement statistically do not predict the scores on the four quadrants or subscales of the CVLI?

The independent or predictor variables to be tested in the hypothesis were age, grade point average, interest in management, interest in school food service child nutrition management,
Table 8.

ANOVA Findings for CVLI Scales and Subscales for Comparing Directors and Students

<table>
<thead>
<tr>
<th>Scale/Subscale</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborate</td>
<td>$F(1, 226) = 17.554, p = &lt;.001^*$</td>
</tr>
<tr>
<td>Encouraging</td>
<td>$F(1, 226) = 9.135, p = &lt;.003^*$</td>
</tr>
<tr>
<td>Developing</td>
<td>$F(1, 226) = 28.012, p = &lt;.001^*$</td>
</tr>
<tr>
<td>Acknowledging</td>
<td>$F(1, 226) = 8.054, p = .011$</td>
</tr>
<tr>
<td>Create</td>
<td>$F(1, 226) = 14.430, p = &lt;.001^*$</td>
</tr>
<tr>
<td>Anticipating</td>
<td>$F(1, 226) = 8.054, p = .005$</td>
</tr>
<tr>
<td>Initiating</td>
<td>$F(1, 226) = 15.050, p = &lt;.001^*$</td>
</tr>
<tr>
<td>Inspiring</td>
<td>$F(1, 226) = 10.243, p = .002^*$</td>
</tr>
<tr>
<td>Control</td>
<td>$F(1, 226) = 2.676, p = .103$</td>
</tr>
<tr>
<td>Clarifying</td>
<td>$F(1, 226) = 4.956, p = .027$</td>
</tr>
<tr>
<td>Expecting</td>
<td>$F(1, 226) = 3.504, p = .053$</td>
</tr>
<tr>
<td>Controlling</td>
<td>$F(1, 226) = .144, p = .705$</td>
</tr>
<tr>
<td>Compete</td>
<td>$F(1, 226) = 1.555, p = .214$</td>
</tr>
<tr>
<td>Focusing</td>
<td>$F(1, 226) = 5.978, p = .015$</td>
</tr>
<tr>
<td>Showing</td>
<td>$F(1, 226) = .003, p = .954$</td>
</tr>
<tr>
<td>Emphasizing</td>
<td>$F(1, 226) = 9.135, p = .003^*$</td>
</tr>
</tbody>
</table>

practicum in school food service, and practicum in food service management. The dependent or predicted variable was the subscale scores of the CVFI (Collaborate, Create, Control, and
Each of the dependent variables was entered into separate regression procedures and results are reported separately. The assumptions of regression were assessed and found moderately acceptable. Multi-collinearity did not present any problems for a regression analysis. All of the independent variables were entered into the regression procedure rather than using the forward, backward, or stepwise regression procedure. The findings for each regression for the four major subscales follow.

**Collaborate**

The *Collaborate* subscale consisted of 12 items and a mean score was calculated for each individual. Regression analysis indicated there were no statistically significant predictors for *Collaborate*, \( R = .121, R^2 = .015, R^2_{adj} = -.029, F (7, 157) = 1.386, p = .215 \), and the null hypothesis for age, grade point average, interest in management, interest in school food service child nutrition management, practicum in school food service, and practicum in food service management not being significant predictors of *Collaborate* was not rejected.

**Create**

The *Create* major scale consisted of 12 items and a mean score had been calculated for each individual. Regression analysis indicated there were no statistically significant predictors for *Create*, \( R = .173, R^2 = .030, R^2_{adj} = -.013, F (7, 157) = .696, p = .676 \), and the null hypothesis for age, grade point average, interest in management, interest in school food service child nutrition management, practicum in school food service, and practicum in food service management not being significant predictors of *Create* was not rejected.

**Control**

The *Control* major scale consisted of 12 items and a mean score had been calculated for each individual. Regression analysis indicated there were no statistically significant
predictors for Control, \( R = .180, R^2 = .032, R^2_{adj} = -.011, F(7, 157) = .753, p = .627 \), and the null hypothesis for age, grade point average, interest in management, interest in school food service child nutrition management, practicum in school food service, and practicum in food service management not being significant predictors of Control was not rejected.

**Compete**

The Compete major scale consisted of 12 items and a mean score had been calculated for each individual. Regression analysis indicated there were no statistically significant predictors for Compete, \( R = .241, R^2 = .058, R^2_{adj} = -.016, F(7, 157) = 1.386, p = .215 \), and the null hypothesis for age, grade point average, interest in management, interest in school food service child nutrition management, practicum in school food service, and practicum in food service management not being significant predictors of Compete was not rejected.

**Research Question 3**

Research question 3 and hypothesis was as follows:

RQ3: Are there differences in the scores on Create, Control, Compete, and Collaborate when dietetic students are compared by interest in management career and practicum was in food service management?

HO3: There will be no difference in the scores of dietetic students by interest in management career on the Create, Control, Compete, and Collaborate subscales of the CVLI.

Dietetic students’ responses to questions asking if they were interested in a management career, and if their practicum was in food service management, were answered as a Yes (1) or No (2) answer. Students were grouped together by their responses into four groups as follows; Yes/Yes (11), Yes/No (12), No/Yes (21), and No /No (22). These groups of students then were used to compare the students on the subscales scores for Create,
Control, Complete, and Collaborate. ANOVA was used to compare the four groups, and a probability level of p=.05 or less was used as the criterion for rejecting or failing to reject the null hypothesis. The Levene test was assessed to determine if the data met the assumption of homogeneity of variance for ANOVA analysis and was acceptable. Inspection of the findings of the ANOVA analysis indicated there were no statistically significant differences for Create, Control, Compete, and Collaborate and the null hypothesis was retained for the four subscales. However, for this sample, inspection of the means for the four subscales indicated there were differences in the mean for the four groups despite the differences not being significant. Table 9 presents the means for the groups. As can be seen, student responses across the four subscales were consistently above the mid point between 1 and 7 but some groups did have lower scores.

Research Question 4

Research question 4 and hypothesis was as follows:

RQ4: Are there differences in the scores on Create, Control, Compete, and Collaborate when dietetic students are compared by interest in management career and their practicum was in school food service management?

HO4: There will be no difference in the scores of dietetic students by interest in management career on the Create, Control, Compete, and Collaborate subscales of the CVLI.
The responses of dietetic students to questions asking if they were interested in a management career in school food service and if their practicum was in school food service were answered as a Yes (1) or No (2). Students were grouped together by their responses into
four groups as follows; Yes/Yes (11), Yes /No (12), No /Yes (21), and No /No (22). These
groups of students then were used to compare the students on the subscales scores for Create, Control, Compete, and Collaborate. ANOVA was used as the statistic to compare the four groups and a probability level of $p=.05$ or less was used as the criteria for accepting or rejecting the hypothesis. The Levene test was assessed to determine if the data met the assumption of homogeneity of variance for ANOVA analysis and was acceptable. Inspection of the findings of the ANOVA analysis indicated there were no statistically significant differences for Create, Control, Compete, and Collaborate and the null hypothesis was retained for the four subscales. However, inspection of the means for the four subscales indicated there were differences in the mean for the four groups despite the differences not being significant. Table 10 presents the means for the groups. As can be seen, student responses across the four subscales were consistently above the mid point between 1 and 7 but some groups did have lower scores.

Research Question 5

Research question 5 was as follows:

RQ5: Are there differences in how dietetic students and directors identify activities or projects helping students to acquire managerial skills in their senior practicum?

Research question 5 was a descriptive question and did not test a hypothesis. An open-ended question on the director and student surveys asked each group what project they thought helped the students to develop or acquire managerial skills during their practicum. Not all of the study participants completed the open-ended question and some responses had multiple activities or projects in the response. Respondents’ activities and projects were grouped together and 14 themes were identified as can be seen in Table 11. Directors ($n=9$, 30.0%)
Table 10.

Subscale Means by School Food Service Interest and Practicum Type

<table>
<thead>
<tr>
<th>Group</th>
<th>Yes/Yes</th>
<th>Yes/No</th>
<th>No/Yes</th>
<th>No/No</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborate</td>
<td>31</td>
<td>7</td>
<td>78</td>
<td>63</td>
<td></td>
<td>5.40</td>
<td>1.24</td>
</tr>
<tr>
<td></td>
<td>5.15</td>
<td>5.20</td>
<td>4.31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create</td>
<td>31</td>
<td>7</td>
<td>78</td>
<td>63</td>
<td></td>
<td>5.16</td>
<td>1.21</td>
</tr>
<tr>
<td></td>
<td>4.74</td>
<td>4.85</td>
<td>4.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>31</td>
<td>7</td>
<td>78</td>
<td>63</td>
<td></td>
<td>5.68</td>
<td>.91</td>
</tr>
<tr>
<td></td>
<td>4.98</td>
<td>5.24</td>
<td>5.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compete</td>
<td>31</td>
<td>7</td>
<td>78</td>
<td>63</td>
<td></td>
<td>5.29</td>
<td>1.23</td>
</tr>
<tr>
<td></td>
<td>4.65</td>
<td>4.98</td>
<td>4.99</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

and students (n=41, 30.1%) indicated they had gained management experience through observing food service employees while they worked. Student responses indicated outside employment was an additional place they gained management experience (n=17, 12.5%) and
planning a theme meal ($n=15, 11.0\%$) was another. Directors felt managerial experience came through students being the leader of small group project ($n=4, 13.3\%$). Directors also felt quality improvement projects ($n=3, 10.0\%$) and food service management classes ($n=3, 10.0\%$) were other places for students to gain management experience; however, a similar percentage of students did not find this to be true.

Summary

Chapter 4 has presented the findings of the analysis to address the research questions posed by the study. Dietetic students ($n=192$) and Directors of dietetic programs ($n=37$) completed an online survey using the CVLI as the instrument in addition to demographic questions. Significant differences were found for two subscales and five of the second order subscales for directors and students with directors having higher mean scores overall. There was agreement on what management skills or activities students had in their practicum experience, which included: observing food service employees and managing theme meals (see Table . Selected descriptive variables did not predict student scores on the subscales (Collaborate, Create, Control, or Compete). There were no significant differences in mean scores for the four subscales for management or school food service careers although there were descriptive differences for this sample in the scores. Chapter 5 discusses these findings and relates the findings to previous research.
Table 11.

*Skills Learned – Students and Directors*

<table>
<thead>
<tr>
<th>Skill</th>
<th>Student</th>
<th></th>
<th>Directors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Menu Planning</td>
<td>6</td>
<td>4.4</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>Theme meal</td>
<td>15</td>
<td>11.0</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Food production project</td>
<td>7</td>
<td>5.1</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>Worked with school nutrition super.</td>
<td>10</td>
<td>7.4</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>None</td>
<td>5</td>
<td>3.7</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Leader of small group project</td>
<td>12</td>
<td>8.8</td>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>Create new recipes</td>
<td>1</td>
<td>.7</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Working in management observing employees</td>
<td>41</td>
<td>30.1</td>
<td>9</td>
<td>30.0</td>
</tr>
<tr>
<td>Catering project</td>
<td>4</td>
<td>2.9</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Outside employment</td>
<td>17</td>
<td>12.5</td>
<td>2</td>
<td>6.71</td>
</tr>
<tr>
<td>Outside project</td>
<td>1</td>
<td>.7</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Community nutrition project</td>
<td>2</td>
<td>1.5</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Quality improvement project</td>
<td>11</td>
<td>8.1</td>
<td>3</td>
<td>10.0</td>
</tr>
<tr>
<td>Food service management class</td>
<td>4</td>
<td>2.9</td>
<td>3</td>
<td>10.0</td>
</tr>
<tr>
<td>Total</td>
<td>136</td>
<td>100</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 12

*Themes Identified in Projects or Activities - Directors and Students*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Directors %</th>
<th>Students %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observing food service employees</td>
<td>30</td>
<td>30.1</td>
</tr>
<tr>
<td>Planning theme meals</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>Small group projects</td>
<td>13</td>
<td>8.8</td>
</tr>
<tr>
<td>Quality improvement projects</td>
<td>10</td>
<td>8.1</td>
</tr>
<tr>
<td>Food service management course</td>
<td>10</td>
<td>2.9</td>
</tr>
<tr>
<td>Worked with school nutrition supervisor</td>
<td>15</td>
<td>7.4</td>
</tr>
<tr>
<td>Outside employment</td>
<td>6.5</td>
<td>12.5</td>
</tr>
</tbody>
</table>
CHAPTER V. SUMMARY AND DISCUSSION OF FINDINGS

Chapter V presents a summary of a comparative mixed methods study using a random national sample of dietetic students and dietetic program directors. Included in the chapter are a brief background, a review of the findings and how they relate to existing research, conclusions from the data analysis, the limitations of the study, and recommendations for future research.

A survey was sent electronically to dietetic students and program directors. The survey included scaled items, yes/no, and open-ended questions in areas of: managerial behavior, practicum experience, practicum placement in child nutrition and food service, career interest in management, career interest in school food service management, career interest in food service management, activity/project helping gain management skills, number of practicum placements, and socio-demographic data.

Summary of Findings

The first research question and hypothesis sought to determine whether there were differences between student and director responses to the total and subscales of the CVLI. The null hypothesis was rejected for 2 subscales, Collaborate and Create, and for 4 second order subscales; Encouraging, Developing, Initiating, and Inspiring. There were no statistically significant difference in the mean scores for students and directors for Control and Compete subscales, and the null hypothesis was not rejected.

Research Question 1 sought to determine if there was a difference in management subscales on the CVLI for dietetic students and directors. Students and directors did score differently on the major scales of Collaborate and Compete and the subscales of Encourage, Developing, Initiating, Inspiring, and Emphasizing. Directors consistently scored higher and
closer to *almost always* than the students. Students scored slightly above the mid-point of the scale for these identified areas. Director perception indicated students should have the ability to compete for management positions and to collaborate in managerial skills. Students did not report the same perceptions about their management skills.

The second research question and hypothesis sought to determine whether or not age, GPA, interest in management, or interest in school food service management were predictors of four quadrants of the *CVLI* (*Collaborate, Create, Compete, and Control*). There were no statistically significant predictors for *Collaborate, Create, Control* or *Compete* quadrants, and the null hypothesis was not rejected.

Research Question 2 sought to determine if age, grade point average, interest in management, interest in school food service child nutrition management, practicum in school food service, or a practicum in food service management were statistically significant predictors of the score on the four quadrants of the *CVLI* (*Collaborate, Create, Control*, and *Compete*)? For all four independent variables: *Collaborate, Create, Control* and *Compete* none of the predictor variables were statistically significant predictors of managerial qualities.

The third hypothesis inquired about differences on the quadrant scores of *Collaborate, Create, Control*, and *Compete* when compared by interest or practicum type. There were differences in the mean scores, but the differences were not statistically significant and the null hypothesis was not rejected.

Research Question 3 sought to determine if there were differences in *CVLI* scores in major scales for *Collaborate, Create, Control* and, *Compete* in the scores of dietetic students when compared by interest in management career and practicum was in food service
management. Students answered (Yes/No) if they were interested in a *career in management* and if they had a *food service management practicum*. There were no statistically significant differences in the groups. However, descriptively for this particular sample the highest mean score of 5.50 was for the *Collaborate* and the group answering No/Yes: no interest in management and yes they had a practicum in food service management. The two next scores were *Collaborate* 5.46 (Yes/No) and *Control* 5.45(Yes/No). The lowest mean score was *Create* (No/No) 4.70.

Research Question 4 sought to determine if there were differences in scores on the *CVLI* in *Create, Control, Compete, and Collaborate* when dietetic students were compared by interest in management career and their practicum was in school food service management. There were no statistically significant differences in the student’s answers on the *CVLI* or the subscales. However, descriptively for this particular sample when the mean scores were compared there are differences. Descriptively for this particular sample the mean scores in all four managerial areas that had the highest mean were students reporting Yes/Yes: yes they were interested in a career in school food service and yes they had a practicum in school food service. The student scores with the lowest mean in *Collaborate* and *Create* categories answered No/No: responding no to their interest in a career in school food service and no they did not have a school food service practicum experience. The other two lowest mean scores for students in the *Control* and *Compete* areas were both in the Yes/No answer: indicating yes the student is interested in a career in school food service management but no they had no practicum experience in school food service management. The groups *Collaborate* (Yes/No) with a mean of 5.46, and *Control* (Yes/No) with a mean of 5.45 were predicted to score highest on the *CVLI*. If a student indicated yes, they were
interested in a career in management, and yes they were interested in a career in school food
service or food service management. Those students scored the highest on the CVLI.
Descriptively the students indicating an interest in management had more managerial
behaviors that matched the managerial skill set documented by Quinn (1988) and Lawrence
et al. (2009).

Research Question 5 was descriptive and did not test a hypothesis. However, the
question sought to identify how directors and students perceived the effectiveness of
activities and projects helping students to develop their managerial skills. There were
differences in the perceptions of directors and students on what activities were effective.

Research question 5 identified what project or activity students and directors
perceived helped students to acquire managerial skills during their senior practicum. Students
(n=41, 30.1%) and directors (n=9, 30%) indicated students gained management experience
through observing food service employees while they worked. Students (n=17, 12%),
indicated outside employment and theme meals (n=15, 11%) helped them gain experience.
Directors thought small group projects (n=4, 13%), quality improvement projects (n=3, 10%)
and food service management classes (n=3, 10%) were other places students gained skills.

Discussion

Dietetic students and directors completed the CVLI (Lawrence et al., 2009) to
determine if there were perceived managerial behavior differences between the two groups.
The CVLI was designed to have four first order factors and 12-second order factors that
correlate to the 36-question survey. The results indicated both students and directors had the
lowest cumulative mean score on managerial behavior, and the lowest score was on the
subscale focusing on the competition. Directors and students highest mean scores were on
expecting accurate work and showing a hard work ethic. This was consistent with the results of a hospital food service study by Gregoire et al (2005), indicating dietitians were strong on ethics but weak in managerial competencies.

The scores on the managerial survey indicated managerial strengths of both students and directors were evenly distributed in the Collaborate and Create roles on the major scales of the CVLI. Control and Compete. The two other major managerial roles on the CVLI illustrated the tendency of directors and students’ behaviors to be more inconsistent as the mean scores fluctuated within a range of 4.33 to 5.75 for students and 4.5 to 6.20 for directors.

The data indicated dietetic students and directors had similar strengths and weaknesses on the CVLI of managerial behavior scores. The CVLI was adapted to include competency statements for managerial roles for school food service managers (Quinn, 1988; Lawrence et al., 2009) based on ADA and NFSMI standards (Figure 1) and, shows a tendency for students and directors to be stronger in the upper quadrant of the CVLI and weaker in the lower quadrant. The framework is designed to measure the upper quadrant as more flexible and the lower quadrant as more stable. The students and directors as a group both scored high in more flexible quadrants of the CVLI.

If the goal is to have a well-balanced manager educating students in the skills to build and compete for managerial roles in the lower quadrants, this may prove helpful since 57.3% of dietetic students (n=110) surveyed were interested in a career in management. The results indicated that dietetic students are gaining some management skills but are not yet as developed in the managerial skills and roles they may need to compete for upper management positions.
Dietetic students participating in the study (n=105, 54.6%) indicated they were interested in a career in school food service child nutrition management. The perceptions of students in school food/food service management practicum strongly supported having hands-on management opportunities available for students. Many of these students indicated they worked in a kitchen, worked with a manager, and worked alongside a director during their practicum. This supports the finding students are interested in management. Those interested in school food service and food service management perceived the food service practicum as useful. Of the students respondents 131 indicated they participated in a project helping them gain management skills, and 51 students described working with a food service manager/director in a food service facility. Students indicated they would prefer more managerial practicum placements for food service experience. Some students requested a foodservice placement but did not receive a food service practicum placement. This could be due to the location of the institution; lack of community support or the size of the program, and the number of students may exceed available qualified placements each semester.

*Implications for Practice*

Dietetic students and directors both indicated that observation of food service workers, creating theme meals, managing small group activities or outside work experience helped students gain managerial skills. It was also clear from this dietetic education and food service management research that dietetic students are interested in management careers and being placed in practicum experiences with management skill building activities. The gap remains between what students are requesting and what dietetic programming is presently providing. Closing the gap is essential to preparing the entry-level dietitian for the management opportunities that will exist for dietetic practitioners prepared to manage food
and nutrition departments in schools, hospitals, long and short term care facilities with the hard skills that the managerial market demands.

One of the likely reasons there are not larger differences between the professional practitioners and the students may be that the faculty are highly skilled dietitians focused in medical nutrition therapy and more clinical aspects of the profession. Those skills are necessary to be a qualified RD but additional skills are required to manage a department and as students select specialties of practice food systems, hospitality, or management should be considered. It may even be wise for the CAADE to consider a 5-year program that combines dietetics and food management or hospitality as a pilot program in institutions where programs co-exist.

Limitations

Several limitations apply to this study. Self-reported data is dependent on the respondents to report honest and accurate information. This study asked dietetic students and dietetic program directors to participate through an email system provided by the ADA state organizations. Due to cost and time limitations this was the most efficient way to access both dietetic students and directors in a national study. Since the information is self-reported, the research is dependent on volunteer participants and volunteers may be intrinsically different from non-volunteers.

Timing and access was a limitation of this research. First timing the study to be launched when both students and faculty would respond. The timing within an academic semester is different for these two groups and to have the survey only open for an acceptable length of time is a challenge in timing and a limitation of this sampling group. Accessing students is quite difficult as in order to abide by the IRB guidelines through direct contact
with students at other universities it would be necessary to have clearance from each institutions IRB before surveying the students. This was a barrier that had to be cleared. This research used the ADA state organizations to access all respondents.

**Conclusion**

The Commission of Accreditation for Dietetic Education (CADE, 2008b) has recommended guidelines for university dietetic programs to follow including cost effectiveness and achievement of student centered learning outcomes (O’Sullivan-Maillet et al., 2005). One component of these outcome guidelines is a senior practicum (Anderson, Kennedy-Hagan, Stieber, Hollingsworth, Kattelmann, Stein Arnold, & Egan, 2009). Dietetic students are often asked to select from practicum placement options such as: school food service child nutrition management, university food service, hospital food service, short/long term skilled nursing food service, and retail food service management. The CADE guidance provides for the structuring of educational professional performance and practicum experience goals for students. Management skills are in demand given the status of the current United States job market and the possible expansion of the US health system (The Economist, 1/23/11) Management experience will provide dietetic students with the skills and abilities to work in food management as well as in emerging fields as healthcare after their college graduation.

A majority of dietetic students (57.3%) indicated they had an interest in management and 45% indicated they were interested in a career in school food service management. However, only 21.5% were placed in a school food service child nutrition management practicum experience. At least 23.5% of students indicated they were interested in a career in school food service child nutrition management but were not placed and did not gain
potentially valuable skill building experiences. This is a lost opportunity for dietetic students. Students interested in management careers could develop the managerial skills leading to well-rounded scores on the CVLI. The purpose of the CVLI is to identify managers likely to succeed and if higher scores in more quadrants on the CVLI were achieved, then there would be more of a tendency towards a management role. This does have value since managerial behavior is not linear but branches out to systems thinking with less predictable more dynamic work environments in a more technological environment and transitions with paradigm shifts will then have dietetic students identified and prepared to lead (Senge, 1990; Wheatley, 1994). According to survey findings, directors had median years of 15 years of experience, and the mean number of dietetic students placed in a practicum each year was 12. There may be an opportunity to close the gap by placing students in school food service child nutrition management venues. Students need placements to achieve successful outcomes from their practicum experience and to gain management skills. If student placements are not found matching the interest of students, then the course requirements may have been met but the purpose may be lost since students \((n=12, 6.25\%)\) indicated they gained “no management experience” during their practicum.

This research is the first of its kind to investigate the perceptions of both dietetic students and directors of CDP programs. It concludes that students perceive a need for more opportunity for “hands-on” management venues for practicum experiences in food service management. This might be achieved with a paradigm shift from the present model of a traditional dietetics program to a more collaborative academic model that offered integrated learning with hospitality management, food service programming, consumer science education, sports management and business. This may need to be a collaborative effort at
both the policy level through CAADE and the individual institutions that offer the concept in joint programming to attract a new breed of dietetic majors.

**Future Research**

This national study surveyed dietetic students and directors of dietetic programs to obtain their perceptions of how dietetic students gain managerial skills while participating in school food service child nutrition management/food service management practicum using the *CVLI* survey. Subsequent research might include administering the *CVLI* to another sample of dietetic students as a pre-test in the fall of their senior year and as a posttest before graduation. This would provide the ability to determine if the students improve in management skills during their senior year and if there was change in their perception of management skills. This could be further documented through observations and interviews with preceptors, directors, and interviews with students to further validate the perceptions of the students. The purpose of this research would be to document the need for a stronger link between practicum education in food service management for dietetics education and the development of managerial behavior and skills. A second purpose would be to ensure dietetic students are developing management skills to ensure employment after graduation.

Future research might also address the value of the managerial skill gained, success in job placement, the managerial skills most often used by entry-level dietitians in food management, and what activity or project could be added to a senior practicum facilitating managerial behaviors. Additionally, a study might be conducted using dietetic graduates to assess employment in management and how they learned these skills. This would allow for an improved managerial standard for dietitians in food management and provide a solid benchmark for an industry standard.
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APPENDIX A. COMPETING VALUES FRAMEWORK MODEL

Figure taken from Robert E. Quinn, 1988
Listed below are skills students may learn and use in your dietetics practicum. Please mark (Yes) to all of the skills students learn and use during their practicum.

<table>
<thead>
<tr>
<th>Skill</th>
<th>Used and Learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning menus</td>
<td>☐</td>
</tr>
<tr>
<td>Budgets and financial management</td>
<td>☐</td>
</tr>
<tr>
<td>Provide leadership to staff</td>
<td>☐</td>
</tr>
<tr>
<td>Supervise/manage staff</td>
<td>☐</td>
</tr>
<tr>
<td>Lead diverse teams effectively</td>
<td>☐</td>
</tr>
<tr>
<td>Utilize technology</td>
<td>☐</td>
</tr>
<tr>
<td>Enforce HACCP and ensure sanitation</td>
<td>☐</td>
</tr>
<tr>
<td>Analyze customer satisfaction</td>
<td>☐</td>
</tr>
<tr>
<td>Ensure all meals meet state and federal nutrition guidelines</td>
<td>☐</td>
</tr>
<tr>
<td>Keep accurate records and documentation</td>
<td>☐</td>
</tr>
<tr>
<td>Maintain accountability for food service program</td>
<td>☐</td>
</tr>
<tr>
<td>Respond to holds or good recalls quickly and effectively</td>
<td>☐</td>
</tr>
<tr>
<td>Provide a safe work environment</td>
<td>☐</td>
</tr>
<tr>
<td>Leadership to ensure a secure work environment in an emergency</td>
<td>☐</td>
</tr>
<tr>
<td>Practice energy conservation practices</td>
<td>☐</td>
</tr>
<tr>
<td>Conduct procurement and purchasing</td>
<td>☐</td>
</tr>
<tr>
<td>Ensure proper receiving and storage</td>
<td>☐</td>
</tr>
<tr>
<td>Maintain high standards for food production and distribution</td>
<td>☐</td>
</tr>
<tr>
<td>Cost effective office management</td>
<td>☐</td>
</tr>
<tr>
<td>Create atmosphere for employee productivity</td>
<td>☐</td>
</tr>
<tr>
<td>Implement organizational efficiency</td>
<td>☐</td>
</tr>
<tr>
<td>Implement standardized training</td>
<td>☐</td>
</tr>
<tr>
<td>Develop high professional standards</td>
<td>☐</td>
</tr>
<tr>
<td>Provide leadership to manage diversity</td>
<td>☐</td>
</tr>
<tr>
<td>Develop relationships with staff</td>
<td>☐</td>
</tr>
</tbody>
</table>
26 Communicate effectively with staff
27 Motivate staff
28 Lead diverse teams
29 Address student food preferences
30 Establish/market School Nutrition Program in school community

**Competing Values Framework**

Listed below are statements describing managerial practices. Indicate how often you engage in the behaviors. Check the box indicating how often you use each behavior.

<table>
<thead>
<tr>
<th>AS A MANAGER, I WOULD DESCRIBE MYSELF IN THE FOLLOWING AS:</th>
<th>Almost Never</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. making it legitimate to contribute opinions</td>
<td>☐ ☐ ☐ ☐</td>
<td>☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>2. employing participative decision making.</td>
<td>☐ ☐ ☐ ☐</td>
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<td>11. identifying the changing needs of the customer.</td>
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<td>12. anticipating what the customer will want next.</td>
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<td>14. starting ambitious projects</td>
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<td>15. launching important new efforts.</td>
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<td>16. inspiring direct reports to be creative.</td>
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<td>18. getting unit members to exceed traditional performance patterns.</td>
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<td>19. seeing that corporate producers are understood.</td>
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<td>20. insuring that company policies are known.</td>
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21. making sure that formal guidelines are clear to people.  
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34. getting work done quicker in the unit.  
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36. providing fast responses to emerging issues.  

<table>
<thead>
<tr>
<th>What project do you think helps students to acquire management skill in their practicum experience?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please provide some information about yourself – Thank you!</td>
</tr>
<tr>
<td>Your age ___________________________________________</td>
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<td>Number of students placed each academic year ___________________________________________________</td>
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<tr>
<td>How long have you supervised dietetic student practicum _________________________________________</td>
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<tr>
<td>Your Gender                                      Male ☐    Female ☐</td>
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<tr>
<td>What is your present job title ________________________________</td>
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<tr>
<td>Your highest level of completed education</td>
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</table>
School Food Service Child Nutrition and Food Service Skills Survey—Students
Listed below are skills you may have used in your dietetics practicum. Please mark (Yes) to all of the skills you learned and used during your practicum.

<table>
<thead>
<tr>
<th>Skill</th>
<th>Used and Learned</th>
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<tbody>
<tr>
<td>Planning menus</td>
<td>YES NO</td>
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<tr>
<td>Budgets and financial management</td>
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<tr>
<td>Provide leadership to staff</td>
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<tr>
<td>Supervise/manage staff</td>
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<tr>
<td>Lead diverse teams effectively</td>
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<tr>
<td>Utilize technology</td>
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<tr>
<td>Enforce HACCP and ensure sanitation</td>
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<td>Analyze customer satisfaction</td>
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<td>Ensure all meals meet state and federal nutrition guidelines</td>
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<tr>
<td>Keep accurate records and documentation</td>
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<tr>
<td>Maintain accountability for food service program</td>
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<tr>
<td>Respond to holds or good recalls quickly and effectively</td>
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<tr>
<td>Provide a safe work environment</td>
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<tr>
<td>Leadership to ensure a secure work environment in an emergency</td>
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<td>Practice energy conservation practices</td>
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<td>Conduct procurement and purchasing</td>
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<tr>
<td>Ensure proper receiving and storage</td>
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<tr>
<td>Maintain high standards for food production and distribution</td>
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<td>Cost effective office management</td>
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- Associates degree (2 year)
- Bachelor’s degree
- Master’s degree
- Doctoral degree
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<td>Create atmosphere for employee productivity</td>
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<td>Implement organizational efficiency</td>
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<td>Implement standardized training</td>
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<td>Develop high professional standards</td>
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<td>Provide leadership to manage diversity</td>
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<td>Develop relationships with staff</td>
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<td>Communicate effectively with staff</td>
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<td>Motivate staff</td>
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<td>Lead diverse teams</td>
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<td>Address student food preferences</td>
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<td>Establish/market School Nutrition Program in school community</td>
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**Competing Values Framework**

While you may not be in a managerial position now, think about your experience in school during your dietetic supervised practice, being on a team, in a club, in your family, or in jobs you have held. Check the box indicating how often you use each behavior.

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<td><strong>AS A MANAGER, I WOULD DESCRIBE MYSELF IN THE FOLLOWING AS:</strong></td>
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What project do you think helped you to acquire management skill in your practicum experience?

________________________________________________________

Please provide some information about yourself – Thank you!

Your age ________________
<table>
<thead>
<tr>
<th>Your Grade Point Average</th>
<th>________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your Gender</td>
<td>Male</td>
</tr>
<tr>
<td>Are you interested in a career in management?</td>
<td>Yes</td>
</tr>
<tr>
<td>Are you interested in a career in School Food Services Child Nutrition Management?</td>
<td>Yes</td>
</tr>
<tr>
<td>Was your practicum in School Food Services</td>
<td>Yes</td>
</tr>
<tr>
<td>Was your practicum in Food Management Service</td>
<td>Yes</td>
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</table>
APPENDIX C. CONSENT LETTER TO PARTICIPANTS

The purpose of the study is to clarify perceptions of students after their senior practicum experience, so the survey is time sensitive. The director questionnaire asks about perceptions of what management skills students’ gain during a supervised practice. The information gained in this project will be helpful to analyze what perceived management skills students gain. You should also be aware that this data might become part of a Ph.D. dissertation. So, by participating you are giving consent to participate in accordance with the Human Subjects Research procedures of Iowa State University. All names and institutions will remain anonymous for protection of privacy. 

Please take a few minutes to complete this survey about management in dietetics for both students and professionals. Your replies can help to continue to make improvements in teaching and dietetic practicum experience.

STUDENTS: Please click on this survey monkey link: http://www.surveymonkey.com/s/K8M328C

PROFESSIONALS: Please click on this survey monkey link: http://www.surveymonkey.com/s/KL8NTT7

Thank you!

Thank you for completing the survey and contributing to this research.

Sincerely,

Beth Gankofskie Robert Bosselman
Graduate Student Professor
APPENDIX D. DOCUMENTATION OF AUTHOR’S CONSENT OF USE OF THE CVLI

Dr. Lawrence,
Thank you very much for your prompt reply. I greatly appreciate it.
Beth

Katherine Lawrence wrote:

Hello Beth,

Shelly Whitmer forwarded your message to Bob Quinn (the co-author of the assessment), who is on leave of absence and forwarded your request to me. We have a forthcoming article in /Leadership Quarterly/ which describes a more robust version of the skills assessment. You are welcome to use this instrument free of charge for your academic research.

I have attached the paper for your reference. The article is in the proofing stage right now and the final version should be available electronically fairly soon.

Feel free to contact me if you have additional questions.

Katherine

On 1/28/2009 10:53 PM, Quinn, Robert wrote:

Would you please share the paper with her?

*From:* Whitmer, Shelly
*Sent:* Wed 1/28/2009 3:04 PM
*To:* Quinn, Robert
*Subject:* FW: Management information

HI Bob,

Please see message below. Is this something you can help Beth out with?

Thanks,
Shelly

-----Original Message-----
Hello,
I may not have the correct person. I am a graduate student at Iowa State University. I am trying to locate an assessment survey called "Competing Values Skills Assessment: becoming a Master Manager" authored by Robert E. Quinn and David Denison. Is this assessment instrument available anywhere that you or any of your department faculty are aware? Thank you for any time you can spend on this question.
Beth Gankofskie: foodserv@mansfieldct.org

--

Katherine Lawrence, PhD
School of Information
University of Michigan
734.994.7904
kathla@umich.edu
------------------------------------------------------------