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Essential Competencies for Delivering Quality Culinary Arts Programs in United States High Schools

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ABSTRACT

Educational standards and competencies are key features of the educational reform movement. The purpose of establishing standards and competencies is to provide focus for and understanding of what is being asked of students, teachers, and administrators in order to provide quality instructional programs (Lewis, 1999). The study looked at the culinary arts competencies high school instructors rated as highly important and their abilities to perform these competencies.

Two types of high school culinary arts instructors exist: family and consumer sciences teachers (FCST) and career and technical educators (CTE). Because teacher preparation programs and experiences differ for the two types, a working hypothesis for the study was that the two do not hold the same importance or same range of abilities for culinary arts competencies.

As a social inquire study, a concurrent mixed method triangulation approach was employed to develop better understanding of the phenomena being studied (Greene, 2008). Quantitative data were gathered using an electronic questionnaire that asked high school culinary instructors across the nation (N = 600) to rate importance and their abilities on 54 competencies. In all, 45% replied (n = 271). Descriptive statistics, t-tests, and one-way ANOVAs were used to analyze the data. Qualitative information was collected from two focus groups: FCSTs (N = 4) and CTEs (N = 5), and used to illuminate questionnaire results.

Five major findings resulted from the study and recommendations for action were suggested.

- FCSTs and CTEs, despite dissimilarities in backgrounds, exhibited no significant differences in perceptions of importance and in their estimated abilities to teach selected culinary arts competencies.
- FCSTs relied more on standards from external groups for planning and delivering high school culinary arts programs than did CTEs.
- FCSTs and CTEs rated the highest competencies, as to perceived importance and to estimated ability, to be reading recipes and measuring ingredients.
- FCSTs and CTEs uniformly agreed that course development competencies were highly important for teaching high school culinary arts programs.
- FCSTs and CTEs expressed concerns about the future of high school culinary arts programs in times of budget crises and cut backs.

I. INTRODUCTION

In the early 1980s, the seminal report, *A Nation at Risk,* noted that "we should expect schools to have genuinely high standards rather than minimum ones" (National Commission on Excellence in Education [NCEE], 1983, p. 5). In 2001, President George W. Bush signed into law The No Child Left Behind Act, which emphasized that states should ensure that all students are taught by effective competent teachers (White House Report, 2007). Despite these directives, the question remains: What standards should be used to guide preparation programs in order to produce competent teachers? This study looked at that question in references to culinary arts teachers.

Family and consumer sciences teachers (FCST) and career and technical educators (CTE) are both certified to teach culinary arts at the high school level. However, each group has traditionally taken a different path to certification (Ruhland & Bremer, 2003). The majority of family and consumer sciences teachers enter the teaching profession with a traditional four-year baccalaureate degree, while career and technical educators usually earn alternative certification on the basis of their occupational competence. This study focused on the competencies that each group identified as important to teaching culinary arts at the secondary level, and sought to find common ground between the two.

Setting commonly accepted high standards and competencies in all areas has become increasingly important, because in the 21st century, performance against standards has been adopted in most states as one requirement for securing a high school diploma.

Problem Statement

The basis of the problem investigated in the study stems not only from the availability of two certification routes for culinary arts instructors, but also from the absence of national content and performance standards for culinary arts or statements of the competencies needed to teach culinary arts in high schools. In many states, the state departments of education, in conjunction with culinary arts instructors, have independently developed culinary arts program standards. Because standard setting for culinary arts has been done primarily state-by-state, inconsistencies exist across the country in the development, delivery, and assessment of culinary arts programs. Culinary arts education without national standards and competencies lacks uniformity and focus, which introduces problems in preparing teachers, particularly those who teach in states other than the ones in which they were trained and certified.

Although, both family and consumer sciences teachers and career and technical educators teach culinary arts in high schools, each group learned the culinary craft through different methods. Family and consumer sciences teachers usually acquire their content and teaching methods by completing formal teacher education pre-service programs, which place minimal emphasis on culinary arts. Career and technical educators most often acquire their content and delivery skills through employment in the foodservice industry, which tends to limit their training in teaching methodology. Because of these differences in background and training, this question arises: Does either group have the full range of

competencies needed for effectively teaching culinary arts and for meeting the standards essential to present quality culinary arts programs in high schools?

Standards in education are established by authorities, such as federal and state governments, usually in conjunction with professional organizations or by professional organizations. The importance of establishing educational standards is to provide a focus and understanding of what is being asked of students, teachers, and administrators in order to provide quality academic programs (Lewis, 1999). For this study, culinary arts teaching standards were defined as overall goals that have been established by two professional organizations: the American Association of Family and Consumer Sciences and the American Culinary Federation. Teacher competencies were defined as the knowledge, skills, and abilities required for teaching high quality culinary arts programs in high schools. (For the definitions of other terms used in this study, see the listing at end of the chapter.)

The mission of the American Association of Family and Consumer Sciences (AAFCS) is “to provide leadership and support for professionals whose work assists individuals, families, and communities in making informed decisions about their well being, relationships and resources to achieve optimal quality of life” (AAFCS Web site, 2008). Two of the core values include a dedication to life-long learning and the preparation of new professional educators.

The mission of the American Culinary Federation (ACF) is “to make a positive difference for culinarians through education, apprenticeship, and certification, while creating a fraternal bond of respect and integrity among culinarians

everywhere" (ACF Web site, 2008). The American Culinary Federation offers students and professional culinarians an opportunity to validate their education and work experiences through 14 levels of certification. The American Culinary Federation Foundation Accrediting Commission (ACFFAC) accredits post-secondary culinary arts institutions and certifies secondary culinary programs. Currently, 91 high schools are approved by the ACFFAC (ACF Web site, 2008).

The American Culinary Federation program has 11 standards on food production. One standard is # 4 Food Preparation: "To develop skills in knife, tool and equipment handling and apply principles of food preparation to produce a variety of foods and to operate equipment safely and correctly" (*Instructional Materials Laboratory*, 2007, p. 10). In all, 107 competencies have been identified as needed to achieve these standards with an emphasis on proper safety techniques. Conversely, the American Association Family and Consumer Sciences program contains 16 standards with one of these dedicated to careers in the food production and services, which integrates the knowledge, skills, and practices required (Brown, 2007).

Even though the American Association of Family and Consumer Sciences and the American Culinary Federation have developed content standards and performance standards for teaching culinary arts, these standards are not identical nor have they been adopted nationally. The emphasis of the American Association of Family and Consumer Sciences is on formal education, culminating in an academic degree, while that of the American Culinary Federation is a focus on apprenticeship and certification. This study sought to

determine if either group has the full range of competencies essential for teaching culinary arts and for meeting the standards needed to present a quality culinary arts program in high schools.

Culinary Arts and Vocational Education

Hertzler (2004) noted that prior to the opening of Boston School of Cooking in 1878, individuals learned how to cook professionally by completing apprenticeship programs. Thus, for over 100 years, two separate routes have been open to those seeking careers in culinary arts education: on-the-job training as in an apprenticeship, and classroom instruction.

Apprenticeship

Apprenticeship is the oldest known type of vocational education in the United States (Gordon, 2003). Apprenticeship programs for professional chefs have long been a basic method of obtaining occupational competence, dating back to at least the Roman era. In the Middle Ages, bakers and pastry chefs in France formed guilds in order to protect and further their art. Gisslen (2009) claimed that, “The guilds and the apprenticeship system, which was well developed by the sixteenth century, also provided a way to pass the knowledge of the baker’s trade from generation to generation” (p. 6).

At the beginning of the 21 century, the leading culinary arts apprenticeship programs exist through the national organization of the American Culinary Federation, which offers a three-year, 6,000 hour, apprenticeship program at prestigious hotels and restaurants throughout the United States (ACF Web site, 2008). The purpose of the ACF culinary arts apprenticeship program is similar to

the first American apprenticeships, established in the colonial times, which entail a master teacher educating young apprentices to a level of competency in order for them to become productive citizens (Gordon, 2003).

Classroom Instruction

Even before the Civil War, a U.S. Congressman with a vision, Robert Owen, identified the need to teach students mechanical and agricultural subjects, as well as literary and scientific ones. His vision included the concept of "making every scholar a workman and every workman a scholar" (Lannie, 1967, p. 9). Following this line of reasoning, in1862, Congress passed the Morrill Act, which established land-grant colleges, thus identifying vocational education as a national interest and providing support for vocational education (Lemont, 2005).

The first cooking classes within a formal school setting in the United States were started by the Boston School of Cooking in 1878. The school offered a curriculum focused on standardization of recipes and cooking methods by using a cookbook as the standard textbook (Herztler, 2004).

Booker T. Washington founded the Tuskegee Institute in Alabama in 1881. As the principal, Washington emphasized both cognitive and problem solving as essential educational goals within his vocational school (Gordon, 2003). Washington emphasized learning by doing, thus, foreshadowing John Dewey and the Progressive Movement by nearly two decades. Washington's recognition of the fact that true learning is more than memorization was unusual for his day. Others agreed with Washington, such as Prosser, who in 1913 stated:

> In vocational education practice and theory must go hand in hand; the more intimately they are related to each other, the more the school will contribute to the learner's immediate success in the shop and equip the person for mastery of one's calling. (as cited in Gordon, 2003, p. 27)

In 1926, the American Vocational Association was formed and in 1929, the American Culinary Federation came into existence as an assembly of prominent chefs who became the founding leaders of to the culinary arts profession.

The first culinary arts schools in higher education were the Culinary Institute of America, established in 1946, and the Johnson & Wales University Culinary Arts Programs, which started in 1973. The 1996 *Shaw's Annual Guide to Cooking Schools* listed over 1,000 schools that offer a variety of post-secondary culinary arts programs. A review of the literature indicated that the family and consumer sciences teachers and career and technical educators teaching within these schools have maintained an array of different purposes, educational methodologies, and standards for teaching culinary arts.

With a changing educational climate, caused by societal shifts, economic pressures, and educational reforms, high school teachers are increasingly being held accountable to specific standards. However, several questions remain for culinary arts instructors. Have instructors developed the abilities necessary to teach high school culinary arts effectively? Which competencies do high school culinary arts instructors consider important? How do the perceptions about importance and estimated abilities relate to teachers' backgrounds and experiences? How much agreement is there between the two groups as to the importance and abilities to teach high school culinary arts programs?

The research questions used to guide this study flow from these questions.

Research Questions

Teachers have always needed to seek professional development and training on the content and performance competencies necessary to teach culinary arts (Cullen, 1996). Identifying which competencies are important and which types of culinary arts instructors have mastered these competencies was the crux of this study. In order to investigate the differences between family and consumer sciences teachers and career technical educators the study was guided by four research questions.

1. What competencies are essential for family and consumer sciences teachers and career and technical educators to deliver high quality culinary arts programs in high schools?

2. What competencies do family and consumer sciences teachers and career and technical educators possess from their education, training, and experiences?

3. Are there differences between family and consumer sciences teachers and career and technical educators with respect to perceived importance and estimated skill levels of competencies?

4. Are there differences between perceived importance of competencies and characteristics of culinary arts instructors?
    - Gender
    - Number of years teaching
    - Location
    - Professional cooking experience
    - Type of teacher/educator
    - Curriculum taught

Research Methodology

The purpose of this concurrent mixed method study was to describe the perceived competencies that are essential and those that are actually possessed by family and consumer sciences teachers and career technical educators to teach high school culinary arts.

The results of this study will add to the knowledge base and to the curriculum design of high school culinary arts programs. To accomplish these ends, the study employed an examination of teaching standards adopted by professional organizations, a review of the relevant literature, and the collection of new data. The various sources of information were integrated to address the research questions.

For the collection of new data, a purposive national sample of family and consumer sciences teachers and career and technical educators, who teach culinary arts in U. S. high schools in grades 9 to 12, was targeted (N = 600), with an equal distribution of teachers and educators. The purposeful sample was one of convenience (Huck, 2004). Teachers and educators in each of these groups were asked to participate in the study:

- Family and consumer sciences state directors in three states distributed a questionnaire to all their teacher-members.
- Family and consumer sciences teachers and career and technical educators taking part in culinary arts workshops at Johnson & Wales University in the last three years.
- Johnson & Wales University alumni, who were career and technical educators, were selected from a Johnson & Wales University Admissions Office list of active alumni and summer workshop program rosters.

The resulting sample included teachers located in 42 states. An electric questionnaire, using SurveyMonkey™, was used to collect data on competencies from the sample. Four sources were used to develop the 54 competencies included on the questionnaire.

- DACUM chart from Johnson & Wales University (Taylor & Brantolino, 2001),
- Task Verification for Career Related Teachers chart from Ohio State University
  (Norton, 2001),
- American Association of Family and Consumer Sciences National Standards for Family Consumer Sciences Education (AAFCS Web site, 2008), and
- American Culinary Federation Secondary Certification: Required Knowledge & Skills Competencies (ACF Web site, 2008).

Limitations/Delimitations

Internal Validity

Creswell (2003) in his book, *Research Design Qualitative, Quantitative, and Mixed Methods Approaches,* stated that "proposal developers need to convey the steps they will take in their studies to check for accuracy and credibility of their findings" (p. 195). To ensure internal validity, accuracy, and authenticity of the findings, the study employed these strategies: triangulation of data in which data were collected from multiple sources, the review of the questionnaire and focus group questions by experts in the field and member checking, and peer debriefing in which participants from each focus group reviewed transcribed data.

External Validity

The scope of the study was somewhat limited because random sampling was not used. However, the findings can be generalized to other settings if the proximal similarity model is used. The proximal similarity model considers how similar the contexts are in terms of people, time, settings, and places of a sample compared to a particular population being studied (Trochim, 2006). To provide for transferability, Bowen (2005) noted that studies must present findings with thick descriptions of the phenomena. This study used that approach.

Resulting Actions

The study has the potential to contribute to pre-service and in-service preparation programs for family and consumer sciences teachers and career and technical educators teaching culinary arts in high schools by validating or modifying competencies within existing curricula. The study also has the potential to embellish culinary arts programs in high schools. The competencies validated through the study can provide guidance and serve as a helpful resource for teachers who are developing culinary arts programs.

An intended use of the findings is as a research component for drafting and publishing a book on how to develop a culinary arts curriculum. This book will explain why these competencies were selected, the benefits of teaching these competencies, and best practices for teaching these competencies. The culinary curriculum book will also address how these best practices contribute to student success.

Another potential use of the study findings will be used as an instrument in developing national standards for culinary competencies within the profession of culinary arts. The College of Culinary Arts and the School of Education at Johnson & Wales University, as a leader in culinary education, can be the catalysts to accomplish this task.

Summary

Academic standards and competencies are important for teachers to learn and teach. Ahern and Audette (2007) noted that "teachers have a significant impact upon students and their learning - the more effective teaching that students experience, the more successful they will be as learners" (p. 35). The No Child Left Behind Act of 2001 emphasized that states should ensure that all students are taught by effective competent teachers (White House Report, 2007). But in the area of culinary education, the question still remains: What standards and competencies should be used to guide preparation programs in producing competent teachers?

This chapter provides the rationale for the study, which focused on the competencies that high school culinary arts instructors identified as important to teaching culinary arts in high schools. Although there was a limited research base that identified these competencies, the study was designed to build and expand upon what did exist.

Chapter II provides a review of the literature on the reform of standards within education, a historical appraisal along with investigating the rudiments of culinary education. An overview of the methods, procedures, and data collection

techniques is the focus of Chapter III. Chapter IV presents the findings from the triangulation of the data collected and analyzed from the questionnaire, the focus groups, and the review of literature. Chapter V presents a summary of the major findings, the conclusions based on the findings, and a set of recommendations.

Definition of Terms

Abilities - competence in doing a skill.

Career and Technical Education - a newer term for vocational education. According to the Association of Career and Technical Education (ACTE) (2002) career and technical education is defined as secondary and post secondary education institutions that provide students with:

- Academic subject matter taught with relevance to the real world, often called contextual learning.
- Employability skills comprised of job-related technical skills to workplace soft skills such as oral and written communications.
- Education career paths that assist students to explore interests and careers paths while they are attending high school.

C-CAP - the Careers through Culinary Arts Program works with public schools across the nation to prepare students for college and career opportunities in the restaurant and hospitality industry.

Competency - providing a student with the sufficiency of knowledge, skills, and abilities to function/perform in a particular way *(Merriam-Webster Online Dictionary,* 2007*).*

Comprehensive High School - a high school offering both vocational and college preparatory academic programs within one building/location.

Culinarian - a person who participates in culinary arts, such as a chef.

Culinary Arts - the art of cooking.

Culinary Arts Instructors - family and consumer sciences teachers and career and technical educators who teach culinary arts in U. S. high schools.

Culinary Essentials - an educational program with a curriculum that prepares students for college and career opportunities in the food service industry. The curriculum materials are developed by Johnson & Wales University and published by Glencoe McGraw/Hill.

Culinary Fundamentals - an educational program with a curriculum that prepares students for college and career opportunities in the food service industry. The curriculum materials are developed by the Culinary Institute of America and published by Prentice Hall.

Curriculum - a group of related courses aimed at teaching specific objectives, often in a special field of study.

Family and Consumer Sciences - an educational program that prepares students for professional, personal, family, and community roles (Smith & Katz, 2005).

Knowledge - the fact or condition of knowing something with familiarity gained through experience, such as teaching cooking for several years.

ProStart - educational curriculum program that prepares and encourages high school students to consider careers in the restaurant and food service industry. The program was developed by The National Restaurant Association Educational Foundation

Skill - the ability to use one's knowledge effectively and readily in execution or performance, such as dicing a vegetable.

Standard - an overall goal/rule that has been established by the professional organizations, such as the American Culinary Federation and the American Association Family & Consumer Sciences *(Merriam-Webster Online Dictionary,* 2007*).*

Vocational/Career and Technical Center - a secondary school that only offers specialized vocational academic programs, such as automotive, carpentry, and culinary arts within a segregated building/location.

II LITERATURE REVIEW

> Culinary arts attracts contemporary students because of a new realization that cookery not only transforms food but has contributed to the transformation of society.
> (Fernandez-Armesto, 2001, p. 5)

The limited body of relevant literature on the competencies and standards of culinary education provided a basis for this study. This chapter explains the search process in reviewing that literature and examines the theoretical and empirical studies in the field. Significant findings and results of these studies are evaluated, and the important factors for this study identified.

The chapter consists of three sections that explore distinct perspectives on the nature and the necessity of national standards in culinary education. The first section addresses the need for reform and the creation of standards in education. Section two explores the integration of academics and vocational education, while the third section examines the competencies currently in use for culinary arts education.

The purpose of this study is dual in nature. It serves to describe and assess the perceived competencies that family and consumer sciences teachers and career and technical educators consider essential for teaching culinary arts in high schools. It is also designed to provide an empirical basis for recommending a set of competencies that can enhance the knowledge base and curriculum design of high school culinary arts programs. Bender (2002) stated that "knowledge that is research based has significant influence on teacher education" (p. 15). The intention of the research was to put that axiom into practice.

According to Gibbons (2005), the literature review establishes the framework and lays the foundation for the rest of the study. Knowing what has been found by others is essential in understanding the effects that federal, state, and professional organizational education standards have had on the content and performance competencies deemed necessary to teach culinary arts and develop culinary arts curriculum.

Reform in Education Standards

The evolution of education has been ongoing, because “reform has been taking place in education from colonial times to the present” (Kauchak & Eggen, 2007, p. 7). However, since 1983, the United States has entered into "the age of the standard" (Merritt, 1996). Wagner (2008), in his book, *The Global Achievement Gap*, stated “business leaders and policymakers turned their attention to making schools and educators more accountable for results and thus the Standard Movement was born in the 1990s” (p.12). *A Conceptual Framework for Industry-Based Skill Standards,* an empirical study by Merritt in 1996, was based on analyzing the skill standards movement and the U.S. Departments of Labor and Education pilot projects (*N* = 22) that developed skill standards for various industries. Borich (2007) concurred with Merritt that over the past 25 years a revolution of reform on education standards has taken place. Kauchak and Eggen (2007) defined reform as “suggested changes in teaching and teacher preparation intended to increase the amount students learn” (p. 18).

In the seminal report, *A Nation at Risk*, Gardner suggested that: “We should expect schools to have genuinely high standards rather than minimum ones”

(National Commission on Excellence in Education [NCEE], 1983, p. 5). In the 1990 report, *America's Choice: high skills or low wages!,* the Commission on the Skills of the American Workforce recommended establishing a new educational performance standard for all students, to be met by the age of 16 years. The report indicated that though leading competitors have national education and work standards, the United States does not. Nor does the U.S. have a national system able of setting high standards for the non-college bound students or for assessing student achievement against those standards.

Tough Choices or Tough Times, the 2006 report of the New Commission on the Skills of the American Workforce, called for the first redesign of the American education system. The Commission recommended, "developing standards, assessments, and curriculum that reflects today's needs and tomorrow's requirements" (National Center on Education and the Economy 2007, p.14) and The next recommended step was to set teacher education standards for training teachers to use the standards, assessments, and curriculum.

Bender (2002) undertook research on the impact of pre-service teacher training on teacher education standards, which yielded six important reasons why reform in education and within the teaching profession is essential:

- "Many colleges and universities do not esteem education as they do other academic endeavors" (p. 43), resulting in education as a college major receiving limited recognition.
- There is a "lack of research that has contributed to the development of teaching as a rigorous and demanding endeavor" (p.19).
- Financial funding to support research knowledge on teaching is limited.

- There have not been many opportunities to conduct research on teaching and teaching pedagogy.
- "Elementary and secondary education majors feel inadequately prepared for the realities of the classroom" (p. 20).
- Unlike the curricula of other professions, which have some coherence of substance and pedagogy, the teacher education curriculum is widely distributed but rarely coordinated" (p. 21).

There are many contributing factors to the need for reform of the teaching profession. Darling-Hammond and Bransford (2005) claimed that "for most of the last century, there has been substantial variations in the standards to which entering teachers are held" (p. 445). In her book, *Stirring the Head, Heart and Soul,* Erickson (2008) tried to pin-point the issue by saying:

> It is true education needs improvement. The old system of education is not functional for delivering the highly cognitive, conceptual and technical skills that are needed for the 21st century. In order to change the old system new national and state standards in teacher training programs have to be implemented because quite often the teacher training institutes are churning out the "same old, same old." (p. 9)

Kauchak and Eggen (2007) noted that critics, such as Gage (1999), Marshall (1992), Goodenow (1992), and Banks (2002), identified shortcomings in the teacher effectiveness research. In his book, *Educational Renewal,* Goodlad (1994) acknowledged that John Dewey in 1902 argued for educational reform when recommending to the University of Chicago, that it create a department of pedagogy, because of a need to conduct research on teacher education. Over a century has passed since Dewey initially called for teacher education reform to "connect disciplinary knowledge to students' experiences" (Darling-Hammond & Bransford, 2005, p. 5). But over that century prior to the publishing of *A Nation at Risk* (NCEE, 1983), the behavioral theory of learning dominated education research and provided the foundation for most of the learning strategies that

were applied to child-rearing and classroom teaching (Enz, Bergeron, & Wolfe, 2007; Kauchak & Eggen, 2007). Teachers were expected to present or transmit knowledge to students, who were seen merely as empty vessels and were expected to receive, store, and return that knowledge upon request (Goodlad, 1994; Borich, 2007; Weiss & Weiss, 1998).

Kauchak and Eggen (2007) acknowledged that teacher effectiveness research focused on the teacher's role to change student behavior, but did not include the role of students in changing their behavior. "These criticisms resulted in fundamental changes in view of effective teaching methods with major shifts from a teacher-centered to a learner-centered approach" (Kauchak & Eggen, p. 8). With this change in focus came the need to develop new academic standards and accountability in teacher preparation.

Professional Teaching Standards

Several professional associations have responded to the need to improve the professional standards, goals, and the accountability of teaching professionals. These groups include: the National Association for the Education of Young Children, National Association of State Directors of Special Education, American Federal Teachers, National Commission on Excellence in Education, National Commission on Teaching and America's Future, National Education Association, Interstate New Teacher Assessment and Support Consortium, National Board Certification, and the National Board for Professional Teaching Standards. Most notable among these are: the Interstate New Teacher Assessment and Support Consortium (INTASC) and National Board for Professional Teaching Standards

(NBPTS), both of which were established in 1987, shortly after the dissemination of *A Nation at Risk* (NCEE, 1983) in an attempt to improve the teaching profession.

The INTASC mission was "to create 'board-compatible' standards that could be reviewed by professional organizations and state agencies as a basis for licensing beginning teachers" (Borich, 2007, p. 31). The INTASC developed 10 standards that were intended to delineate what teachers should know and the tasks they should be able to perform in order to be granted state licenses to teach. Standards are defined as general expressions of values and goals that provide a sense of direction (Borich, 2007; Erickson 2008; Enz, Bergeron, & Wolfe 2007; Kauchak, & Eggen 2007; Morrison, Ross, & Kemp 2004).

The INTASC standards require that teachers possess the ability to integrate, as well as disseminate, knowledge of subject-matter content, students, and the community in order to relate the classroom objectives to the lives of learners (Borich, 2007).

The mission of NBPTS was to advance the professional development of teachers in order to improve the quality of teaching and learning. The rigorous standards established the criteria for what accomplished teachers should know, and should be able to do (Enz, Bergeron, & Wolfe, 2007). The NBPTS oversees the National Board Certified Teachers program, which contributes to a national effort to strengthen teaching standards, and also serves as a symbol of professional teaching excellence (Enz, Bergeron, & Wolfe, 2007). Through national certification, the NBPTS recognizes teachers who effectively enhance

student learning and demonstrate a high level of knowledge, skills, abilities, and commitment. Teachers need to be committed to the cause of making knowledge accessible to all students. To do so, they must be content experts, who can manage student learning, and serve as models of an educated person who is a contributing member of a learning community (NBPTS Web site, 2008)

Accountability

Federal legislative mandates hold state departments of education, superintendents, school principals, and teachers accountable for the quality of education being offered. In 2001, President George W. Bush signed into law The No Child Left Behind (NCLB) Act, which emphasizes that states should ensure that all students are taught by effective, competent teachers (White House Report, 2007). NCLB has been the most far-reaching federal reform effort in providing guidelines on accountability for teachers and schools (Kauchak & Eggen, 2007). Wagner (2008) claimed that NCLB has placed educators under more pressure than ever before to raise standardized test scores. The legislation requires an assessment of student learning and holds teachers, principals, and school superintendents to high standards in all disciplines of academic and vocational education, including culinary education.

Culinary Education

Research by Bender (2002) concerning the impact of pre-service teacher training on teacher education standards determined that many colleges and universities do not value the study of education as they do other academic endeavors, which has resulted in the limited recognition of education as a major.

The study indicated that even within the hierarchy of education, career and technical education/vocational education struggles at the bottom and has limited esteem. Erickson (2008) indicated that secondary schools often cut back or cut out career and technical education. Hegarty (2004) concurred when he stated that “culinary arts and gastronomy education have received little serious scholarly attention to date” (p. 1), because the “academic community concedes that culinary education in its vocational form has limited use” (p. 2). Suffering from lack of esteem and from limited research in the field, those in culinary education have been slow to develop cohesive standards for high school culinary programs or for the preparation of culinary teachers.

Academic and Vocational Integration

Merritt (1996) claimed that reformers of mainstream education and the workplace have challenged, and continue to challenge, the series of dualities that have traditionally existed between mental and physical, head and hand, theoretical and practical, and academic and vocational activities. The “series of dualities” between academic theoretical and vocational practical education is not a new concept. Carr (1983) and Wellington (1993) previously addressed this idea, which dates back to the Sparta and Athens. The educational system of Sparta was a highly practical, efficient, and state-oriented system, while that of the Athens was more creative, individualistic, and humane. Hegarty (2004) in his book, *Standing the Heat; Assuring Curriculum Quality in Culinary Arts and Gastronomy,* noted:

> The most influential attempt to articulate this view and to differentiate forms of inquiry in terms of their different purposes was Aristotle’s threefold classification of disciplines as ‘theoretical,’

> 'productive,' and 'practical.' Aristotle distinguished between pure knowledge and practical knowledge. Pure knowledge was termed episteme, a theoretical, not practical, form of knowledge and a basis for many of the mystical and spiritual movements. Aristotle defined two forms of practical knowledge: praxis and techne. He suggested that virtue, moral excellence, and righteousness guided praxis. Techne, a term often used both for art and craft, is the kind of knowledge possessed by an expert in one of the specialized crafts. It implies correct action and skill, such as skill in carpentry or cookery. It produces action that accords with an established rule or traditional way of working. (pp. 6-7)

In the United States, many early apprenticeship agreements required the master to teach not only useful employment, but also fundamental literacy and civic and moral responsibilities. However, most masters were prepared only to teach their trades, and consequently, during the 19th century, they sent their apprentices to evening schools for general education. This was the first example of the separation of vocational and academic instruction (Lannie, 1967),

Robert Owen, who in 1830s was a U.S. Congressman, saw the need to teach students mechanical and agricultural subjects along with literary and scientific instruction. His educational vision included the concept of "making every scholar a workman and every workman a scholar" (Lannie, 1967, p. 9). In1862, the U.S. Congress passed the Morrill Act, which established land-grant colleges where Owen's vision began to take hold. According to *Atlantic Monthly* (1882), the land-grant colleges could educate millions of farmers' sons on agricultural practices and "that at last the sons of the industrial classes had been given the opportunity for a sound labor education, fitting them at once for their vocation" (p. 10).

There were two struggles in implementing the Morrill Act (*Atlantic Monthly*, 1882). First, the act challenged educators to incorporate vocational education, instruction on mechanical arts and agricultural subjects, into an efficient education system that focused on the instruction of literacy and scientific subjects. This issue divided educators into two groups: those supporting

vocational education and those supporting traditional academic or general education. The second struggle was the lack of experience of state governments and adequate infrastructure to establish and support these land-grant colleges. These struggles further provoked two important questions: How would these colleges be funded and who would teach these subjects? It would not be until 52 years later that vocational education was formally introduced into the American education system.

In 1914, the Congressional Commission on National Aid to Vocational Education was established to study the needs associated with training skilled workers. Subsequently, in 1917, " Congress passed the Smith-Hughes Act which was the first federally enacted legislation to promote vocational education in public high schools in America" (McCaslin & Parks 2002, p. 76). The first disciplines to receive federal funding were agriculture, trades and industry, and home economics. One important provision of the Smith-Hughes Act was that it was the first time the federal government allowed the use of federal funds to train teachers for vocational programs.

Evans (1978) and Lannie (1967) suggested that the demand for vocational education was cyclical with a dependence on the economy. When the economy was robust, there was a great demand for vocational education. As the level of economic activity decreased, so did the demand for vocational education. "This cyclical demand made the development of in-service programs for staff members almost impossible and made programs for teacher education almost as difficult" (Evans, 1978, p. 303). Because of the inconsistent demand for vocational pre-

service programs, the development of quality vocational pre-service culinary education program standards and competencies was slow.

Historical View of Home Economics and Culinary Arts Education

Home Economics

In 1909, Ellen H. Richards founded the American Home Economics Association. She was the first female graduate and professor at the Massachusetts Institute of Technology. Richards was a pioneer who advocated for consumer education, child protection, industrial safety, public health, career education, women's rights, purity of food and water, and the application of scientific and management principles to the family. Her professional experience and foresight led to the formulation of the family and consumer sciences profession (AAFCS Web site, 2007).

David Snedden, Commissioner of Education for Massachusetts in 1910, divided vocational education into five areas based on the occupation competencies for which individuals were prepared. The categories were professional education, commercial education, industrial education, agricultural education, and education in the household arts. The category of education for the household arts included "prepared girls for dressmaking, cooking, and management of the home" (Snedden, 1910, p. 9). It is from this classification that the Family and Consumer Sciences Teacher Association can trace its roots.

The American Vocational Association was formed in 1926. It consisted of six divisions, one of which was the Home Economics Education, known today as the Family and Consumer Sciences Education Division. The American Vocational

Association became an advocate for the Family and Consumer Sciences Division by lobbying Congress for federal funding (Jones, 2002). In 1998, in order to reflect what was being taught, the American Vocational Association changed its name to the Association of Career and Technical Education (ACTE). Not only was the named changed, but according to Jones, “The courses have become more academic, more challenging and more technical” (p. 45).

Renaming the American Vocational Association to reflect the trends in education and the workforce encouraged the American Association of Family and Consumer Sciences to review its programs. From 1926 until 1990, traditionally, family and consumer sciences programs prepared students for personal, family, and community roles; these were viewed as family oriented programs (Smith & Katz, 2005). In the last two decades, societal shifts and education reforms have changed the educational climate (Drake, 2007). Students were not achieving at desired levels, so there was a shift from finding relevance in curriculum to ensuring accountability by developing standards and implementing standardized testing. These changes, plus changes in the workplace, have impacted family and consumer sciences programs in the form of redefining both mission and direction (Smith & Katz, 2005). The new mission included a shift toward a career-oriented curriculum that allows for career exploration outside of the home. Thus, the content of employability for those in family and consumer sciences programs has become increasingly important and relevant, which is valuable, because if the curriculum is not relevant, students will not learn (Drake, 2007). From the early definition of preparing girls for dressmaking, cooking, and home

management, family and consumer sciences education has evolved into an array of competencies and standards.

Culinary Arts Education

The heritage and history of culinary arts education has evolved through thousands of years of apprenticeships practiced throughout Asia and Europe. In America, culinary education is viewed as having two distinct forms of apprenticeships: domestic and professional. The domestic apprenticeship is defined as teaching culinary arts within homes, as in the case of mothers teaching daughters the finer competencies of cooking. The professional apprenticeship is the teaching of culinary arts outside of the home within foodservice operations or schools. Hertzler (2004) noted that prior to the opening of the Boston School of Cooking in 1878, individuals who wanted to learn how to cook professionally learned from individual professionals by completing a culinary arts apprenticeship program.

Domestic Apprenticeships. The first pedagogical attempt to educate individuals on culinary competencies and standards was accomplished through the publishing of cookbooks. Amelia Simmons's *American Cookery*, published in Hartford, Connecticut in 1796, was “often referred to as a second American declaration of independence” and was the first cookbook written for a strictly American audience. (Van Devantor, 2004, p. 1).

According to Van Devanter (2004) in 1807, Maria Rundell’s cookbook *A New System of Domestic Cookery* was the cookbook of choice. It sold over 500,000 copies from 1807 to1893. *The Joy of Cooking* by Irma S. Rombauer, first

published in 1931, was the best selling cookbook in the 20th century, and has to date has sold 15 million copies. The success of these cookbooks is grounded in the theory and principles of education, because they offer readers a variety of recipes along with a didactical approach on cooking competencies.

Caraher, Dixon, Lanf, and Carr-Hill (1999) referenced a health and lifestyle survey (1993) that was conducted in England and consisted of interviews with 16 to 74 year-olds (*N* = 5,553). The participants were selected through a random sample. Their study, entitled *The State of Cooking in England: the Relationship of Cooking Skills to Food Choice,* indicated that 25% of female respondents (*n* = 2,826) and 15% of male respondents (*n* = 2,727) said that they learned to cook through cookery books and that "later in life, respondents identified cookery books as the most common source for learning more about cooking" (p. 594).

Professional Apprenticeships. Research indicates that there are several historical events, individuals, and associations who have contributed cooking competencies and standards to professional apprenticeships. The French Revolution (1789 -1814) impacted America's formal professional culinary education with French culinary traditions, organization, hierarchy, and cuisine that became the standard for high-end professional foodservice operations. The persecution of families in the monarchy and the nobility caused many of the finest chefs in France to flee to the United States (ACF, 2006). After the French Revolution, Marie-Antoine Carême (1784 -1833) became a chef to royalty throughout Europe and systemized French cooking by identifying the basic and compound sauces, classical garnishes, and standard terminology for recipes

(Johnson & Wales University, 2003). Georges Auguste Escoffier (1847-1935) was a French chef, who modified and simplified Carême's complex system of sauces and recipes. Escoffier is also "credited with creating the French brigade system, which streamlined culinary operations" (Johnson & Wales University, 2003, p. 7). However, Escoffier's greatest contribution was his ability to understand how pedagogy is applied to operational systems within a kitchen (Johnson & Wales University, 2003). The French chef, Fernand B. Point (1897-1955), brought Escoffier's French classical cuisine into the 20th century. Chef Point emphasized standardized cooking procedures to make food elegant and simple. "He trained a number of chefs, including Paul Bocuse and Roger Verge, who, along with Michel Guérad and others, carried nouvelle cuisine into the 1960s and 1970s" (Johnson & Wales University, 2003, p. 11).

In 1929, the American Culinary Federation (ACF) came into existence as an assembly of prominent chefs, who became the founding leaders to the culinary arts profession. The ACF mission is to make a positive difference for culinarians through education, apprenticeship, and certification, while creating a fraternal bond of respect and integrity among culinarians (ACF Web site, 2007). The ACF focused on European style apprenticeships until 1950 when Chef James Beard shifted the focus to American style cuisine.

James Beard is considered the grandfather of American gastronomy. He was the first to teach American cuisine on television in 1946. Julia Child followed in 1961, with television programs geared to educating Americans on the

preparation of French cuisine. Her work generated a significant public interest in culinary arts as a career choice (Cooking & Culinary Schools Web site, 2007).

The first culinary arts schools in higher education were the Culinary Institute of America, established in1946, and the Johnson & Wales University Culinary Arts Programs, which was started in 1973. These were the foremost institutions of higher education to offer formal programs leading to associates degrees in culinary arts. Culinary arts was further promoted as a profession in 1977 when the U.S. Department of Labor listed in the *Dictionary of Occupational Official Titles* as a professional and managerial occupation category from a service/domestic category that it had previously occupied.

In the 1980s, institutions of higher education began offering bachelor's degree programs in culinary arts education. In 1986, the American Culinary Federation Educational Institute Accrediting Commission was formed and was recognized in 1990 by the U.S. Department of Education as a legitimate accreditation agency. The 1996, *Shaw's Annual Guide to Cooking Schools* listed over 1,000 schools that offer a variety of post-secondary culinary arts programs, painting a promising future for the culinary arts profession.

Teaching Standards for Culinary Education

Standards in education are often established by authorities, such as federal and state governments, in conjunction with professional organizations. The importance of establishing educational standards is to provide a focus and understanding of what is being asked of students, teachers, and administrators in order to provide quality academic programs (Lewis, 1999).

For the purpose of this study, culinary arts teaching standards are defined as overall goals that have been established by two professional organizations: the American Association of Family and Consumer Sciences and the American Culinary Federation. Accordingly, teacher competencies are defined as the knowledge, skills, and abilities required for teaching high quality culinary arts programs in high schools.

In many states, the state departments of education, in conjunction with culinary arts teachers, have independently developed culinary arts program standards, thus creating inconsistencies across the country in the development, delivery, and assessment of culinary programs. Culinary arts education without national standards and competencies lacks uniformity and focus, which in turn presents problems in preparing teachers, who are hired across state lines.

The mission of the American Association of Family and Consumer Sciences (AAFCS) is “to provide leadership and support for professionals whose work assists individuals, families, and communities in making informed decisions about their well being, relationships and resources to achieve optimal quality of life” (AAFCA Web site, 2008). Two of their core values are a dedication to life-long learning and the preparation of educators. The AAFCS program has 16 standards with only one dedicated to careers in food production and services, which also integrates the knowledge, skills, and practices required (Brown, 2007).

Conversely, the American Culinary Federation (ACF) program has 11 standards on food production. Standard # 4 on Food Preparation for example,

serves “To develop skills in knife, tool and equipment handling and apply principles of food preparation to produce a variety of foods and to operate equipment safely and correctly” (Instructional Materials Laboratory, 2007, p. 10). In all, 107 competencies have been identified by the ACF as needed to achieve these standards within an emphasis on proper safety techniques.

The mission of the American Culinary Federation is “to make a positive difference for culinarians through education, apprenticeship, and certification, while creating a fraternal bond of respect and integrity among culinarians everywhere” (ACF Web site, 2008). The American Culinary Federation offers students and professional culinarians an opportunity to validate their education and work experience through 14 levels of certification. The American Culinary Federation Foundation Accrediting Commission (ACFFAC) accredits postsecondary culinary arts institutions and certifies secondary culinary programs. Currently, 91 high schools are approved by the ACFFAC (ACF Web site, 2008).

Even though the American Association of Family and Consumer Sciences and the American Culinary Federation have developed content standards and performance standards for teaching culinary arts, these standards are not identical nor have they been adopted nationally. The emphasis of the American Association of Family and Consumer Sciences is on formal education, culminating in an academic degree, while that of the American Culinary Federation focus is on apprenticeship and certification. This study seeks to determine if either group has the full range of competencies essential for

teaching culinary arts and for meeting the standards needed to present a quality culinary arts program in high schools.

Summary

This literature review examined a variety of topics, including the need for national standards in culinary arts education, the need for reform and standards in education, the integration of academics and vocational education, and standards within career and technical education, specifically culinary arts education standards and competencies. The review indicates that the culinary arts profession does not have a national standard on culinary content and performance competencies for family and consumer sciences teachers and career and technical educators to offer culinary arts in high schools. In keeping with the thinking on school reform, such standards are necessary to prepare high school students as culinarians and to prepare instructors to teach these students.

This study was needed because little information existed in the literature on identifying the training needs of family and consumer sciences teachers and career and technical educators. The basis of the problem stems not only from the existence of two-certification paths available to culinary arts instructors, but also from the fact that there are no national content standards or performance standards for culinary arts competencies needed to teaching culinary arts in high school.

Academic skills most often are taught in school settings for abstract or unspecified purposes; in contrast, vocational skills are usually taught for work and often at the workplace or in work-like settings. Frequently, there is little, if

any, connection or application drawn between academic skills and vocational skills. However, the modern era of teacher preparation reform is marked by a shift in the research to a focus on the upgrading of the knowledge and skills of teachers (Kauchak & Eggen, 2007). Cruickshank (1987) suggested that "teachers learn to teach best through apprenticeship-like experiences" (p. 5) and that reflection upon those experiences is needed.

Family and consumer sciences teachers and career and technical educators both serve as culinary arts instructors in high schools. However, each group has learned the culinary craft through different methods. Family and consumer sciences teachers are likely to acquire their content and teaching methods by completing formal teacher education pre-service programs that place minimal emphasis on culinary arts. Career and technical educators, on the other hand, are more likely to acquire their content and teaching methods through employment in the foodservice industry that minimizes approaches to teaching. The literature review indicates that two questions remain: Does either group have the full range of competencies needed for teaching culinary arts and for meeting the standards essential to present quality culinary arts programs in high schools? And what are the standards and competencies that should be used to guide the preparation program to produce competent teachers? This study addressed both questions.

In the next chapter, the methods used to address these questions are explained.

III. METHODOLOGY

The purposes of this study were dual in nature. First, it served to describe and assess the perceived competencies that family and consumer sciences teachers and career and technical educators considered as essential for teaching culinary arts in high schools. Second, it was designed to provide an empirical basis for recommending revised competencies for culinary arts instructors so that they can enhance the knowledge base and curriculum design of high school culinary arts programs.

To accomplish these ends, an examination of teaching standards adopted by the American Family and Consumer Sciences Association and the American Culinary Federation, a review of the relevant literature, and the collection of new data were employed. Information from these sources was integrated into responses to the four research questions, which guided the study:

1. What competencies are essential for family and consumer sciences teachers and career technical educators to deliver high quality culinary arts programs in high schools?

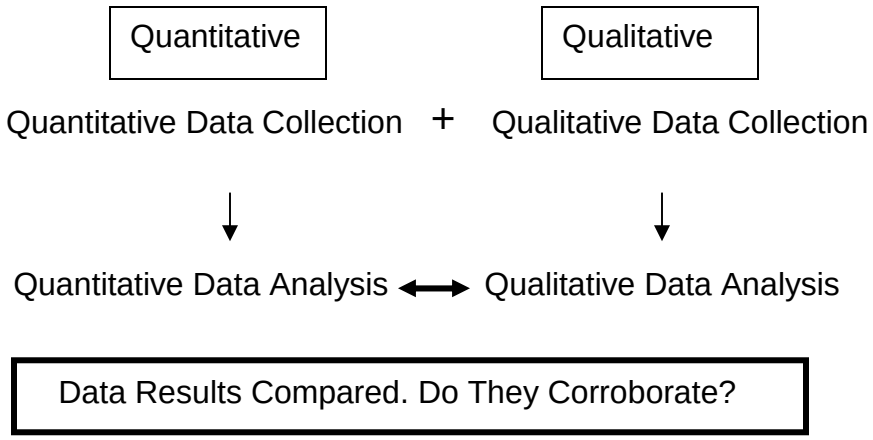
2. What competencies do family and consumer sciences teachers and career and technical educators possess from their education, training, and experiences?

3. Are there differences between family and consumer sciences teachers and career and technical educators with respect to perceived importance and estimated skill levels of competencies?

4. Are there differences between the perceived importance of competencies and characteristics of the culinary arts instructors?
    - Gender
    - Number of years teaching
    - Location
    - Professional cooking experience
    - Type of teacher/educator
    - Curriculum taught

Research Design

The study utilized a concurrent mixed method triangulation approach. For this social inquiry, a mixed method strategy was selected to develop a better understanding of the phenomena being studied (Greene, 2007). Concurrent mixed method studies combine the qualitative and quantitative approaches into singular analysis to determine if the data corroborate with one another (Creswell, 2003). Triangulation strategy provides another means for using data from various sources to validate study findings (Creswell, 2003). Figure 1 illustrates the concurrent mixed method triangulation process. Creswell noted, that “qualitative data is used to assist in explaining and interpretation the findings of a primarily quantitative study” (p. 215). Gall, Gall, and Borg (2007) and Lodico, Spaulding, and Voegtle (2006) concurred that the review of a series of quantitative studies on a particular phenomenon combined with the review of qualitative studies produces richer insights, provides greater depth and meaning, and raises more interesting questions for future research, than the consideration of just one type of data. Walliman (2008) encouraged triangulation, whereby data are corroborated from one method to another to ensure that research is more credible, reliable, and valid. The goal is to combine the strengths of both types of methods by applying them to the same situation at the same time (Lodico, 2006).



Source: Concurrent Triangulation Strategy Chart (Creswell, 2003, p. 214)

Figure 1
Concurrent Mixed Method Triangulation Process.

Data were collected in two concurrent stages. During one stage, quantitative data were gathered using an electronic questionnaire that asked family and consumer sciences teachers and career and technical educators about both their perceptions of importance and their ability to teach selected culinary arts competencies. Data were also collected concerning their pedagogical experiences in curriculum development, their technical skill competencies, and their pertinent demographic characteristics.

The second stage entailed qualitative data collected using two focus groups. These focus groups provided other perspectives as to whether the data corroborated (Katsulis, 2003). Morgan (1997) indicated that focus groups can be used as a supplementary source of data in studies that rely on some other primary source method, such as a questionnaire. The first focus group consisted of career and technical educators and the second of family and consumer sciences teachers, thus yielding the two different perspectives.

Samples

Questionnaire. For the electronic questionnaire, a national convenience sample (Huck, 2004) of family and consumer sciences teachers and career and technical educators, who teach culinary arts in U. S. secondary schools, grades 9 to 12, was targeted. A relatively large sample was used (N = 600) with equal distribution of family and consumer sciences teachers (n = 300) and career and technical educators (n = 300). A sample error calculation was performed, resulting in 5.8%. Three family and consumer sciences state directors were asked to distribute the questionnaire to all member-teachers; the three states were from different geographic regions in the United States: South, Middle Atlantic, and West.

Family and consumer sciences teachers and career and technical educators, who had participated in a culinary arts workshop during the last three years at Johnson & Wales University, were also asked to complete the questionnaire. A third group of respondents consisted of Johnson & Wales University alumni, who were career and technical educators; this group was selected from a list of active alumni and summer workshop participants prepared by Johnson & Wales University Admissions Office. The sample was drawn from teachers located in 42 of the 50 United States. See Table 1 for a breakdown distribution of the sample.

Table 1
Distribution of Questionnaire Sample by Source and Type

Source	Family and Consumer Sciences Teachers	Career and Technical Educators
State Directors in Three States	239	
Participants in JWU Culinary Arts Workshops	61	156
JWU Alumni		144
Total	300	300

Focus Groups. Two focus groups, one group of family and consumer sciences teachers (*N* = 4) and the other of career and technical educators (*N* = 5), were used to pursue exploratory aspects of the analysis (Morgan, 1997). Focus group participants were selected using the convenience approach and all were from the Northeast.

The first focus group consisted of career and technical educators, who were all culinary arts public secondary school teachers. All participants were working in an experiential learning environment, which was a commercial laboratory that replicated the equipment, design, and layout of a commercial kitchen. Griffin (2002) stated, that “unlike literature students, who worked primarily at their seats, culinary arts students learn academically while performing food preparation in a commercial kitchen” (p. 41). In all, the career and technical educators in the focus group had 63 years of experience teaching culinary arts. The group consisted of one female and four male participants.

The second focus group was composed of family and consumer sciences teachers, all of whom taught culinary arts and/or food production in hybrid kitchen environments. A hybrid kitchen environment is a cross between a commercial

kitchen and a home kitchen. Hybrid kitchens are designed as domestic kitchens, but are furnished with one or more pieces of commercial equipment. In all, the teachers in the family and consumer sciences focus group had 55 years of experience teaching culinary arts or food production. Four teachers in this focus group were females.

Instruments

Questionnaire. As promoted by Walliman (2008) and Burton (2008), the advantages of using a questionnaire is that the questions are impersonal, have fixed meanings and do not change regardless of how a person replies, and are the same for each respondent. As a result, questionnaires are suitable for larger populations and do not impose geographical limitations.

The electronic questionnaire used in the study listed 54 competencies for culinary arts in high schools that were developed from four sources:

- DACUM chart from Johnson & Wales University (Taylor & Brantolino, 2001),
- Task Verification for Career Related Teachers chart from Ohio State University (Norton, 2001),
- American Association of Family and Consumer Sciences National Standards for Family and Consumer Sciences Education, and
- American Culinary Federation Secondary Certification: Required Knowledge & Skills Competencies.

The competencies were divided into four sub-categories: Culinary Arts Techniques, Food Preparation, Culinary Arts Essentials, and Course Development. For each competency, respondents are asked to indicate how important they perceived the competency to be for delivering a quality high school culinary arts program and their skill levels for that competency. A 5-point

Likert rating scale was used, which enabled respondents to indicate levels of feeling, intensity, or confidence (Burton, Brundrett, & Jones, 2008). Possible responses ranged from *extremely high* (5) to *extremely low* (1). An additional 16 items are included to collect data on the demographic characteristics of the respondents.

Content validity of the questionnaire was supported by both the literature and the opinions of a group of professional culinary educators (*n* = 3). The questionnaire was piloted by food service educators (*n* = 3), culinary arts instructors not included in the sample (*n* = 6), and by educational professionals (*n* = 5). In all, the educators (*N* = 17) who participated in the pilots and reviews helped to ensure that the instructions, statements, and response formats were clear and easy to follow. (See Appendix A for a copy of the questionnaire.)

Focus Groups. To guide the focus group discussions, a set of structured questions were used to assist respondents in addressing issues that ranged from broad to narrow perspectives. This funnel technique facilitates focus group discussion by engaging the participants in the discussion (Morgan, 1997).

The focus group questions and process were piloted with a group of professional culinary educators (*N* = 3). (See Appendix B for a list of the questions used with the focus groups.)

Data Collection

Questionnaire. Quantitative data were collecting using a purposefully designed electronic questionnaire, which was distributed nationwide using SurveyMonkey™ to both the family and consumer sciences teachers and the

career technical educators. At least a 50% return rate was expected for several reasons: state family and consumer sciences directors distributed the questionnaire to their members and urged participation; the researcher had worked with most of the career technical educators within workshops or as students; and incentives were offered to boost returns (R. Gable, personal communication, January 14, 2008). The total worth of the incentives was $1,565. The incentives included a complimentary one-week JWU Culinary Essentials Workshop, plus hotel, meals, and airfare; complimentary Culinary Essentials Teaching and Learning Resources, which consist of 12 categories of ancillary culinary arts educational materials, such as instructor annotated edition laboratory manual, and culinary knife kit and pastry knife kit, and other things. (See Appendix C for a complete list of the incentives used.)

Focus Groups. To obtain greater depth of understanding about the competencies for delivering culinary arts programs in high schools, two focus groups were conducted. The setting for the both focus groups was a comfortable conference room at Johnson & Wales University. The first focus group was held on April 17, 2008 and lasted for 1 hour and 10 minutes, and the second was held on July 2, 2008 and lasted for 1 hour and 16 minutes.

The information derived from the two focus groups was used to corroborate and to authenticate the interpretation of the questionnaire data. To improve the credibility and dependability of the focus group information, thick descriptive notes and transcripts were compiled. The focus groups discussions were tape recorded and written transcripts were produced from the tapes. Member

checking was executed by sending the transcripts to each of the participants to verify the accuracy of statements made during the focus group discussion (Gall, Gall & Borg, 2007). All focus group focus participants completed a consent form both for the discussion and for the audio taping. (See Appendix D for a copy of consent form.)

Data Analysis

A concurrent triangulation strategy, using data from the literature, expert opinion, questionnaire responses, and focus group discussions, was employed to allow the qualitative data results to contribute to the interpretation of the quantitative findings.

Questionnaire. Descriptive statistics (means, frequencies, and percentages) were used to address Research Questions 1 and 2. Each of the 54 competencies was ranked according to mean values from highest to lowest within the appropriate category, Culinary Arts Techniques, Food Preparation, Culinary Essentials and Course Development. The mean ratings were used to establish the rankings for the perceived relative *importance* for Research Question 1 and estimated *personal skill level* for Research Question 2.

Research Question 3 was addressed by conducting a series of *t*-tests to compare the responses of the family and consumer sciences teachers with the responses of the career technical educators concerning the importance of each competency and the personal skill level for each competency. Because several *t*-tests were run, the level for the significant tests used the Bonferroni adjustment to set the alpha level for each comparison. A level of .001 was employed.

For Research Question 4, in order to determine the relationship between the perceived importance of competencies (dependent variable) and the characteristics of the culinary arts instructors (independent variables), appropriate statistical analyses were used. For each characteristic, these tests and the categories included:

- Gender (Item 55): *t*-test - female vs. male
- Years of teaching experience (Item 56): One-way ANOVA with Scheffé follow-up - less than 5 years, 5 to 10 years, 11 to 15 years, 16 to 20 years, more than 20 years.
- Type of high school (Item 57): *t*-test - comprehensive high school vs. vocational/career technical center.
- Type of educator (Item 58): One-way ANOVA with Scheffé follow-up - family and consumer sciences teachers, culinary arts only, baking & pastry only, both culinary arts & baking)
- Location (Item 59): One-way ANOVA with Scheffé follow-up - Accreditation regions: New England, Middle Atlantic, South, North Central, West, and Northwest.
- Professional cooking experience (Item 60): Categorical *t*-test, if the answer is yes, a follow-up question of how many years, one-way ANOVA with Scheffé follow-up, and where did the cooking experience take place, one-way ANOVA with Scheffé follow-up.
- Curriculum (Item 63): One-way ANOVA with Scheffé follow-up - Pro Start, C-CAP, State
- Textbook (Item 64): One-way ANOVA with Scheffé follow-up - *Culinary Essentials*, *Culinary Fundamentals*, *On- Cooking*, *Professional Chef*, *Food Preparation* (Haines).

Focus Groups. Research Question 3 was also addressed by analyzing focus group information using the funnel approach. In addition, the focus group data analysis results were used as a supplementary source of data for all aspects of

the study. A group-to-group validation (Morgan, 1997) was used to establish whether there were differences of opinion between family and consumer sciences teachers and career technical educators concerning the perceived importance and estimated personal skill levels of the competencies. Richness of the focus groups data was accomplished through transcript coding and using descriptive counting to identify themes and patterns.

Limitations and Delimitations

Limitations

Limitations are natural conditions that restrict the scope of the study and may affect its outcomes (Mertler & Charles, 2008). Gibbons (2007) explained that "limitations are provided to point out potential weaknesses in the study, so that action can be taken to mitigate their impact on the study" (p. 86).

Creswell (2003) noted that limitations refer to the internal validity of a research investigation and identify potential weaknesses of the study. "The fewer or more benign the limitations, the more closely the findings of a study will paint an accurate picture of the real situation" (Craig, 2005, p. 55). The following limitations may have influenced the internal validity of this study.

- The use of ordinal scales on the questionnaire limits the type of statistical tests that can be applied.
- Because data were collected from those attending an educational workshop facilitated by the researcher, these individuals may have had a positive bias toward the researcher and, as a result, not provide honest answers to the questions. In order to minimize this potential bias, anonymity was preserved throughout the questionnaire and data collection was performed by using an online survey service. However, the positive bias may have been a greater problem for the focus groups, despite the assurances given.

- The literature review indicated that although there was extensive research on vocational education, limited research existed on culinary arts competencies, and this may have limited the results of the study. However, by using the best information available on culinary arts competencies, this limitation was minimized.

- There are no national content standards and performance standards on culinary arts competencies, which may also have served as a deterrent to validity of the study. To mitigate this limitation, the program standards and competencies of two professional organizations, the American Association of Family and Consumer Sciences and American Culinary Federation, were integrated into the questionnaire and the focus group questions.

- As Creswell (2003) stated, "proposal developers need to convey the steps they will take in their studies to check for accuracy and credibility of their findings" (p. 195). In order to increase internal validity, trustworthiness, and authenticity of the findings, the study employed these strategies: triangulation of data, experts used to review both the questionnaire and focus group questions, and member checking in which participants from each focus group review the transcribed data.

Delimitations

Delimitations are purposeful boundaries imposed by the researcher to narrow the scope of the study (Creswell 2003; Mertler 2008). In this study there were several delimitations.

- The study was limited to family and consumer sciences teachers, who were teaching food production or culinary arts, because those working the field have a fresh understanding of the course objectives and instruction methodologies. The study did not include teachers who teach food science and nutrition based courses. Although theories of food science and nutrition are integrated into culinary arts, the course outcomes and learning objectives differ from the outcomes of culinary arts courses.

- Random sampling was not used in the study. However, the findings can be generalized to other settings, if the proximal similarity model is used. The proximal similarity model considers how similar the contexts are in terms of people, time, settings, and places of the sample compared to a particular population being studied (Trochim, 2006). To provide for greater transferability, studies must present findings with thick descriptions of the phenomena (Bowen, 2005). This study met that requirement.

Summary

This chapter described the research designs and procedures used for the study. The purpose of this study was to identify the perceived competencies essential and possessed by family and consumer sciences teachers and career technical educators to deliver quality culinary arts programs in secondary schools. Chapter IV discusses the findings.

IV. FINDINGS

Introduction

This chapter presents the analyses of the data collected for the study and draws findings from the analyses. The purposes of this study were not only to identify and rank the perceived competencies that family and consumer sciences teachers (FCST) and career and technical educators (CTE) consider as essential for delivering quality culinary arts instruction in high schools, but to use the empirical results as the base for recommending competencies for enhancing the curriculum. The intention is to use the results in drafting a culinary arts textbook focused on teaching and learning culinary arts for potential and practicing high school culinary arts instructors.

To accomplish these ends, a concurrent mixed method triangulation approach was used for the study. The goal of this method is to combine the strengths of two approaches, quantitative and qualitative, by applying them to the same situation during the same time period (Lodico, 2006). Data were collected in two concurrent stages through the use of an electronic questionnaire and focus group discussions. The questionnaire was sent to family and consumer sciences teachers and career and technical educators (N = 600) across the country. They were asked questions about their perceptions of the importance and their abilities to teach selected culinary arts competencies, their experiences with pedagogy and curriculum development, and their pertinent demographic information. Two focus groups provided additional perspectives on these topics. One focus groups

was conducted with family and consumer sciences teachers (*N* = 4) and the other with career and technical educators (*N* = 5).

The findings and accompanying discussions are presented by research question (Gibbons, 2007). However, the first section summarizes the data on the demographic characteristics of the sample respondents.

Demographics of Respondents

Questionnaire

Questionnaire data were collected electronically from a national sample of family and consumer sciences teachers and career and technical educators, who deliver culinary arts instruction in American high schools. The targeted population was 600 participants with an expected return rate of 300 responses (50% return rate). The actual number of respondents (*N* = 271) represented a 45% return rate. However, for many of the demographic questions, respondents routinely failed to answer; thus, most of the demographic results are reported for a reduced number of respondents.

Gender. The large majority of teachers responding to the questionnaire were female (79%). Table 2 presents the responses to the question on gender.

Table 2
Questionnaire Respondents by Gender in Number and Percent

Gender	Number	Percent
Female	209	79
Male	57	21
Total	266	100

Program Type. The majority of the respondents taught family and consumer sciences (53%), while approximately half of the remainder taught culinary arts (23%), and the rest taught both culinary arts and baking and pastry arts (21%) or only baking and pastry arts (3%). Table 3 presents the distribution of the respondents according to the type of programs they were teaching.

Table 3
Questionnaire Respondents by Program Type in Number and Percent

Program Type	Number	Percent
Family and consumer sciences	129	53
Culinary arts only	56	23
Both culinary arts and baking/pastry arts	52	21
Baking and/or pastry arts only	8	3
Total	244	100

Teaching Experience. Almost all of the respondents were experienced teachers, who had five or more years of experience in the classroom (88%). Table 4 presents the distribution of the respondents by years of teaching experience.

Table 4
Questionnaire Respondents by Years of Teaching Experience in Number and Percent

Teaching Experience	Number	Percent
> 5 years	55	22
5 -10 years	62	25
11 -15 years	31	13
16 - 20 years	48	20
+ 20 years	49	20
Total	245	100

Type of Curriculum. The majority of the respondents taught their classes guided by a state curriculum (57%), while others used either ProStart or C-CAP pre-designed curricula (23%). ProStart and Careers in Culinary Arts Programs (C-CAP) are standardized curricula used in many culinary arts programs throughout the United States. A significant number used neither of these choices (20%).Table 5 presents the types of curriculum used by those teachers responding to the questionnaire.

Table 5
Questionnaire Respondents by Type of Curriculum in Number and Percent

Curriculum	Number	Percent
State	141	57
ProStart	51	21
C-CAP	4	2
None of the above	49	20
Total	245	100

Professional Cooking Experience. While many of the respondents had been employed as a professional cook or chef (42%), more had not (58%). See Table 6 for the professional cooking experiences of the responding teachers.

Table 6
Questionnaire Respondents by Professional Cooking Experience in Number and Percent

Employed as a Cook or Chef	Number	Percent
No	137	58
Yes	99	42
Total	236	100

Focus Groups

Two focus groups were conducted to obtain qualitative data to inform the quantitative data (Creswell, 1993). One focus group was composed entirely of family and consumer sciences teachers (*N* = 4) and the other entirely of career and technical educators (*N* = 5). The participants in family and consumer sciences teachers group taught culinary arts within a family and consumer sciences curriculum, while the career and technical educator participants taught culinary arts. All participants taught in public highs located in New England.

Table 7 summarizes the demographic characteristics of the participants in the two focus groups: gender, total years of teaching experience, and total years of experience in teaching culinary arts.

Table 7
Demographic Characteristics of Focus Group Participants

Characteristic	FCST (*N* = 4)	CTE (*N* = 5)
Ratio: male to female	0:4	4:1
Teaching experience	55 yrs.	47 yrs.
Teaching culinary arts	32 yrs.	47 yrs.

Classroom Environment. The family and consumer sciences teachers delivered their programs in domestic style kitchens, similar to the kitchens found in most homes, which contained either a few pieces of heavy-duty commercial equipment or none at all. Each classroom consisted of 4 to 5 kitchens, holding 5 students per kitchen. The career and technical educators taught their classes in

commercial style kitchens, which replicated restaurant kitchens and contained heavy-duty commercial equipment. The type of equipment is an important factor to teaching and learning the fundamental competencies within a culinary arts curriculum. Without the appropriate equipment, cooking competencies cannot be properly taught or learned.

Developing Culinary Arts Competencies. During their undergraduate preparation programs, the family and consumer sciences teacher participants studied foods through nutrition, dietary, and food science courses. There was very little hands-on application of culinary skills and knowledge in their degree programs, because they also had to learn to teach other content areas, such as textiles, parenting, and money management. Whereas, in their undergraduate programs, the career and technical educator participants studied foods through culinary arts courses, such as stocks and sauces, knife skills, and regional cuisines. Thus, the amount of time available to become competent with hands-on technical skills in culinary arts varied considerably between the two groups.

Development of Teaching Competencies. A common factor for the participants in both groups was the minimal amount of time allotted for student teaching of culinary arts within their undergraduate programs. All of the family and consumer sciences teachers completed student teaching before becoming teachers, but only a portion of those experiences were in culinary arts. Of the career and technical educators, only 2 completed student teaching and the other 3 educators did no student teaching prior to being hired as culinary arts instructors.

All of the family and consumer sciences teacher participants completed pedagogy courses and were able to practice various teaching methodologies during their student teaching experiences. Only 2 of the career and technical educators studied pedagogy and practiced different methodologies when student teaching; the other 3 educators had to learn pedagogy during their beginning years as teachers. Thus, there was a gap between the two types of culinary arts teachers in terms of their student teaching experiences and their familiarity with teaching pedagogies prior to entering the teaching workforce.

Summary of Demographic Characteristics

The majority of the culinary arts instructors responding to the questionnaire and taking part in the focus groups was female. For the most part, they were seasoned teachers with many years of experience in teaching and in teaching culinary arts. The desired balance in numbers between the family and consumer sciences teachers and the consumer and technical educators was maintained on the questionnaire and within the focus groups.

Results by Research Question

In presenting the results, each research question (RQ) is addressed in turn by analyzing the data collected from the questionnaire and the focus groups. The findings from the analyses are discussed, and then integrated, as appropriate.

RQ1: What competencies are essential for family and consumer sciences teachers and career and technical educators to deliver high quality culinary arts programs in high schools?

To address this question, descriptive statistical analyses based on frequencies and percentages were applied to the quantitative data. The data

were taken for the portion of the questionnaire that asked respondents to rate the importance of 54 competencies using a 5-point Likert type scale. The competences were divided into the four sub-categories: cooking techniques, culinary arts essentials, food preparation, and course development. From the responses, each of the competencies was ranked according to highest percent of respondents who rated the competency either as *very important* (4) or as *extremely important* (5) to the high school culinary arts programs. The results for each sub-category are presented and discussed.

Cooking Techniques. Table 8 reveals that the most important cooking competency for delivering a quality culinary arts curriculum, as identified by the questionnaire respondents, was sautéing (81%), followed by roasting (73%) and steaming (73%), which tied for second place.

Because sautéing is a common cooking technique, which does not require using commercial equipment, it can be implemented in almost all high school kitchens. It is also low cost, because inexpensive ingredients, such as vegetables, can be used to teach sautéing. More food dishes cooked by sautéing are listed on restaurant menus than those cooked by any other technique. Because sautéing is an easy, commonly used, low risk cooking technique to teach and learn, the high rank of this technique is understandable.

Table 8
Percentage of Questionnaire Respondents Rating the Importance of Cooking Techniques Competencies as Very Important or Extremely Important (*N* = 258)

Competency	Very + Extremely Important
Sautéing	81%
Roasting	73%
Steaming	73%
Stir-fry	70%
Broiling	70%
Grilling	68%
Braising	66%
Shallow frying	62%
Griddling	59%
Deep frying	58%
Stewing	58%
Poaching	56%

Food Preparation. Table 9 shows how the questionnaire respondents rated the importance of food preparation competencies. Most important in this group was mother/leading sauces (70%), followed by salads and dressings (68%).

Mother/leading sauces are foundation sauces, which incorporate additional flavor into many food dishes. Sauces tend to be easy dishes to prepare without requiring commercial kitchen equipment; therefore, the preparation of these items can be taught in almost all high school classroom kitchens. Sauces also usually require only low cost ingredients, such as milk, butter, flour, and chicken/beef bones, which are within the reach of most school budgets. Sauces offer safe, quick means for teaching and learning food preparation and, therefore, are important.

Table 9
Percentage of Questionnaire Respondents Rating the Importance of Food Preparation Competencies as Very Important or Extremely Important (*N* = 258)

Competency	Very + Extremely Important
Mother/leading sauces	70%
Salads and dressings	68%
Breakfast items	66%
North America regional cuisines	65%
Italian cuisine	63%
European cuisines	58%
Asian cuisines	56%
Seafood dishes	53%
Central/ South America cuisines	53%
Canapés and hor d'oeuvres	53%
Pork dishes	52%
Non alcoholic beverages	37%
Types of flat and round fish	36%
Cold soups	26%
Lamb dishes	23%
Galatines	17%

Culinary Arts Essentials. Table 10 reports how the questionnaire respondents rated culinary arts essential competencies. By a large margin, the two most important competencies were reading and following a recipe (97%) and proper scaling and measurement techniques (94%). This finding is consistent with a point raised in the focus groups. Both the family and consumer sciences teacher and career and technical educator participants noted that reading and following a recipe along with proper scaling and measurement were the most important competencies to teach and for students to learn. The majority of teachers use recipes to teach cooking. In order to learn to cook, students must, therefore, be able to follow recipes. The next most important competency was for

students to scale and measure ingredients properly, which if not done accurately, will alter the desired result of the recipe.

Table 10
Percentage of Questionnaire Respondents Rating the Importance of Culinary Arts Essentials Competencies as Very Important or Extremely Important (*N* = 258)

Competency	Very + Extremely Important
Reading and following a recipe	97%
Scaling and measurement techniques	94%
Knife skills	92%
Food presentation techniques	85%
Identify herbs, spices, oils and vinegars	74%
Meat cutting/fabrication	55%

Course Development. In Table11, the top competencies in developing a course are identified. All the items were rated by the questionnaire respondents as having high importance with all 20 competencies listed in this sub-category receiving ratings of almost 70% or higher. Therefore, it appears that at least a majority of the respondents were cognizant of the importance to infuse good course development techniques into their culinary arts programs. This may in part be due to the emphasis in the No Child Left Behind Act of 2001, which requires teachers and schools to provide competency-based education.

Table 11
Percentage of Questionnaire Respondents Rating Importance of Course Development Competencies as Very Important or Extremely Important (*N* = 255)

Competency	Very + Extremely Important
Infuse employability skills through curriculum	86%
Employ various teaching methods in lessons	86%
Develop performance objectives	85%
Integrate academic & vocational elements	85%
Establish a course syllabus	85%
Write lesson plans	84%
Align curriculum to instruction and assessment	84%
Assess curriculum effectiveness	84%
Individualize instruction	82%
Address special learning needs	82%
Develop a course outline	81%
Identify course-learning outcomes	81%
Develop a course budget	81%
Analyze curriculum, content, & standards	80%
Research course content	79%
Promote the proposed course/program	79%
Provide remedial instruction	78%
Develop course/program competency profile	72%
Assess course feasibility	71%
Conduct needs assessment	69%

Summary. The first research question asked the questionnaire respondents and the focus groups participants to identify the essential competencies that culinary arts instructors need in order to present quality programs to high school students. The questionnaire respondents were asked to rate the *importance* of 54 competencies, according to four sub-categories: cooking techniques, food preparation, culinary arts essentials, and course development. Participants in the focus group were asked to do the same with an open-ended question.

The results for the culinary arts content competencies were somewhat predictable. The selected competencies were ones that could be taught in almost all high school culinary arts kitchens, required relatively simple techniques, and made use of inexpensive readily available ingredients. As a result, the competencies selected as those of high importance had universal appeal and were familiar to high school culinary arts instructors, regardless of their backgrounds and their teaching assignments.

However, the uniformly high ratings the respondents gave to all the competencies in the course development sub-category underscored their perceptions that how to teach culinary arts is as important, if not more important, than culinary arts content.

RQ 2: What competencies do family and consumer sciences teachers and career and technical educators possess from their education, training, and experiences?

The same analytical approach described for use with Research Question 1 was employed in addressing Research Question 2. Although the same list of 54 competencies was used for this set of questions, the questionnaire respondents were asked to rate each competency in terms of their abilities to perform the competency and possible responses ranged from *low* (1) to *extremely high* (5). The *high* (4) and *extremely high* (5) categories were combined to indicate substantial ability in the competency.

Cooking Techniques. Table 12 reports how the questionnaire respondents rated their abilities in the set of cooking techniques. Once again, sautéing took first place (83%). The remaining competencies, both in terms of placement and

percentage closely resembled the ratings on the first research question about the importance of these cooking techniques.

Table 12
Percentage of Questionnaire Respondents Rating Their Abilities in Cooking Techniques Competencies as High or Extremely High (*N* = 270)

Competency	High + Extremely High
Sautéing	83%
Roasting	82%
Stir-fry	78%
Steaming	77%
Stewing	73%
Broiling	71%
Shallow frying	71%
Deep frying	69%
Grilling	66%
Griddling	65%
Braising	64%
Poaching	56%

Food Preparation. The ratings by the questionnaire respondents of their abilities in food preparation are reported in Table 13. Breakfast foods (80%) and salads and dressings (62%) were the most highly rated. Of these two, only the salads and dressings item was among the top two rated on importance.

Table 13
Percentage of Questionnaire Respondents Rating Their Abilities in Food Preparation Competencies as High or Extremely High (*N* = 258)

Competency	High + Extremely High
Breakfast foods	80%
Salads and dressings	62%
Pork dishes	61%
North America regional cuisines	61%
Italian cuisine	58%
Non alcoholic beverages	56%
Canapés and hor d'oeuvres	46%
Seafood dishes	46%
Mother/leading sauces	41%
European cuisines	39%
Asian cuisines	32%
Cold soups	29%
Types of flat and round fish	28 %
Central/South America cuisines	27%
Lamb dishes	18%
Galatines	14%

Culinary Arts Essentials. Table 14 displays how the questionnaire respondents rated the culinary arts essentials competencies in terms of their abilities to perform each one. The top rated essentials were how to read and follow a recipe (96%) and proper scaling and measuring (88%). This was the same order in which the respondents ranked the importance of these essentials, both on the questionnaire and in the focus groups.

Table 14
Percentage of Questionnaire Respondents Rating Their Abilities in Culinary Arts Essentials Competencies as High or Extremely High (*N* = 270)

Competency	High + Extremely High
Reading and following a recipe	96%
Scaling and measurement techniques	88%
Food presentation techniques	68%
Knife skills	64%
Identifying herbs, spices, oils and vinegars	56%
Meat cutting/fabrication	35%

Course Development. Table 15 shows how the questionnaire respondents rated their abilities in course development competencies. The top two identified competencies were writing a lesson plan (82%) and employing various teaching methods within the lesson (81%). Although the second of these was also ranked by the teachers as the second most important, there was a difference in first place; on importance the most highly ranked competency in this sub-category was infusing employable skills through the curriculum.

Table 15
Percentage of Questionnaire Respondents Rating Their Abilities in Course Development Competencies as High or Extremely High (*N* = 263)

Competency	High + Extremely High
Write lesson plans	82%
Employ various teaching methods within lessons	81%
Individualize instruction	75%
Infuse employability skills through the curriculum	74%
Establish a course syllabus	73%
Address special learning needs	72%
Integrate academic & vocational course elements	71%
Develop a course outline	71%
Identify course learning outcomes	70%
Align curriculum to instruction and assessment	70%
Develop performance objectives	69%
Analyze curriculum, content, & standards	68%
Assess curriculum effectiveness	68%
Provide remedial instruction	66%
Research course content	66%
Promote the proposed course/program	65%
Develop a course budget	57%
Develop course/program competency profile	54%
Conduct needs assessment	48%
Assess course feasibility	48%

Summary. The second research question asked what *abilities* the culinary arts instructors thought they possessed in the competencies. Each of the 54 competencies within the appropriate sub-category was rated according to percent values from highest to lowest. The most important finding in analyzing the questionnaire responses was the close similarity of the top ranked competencies on instructor-rated abilities to the competences rated important. With two exceptions, the top ranked competency for food preparation and course development, all the first and second placed competencies were identical within sub-categories in terms of both perceived importance and estimated ability.

RQ 3: Are there differences between family and consumer sciences teachers and career and technical educators with respect to perceived importance and estimated abilities in competencies?

This question concerns possible differences between family and consumer sciences teachers and career and technical educators on the perceived importance of and their estimated abilities in the competences. The question was addressed by conducting a series of *t*-tests to compare mean responses between the two groups. Each of the 54 competencies was tested for differences within the four sub-categories, cooking techniques, food preparation, culinary arts essentials, and course development, for both the perceived importance and estimated ability dimensions. Because many *t*-tests were run, the level for the significant tests used the Bonferroni adjustment to the alpha level for each comparison, and the significance level of $p < .001$ was employed. No significant differences were found in the questionnaire responses at the item level for the two groups of instructors. See Appendix E for Tables 18 to 25 that report the results of the *t*-test analyses.

To visualize the comparison between how the culinary arts instructors differed in their perceptions of the importance of the competencies, the same approached used for Research Questions 1 and 2 was employed. The percentages of the instructors in each group rating the importance of the competencies as *very important* (4) or *extremely important* (5) are displayed in Table 16 for the two top rated items in each sub-category. As was the case with the *t*-test comparisons, the differences are minor. The rank ordering for the top items in terms of

importance were often the same and the percentages were very close for the culinary arts instructors.

Table 16
Percentage of Top Rated Importance Competencies as Very Important or Extremely Important by Sub-Category for Family and Consumer Sciences Teachers and Career and Technical Educators (*N* = 258)

Sub-Category	Competency	FCST (*n* = 135)	CTE (*n* = 123)
Cooking Technique	Sautéing	86%	84%
	Roasting	82%	80%
Food Preparation	Sauces	82%	78%
	Salads & dressings	80%	79%
Culinary Essentials	Read/follow a recipe	97%	98%
	Proper measurement	94%	96%
Course Development	Various teaching methods	88%	86%
	Employable skills	87%	89%

Similar comparisons for the estimated abilities of culinary arts instructors on the two top rated competences in each sub-category are presented in Table 17. On estimated ability, there were no differences between the two groups of instructors in any of the sub-categories as to the two top rated items, and the differences in percentages were minor.

Table 17
Percent of Top Rated Ability in Competencies by Sub-Category for Family Consumer Sciences Teachers and Career and Technical Educators (*N* = 258)

Sub-Category	Competency	FCST (*n* = 135)	CTE (*n* = 123)
Cooking Technique	Sautéing	86%	84%
	Roasting	82%	80%
Food Preparation	Breakfast items	82%	83%
	Salads and dressings	78%	77%
Culinary Essentials	Read/follow a recipe	95%	93%
	Proper measurement	86%	84%
Course Development	Various teaching methods	86%	84%
	Write lesson plans	84%	85%

In terms of the results from the focus groups, the family and consumer sciences teacher participants stated that the most important competencies to teaching in a culinary arts program are reading and following recipes, proper measuring, and food safety. They were questioned as to what culinary technique was the most difficult for them to perform and all participants provided different answers: overall cooking techniques, knife skills, meat cutting, taste/sensory analysis, and knowing the different types and uses of equipment.

The participants in the career and technical educator focus group stated that the most important competencies to teach in a culinary arts program are foodservice math, such as proper measuring, scaling, and converting recipes. The most difficult cooking technique to teach, they identified, was braising because it requires both dry and wet cooking techniques. The majority of CTE

participants stated classroom management skills, time management, and writing lesson plans were difficult competencies to learn and perform. All of the participants were experienced cooks and did not have any difficulty in performing or teaching the culinary arts skills and cooking techniques competencies.

Although all focus groups participants agreed that the most important competencies for students to learn were reading and following a recipe and proper measuring and scaling, they did not agree on what were the most difficult competencies for them to perform. The strength of one group tended to be the weakness of the other. The family and consumer sciences teacher participants said they were strong in teaching methods, such learning to teach, managing a classroom, and writing lesson plans; while this area was noted as a weakness by the career and technical educator focus group. Conversely, the strengths recognized by the career and technical educator participants were performing cooking techniques and other culinary arts skills; these areas tended to be weaknesses identified by the family and consumer sciences teachers in their focus groups.

Standards and Funding. The participants in both focus groups concurred that federal and state education standards, along with state health standards, have shortened the amount of time allotted to deliver culinary arts programs in high schools. The family and consumer sciences teacher and career and technical educator focus group participants stated that the No Child Left Behind Act has forced administrators to place more funding and time on the core courses being assessed at the expense of elective courses. Family and

consumer sciences courses along with culinary arts programs are electives and not core courses. In financially difficult times with tight school budgets, elective courses are the first courses administrators consider dropping from the curriculum. Having their programs eliminated was the greatest threat and fear of all focus groups participants.

Standardized Curricula. Participants in both focus groups were asked to discuss the type of standardized curriculum they were using. Family and consumer sciences teachers stated that they all were teaching from a state-approved standardized curriculum, which comes from the American Association of Family and Consumer Sciences. The career and technical educators said that they are not using a standardized curriculum. The Rhode Island standardized culinary arts curriculum was dropped three years ago and since that time no other state culinary arts curriculum has been implemented. The CTE participants said that they incorporated into their curricula a combination of the American Culinary Federation Certification Standards along with the standards required by the No Child Left Behind Act.

Summary. There were some differences between family and consumer sciences teachers and career and technical educators with respect to perceived importance of and estimated abilities on the competencies. However, these differences did not emerge from the analyses of the questionnaire responses. Rather they were made clear during the focus group discussions. Even there, participants in the two groups agreed on the top competencies that were the most *important* to include in a quality culinary arts program; these were reading

and following a recipe and measuring properly. Disagreement occurred on their statements concerning their highest-ranking abilities. The family and consumer sciences teachers said that they were best at course development; while the career and technical educators said their strengths were culinary arts skills.

Research Question 4: Are There Differences between the Perceived Importance of Competencies and Characteristics of the Culinary Arts Instructors?

The questionnaire responses were analyzed to determine possible differences in views on the importance of 54 culinary arts teaching competencies, if other characteristics of the respondents were taken into account. In these analyses, perceived importance of competencies was the dependent variable and the characteristics of the culinary arts instructors were independent variables. The following statistical tests and categories were used for each characteristic tested.

- Gender - *t*-test: female vs. male
- Years of teaching experience - One-way ANOVA with Scheffé follow up: <5 years, 5 to 10 years, 11 to 15 years, 16 to 20 years, >20 years.
- Type of high school - *t*-test: comprehensive high school vs. vocational/career technical center
- Type of educator - One-way ANOVA with Scheffé follow-up: family and consumer sciences, culinary arts only, baking & pastry only, both culinary arts & baking
- Curriculum type used - One-way ANOVA with Scheffé follow-up: State, Pro Start, C-CAP, None
- Location - One-way ANOVA with Scheffé follow-up: New England, Middle Atlantic, South, North Central, West, Northwest.
- Textbook used - One-way ANOVA with Scheffé follow-up: *Culinary Essentials*, *Culinary Fundamentals*, *On- Cooking*, *Professional Chef*, *Food Preparation (Haines).*

- Professional cooking experience -Categorical *t*-test: Yes, No
  If yes, follow-up question of where did the cooking experience take place, one-way ANOVA with Scheffé follow-up and how many years, one-way ANOVA with Scheffé follow-up.

No significant differences were found in the questionnaire responses for any of these characteristics on the importance of the competencies. See Appendix E for Tables 26 to 61 that report the results of the *t*-tests analyses and one-way ANOVA with Scheffé follow-up tests. However, a few results for the characteristics of the instructors are briefly discussed where anomalies were discovered.

In terms of gender, male respondents had a higher mean on the importance of cooking techniques than did females. In part, this may have been due to the fact that the majority of male respondents were career and technical educators, who received more emphasis on the cooking techniques in their undergraduate studies, whereas, females were more likely to have enrolled in the family and consumer sciences programs.

In terms of teaching experience, the respondents with 5 to 10 years teaching experience had the highest mean on importance for each of the cooking techniques competencies. In part, the reason may be found in the statements made by focus group participants: in the first three years of teaching, beginning teachers are still learning how to teach, whereas some experience may make teachers more confident in their teaching, and thus, they can switch their attention to cooking skills.

In terms of the other characteristics examined: type of educator, type of curriculum used, high school location, type of textbook, and professional cooking experience of the respondents, little of interest was found from the analyses.

Summary

This chapter presented the study findings. The concurrent mixed method utilized in the study provided two sources of information for addressing the four research questions. Description statistics were used to describe the demographic characteristics of the culinary arts instructors who completed the questionnaire and took part in the focus groups. Their perceptions of importance and their estimated abilities to teach selected culinary arts competencies were described and compared.

In general, the quantitative findings showed no significant differences between the family and consumer sciences teachers and career and technical educators with respect to the perceived importance and their estimated abilities to perform culinary arts competencies. However, the qualitative findings revealed some differences between these two groups. It is important to contrast the ways in which the two groups used standards in their culinary arts curricula. The career and technical educator focus group participants said that neither state standards for culinary arts nor standardized culinary arts curriculum for secondary schools existed. Whereas, the family and consumer sciences teacher focus group participants stated they used the national standards for family and consumer sciences education.

The National Association of State Administrators for Family Consumer Sciences Education (NASAFACS) is responsible for the development of national standards. The *National Standards for Family and Consumer Sciences Education*, *Second Edition* was completed in 2008 and provides the framework for national, state, and local academic programs (NASAFACS Web site 2008). This difference led to the first of five major findings that emerged from the research.

Major Research Findings

- Family and consumer sciences teachers rely more on standards from external groups for planning and delivering high school culinary arts programs than do career and technical educators.
- Family and consumer sciences teachers and career and technical educators, despite differing educational and experiential backgrounds and demographic characteristics, exhibited no significant differences in perceptions of importance and in their estimated abilities to teach selected culinary arts competencies.
- Culinary arts instructors uniformly agreed that course development competencies were highly important for delivering quality high school culinary arts programs.
- Culinary arts instructors rated the highest competency for a quality high school culinary arts curriculum, in terms of perceived importance and their estimated abilities, to be reading and following recipes, followed by scaling and measurement techniques. Data gathered from both the questionnaire and the focus groups corroborated this finding.
- Culinary arts instructors expressed concerned about the future of high school culinary arts programs in times of budget crises and cut-backs.

Based on these findings, Chapter V presents conclusions and recommendations for additional research and future action.

V. SUMMARY, CONCLUSIONS, and RECOMMENDATIONS

This chapter summarizes and interprets the major findings of the study, develops conclusions based upon those findings, and presents related recommendations, including ones for future research.

Overview of the Study

The purposes of this study were dual in nature. It served first to describe and rank perceived importance and estimated abilities that family and consumer sciences teachers and career and technical educators considered as essential to delivering quality culinary arts program in high schools. The study was also designed to provide an empirical basis for recommending competencies that can enhance the knowledge base and curriculum design of high school culinary arts programs. The intention is also to use the results in drafting a culinary arts textbook focused on teaching and learning culinary arts for potential and practicing high school culinary arts instructors.

This study employed a concurrent mixed method triangulation approach. For this social inquiry a mixed method strategy was selected to develop a better understanding of the phenomena being studied (Greene, 2008). Concurrent mixed method studies combined the quantitative and qualitative approaches into singular analysis to determine if the data are consistent and reinforcing (Creswell, 2003). Data were collected in two concurrent stages. During one stage, quantitative data were gathered using an electronic questionnaire that asked family and consumer sciences teachers and career and technical educators (*N* = 271) about their perceptions of importance and about their

abilities to teach selected culinary arts competencies in terms of both culinary arts content and course development. Pertinent demographic information about the questionnaire respondents was also collected. During stage two, focus groups were conducted. One focus group was comprised of family and consumer sciences teachers (*N* = 4) and the other of career and technical educators (*N* = 5). Information from the focus groups was used to support and elaborate on the questionnaire findings through the development of themes and patterns about the essential competencies for teaching culinary arts.

Major Findings with Recommendations

Five major findings were derived from the results. Many of the anticipated differences between the responses of the family and consumer sciences teachers (FCST) and the career and technical educators (CTE) turned out not to exist. However, other findings did, including the lack of differences between the two groups, which in itself was a finding. The findings were used to structure the discussion of the results and to present associated recommendations. Each sub-headings that follows in this section is a summarized version of one the major findings.

FSCTs relied more on standards from external groups for planning and delivering high school culinary arts programs than did CTEs.

Discussion. Standards are defined as general expressions of values and goals that provide a sense of direction (Borich, 2007; Erickson, 2008; Enz, Bergeron, & Wolfe 2007; Kauchak & Eggen 2007; Morrison, Ross, & Kemp, 2004). The majority of the family and consumer science teachers (80%) indicated

that they used culinary arts curricula that were enriched by the application of standards developed by their national association, the American Association of Family and Consumer Sciences, or from state standardized curricula, or from both. Conversely, the career and technical educators were more likely to use curricula not influenced by their national association, the American Culinary Federation, or by state standards. This choice was informed in part by the fact that no definitive national standards exist for culinary arts career and technical programs. Thus, culinary arts career and technical educators must rely on their individual state standards, which create more differences than commonalities in the culinary arts programs. In addition, for some states, such as Rhode Island, no approved state standards for high school culinary arts programs exist. In Rhode Island, the Department of Elementary and Secondary Education has been deliberating on the culinary arts standards for over four years. In the absence of state culinary arts standards, career and technical educators tend to rely on a combination of some aspects of the American Culinary Federation educational standards and on their teaching experiences.

Recommendations. Based on these findings, three suggestions are made.

- A study should be conducted to review the possible combination of the National Association of State Administrators' for Family and Consumer Sciences Education national standards, the American Culinary Federation Education Foundation Accrediting Commission educational standards, and the National Occupational Competency Testing Institute culinary arts

assessment standards to create national standards in culinary arts education for high school programs.

- States without standards for high school culinary arts programs, such as Rhode Island, should develop standards to provide guidance for teachers and to improve the offerings of culinary arts programs.
- Textbooks focused on teaching and learning culinary arts should be based on the best available standards from national organizations and from states that have developed standards.

FCSTs and CTEs, despite dissimilar backgrounds, exhibited no significant differences in perceptions of importance and in their estimated abilities to teach selected culinary arts competencies.

Discussion. This result concerning the lack of differences between the family and consumer sciences teachers and the career and technical educators may be due to two common denominators of the study participants: teaching culinary arts in high schools (100%) and being experienced teachers (88% with 5 or more years of teaching experience). The focus group respondents were all high school culinary arts instructors and had a total of 79 years experience teaching culinary arts. All focus group participants reported that in their undergraduate preparation programs, they had taken some culinary arts and cooking courses, but not all had been exposed to student teaching or teaching pedagogies. Although family and consumer sciences teachers had little hands-on application of culinary skills in their undergraduate programs, they had gained enough cooking experience through additional culinary arts professional development or from their experiences to rate their abilities competent to teach culinary arts at the

secondary level. Career and technical educators had acquired the culinary arts content skills and knowledge through training and experiences.

The basic skills and knowledge taught within high school culinary arts programs are not particularly complex or complicated. Thus, the required level of culinary arts content that high school instructors must posses in order to reach a competent level of knowledge, cooking skills, and attributes does not require them to achieve a highly specialized level of culinary art competency, such as Master Chef certification. Accordingly, the research resulted in finding no significant differences between family and consumer sciences teachers and career and technical educators in perceptions of importance and in their estimated abilities to teach selected culinary arts competencies.

However, before entering a high school classroom, all new teachers should have the benefit of participating in student teaching and of learning how to teach. Otherwise, new teachers must rely on on-the-job training to acquire classroom management skills and knowledge about planning and presenting coordinated, integrated curricula. Some of the career and technical educators had not had these experiences prior to entering the classroom as teachers.

Recommendations. Based on the findings, these suggestions are proffered.

- Undergraduate teacher preparation programs for high school culinary arts instructors should always incorporate a requirement that pre-service teachers complete student teaching in culinary arts classrooms.
- In order to become competent with hands-on technical skills in culinary arts, family consumer and sciences undergraduate preparation programs

should increase the amount of time available for pre-service teachers to learn and practice cooking techniques and food preparation skills.

FCSTs and CTEs uniformly agreed that course development competencies were highly important for teaching high school culinary arts programs.

Discussion. All 20 competencies in the course development sub-category received high ratings on importance by both types of culinary arts instructors. This result was taken as a clear indication of the importance culinary arts instructors placed on course development competencies. The top rated competencies in course development sub-category, identified by 85% or more of the respondents, were (a) *infuse employability skills throughout the curriculum*, (b) *employ various teaching methods in lessons*, (c) *develop performance objectives, (d) integrate academic and vocational elements into the curriculum,* and (e) *write lesson plans*.

These course development competencies are reflective of the requirements in No Child Left Behind Act, as well as being considered as essential to delivering course content effectively. Borich (2007) specified that effective teachers select, organize, and sequence course content according to the needs of their learners. The majority of the culinary arts instructors were cognizant of the importance to infuse good course development techniques into their programs.

However, the focus groups participants emphasized that whereas pedagogy and course development competencies were strengths of the family and consumer sciences teachers, the absence of these competencies constituted weaknesses for the career and technical educators. One career and technical

educator stated that learning how to write an effective lesson plan “was very difficult.”

Recommendations. Based on the findings, these suggestions are offered.

- Undergraduate teacher preparation programs for high school culinary arts instructors should require more rigorous preparation in pedagogy and course development. Within this work, the importance of establishing and adhering to standards for culinary arts instruction should be included. The standards should address, but not be limited to, these competencies: (a) infusion of employability skills throughout the curriculum, (b) employment of various teaching methods in lessons, (c) development of performance objectives, (d) integration of academic and vocational elements into the curriculum, and (e) development of lesson plans.
- To aid in the development of cohesive culinary arts standards for high school culinary arts programs and to improve the preparation of high quality culinary arts instructors, a master of arts in teaching culinary arts should be available in the United States. The MAT culinary arts degree should emphasize course development competencies along with other pedagogy competencies, plus the development of culinary arts standards.
- Textbooks focused on teaching and learning culinary arts should include considerable discussion of course development and teaching pedagogies, as well as comprehensive coverage of culinary arts knowledge and skills, and these areas should be well integrated.

FCSTs and CTEs rated the two highest competencies, as to perceived importance and estimated ability, to be reading recipes and measuring.

Discussion. The U.S. Department of Education Office of Vocational and Adult Education and the National Association of State Directors of Career and Technical Education Consortium validated the selection of reading a recipe and utilizing proper measuring and scaling techniques as important. In 2002, the National Association of State Directors of Career and Technical Education Consortium incorporated into the *Career Cluster, Hospitality and Tourism Career Cluster, Restaurants and Food and Beverage Services Pathway Knowledge and Skill Statement* this language: "Apply mathematical, reading, and writing skills to correctly deliver food products and guest service" (States' Career Clusters Initiative Web site, 2009, p. 23). Sample indicators under the basic skills banner included, "Read and comprehend recipes, and use proper measurements of ingredients" (p. 23).

Family and consumer sciences teacher and career and technical educator focus group participants acknowledged these top competencies as essential foundational knowledge and skill requirements. They stated that if students do not read and follow the instructions on the recipe, they cannot learn to cook successfully. One participant stated that, "students wait for me to tell them the next step," which makes them totally dependent. Two participants discussed their best practices for teaching students the importance of reading the recipe and measuring ingredients properly. One approach was to allow students to make ice cream sundaes without following a recipe; each student creates an ice cream sundae and all students taste test every sundae. From this exercise the students

discover that the sundaes range from having excellent taste to being too sweet, being too chocolaty, having too little ice cream, having too many jimmies, and other reactions. In the follow-up exercise, the instructor hands the students a recipe for an ice cream sundae. Once the students complete making the sundaes according to the recipe, the taste test is repeated. This time students experience the consistent taste and the class discusses how important reading and following recipes are to learning how to cook. The focus group participant said that students build self-efficacy and independence when they achieve making a dish on their own, as the result of properly reading the recipe and measuring the ingredients correctly.

Another focus group participant noted that the recipe is very important for teaching students not only how to make a dish, but also about purchasing, food costing, cooking techniques, food preparation and presentation, equipment use, and time management. Once he explained how these elements come from reading a recipe, students are more apt to give recipes greater attention.

Focus group participants stated that reading and mathematics are basic skills that many of their students are lacking and have difficulty achieving. This is likely related to the fact that many high school culinary arts students have learning disabilities and math phobia. Almost all high school culinary arts students have difficulty with simple arithmetic and, as a result, do not know how to measure or to scale ingredients, as was noted by focus groups participants. Students lack common knowledge and skills required for the culinary arts specialty, such as the number of ounces in a gallon, in a quart, or in a pound. Many students cannot

identify a tablespoon or a teaspoon, or gallon or half-gallon containers. In the study, *Building Academic Skills in Context: Testing the Value of Enhanced Math Learning in CTE,* the authors noted that students, who concentrate in career and technical education, "bring with them characteristics associated with low academic achievement" (Stone, Alfred, Pearson, Lewis, & Jensen, 2005, p. 3). Similarly, Levesque, (2003) reported that students who enroll in career and technical education courses come disproportionately from groups that are at risk of not successfully completing high school. Students with disabilities, limited English proficiency, and low achievement are overrepresented in career and technical education and these problems continue past high school. Research has indicated that many students who enroll in career and technical education programs graduate from high school with insufficient skills in mathematics, reading, writing, and problem solving (Stone et al.).

The findings support the contention that there are many unskilled students in high school culinary arts programs and, therefore, there is a profound need for instructors of these programs to teach not only culinary arts knowledge and skills, but also the basic skills of reading, and mathematics. However, these well may be skills culinary arts instructors have not been prepared to teach.

Recommendations. Based on the findings, these suggestions are tendered.

- High school culinary arts instructors should incorporate reading and mathematical academic activities, using culinary content, into the daily lesson plans and program outcomes.

- High school culinary arts programs should be designed to maximize the synergy between culinary arts instructors, and the reading, English language arts, and mathematics teachers to collaborate as full partners in pursuing higher student achievement.
- Undergraduate teacher preparation programs for high school culinary arts instructors should include units on teaching the basic skills of reading and mathematics through culinary arts content to high school students.
- Textbooks focused on teaching and learning culinary arts should include a section and selected cross references for helping potential and practicing culinary arts instructors to teach the basic skills of reading culinary arts materials, including recipes, and culinary mathematics.

FCSTs and CTEs expressed concerned about the future of high school culinary arts programs in times of budget crises and cut-backs.

Discussion. All focus group participants stated they were concerned with the future of their culinary arts programs. The participants in both focus groups concurred that the requirements of federal and state standards, in education and in health, have decreased the time available for teaching culinary arts in high schools. The lack of time is keenly felt in culinary art programs, which are essential laboratory offerings and require sufficient time for setting-up and dismantling to be effective.

Another concern expressed by the focus group participants was that the No Child Left Behind Act has forced administrators to place more funding and importance on the core courses being assessed at the expense of elective courses. Because culinary arts courses are electives, they are more vulnerable

to retrenchment. In financially difficult times, program vulnerability creates added stress to the already difficult task of offering a quality high school program in culinary arts.

Competition for funding has also increased at other levels. The National Association of State Directors of Career Technical Education Consortium claimed in the *Fiscal Year 2008 Funding Request* that funds from the Carl D. Perkins Career and Technical Education Act decreased by $17 million from July 2002 to July 2008. State funding for career and technical education has also been declining. For example in Iowa:

> State support for high school career and technical education offerings has decreased in recent years in absolute terms and in terms of the direct instructional costs of those offerings. The percentage of direct instructional costs reimbursed through state vocational and appropriations has fallen from 10.28 percent in Fiscal Year 1992 to 5.8 percent in Fiscal Year 2006. (Friedel, 2007, p. 25)

The Carl D. Perkins Career and Technical Education Improvement Act of 2006 (P.L. 109-270) was passed by the U.S. Congress and signed into law by President George W. Bush in August 2006 (Meeder, 2008). This act provides federal funding for career and technical education in the high schools. Congress approved a $1.3 billion budget when passing the Perkins Act in 2006. This is the largest amount of funds Congress has provided for career and technical education. The new funding and increased enrollment in foodservice and culinary arts programs should assist in sustaining culinary arts programs.

However, federal and state funding for career and technical education has not kept pace in recent years with enrollment in career and technical culinary arts education programs. Even though there has been no measurable change in the

overall occupational course taking of public high school graduates, some shifts were detected.

> Between 1990 and 2005, public high school earned more credits on average in food services, hospitality, computer technology, health care, communications technology, other technology, child care and education, and protective services (0.04-0.25 more credits), and they earned fewer credits in business services, materials production, and other precision production (0.1-0.03 fewer credits). (Levesque, Laird, Hensley, Choy, Cataldi, & Hudson, 2008, p. 72)

As a result of changes in philosophy, enrollment, and funding, high school instructors in culinary arts programs have good reason to be concerned about the future of these programs.

Recommendations. Based on the findings, these suggestions are put forth.

- The Carl D. Perkins Career and Technical Education Improvement Act and the No Child Left Behind Act require state departments of education, superintendents, principals, and teachers to be accountable for assessing program outcomes and student achievement. Therefore, high school culinary arts instructors should collaborate with other responsible individuals and groups to offer integrated, cohesive culinary arts programs.
- Based on the value of the program, high school culinary arts instructors should aggressively seek funding for implementing new initiatives, such as marketing culinary arts programs, coordinating development of culinary arts programs for middle school students, articulating with post-secondary institutions, and integrating academic and culinary content and applications.
- Textbooks focused on teaching and learning culinary arts should address the issues of funding and of the importance of taking funding into account

when planning, revising, implementing, and assessing culinary arts programs in high schools.

Recommendations for Further Research

There are a number of ways in which the findings of this research can be furthered to advance understanding of the competencies that instructors should have to deliver quality culinary arts programs in high schools. This study included a limited number of common competencies thought necessary to teach culinary arts. In order to advance the study, however, other competencies related to more complex culinary techniques, such as baking and pastry, advanced food preparation, nutrition, catering, and culinary competition preparation, should be explored. In addition, because of the number of special needs students enrolled in high school culinary arts programs, competencies related to teaching students with special needs should be determined.

This study focused on culinary arts competencies perceived to be necessary for teaching in high schools. To broaden the understanding of competencies to teach culinary arts, studies of culinary arts education in higher education should be conducted to determine commonalities or differences across programs at various levels. Identifying the similarities, or lack thereof, would be useful in preparing culinary arts students to make the transition from the high school into college culinary arts programs.

More research is also needed to determine the impact of federal and state funding on high school culinary arts programs and how these funds can be used to leverage local support for programs. Culinary arts programs serve high

schools students who, as a rule, are not well served by traditional academic programs (Stone et. al, 2005). More research is needed to determine how culinary arts programs can better serve high school students to further their academic skills and knowledge and to keep them engaged in school until graduation.

Concluding Remarks

As a result of this study, a number of points were clarified about the perceived importance and estimated abilities of culinary arts instructors as essential to teaching culinary arts in high schools. These points provided the springboard for making recommendations for the improvement of culinary arts programs in high school. As a summary of the study, a few points are presented as ones needing particular emphasis.

This study sought to test the working hypothesis that family and consumer teachers and career and technical educators do not posses the same level of perceived importance or the same range of abilities on basic competencies for delivering culinary arts programs in high schools. However, analyses of the quantitative data collected for this study resulted in no significant differences between the two groups with regard to perceived importance and estimated abilities to teach the specified culinary arts competencies. While the qualitative data corroborated this finding, some minor differences were detected between the two groups.

Although national standards for high school culinary arts education are considered essential to improving the quality of instruction and learning, no such

standards currently exist. However, by combining the National Association of State Administrators' for Family and Consumer Sciences Education national standards, the American Culinary Federation Education Foundation Accrediting Commission educational standards, and the National Occupational Competency Testing Institute culinary arts assessment standards, a reasonable start could be made for developing broad national standards. With national standards in place, states would be in a better position to develop state standards consistent with the philosophy and needs of students in each state. Consistency among high school culinary arts programs through adoption of national and state standards would be useful in developing culinary arts programs for middle school students and in articulating secondary and post-secondary culinary arts programs, as well as serving to upgrade the content and delivery of the high school programs. .

The United States is without a master's degree in teaching culinary arts. Such a degree should emphasize balanced offerings of cooking techniques, food preparation, culinary arts essentials, and course development competencies; should encourage collaboration between culinary arts, English, mathematics, and science teachers; should stress the incorporation of reading, mathematical, and science activities into the culinary arts program; and should include preparation for teaching basic skills. Graduates of this type of degree program would be well qualified to assist in and advocate for development of standards for culinary arts at the national and state levels.

Culinary arts programs are one of the few academic programs that allow instructors to teach and students to learn by using all five senses. Essential

culinary competencies should be learned by teaching from lesson plans that incorporate the use of abstract, cognitive, kinesthetic, and audio-visual methodologies. Using sight, feeling, smell, sound, and taste are all parts of culinary arts, and the competencies for culinary arts should be vibrant, crisp, aromatic, exciting, and leave a pleasing embedded impact on the minds and palettes of students. Thus, teaching and learning in the culinary arts provide opportunities for the comprehensive engagement of students that few other subjects have to offer. The totality of this approach is very appealing to many types of students, especially those who are not enamored by more academic subjects.

In the end, to improve quality culinary arts high school programs requires the involvement, and commitment of many types of individuals and groups. However, the heaviest burden falls upon culinary art instructors and their students to lead the way. The purpose of this research was to provide information and recommendations to lighten that burden by identifying actions that should be taken by local, state, and national leaders to assist in promoting change. Adoption of the recommendations from this study would result in improvements in culinary arts programs offered in high schools in the United States. Working to implement these recommendations, especially the ones related to drafting a textbook focused on teaching and learning culinary arts, is the next step in the process.

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APPENDIX A

Culinary Arts Competencies Questionnaire

My dissertation topic for the Johnson & Wales University's Doctoral Program in Educational Leadership is entitled: Teaching Culinary Arts/cooking in United States High Schools: Essential Competencies for Family and Consumer Sciences Teachers and Career and Technical Educators. This study will focus on what type of competencies each group identifies as important to teaching culinary arts and finding common ground between the two. I would appreciate it if you would complete the following questionnaire.

All responses will remain confidential. **Thank you** for participating in this study.

	Performance of Competency How do you rate your Knowledge, Skills, and ability to perform this competency?					**Importance of Competency** (**Regardless of how you can perform this competency)** How do you rate the importance of this competency for delivering a quality culinary arts curriculum?				
Please click on the appropriate answer.	**Extremely High**				**Extremely Low**	**Great Importance**				**No Importance**
Culinary Arts Fundamentals										
Cooking Techniques										
Demonstrate the following cooking techniques:										
1. Sautéing	5	4	3	2	1	5	4	3	2	1
2. Broiling	5	4	3	2	1	5	4	3	2	1
3. Grilling	5	4	3	2	1	5	4	3	2	1
4. Shallow frying	5	4	3	2	1	5	4	3	2	1
5. Deep frying	5	4	3	2	1	5	4	3	2	1
6. Griddling	5	4	3	2	1	5	4	3	2	1
7. Stewing	5	4	3	2	1	5	4	3	2	1
8. Poaching	5	4	3	2	1	5	4	3	2	1
9. Steaming	5	4	3	2	1	5	4	3	2	1
10. Braising	5	4	3	2	1	5	4	3	2	1
11. Stir frying	5	4	3	2	1	5	4	3	2	1
12. Roasting	5	4	3	2	1	5	4	3	2	1

	Performance of Competency How do you rate your knowledge, skills, and ability to perform this competency?					**Importance of Competency** (**Regardless of how you can perform this competency)** How do you rate the importance of this competency for delivering a quality culinary arts curriculum?				
	Extremely High				**Extremely Low**	**Great Importance**				**No Importance**
Food Preparation										
Demonstrate the following:										
13. Knife skills	5	4	3	2	1	5	4	3	2	1
14. How to read and follow a recipe	5	4	3	2	1	5	4	3	2	1
15. Proper scaling and measurement techniques	5	4	3	2	1	5	4	3	2	1
16. Meat cutting/fabrication	5	4	3	2	1	5	4	3	2	1
17. How to identify and use of herbs, spices, oils and vinegars	5	4	3	2	1	5	4	3	2	1
18. Food presentation techniques (garnishing, plate presentation)	5	4	3	2	1	5	4	3	2	1
Prepare various types of the following:										
19. Lamb dishes	5	4	3	2	1	5	4	3	2	1
20. Seafood dishes	5	4	3	2	1	5	4	3	2	1
21. Types of flat and round fish	5	4	3	2	1	5	4	3	2	1
22. Pork dishes	5	4	3	2	1	5	4	3	2	1
23. Cold soups	5	4	3	2	1	5	4	3	2	1
24. Sauces such as the mother/leading sauces	5	4	3	2	1	5	4	3	2	1
25. Salads and dressings	5	4	3	2	1	5	4	3	2	1
26. Canapés and hor d'oeuvres	5	4	3	2	1	5	4	3	2	1
27. Breakfast meats, eggs, cereals, and batter products	5	4	3	2	1	5	4	3	2	1
28. Non alcoholic beverages	5	4	3	2	1	5	4	3	2	1
29. Galantines	5	4	3	2	1	5	4	3	2	1
30. Italian cuisine	5	4	3	2	1	5	4	3	2	1
31. North America regional cuisines	5	4	3	2	1	5	4	3	2	1
32. Asian cuisines	5	4	3	2	1	5	4	3	2	1
33. Central and/or South America cuisines	5	4	3	2	1	5	4	3	2	1
34. European cuisines	5	4	3	2	1	5	4	3	2	1

	Performance of Competency How do you rate your Knowledge, Skills, and ability to perform this competency?					**Importance of Competency (Regardless of how you can perform this competency)** How do you rate the importance of this competency for delivering a quality culinary arts curriculum?					
	Extremely High				**Extremely Low**	**Great Importance**				**No Importance**	**Not My Responsibility**
Develop Program/Course Curriculum											
35. Conduct needs assessment	5	4	3	2	1	5	4	3	2	1	___
36. Assess course feasibility	5	4	3	2	1	5	4	3	2	1	___
37. Promote the proposed course/program	5	4	3	2	1	5	4	3	2	1	___
38. Develop course/program competency profile	5	4	3	2	1	5	4	3	2	1	___
39. Research course content	5	4	3	2	1	5	4	3	2	1	___
40. Develop a course outline	5	4	3	2	1	5	4	3	2	1	___
41. Establish a course syllabus	5	4	3	2	1	5	4	3	2	1	___
42. Develop performance objectives	5	4	3	2	1	5	4	3	2	1	___
43. Integrate academic & vocational course elements	5	4	3	2	1	5	4	3	2	1	___
44. Infuse employability skills through the curriculum	5	4	3	2	1	5	4	3	2	1	___
45. Identify course learning outcomes	5	4	3	2	1	5	4	3	2	1	___
46. Align curriculum to instruction and assessment	5	4	3	2	1	5	4	3	2	1	___
47. Analyze curriculum, content, & standards	5	4	3	2	1	5	4	3	2	1	___
48. Asses curriculum effectiveness	5	4	3	2	1	5	4	3	2	1	___
49. Develop a course budget	5	4	3	2	1	5	4	3	2	1	___
50. Write lesson plans	5	4	3	2	1	5	4	3	2	1	___
51. Individualize instruction	5	4	3	2	1	5	4	3	2	1	___
52. Employ various teaching methods within lessons	5	4	3	2	1	5	4	3	2	1	___
53. Address special learning needs	5	4	3	2	1	5	4	3	2	1	___
54. Provide remedial instruction	5	4	3	2	1	5	4	3	2	1	___

Demographics: Please click on the appropriate response.

55. Gender Male ___ Female ___

56. Number of Years Teaching

Less than 5 years ___
5 - 10 years ___
11 - 15 years ___
16 - 20 years ___
More than 20 years ___

57. Type of High School

Comprehensive ___
Vocational/Career ___
Technical Center ___

58. What is your teaching position?

Culinary Arts only ___
Baking and/or Pastry Arts Only ___
Both Culinary & Baking/Pastry only ___
Family and Consumer Sciences ___

59. In which Accreditation (Association of Schools & Colleges) region is your school located?

New England (NEAS&C) ___
Middle States (MSA) ___
Southern (SACS) ___
North Central (NCA) ___
Western (WASC) ___
Northwestern (NAAS) ___

60. Have you been employed as a professional cook or chef? Yes ___ No___

If you answered **YES** for question 60 please answer questions **61** and **62**.
If you answered **NO** for question 60 please continue with question **63**.

61. How many years were you employed?

Less than 5 years ___
5 - 10 years ___
11 - 15 years ___
16 - 20 years ___
More than 20 years ___

62. Where did you spend the longest time in your position?

Restaurant	___
Resort/Hotel	___
Carter	___
Cruise Line	___
Private Chef	___

63. What curricula are you currently using?

ProStart	___
C-CAP	___
State	___
None of the above	___

64. Which textbook do you use as a primary textbook?

Culinary Essentials	___
Culinary Fundamentals	___
On-Cooking	___
Professional Chef	___
Food Preparation (Haines)	___
None of the above	___

65. What three competencies were the most difficult to learn and perform?

66. Why were these three competencies the most difficult to learn and perform?

67. Are there other competencies, not mentioned, that should be considered?

Thank you for completing the questionnaire!

Appendix B

Questions for Focus Groups

1. What competencies are most important for a teacher in order to deliver a quality culinary arts program in high schools?

2. What competencies were the most difficult to learn? Why?

3. Where and how are these competencies acquired by most teachers?

4. What might make it easier for teachers to acquire these competencies?

5. What standards (federal, state, or district) are important for a culinary arts instructor to have knowledge of and implement in teaching culinary arts?

Probes:

1. What is your favorite food?

2. What cooking technique(s) do you use to cook your favorite food?

3. What competencies would you use to teach someone how to cook your favorite food?

4. Are these competencies incorporated into your curriculum?

5. With what educational standards do these competencies correlate to?

Appendix C

Incentives Offered for Completing the Questionnaire

The three incentives used to entice participation in the study were educational materials used by culinary arts instructors delivering a quality programs. Total value of incentives was $1,565. Participants could win one of the following incentives.

1. One-week Culinary Essentials Workshop at one of the four Johnson & Wales University Campuses: Providence, RI; Charlotte, NC; North Miami, FL and Denver, CO. Included were airfare, hotel room, and most meals. Winner received a *Culinary Essentials* textbook, Culinary Inclusion Strategies CD-ROM and Effective Instruction CD-ROM.
   This incentive was valued at $595 plus airfare and was donated by Johnson & Wales University Admissions Department.

2. Culinary Essentials Teaching & Learning Resources includes: *Culinary Essentials* textbook, culinary catering activities, 75 culinary recipe cards, 150 culinary equipment cards, culinary math skills, culinary vocabulary skills, culinary study guides, instructor guide, lab manual, instructor annotated edition lab manual, Culinary Inclusion Strategies CD-ROM and ExamView® Pro Test Generator CD-ROM This incentive was valued at $495 and was donated by McGraw/Hill – Glencoe Publishers.

3. Culinary Arts Teaching Supplies:
   - *Culinary Fundamentals* textbook containing over 700 recipes.
   - Culinary arts knife kit containing 15 professional knives.
   - Pastry arts knife kit containing 17 professional baking and pastry tools.

   This incentive was valued at $475 and was donated by Johnson & Wales University College of Culinary Arts.

Appendix D

Human Subject Consent Form for Focus Group Participants

Doctoral Program in Educational Leadership, Johnson & Wales University
Consent Form for Essential Competencies for Delivering Culinary Arts Programs in U.S. High Schools.

Introduction

You are being asked to take part in the research project described below. I will explain the project to you in detail and you should feel free to ask any questions about the project that you may have. If at a later time, you have further questions, you should contact me, Paul McVety as the principal researcher: phone: 401-598-1775; e-mail pmcvety@jwu.edu.

Description of the Project

In the past 100 years there have been two routes open for those seeking to teaching culinary arts/cooking in high schools: classroom instruction and on-the-job-training. This study is planned to investigate the competencies essential for both types of teachers, family and consumer science teachers and career technical educators, to teach high quality culinary arts/cooking programs in the high schools.

Requirements of Study Participants

The research methodology for the study includes conducting two focus groups, one for family and consumer sciences teachers and one for career technical educators. You have been asked to participate in a focus group to discuss what competencies are essential to teaching culinary arts/cooking in U.S. high schools. The focus group will contain five participants and will last no longer than one hour.

Benefits of Study

Although there may be no direct benefits to you as a result of taking part in this study, the results may validated competencies or modify competencies within your existing culinary arts curriculum. The competencies validated through this study can provide guidance or be a helpful resource for you in developing culinary arts curriculum or programs.

Confidentiality

The information that you provide for this research project will not be personally identified with you, either by name or title. The data will be stored in a locked file and available only to the researcher. After the research and dissertation is concluded, the data will be destroyed.

Voluntary Participation

The decision to participate in this research study is voluntary; you do not have to take part. If you do decide to participate, you may terminate your participating at any time. If you do decide to terminate your participation, simply inform Paul McVety of your decision and no penalty will result. If you are not satisfied with the way in which this study was conducted, you may convey your concerns to the Johnson & Wales University Institutional Review Board, which can be contacted at 401-598-1803.

- -

I have read the consent form. My questions have been answered. My signature below indicates that I understand the information and that I consent to participate in this study.

__________________________ ______________________ _______

Name of Participant Signature of Participant Date

______________________ _______

Signature of Researcher Date

Consent to Audio Taping and Transcription

The study involves the audio taping of the focus group discussion. Neither the name nor other identifying information about the participant will be associated with the tape(s) or with the transcript. Only the researcher will listen to the tapes.

The tapes will be transcribed by the researcher. Once the transcription is checked for accuracy, the tape will be erased. Interview transcripts may be reproduced in whole or in part for use in presentations or written documents that result from the study; however, neither the name or any other identifying information of the participant will be used in such presentations or documents.

- -

Please check one of each of these pairs of options.

Taping the Focus Group

- ❑ I consent to having my participation in the focus group taped
- ❑ I do not consent to having my participation in the focus group taped

Transcription of Interview

- ❑ I consent to having my taped participation in the focus group transcribed into written form
- ❑ I do not consent to having my participation in the focus group transcribed into written form

Use of Transcriptions

- ❑ I consent to the use of the written transcription of my participation in the focus group in presentations and written documents resulting from the study, provided that neither my name nor other identifying information will be associated with the transcript
- ❑ I do not consent to the use of the written transcription of my participation in the focus group in presentations or written documents resulting from the study.

Signature of Participant ___________________________________

Date _______

I hereby agree to abide by the participant's instructions as indicated above.

Signature of Researcher ___________________________________

Date ________

APPENDIX E

Additional Statistical Tables

Table 18
Group Means for Differences between Family Consumer Sciences Teacher (FCST) and Career Technical Educators (CTE) Regarding Perceived Importance of Cooking Techniques Competencies (*N* = 265)

Item	Competency	FCST (*n* = 132) *M*	FCST (*n* = 132) *SD*	CTE (*n* = 133) *M*	CTE (*n* = 133) *SD*	*t*	*p*
55	Sautéing	4.28	.73	4.21	.76	.75	.45
66	Roasting	4.08	.84	4.02	.87	.38	.55
63	Steaming	4.06	.83	4.02	.85	-.50	.70
65	Stir Fry	4.06	.80	3.96	.86	.51	.36
56	Broiling	4.04	.80	3.93	.91	1.02	.31
64	Braising	3.96	.85	3.83	.92	1.13	.23
57	Grilling	3.96	.82	3.96	.94	-.07	.94
58	Shallow fry	3.82	.89	3.78	.92	.26	.79
61	Stewing	3.80	.90	3.75	.93	.94	.69
62	Poaching	3.73	1.03	3.60	1.05	1.02	.31
60	Griddling	3.71	.92	3.75	.95	-.26	.79
59	Deep frying	3.70	1.04	3.74	1.04	-.36	.72

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .004 (.05/12) was used to determine significant differences.

Table 19
Group Means for Differences between Comprehensive Family Consumer Sciences Teachers (FCST) and Career Technical Educators (CTE) Regarding Perceived Importance of Food Preparation Competencies (*N* = 265)

Item	Competency	FCST (*n* = 132) *M*	FCST (*n* = 132) *SD*	CTE (*n* = 133) *M*	CTE (*n* = 133) *SD*	*t*	*p*
78	Sauces	4.08	.96	3.89	1.09	1.51	.13
79	Salads/dressings	3.99	.82	3.96	.91	.28	.77
81	Breakfast items	3.86	.83	3.88	.87	-.29	.77
85	No. America cuisine	3.84	.89	3.75	.86	.78	.43
84	Italian cuisine	3.76	.92	3.72	.88	.38	.70
88	European cuisines	3.71	.90	3.64	.90	.58	.56
86	Asian cuisines	3.70	.91	3.61	.84	.78	.43
74	Seafood dishes	3.67	.91	3.53	1.05	1.09	.27
87	So. America cuisine	3.62	.91	3.59	.86	.21	.83
76	Pork dishes	3.60	.81	3.59	.89	.09	.93
80	Canapés	3.59	.94	3.51	.98	.65	.51
75	Flat and round fish	3.32	.97	3.14	1.00	1.42	.15
82	Non alcoholic bev.	3.26	.97	3.14	1.05	.95	.34
72	Cold soups	3.00	1.00	2.89	.97	.88	.37
73	Lamb dishes	2.89	.96	2.78	.99	.87	.15
83	Galatines	2.70	1.07	2.54	1.01	1.23	.21

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .003 (.05/16) was used to determine significant differences.

Table 20
Group Means for Differences between Family Consumer Sciences Teachers (FCST) and Career Technical Educators (CTE) Regarding Perceived Importance of Culinary Arts Essentials Competencies (*N* = 265)

		FCST (*n* = 132)		CTE (*n* = 133)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
68	Read/follow a recipe	4.86	.44	4.88	.34	-.33	.73
69	Proper measurement	4.70	.59	4.80	.47	-1.52	.13
67	Knife skills	4.63	.61	4.62	.65	.16	.87
72	Food presentation	4.40	.72	4.37	.76	.33	.73
71	Herbs/spices/oils	4.16	.75	4.02	.84	1.41	.15
70	Meat cutting	3.79	.89	3.57	.96	1.83	.06

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .008$ (.05/6) was used to determine significant differences.

Table 21
Group Means for Differences between Family Consumer Sciences Teachers (FCST) and Career Technical Educators (CTE) Regarding Perceived Importance of Course Development Competencies (*N* = 265)

		FCST (*n* = 132)		CTE (*n* = 133)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
106	Employ various teaching methods	5.27	1.26	5.19	1.19	.54	.58
98	Employability skills in curriculum	5.20	1.36	5.34	1.17	-.90	.36
104	Write lesson plans	5.16	1.30	5.15	1.23	-.04	.96
105	Individualize instruction	5.16	1.28	4.97	1.27	1.16	.18
97	Integrate academic/voc. courses	5.13	1.31	5.16	1.17	-.20	.83
100	Align cur./instruction/assessment	5.11	1.30	5.13	1.25	-.10	.91
107	Address special learning needs	5.07	1.27	5.03	1.22	.24	.80
96	Develop performance objectives	5.05	1.36	5.17	1.31	-.70	.48
95	Establish a course syllabus	5.02	1.38	5.13	1.21	-.67	.50
102	Assess curriculum effectiveness	5.00	1.38	5.11	1.24	-.71	.47
91	Promote course/program	4.99	1.41	5.00	1.27	-.09	.92
94	Develop a course outline	4.99	1.38	5.00	1.35	-.09	.92
99	Identify course learning outcomes	4.98	1.32	5.13	1.18	-.94	.34
103	Develop a course budget	4.95	1.39	5.00	1.31	-.31	.75
108	Provide remedial instruction	4.92	1.28	4.90	1.25	.10	.92
101	Analyze curriculum & standards	4.92	1.38	5.00	1.23	-.47	.64
93	Research course content	4.86	1.39	4.96	1.27	-.55	.58
92	Develop course/program profile	4.73	1.59	4.70	1.49	-.17	.86
89	Conduct needs assessment	4.67	1.58	4.75	1.31	-.44	.66
90	Assess course feasibility	4.67	1.45	4.68	1.35	-.07	.94

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/20) was used to determine significant differences.

Table 22
Comparison of Group Means for Family and Consumer Sciences Teachers (FCST) and Career and Technical Educators (CTE) Regarding Their Abilities to Perform Cooking Techniques Competencies (*N* = 238)

		FCST (*n* = 125)		CTE (*n* = 113)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
5	Deep frying	4.62	.50	3.85	.86	3.35	.77
12	Roasting	4.50	.51	4.10	.70	2.04	.85
7	Stewing	4.50	.63	4.02	.83	2.05	.47
9	Steaming	4.43	.62	4.02	.76	1.90	.41
11	Stir Fry	4.37	.71	4.02	.89	1.39	.35
4	Shallow fry	4.25	.68	3.92	.79	-1.43	.32
10	Braising	4.25	1.00	3.67	.94	2.02	.57
8	Poaching	4.18	.91	3.40	1.05	2.61	.78
6	Griddling	4.12	.88	3.85	.83	1.09	.27
1	Sautéing	4.06	.77	4.27	.67	-1.01	-.21
2	Broiling	3.68	.94	4.10	.70	-1.78	-.41
3	Grilling	3.68	.87	4.10	.70	-1.83	-.41

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .004$ (.05/12) was used to determine significant differences.

Table 23
Comparison of Group Means for Family and Consumer Sciences Teachers (FCST) and Career and Technical Educators (CTE) Regarding Their Abilities to Perform Food Preparation Competencies (*N* = 238)

		FCST (*n* = 125)		CTE (*n* = 113)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
27	Breakfast items	4.14	.74	4.18	.79	-.41	-.04
25	Salads/dressings	3.88	.85	3.83	1.03	.45	.05
31	No. America cuisine	3.78	.90	3.57	.96	1.77	.22
30	Italian cuisine	3.73	1.00	3.65	.91	.58	.07
28	Non alcoholic bev.	3.73	.82	3.68	.93	.40	.05
22	Pork dishes	3.71	.83	3.84	1.00	-1.07	-.12
26	Canapés	3.45	1.00	3.22	1.08	1.66	.22
24	Sauces	3.41	1.15	3.16	1.23	1.59	.24
20	Seafood dishes	3.39	.98	3.37	1.09	.14	.02
34	European cuisines	3.26	1.14	3.05	1.06	1.51	.21
32	Asian cuisines	3.10	1.02	3.00	1.00	.78	.10
23	Cold soups	3.09	1.05	2.81	1.17	1.93	.27
21	Flat and round fish	2.91	1.15	2.85	1.20	.40	.06
33	So. America cuisine	2.83	1.08	2.84	1.07	-.06	-.01
19	Lamb dishes	2.45	1.11	2.45	1.24	-.02	.01
29	Galatines	2.30	1.12	2.29	1.30	.07	.01

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/16) was used to determine significant differences.

Table 24
Comparison of Group Means for Family and Consumer Sciences Teachers (FCST) and Career and Technical Educators (CTE) Regarding Their Abilities to Perform Culinary Arts Essential Competencies (*N* = 238)

		FCST (*n* = 125)		CTE (*n* = 113)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
14	Read/follow a recipe	4.75	.45	4.66	.54	1.26	.08
15	Proper measurement	4.30	.85	4.21	.83	.80	.09
18	Food presentation	3.89	.94	3.68	1.07	1.57	.20
13	Knife skills	3.61	.92	3.68	1.00	-.56	-.07
17	Herbs/spices/oils	3.56	1.10	3.45	1.00	.85	.11
16	Meat cutting	3.10	1.00	3.06	.99	.37	.04

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .008 (.05/6) was used to determine significant differences.

Table 25
Comparison of Group Means for Family and Consumer Sciences Teachers (FCST) and Career and Technical Educators (CTE) Regarding Their Abilities to Perform Course Development Competencies (*N* = 238)

		FCST (*N* = 125)		CTE (*N* = 113)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
52	Employ various teaching methods	4.31	.71	4.21	.76	1.04	.09
50	Write lesson plans	4.21	.80	4.27	.79	-.56	-.05
44	Employability skills in curriculum	4.13	.79	4.01	.84	1.07	.11
53	Address special learning needs	4.08	.80	3.90	.98	1.53	.17
51	Individualize instruction	4.06	.83	4.04	.82	.18	.01
41	Establish a course syllabus	4.03	.93	4.13	.85	-.82	-.09
43	Integrate academic/voc. Courses	3.99	.87	4.09	.81	-.91	-.10
46	Align cur./instruction/assessment	3.99	.88	3.91	.87	.63	.07
40	Develop a course outline	3.96	.89	4.11	.89	-1.22	-.14
42	Develop performance objectives	3.96	.90	4.01	.87	-.43	-.05
45	Identify course learning outcomes	3.96	.80	3.91	.88	.47	.05
47	Analyze curriculum & standards	3.94	.88	3.84	.84	.86	.09
54	Provide remedial instruction	3.92	.85	3.75	.96	1.47	.17
48	Assess curriculum effectiveness	3.89	.82	3.88	.86	.15	.01
37	Promote course/program	3.89	.96	3.87	.96	.14	.02
39	Research course content	3.85	.86	3.90	.97	-.40	-.04
49	Develop a course budget	3.73	.99	3.70	.99	.24	.03
38	Develop course/program profile	3.70	.97	3.69	1.02	.05	.01
36	Assess course feasibility	3.68	.87	3.59	.85	.75	.09
35	Conduct needs assessment	3.58	.91	3.63	.82	-.41	-.04

Note. Using the Bonferroni adjustment to adjust the p <. 05 significance level, the p < .003 (.05/20) was used to determine significant of differences.

Table 26
Comparison of Group Means by Gender Regarding Perceived Importance of Cooking Techniques Competencies (*N* = 265)

		Female (*n* = 208)		Male (*n* = 57)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
55	Sautéing	4.19	.75	4.42	.71	-2.00	.04
66	Roasting	4.00	.84	4.25	.87	-1.94	.05
63	Steaming	3.97	.84	4.28	.82	-2.45	.01
65	Stir Fry	3.97	.82	4.19	.84	-1.84	.06
56	Broiling	3.92	.88	4.23	.77	-2.39	.01
57	Grilling	3.88	.89	4.25	.77	-2.79	.01
64	Braising	3.87	.90	4.00	.83	-.93	.35
58	Shallow fry	3.76	.91	3.94	.88	-1.33	.18
61	Stewing	3.74	.92	3.92	.93	-1.36	.17
60	Griddling	3.69	.92	3.91	.95	-1.59	.11
59	Deep frying	3.65	1.05	3.96	.99	-1.96	.05
62	Poaching	3.60	1.05	3.89	1.00	-1.82	.07

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .004 (.05/12) was used to determine significant differences.

Table 27
Comparison of Group Means by Gender Regarding Perceived Importance of Food Preparation Competencies (*N* = 238)

		Female (*n* = 191)		Male (*n* = 47)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
79	Salads/dressings	3.94	.84	4.08	.93	-1.10	.27
78	Sauces	3.92	1.04	4.12	.98	-1.86	.06
81	Breakfast items	3.82	.82	4.03	.93	-1.61	.10
85	No. America cuisine	3.78	.90	3.83	.75	-1.58	.85
84	Italian cuisine	3.72	.93	3.82	.81	-.68	.49
88	European cuisines	3.66	.92	3.73	.79	-.48	.63
86	Asian cuisines	3.66	.91	3.64	.74	.14	.89
87	So. America cuisine	3.60	.92	3.62	.75	-.14	.89
76	Pork dishes	3.55	.86	3.76	.79	-.38	.11
74	Seafood dishes	3.54	.96	3.83	1.04	-2.01	.04
80	Canapés	3.49	.97	3.76	.91	-1.87	.06
75	Flat and round fish	3.21	1.00	3.30	.95	-.57	.56
82	Non alcoholic bev.	3.13	1.01	3.42	1.00	-1.91	.05
77	Cold soups	2.91	.98	3.08	.97	-1.17	.24
73	Lamb dishes	2.82	.97	2.91	.97	-.59	.55
83	Galatines	2.59	1.05	2.75	.99	-.99	.32

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .003 (.05/16) was used to determine significant differences.

Table 28
Comparison of Group Means by Gender Regarding Perceived Importance of Culinary Arts Essentials Competencies (*N* = 255)

Item	Competency	Female (n = 199) *M*	Female (n = 199) *SD*	Male (n = 56) *M*	Male (n = 56) *SD*	*t*	*p*
68	Read/follow a recipe	4.87	.40	4.87	.38	-.01	.99
69	Proper measurement	4.74	.56	4.78	.45	-.53	.60
67	Knife skills	4.61	.65	4.69	.53	-.87	.38
72	Food presentation	4.33	.76	4.60	.62	-2.45	.01
71	Herbs/spices/oils	4.04	.82	4.28	.67	-2.04	.04
70	Meat cutting	3.67	.94	3.73	.92	-.42	.67

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .008 (.05/6) was used to determine significant differences.

Table 29
Comparison of Group Means by Gender Regarding Perceived Importance of Course Development Competencies (*N* = 265)

Item	Competency	Female (*n* = 208) *M*	Female (*n* = 208) *SD*	Male (*n* = 57) *M*	Male (*n* = 57) *SD*	*t*	*p*
106	Employ various teaching methods	5.21	1.27	5.31	1.05	-.55	.57
98	Employability skills in curriculum	5.18	1.34	5.56	.92	-.19	.05
104	Write lesson plans	5.14	1.31	5.21	1.09	-.35	.72
97	Integrate academic/voc. courses	5.10	1.30	5.28	.99	-.92	.35
100	Align cur./instruction/assessment	5.09	1.30	5.21	1.19	-.58	.56
95	Establish a course syllabus	5.05	1.35	5.15	1.09	-.52	.60
96	Develop performance objectives	5.05	1.41	5.31	1.00	-1.30	.19
105	Individualize instruction	5.05	1.31	5.10	1.16	-.23	.81
102	Assess curriculum effectiveness	5.05	1.30	5.07	1.34	-.80	.93
107	Address special learning needs	5.04	1.29	5.08	1.08	-.20	.83
99	Identify course learning outcomes	5.00	1.31	5.26	1.01	-1.41	.16
94	Develop a course outline	4.96	1.41	5.12	1.18	-.76	.44
103	Develop a course budget	4.95	1.36	5.07	1.33	-.56	.57
91	Promote course/program	4.94	1.38	5.21	1.16	-1.34	.18
101	Analyze curriculum & standards	4.91	1.35	5.14	1.17	1.16	.24
108	Provide remedial instruction	4.88	1.30	5.03	1.13	-.08	.42
93	Research course content	4.86	1.37	5.10	1.17	-1.21	.23
89	Conduct needs assessment	4.67	1.45	4.84	1.44	-.76	.44
92	Develop course/program profile	4.66	1.57	4.92	1.39	-1.15	.25
90	Assess course feasibility	4.62	1.42	4.87	1.29	-1.18	.23

Note. Using the Bonferroni adjustment to adjust the p < .5 significance level, the p < .003 (.05/20) was used to determine significant differences.

Table 30
Comparison of Group Means by Years of Teaching Experience Regarding Perceived Importance of Cooking Techniques Competencies (*N* = 103)

Item	Competency		Years of Teaching Experience: < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* = 10)	20+ (*n* = 12)	*F*	*p*
55	Sauté	M	4.03	4.50	4.20	4.14	4.20	3.12	.01
		SD	.77	.67	.84	.77	.70		
63	Steaming	M	3.96	4.18	4.17	4.00	3.87	1.19	.31
		SD	.86	.86	.81	.75	.91		
66	Roasting	M	3.94	4.26	4.07	3.93	3.87	1.52	.19
		SD	.84	.90	.87	.72	.92		
65	Stir Fry	M	3.84	4.26	4.07	3.93	3.87	2.37	.05
		SD	.85	.89	.81	.76	.78		
57	Grilling	M	3.81	4.19	4.00	3.82	3.83	1.96	.10
		SD	.85	.87	.94	.85	.93		
56	Broiling	M	3.80	4.18	4.00	4.00	3.79	1.78	.13
		SD	.87	.86	.90	.76	.92		
64	Braising	M	3.67	4.09	4.00	3.89	3.79	1.87	1.15
		SD	.95	.92	.90	.78	.79		
58	Shallow Fry	M	3.62	3.98	3.96	3.85	3.64	1.79	.13
		SD	.94	.88	.94	.85	.93		
61	Stewing	M	3.54	3.91	3.96	3.78	3.70	1.54	.19
		SD	.97	.97	1.03	.85	.77		
60	Griddling	M	3.52	3.85	3.78	3.72	3.75	.89	.46
		SD	.93	.98	1.03	.82	.95		
59	Deep Frying	M	3.50	3.86	3.75	3.72	3.70	.88	.47
		SD	1.00	1.04	1.20	1.05	1.00		
62	Poaching	M	3.35	3.90	3.71	3.80	3.43	2.74	.03
		SD	1.07	1.10	1.11	.85	.77		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .004$ (.05/12) was used to determine significant differences.

Table 31
Comparison of Group Means by Years of Teaching Experience Regarding Perceived Importance of Food Preparation Competencies (*N* = 103)

Item	Competency		Years of Teaching Experience: < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* = 10)	20+ (*n* = 12)	*F*	*p*
78	Sauces	M	3.94	4.01	3.85	3.82	4.10	.53	.71
		SD	1.06	.95	1.32	1.01	.97		
79	Salads/dressings	M	3.84	4.03	4.10	3.83	4.08	1.01	.40
		SD	.94	.87	.87	.81	.82		
76	Pork dishes	M	3.37	3.77	3.71	3.61	3.55	1.76	.13
		SD	.79	.72	.89	.76	1.05		
74	Seafood dishes	M	3.37	3.93	3.50	3.53	3.52	2.68	.03
		SD	.94	.82	1.03	.92	1.14		
80	Canapés	M	3.37	3.36	3.57	3.51	3.58	.54	.70
		SD	1.00	.99	1.13	.88	.89		
75	Flat and round fish	M	3.00	3.48	3.10	3.23	3.20	1.84	.12
		SD	.91	.92	1.10	.88	1.11		
77	Cold soups	M	2.64	3.08	2.92	3.02	2.93	1.64	.16
		SD	.92	.93	.97	.98	1.03		
73	Lamb dishes	M	2.59	3.01	2.67	2.89	2.83	1.56	.18
		SD	.87	.92	.98	1.00	1.03		
81	Breakfast items	M	3.75	3.90	4.00	3.85	3.87	.05	.95
		SD	.91	.90	.90	.75	.85		
85	No. America cuisine	M	3.58	3.95	3.82	3.72	3.80	1.30	.27
		SD	.90	.84	.81	.85	.94		
84	Italian cuisine	M	3.58	4.01	3.60	3.58	3.75	2.32	.05
		SD	.92	.78	1.03	.88	.93		
88	European cuisines	M	3.52	3.88	3.70	3.53	3.66	1.48	.20
		SD	.91	.85	.95	.90	.90		
86	Asian cuisines	M	3.47	3.86	3.67	3.48	3.63	1.87	.11
		SD	.86	.82	.90	.95	.87		

Table continues . . .

Table 31 [Continued]

Items	Competency		Years of Teaching Experience: < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	6-20 (*n* =10)	20+ (*n* =12)	*F*	*p*
87	So. America cuisine	M	3.45	3.78	3.53	3.51	3.57	1.17	.32
		SD	.88	.77	.96	.90	.97		
82	Non alcoholic bev.	M	3.07	3.24	3.17	3.27	3.16	.29	.88
		SD	1.02	.97	1.12	.92	1.09		
83	Galatines	M	2.33	2.83	2.46	2.68	2.58	1.85	.12
		SD	.94	1.01	1.10	.98	1.12		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/16) was used to determine significant differences.

Table 32
Comparison of Group Means by Years of Teaching Experience Regarding Perceived Importance of Culinary Arts Essentials Competencies (*N* = 103)

Item	Competency		Years of Teaching Experience < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* = 10)	20+ (*n* = 12)	*F*	*p*
68	Read/follow recipe	M	4.86	4.91	4.96	4.85	4.79	1.08	.36
		SD	.34	.33	.18	.50	.50		
69	Proper measurement	M	4.77	4.78	4.82	4.65	4.68	.69	.59
		SD	.50	.45	.54	.63	.62		
67	Knife skills	M	4.58	4.75	4.71	4.59	4.50	1.28	.27
		SD	.66	.56	.71	.64	.65		
72	Food presentation	M	4.26	4.45	4.39	4.40	4.36	.49	.73
		SD	.81	.76	.87	.68	.67		
71	Herbs/spices/oils	M	3.92	4.34	3.96	4.00	4.08	2.45	.04
		SD	.80	.75	.92	.80	.74		
70	Meat cutting	M	3.51	3.91	3.71	3.61	3.58	1.63	.16
		SD	.89	.90	.85	.89	1.02		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .008$ (.05/6) was used to determine significant differences.

Table 33
Comparison of Group Means by Years of Teaching Experience Regarding Perceived Importance of Course Development Competencies (*N* = 103)

Item	Competency		Years of Teaching Experience < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* = 10)	20+ (*n* = 12)	*F*	*p*
98	Employability skills in curr.	M	5.35	5.19	5.31	5.33	5.37	.19	.94
		SD	.90	1.35	1.28	1.22	1.16		
104	Write course lesson plans	M	5.16	5.29	5.31	4.93	5.34	.95	.43
		SD	1.03	1.35	1.22	1.31	.75		
106	Employ var. teach. methods	M	5.30	5.22	5.34	5.20	5.36	.22	.92
		SD	.91	1.38	1.23	1.21	.76		
100	Align curr. to instruction	M	5.24	5.00	5.17	5.10	5.40	.87	.48
		SD	.95	1.46	1.31	1.20	.82		
97	Integrate academic course	M	5.22	5.18	5.13	5.10	5.27	.16	.95
		SD	.97	1.33	1.27	1.32	.74		
95	Establish course syllabus	M	5.22	4.93	4.82	4.95	5.08	.38	.82
		SD	.95	1.47	1.25	1.38	.90		
102	Assess curriculum effective	M	5.18	4.90	5.20	5.06	5.23	.67	.61
		SD	1.03	1.59	1.29	1.17	.81		
99	Identify learning outcomes	M	5.17	5.00	4.93	5.08	5.23	.46	.76
		SD	.91	1.39	1.51	1.19	.81		
103	Develop course budget	M	4.94	4.85	5.06	5.06	5.21	.59	.67
		SD	1.09	1.64	1.25	1.24	.97		
101	Analyze curr. to content	M	5.05	4.80	5.06	5.00	5.14	.60	.65
		SD	1.09	1.45	1.33	1.16	1.06		
96	Develop performance object.	M	5.20	4.98	4.96	5.14	5.38	.85	.49
		SD	.96	1.54	1.52	1.36	.70		
107	Address special needs	M	5.16	5.01	5.20	4.93	5.19	.50	.73
		SD	.91	1.36	1.23	1.26	.90		
105	Individualize instruction	M	5.11	5.13	5.10	5.04	5.14	.05	.99
		SD	.95	1.38	1.26	.90	.90		

Table continues . . .

Table 33 [Continued]

Item	Competency		Years of Teaching Experience < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* = 10)	20+ (*n* = 12)	*F*	*p*
91	Promote course/program	M	5.01	4.86	5.00	5.08	5.19	.46	.76
		SD	1.16	1.58	1.28	1.26	.82		
108	Provide remedial instruction	M	5.00	4.95	5.00	4.85	5.00	.13	.97
		SD	.94	1.37	1.19	1.30	1.02		
94	Develop course outline	M	5.22	4.93	4.82	4.95	5.08	.62	.65
		SD	.95	1.57	1.60	1.25	1.04		
93	Research course content	M	5.11	4.83	4.93	4.79	5.08	.66	.61
		SD	.89	1.54	1.30	1.38	1.06		
92	Develop course profile	M	4.83	4.49	4.65	4.77	4.91	.65	.62
		SD	1.08	1.82	1.60	1.50	1.31		
89	Conduct needs assessment	M	4.73	4.50	4.89	4.73	4.93	.76	.55
		SD	1.06	1.81	1.21	1.45	1.11		
90	Assess course feasibility	M	4.77	4.47	4.79	4.66	4.87	.70	.59
		SD	.97	1.75	1.23	1.31	1.17		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/20) was used to determine significant differences.

Table 34
Comparison of Group Means by High School Type Regarding Perceived Importance of Cooking Techniques Competencies (*N* = 241)

Item	Competency	Comprehensive (*n* = 173) *M*	*SD*	Technical Center (*n* = 68) *M*	*SD*	*t*	*p*
55	Sautéing	4.22	.77	4.22	.72	.04	.96
66	Roasting	4.04	.87	4.00	.83	.38	.70
63	Steaming	4.01	.85	4.07	.85	-.50	.61
65	Stir Fry	4.01	.84	3.95	.82	.51	.60
56	Broiling	3.96	.89	3.95	.80	-2.39	.94
64	Braising	3.92	.90	3.77	.86	1.13	.25
57	Grilling	3.91	.91	4.01	.83	-.81	.41
58	Shallow fry	3.83	.90	3.71	.88	.90	.37
61	Stewing	3.79	.92	3.67	.93	.94	.34
60	Griddling	3.77	.93	3.58	.95	1.44	.14
59	Deep frying	3.73	1.06	3.62	1.00	.77	.11
62	Poaching	3.67	1.06	3.52	1.03	1.02	.31

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .004$ (.05/12) was used to determine significant differences.

Table 35
Comparison of Group Means by High School Type Regarding Perceived Importance of Food Preparation Competencies (*N* = 241)

Item	Competency	Comprehensive (*n* = 173) *M*	*SD*	Technical Center (*n* = 68) *M*	*SD*	*t*	*p*
79	Salads/dressings	4.00	.82	3.89	.98	.83	.40
78	Sauces	3.95	1.03	3.94	1.07	.07	.93
81	Breakfast items	3.86	.85	3.86	.90	-.03	.97
85	No. America cuisine	3.80	.90	3.70	.83	.79	.43
84	Italian cuisine	3.72	.93	3.74	.84	-.21	.83
88	European cuisines	3.69	.92	3.58	.87	.86	.39
86	Asian cuisines	3.66	.91	3.56	.82	.66	.50
74	Seafood dishes	3.61	.96	3.55	1.03	.45	.65
76	Pork dishes	3.61	.82	3.55	.93	.48	.62
87	So. America cuisine	3.59	.89	3.55	.89	.31	.75
80	Canapés	3.54	.95	3.49	1.00	.37	.70
82	Non alcoholic bev.	3.23	.97	3.04	1.10	1.29	.20
75	Flat and round fish	3.23	.95	3.20	1.06	.17	.86
77	Cold soups	2.99	.98	2.76	.95	1.65	.10
73	Lamb dishes	2.86	1.00	2.71	.87	1.08	.27
83	Galatines	2.66	1.05	2.44	.99	1.42	.21

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/16) was used to determine significant differences.

Table 36
Comparison of Group Means by High School Type Regarding Perceived Importance of Culinary Arts Essentials Competencies (*N* = 241)

		Comprehensive (*n* =173)		Technical Center (*n* = 68)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
68	Read/follow a recipe	4.84	.45	4.92	.26	-1.36	.17
69	Proper measurement	4.70	.58	4.80	.46	-1.24	.21
67	Knife skills	4.60	.65	4.65	.64	- .53	.59
72	Food presentation	4.38	.75	4.34	.76	.42	.67
72	Herbs/spices/oils	4.11	.80	4.01	.80	.85	.39
70	Meat cutting	3.73	.92	3.53	.92	1.49	.13

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .008 (.05/6) was used to determine significant differences.

Table 37
Comparison of Group Means by High School Type Regarding Perceived Importance on Course Development Competencies (*N* = 241)

		Comprehensive (*n* = 173)		Technical Center (*n* = 68)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
106	Employ various teaching methods	5.29	1.09	5.28	1.03	-.55	.93
98	Employability skills in curriculum	5.27	1.18	5.41	.95	-.19	.39
104	Write lesson plans	5.21	1.15	5.22	1.04	-.35	.94
97	Integrate academic/voc. courses	5.17	1.14	5.25	.97	-.92	.63
100	Align cur./instruction/assessment	5.15	1.14	5.26	1.10	-.58	.48
95	Establish a course syllabus	5.14	1.19	5.03	1.12	.70	.48
105	Individualize instruction	5.14	1.12	5.07	1.14	-.23	.65
107	Address special learning needs	5.12	1.12	5.04	1.05	-.20	.62
96	Develop performance objectives	5.11	1.25	5.25	1.11	-.77	.42
102	Assess curriculum effectiveness	5.09	1.21	5.14	1.11	-.80	.75
99	Identify course learning outcomes	5.05	1.16	5.22	.99	-1.41	.29
94	Develop a course outline	5.03	1.28	5.02	1.18	-.03	.97
103	Develop a course budget	5.00	1.29	5.08	1.11	-.56	.62
91	Promote course/program	5.00	1.30	5.13	.98	-.75	.45
108	Provide remedial instruction	4.98	1.16	4.92	1.06	.34	.73
101	Analyze curriculum & standards	4.97	1.21	5.11	1.14	-1.16	.39
93	Research course content	4.94	1.28	5.00	1.07	-.30	.76
89	Conduct needs assessment	4.79	1.39	4.62	1.29	.88	.37
92	Develop course profile	4.72	1.51	4.77	1.32	-.22	.82
90	Assess course feasibility	4.73	1.36	4.65	1.18	.40	.68

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .003 (.05/20) was used to determine significant differences.

Table 38
Comparison of Group Means by Teacher Type Regarding Perceived Importance of Cooking Techniques Competencies (*N* = 235)

Item	Competency		Type of Teacher CA (*n* = 55)	CA/PA (*n* = 52)	FCS (*n* =128)	*F*	*p*
55	Sauté	M	4.18	4.23	4.28	.41	.66
		SD	.81	.76	.72		
63	Steaming	M	4.11	3.94	4.05	.56	.57
		SD	.89	.84	.83		
65	Stir Fry	M	4.05	3.92	4.05	.52	.59
		SD	.84	.85	.82		
66	Roasting	M	4.01	4.02	4.08	.18	.83
		SD	.86	.91	.83		
56	Broiling	M	3.96	3.80	4.04	1.36	.26
		SD	.85	1.30	.80		
57	Grilling	M	3.96	3.90	3.95	.06	.07
		SD	.89	1.05	.82		
64	Braising	M	3.86	3.96	3.95	.19	.82
		SD	.94	.83	.87		
58	Shallow Fry	M	3.83	3.80	3.82	.02	.98
		SD	.91	.94	.89		
60	Griddling	M	3.79	3.80	3.71	.19	.83
		SD	.98	.98	.92		
61	Stewing	M	3.77	3.88	3.79	.20	.81
		SD	.97	.84	.91		
59	Deep Frying	M	3.75	3.83	3.66	.49	.61
		SD	1.07	1.00	1.05		
62	Poaching	M	3.69	3.62	3.70	.11	.89
		SD	1.04	1.06	1.06		

Note. Type of teacher groups were as follows: CA = Culinary Arts Only, CA/PA = Culinary Arts and Pastry Arts, FCS = Family Consumer Sciences Only. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .004$ (.05/12) was used to determine significant differences.

Table 39
Comparison of Group Means by Teacher Type Regarding Perceived Importance of Food Preparation Competencies (*N* = 235)

Item	Competency		CA (*n* = 55)	CA/PA (*n* = 52)	FCS (*n* = 128)	*F*	*p*
79	Salads/dressings	M	3.98	3.97	4.00	.03	.97
		SD	.99	.85	.80		
78	Sauces	M	3.75	3.88	4.09	2.23	.10
		SD	1.22	1.02	.96		
76	Pork dishes	M	3.62	3.68	3.61	.06	.90
		SD	.92	.86	.79		
74	Seafood dishes	M	3.56	3.60	3.66	.20	.81
		SD	1.08	1.01	.91		
80	Canapés	M	3.50	3.44	3.61	.63	.53
		SD	1.10	.92	.93		
75	Flat and round fish	M	3.11	3.26	3.31	.73	.48
		SD	1.03	1.00	.98		
77	Cold soups	M	2.90	2.86	3.00	.46	.62
		SD	1.04	.90	1.01		
73	Lamb dishes	M	2.73	2.90	2.88	.48	.61
		SD	1.02	.99	.98		
81	Breakfast items	M	3.86	3.87	3.85	.01	.98
		SD	.92	.85	.83		
85	No. America cuisine	M	3.79	3.67	3.86	.87	.41
		SD	.88	.85	.89		
84	Italian cuisine	M	3.77	3.64	3.77	.43	.64
		SD	.95	.85	.92		
88	European cuisines	M	3.67	3.66	3.72	.08	.09
		SD	.95	.89	.90		
86	Asian cuisines	M	3.62	3.65	3.70	.18	.83
		SD	.92	.77	.92		
87	So. America cuisine	M	3.62	3.61	3.62	.01	.99
		SD	.94	.86	.91		
82	Non alcoholic bev.	M	3.13	3.02	3.26	1.08	.34
		SD	1.16	.95	.90		
83	Galatines	M	2.50	2.54	2.68	.66	.51
		SD	.99	1.01	1.07		
81	Breakfast items	M	3.86	3.87	3.85	.01	.98
		SD	.92	.85	.83		
85	No. America cuisine	M	3.79	3.67	3.86	.87	.41
		SD	.88	.85	.89		
84	Italian cuisine	M	3.77	3.64	3.77	.43	.64
		SD	.95	.85	.92		

Note. Type of teacher groups were as follows: CA = Culinary Arts Only, CA/PA = Culinary Arts and Pastry Arts, FCS = Family Consumer Sciences Only. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/20) was used to determine significant differences.

Table 40
Comparison of Group Means by Teacher Type Regarding Perceived Importance of Culinary Arts Essentials Competencies (*N* = 235)

Item	Competency		CA (*n* = 55)	CA/PA (*n* = 52)	FCS (*n* =128)	*F*	*p*
68	Read/follow a recipe	M	4.86	4.86	4.86	.01	.99
		SD	.34	.40	.44		
69	Proper measurement	M	4.77	4.79	4.68	.93	.39
		SD	.50	.49	.60		
67	Knife skills	M	4.60	4.66	4.61	.11	.89
		SD	.74	.55	.63		
72	Food presentation	M	4.39	4.34	4.38	.03	.06
		SD	.79	.72	.74		
71	Herbs/spices/oils	M	3.96	4.10	4.14	.63	1.00
		SD	.91	.74	.75		
70	Meat cutting	M	3.62	3.58	3.76	.74	.86
		SD	.94	.97	.90		

Note. Type of teacher groups were as follows: CA = Culinary Arts Only, CA/PA = Culinary Arts and Pastry Arts, FCS = Family Consumer Sciences Only. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .008$ (.05/6) was used to determine significant differences.

Table 41
Comparison of Group Means by Teacher Type Regarding Perceived Importance of Course Development Competencies (*N* = 235)

Item	Competency		CA (*n* = 55)	CA/PA (*n* = 52)	FCS (*n* = 128)	*F*	*p*
98	Employability skills in curr.	M	5.32	5.40	5.19	.56	.57
		SD	1.03	1.03	1.37		
95	Establish course syllabus	M	5.11	5.16	5.01	.26	.76
		SD	1.06	1.14	1.40		
97	Integrate academic/voc	M	5.11	5.26	5.11	.27	.76
		SD	1.03	1.04	1.32		
96	Develop performance obj.	M	5.05	5.24	5.03	.43	.64
		SD	1.32	1.13	1.37		
91	Promote course/program	M	4.96	5.08	4.97	.13	.87
		SD	1.03	1.15	1.43		
94	Develop course outline	M	4.92	5.10	4.98	.22	.79
		SD	1.38	1.19	1.39		
93	Research course content	M	4.92	4.98	4.87	.12	.88
		SD	1.29	1.05	1.41		
92	Develop course profile	M	4.66	4.70	4.71	.02	.98
		SD	1.58	1.35	1.60		
89	Conduct needs assessment	M	4.64	4.93	4.66	.71	.48
		SD	1.44	1.06	1.59		
90	Assess course feasibility	M	4.64	4.80	4.65	.21	.80
		SD	1.36	1.24	1.46		
104	Write course lesson plans	M	5.26	5.16	5.13	.21	.81
		SD	1.09	1.14	1.32		
106	Employ various methods	M	5.18	5.26	5.24	.06	.95
		SD	1.07	1.04	1.28		
100	Align curriculum to instruct	M	5.13	5.24	5.11	.19	.82
		SD	1.17	1.11	1.32		

Table continues . . .

Table 41 [Continued]

Item	Competency		CA (*n* = 55)	CA/PA (*n* = 52)	FCS (*n* = 128)	*F*	*p*
99	Identify learning outcomes	M	5.09	5.22	4.97	.73	.48
		SD	1.07	1.05	1.34		
102	Assess curr. effectiveness	M	5.09	5.22	4.99	.58	.56
		SD	1.21	1.05	1.39		
103	Develop course budget	M	5.08	4.92	4.97	.26	.77
		SD	1.14	1.40	1.33		
101	Analyze curriculum to content	M	5.05	5.00	4.90	.29	.75
		SD	1.18	1.10	1.39		
107	Address special learning needs	M	5.04	5.10	5.05	.04	.96
		SD	1.14	1.09	1.28		
105	Individualize instruction	M	5.00	5.02	5.13	.29	.75
		SD	1.16	1.20	1.29		
108	Provide remedial instruction	M	4.94	4.92	4.90	.03	.98
		SD	1.15	1.19	1.29		

Note. Type of teacher groups were as follows: CA = Culinary Arts Only, CA/PA = Culinary Arts and Pastry Arts, FCS = Family Consumer Sciences Only. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/20) was used to determine significant differences.

Table 42
Comparison of Group Means by Curriculum Type Regarding Perceived Importance of Cooking Techniques Competencies (*N* = 191)

		ProStart (*n* = 50)		State (*n* = 141)			
Items	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
55	Sautéing	4.16	.71	4.24	.77	-.65	.51
66	Roasting	4.06	.74	4.05	.88	.07	.94
63	Steaming	4.00	.84	4.04	.83	-.31	.75
65	Stir Fry	3.97	.80	4.05	.83	-.52	.60
64	Braising	3.87	.88	3.91	.86	-.24	.80
57	Grilling	3.87	.83	3.99	.85	-.81	.41
56	Broiling	3.79	.86	3.93	.91	-1.92	.05
60	Griddling	3.79	.81	3.73	.95	.41	.67
58	Shallow fry	3.77	.82	3.85	.91	-.53	.59
59	Stewing	3.77	.82	3.74	.96	.18	.85
60	Deep frying	3.75	.94	3.70	1.03	.32	.74
62	Poaching	3.63	1.03	3.68	1.04	-.32	.74

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .004 (.05/12) was used to determine significant differences.

Table 43
Comparison of Group Means by Curriculum Type Regarding Perceived Importance of Food Preparation Competencies (*N* = 191)

		ProStart (*n* = 50)		State (*n* = 141)			
Item	Competency	*M*	*SD*	*M*	*SD*	*t*	*p*
79	Salads/dressings	3.83	.89	4.04	.86	-1.42	.15
81	Breakfast items	3.77	.89	3.96	.85	-1.30	.19
84	Italian cuisine	3.69	.84	3.83	.85	-.97	.33
78	Sauces	3.67	1.10	4.16	.90	-3.05	.01
85	No. America cuisines	3.66	.83	3.86	.85	-1.42	.20
74	Seafood dishes	3.63	.97	3.66	.93	-.20	.84
88	European cuisines	3.61	.81	3.75	.89	-.97	.33
76	Pork dishes	3.55	.76	3.64	.82	-.69	.49
86	Asian cuisines	3.51	.81	3.73	.89	-1.52	.13
87	So. America cuisines	3.50	.74	3.69	.91	-1.34	.18
82	Non alcoholic beverage	3.28	.97	3.17	.99	.67	.50
80	Canapés	3.24	.90	3.66	.91	-2.75	.01
75	Flat and round fish	3.20	.89	3.30	.98	-.64	.52
73	Lamb dishes	2.89	.96	2.78	.99	-.95	.34
77	Cold soups	2.81	.75	3.03	1.02	-1.37	.17
83	Galatines	2.45	.67	2.73	1.10	-1.68	.09

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .003 (.05/16) was used to determine significant differences.

Table 44
Comparison of Group Means by Curriculum Type Regarding Perceived Importance of Culinary Arts Essentials Competencies (*N* = 191)

Item	Competency	ProStart (*n* = 50) *M*	*SD*	State (*n* = 141) *M*	*SD*	*t*	*p*
68	Read/follow a recipe	4.81	.48	4.89	.39	-1.07	.28
69	Proper measurement	4.71	.57	4.75	.55	-.42	.67
57	Knife skills	4.44	.73	4.69	.56	-2.42	.01
72	Food presentation	4.30	.74	4.45	.72	-1.24	.21
71	Herbs/spices/oils	3.89	.79	4.18	.75	-2.27	.02
70	Meat cutting	3.53	.84	3.78	.94	-1.63	.10

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .008$ (.05/6) was used to determine significant differences.

Table 45
Comparison of Group Means by Curriculum Type Regarding Perceived Importance of Course Development Competencies (*N* = 191)

Item	Competency	ProStart (*n* = 50) *M*	*SD*	State (*n* = 141) *M*	*SD*	*t*	*p*
106	Employ various teaching methods	5.31	.77	5.28	1.24	.54	.88
104	Write lesson plans	5.29	.89	5.15	1.27	-.04	.49
98	Employability skills in curriculum	5.27	.77	5.34	1.31	-.90	.72
100	Align cur./instruction/assessment	5.25	.75	5.17	1.25	-.10	.70
102	Assess curriculum effectiveness	5.22	.77	5.09	1.35	-.71	.51
99	Identify course learning outcomes	5.22	.77	5.10	1.25	-.94	.50
97	Integrate academic/voc. courses	5.20	.82	5.19	1.26	.08	.93
95	Establish a course syllabus	5.12	.86	5.10	1.31	.09	.92
91	Promote course/program	5.12	.86	5.01	1.41	.51	.61
107	Address special learning needs	5.08	.89	5.08	1.25	.24	.99
101	Analyze curriculum & standards	5.06	.75	5.02	1.36	-.47	.84
93	Research course content	5.04	.98	4.97	1.31	.30	.76
105	Individualize instruction	5.02	.93	5.14	1.25	1.16	.54
96	Develop performance objectives	5.00	1.16	5.20	1.27	-.98	.32
94	Develop a course outline	4.91	1.23	5.07	1.34	-.73	.46
108	Provide remedial instruction	4.95	.92	4.95	1.28	.10	.99
89	Conduct needs assessment	4.93	.80	4.72	1.52	-.44	.35
103	Develop a course budget	4.87	1.19	5.07	1.31	-.31	.36
90	Assess course feasibility	4.85	.96	4.70	1.45	.63	.50
92	Develop course/program profile	4.75	1.31	4.78	1.54	-.15	.88

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/20) was used to determine significant differences.

Table 46
Comparison of Group Means by High School Accreditation Region Regarding Perceived Importance of Cooking Techniques Competencies (*N* = 236)

Item	Competency		NEASC (*n* = 37)	MAS (*n* = 15)	SACS (*n* = 130)	NCA (*n* = 14)	WASC (*n* = 40)	*F*	*p*
55	Sauté	M	4.16	4.40	4.22	4.14	4.25	.31	.87
		SD	.79	.82	.78	.66	.67		
56	Broiling	M	3.86	4.00	4.03	3.85	3.84	.55	.70
		SD	.96	.87	.83	.86	.90		
57	Grilling	M	3.77	4.00	3.97	3.92	3.92	.36	.83
		SD	.98	1.10	.86	.91	.83		
58	Shallow Fry	M	3.69	3.92	3.84	3.78	3.84	.30	.87
		SD	.95	.99	.88	.89	.88		
59	Deep Frying	M	3.63	3.92	3.68	3.85	3.66	.29	.88
		SD	1.09	1.14	1.00	1.02	1.10		
60	Griddling	M	3.50	3.92	3.74	3.85	3.74	.75	.55
		SD	1.00	.99	.94	.77	.94		
61	Stewing	M	3.61	4.00	3.77	3.78	3.76	.47	.75
		SD	.83	.96	.98	.89	.80		
62	Poaching	M	3.47	3.71	3.68	3.78	3.61	.36	.83
		SD	.97	1.20	1.06	.97	1.09		
63	Steaming	M	3.88	4.07	4.02	4.14	4.10	.38	.82
		SD	.97	.99	.82	.66	.85		
64	Braising	M	3.66	3.92	3.83	4.00	3.89	.66	.61
		SD	.82	1.07	.87	.67	.96		
65	Stir Fry	M	3.77	3.85	4.07	4.07	4.00	.99	.41
		SD	.86	1.02	.82	.61	.85		
66	Roasting	M	3.83	4.14	4.03	4.14	4.12	.71	.58
		SD	.97	.94	.88	.66	.73		

Note. NEASC = New England Association of Schools & Colleges,
MSA = Middle States Association,
SACS = Southern Association of Colleges & Schools,
NCA = North Central Association,
WASC = Western Association of Schools & Colleges.
Bonferroni adjustment, to adjust the p < .05significance level, p < .004 (.05/12) was used.

Table 47
Comparison of Group Means by High School Accreditation Region Regarding Perceived Importance of Food Preparation Competencies (*N* = 236)

Item	Competency		NEASC (*n* = 37)	MAS (*n* = 15)	SACS (*n* = 130)	NCA (*n* = 14)	WASC (*n* = 40)	*F*	*p*
73	Lamb dishes	M	2.52	2.78	2.91	3.07	2.76	1.36	.24
		SD	.73	1.05	.98	1.32	.93		
74	Seafood dishes	M	3.52	3.57	3.61	3.71	3.61	.10	.98
		SD	1.05	1.15	.97	1.20	.87		
75	Flat and round fish	M	3.05	3.00	3.27	3.57	3.15	.97	.42
		SD	.89	.87	1.03	1.22	.93		
76	Pork dishes	M	3.55	3.71	3.55	3.85	3.64	.51	.72
		SD	.84	.91	.88	.66	.77		
77	Cold soups	M	2.58	2.78	3.02	3.14	2.92	1.67	.15
		SD	.84	.97	1.00	1.16	.92		
78	Sauces	M	3.52	4.30	4.08	4.07	3.84	2.61	.03
		SD	1.23	.85	.94	1.14	1.08		
79	Salads/dressings	M	3.88	3.85	4.01	3.92	3.92	.26	.90
		SD	.86	1.02	.86	.82	.87		
80	Canapés	M	3.38	3.57	3.57	3.57	3.46	.32	.86
		SD	1.07	1.01	.94	1.15	.91		
81	Breakfast items	M	3.71	3.71	3.90	3.92	3.89	.46	.76
		SD	1.01	.82	.85	.73	.82		
82	Non alcoholic bev.	M	2.94	2.96	3.19	3.50	3.35	1.35	.25
		SD	1.02	.82	1.01	1.01	1.03		
83	Galatines	M	2.22	2.35	2.70	2.71	2.69	1.86	.11
		SD	.92	1.15	1.09	.91	.92		
84	Italian cuisine	M	3.55	3.92	3.80	3.78	3.56	1.01	.39
		SD	.87	1.03	.86	1.18	.94		
85	No. America cuisine	M	3.58	3.71	3.83	4.00	3.71	.86	.48
		SD	.80	1.06	.86	.96	.92		

Table continues . . .

Table 47 [Continued]

Item	Competency		NEASC (*n* = 37)	MAS (*n* = 15)	SACS (*n* = 130)	NCA (*n* = 14)	WASC (*n* = 40)	*F*	*p*
86	Asian cuisines	M	3.51	3.64	3.67	3.78	3.51	.51	.72
		SD	.65	1.00	.93	.89	.88		
87	So. America cuisine	M	3.36	3.57	3.63	3.85	3.52	1.00	.40
		SD	.79	1.01	.90	.94	.89		
88	European cuisines	M	3.41	3.42	3.72	4.00	3.66	1.51	.20
		SD	.84	1.08	.89	.91	.89		

Note. NEASC = New England Association of Schools & Colleges,
MSA = Middle States Association,
SACS = Southern Association of Colleges & Schools,
NCA = North Central Association,
WASC = Western Association of Schools & Colleges.

Bonferroni adjustment, to adjust the p < .05significance level, the p < .003 (.05/16) was used.

Table 48
Comparison of Group Means by High School Accreditation Region Regarding Perceived Importance of Culinary Essentials Competencies (*N* = 236)

Item	Competency		NEASC (*n* = 37)	MAS (*n* = 15)	SACS (*n* = 130)	NCA (*n* = 14)	WASC (*n* = 40)	*F*	*p*
67	Knife skills	M	4.61	4.64	4.62	4.57	4.66	.07	.99
		SD	.64	.63	.64	.64	.70		
68	Read/follow a recipe	M	4.88	4.78	4.86	4.85	4.89	.21	.93
		SD	.31	.42	.44	.36	.38		
69	Proper measurement	M	4.71	4.57	4.75	4.71	4.82	.57	.68
		SD	.57	.85	.51	.61	.50		
70	Meat cutting	M	3.63	3.28	3.73	3.85	3.59	.99	.41
		SD	.86	.99	.90	1.02	.99		
71	Herbs/spices/oils	M	4.08	4.00	4.06	4.21	4.02	.17	.95
		SD	.78	.87	.78	.89	.87		
72	Food presentation	M	4.54	4.21	4.35	4.35	4.33	.63	.63
		SD	.70	.69	.76	.84	.80		

Note. NEASC = New England Association of Schools & Colleges,
MSA = Middle States Association,
SACS = Southern Association of Colleges & Schools,
NCA = North Central Association,
WASC = Western Association of Schools & Colleges.

Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .008$ (.05/6) was used.

Table 49
Comparison of Group Means by High School Accreditation Region Regarding Perceived Importance of Course Development Competencies (*N* = 236)

Item	Competency		NEASC (*n* = 37)	MAS (*n* = 15)	SACS (*n* = 130)	NCA (*n* = 14)	WASC (*n* = 40)	*F*	*p*
89	Conduct assessment	M	4.66	4.78	4.70	4.92	4.82	.14	.96
		SD	1.21	.89	1.56	.99	1.09		
90	Assess co. feasibility	M	4.73	4.78	4.61	5.00	4.79	.38	.81
		SD	1.08	.80	1.51	.96	1.03		
91	Promote course	M	5.08	4.92	5.03	5.21	5.02	.11	.97
		SD	1.19	.73	1.34	.89	1.13		
92	Develop course prof.	M	4.82	4.78	4.64	4.71	4.92	.31	.87
		SD	1.33	.80	1.61	1.72	1.17		
93	Research course	M	4.82	4.92	4.89	5.00	5.35	1.23	.30
		SD	1.16	.82	1.38	1.24	.70		
94	Develop course	M	4.85	5.28	4.96	5.00	5.36	1.05	.38
		SD	1.10	.61	1.42	1.56	.70		
95	Establish syllabus	M	4.91	5.28	5.05	5.35	5.38	1.07	.37
		SD	.96	.61	1.37	1.08	.71		
96	Develop objectives	M	5.17	5.35	5.05	5.14	5.46	.93	.44
		SD	.83	.63	1.41	1.51	.72		
97	Integrate academic	M	5.26	5.00	5.15	5.35	5.38	.53	.71
		SD	.79	.78	1.31	.74	.71		
98	Employability skills	M	5.44	5.21	5.30	5.07	5.43	.40	.80
		SD	.74	.70	1.29	1.69	.64		
99	Identify outcomes	M	5.15	5.00	5.06	5.07	5.28	.33	.85
		SD	.91	1.39	1.51	1.19	.81		
104	Write lesson plans	M	5.26	5.16	5.13	5.18	5.21	.66	.61
		SD	1.09	1.14	1.32	1.08	1.10		
106	Employ var. teaching	M	5.18	5.26	5.24	5.20	5.22	.78	.53
		SD	1.07	1.04	1.28	1.10	1.05		

Table continues . . .

Table 49 [Continued]

Item	Competency		NEASC (n = 37)	MAS (n = 15)	SACS (n = 130)	NCA (n = 14)	WASC (n = 40)	F	p
102	Assess cur. Effective	M	5.09	5.12	4.99	5.24	5.29	.71	.79
		SD	1.09	1.05	1.29	.99	.71		
103	Develop budget	M	5.08	4.92	4.97	4.95	5.01	.09	.98
		SD	1.14	1.40	1.33	1.31	.77		
100	Align curr. instruction	M	5.05	5.14	5.14	5.42	5.43	.77	.54
		SD	1.07	.77	1.28	.93	.75		
107	Address special need	M	5.04	5.10	5.05	5.07	5.09	.69	.59
		SD	1.14	1.09	1.28	1.11	1.16		
101	Analyze curr. content	M	5.02	5.00	4.90	4.85	4.95	.39	.81
		SD	1.11	1.10	1.39	1.12	.78		
105	Individualize instruct.	M	5.00	5.02	5.13	5.01	5.04	.28	.75
		SD	1.16	1.20	1.29	1.18	1.21		
108	Remedial instruction	M	4.94	4.92	4.90	4.89	4.91	.19	.94
		SD	1.15	1.19	1.29	1.21	1.18		

Note. NEASC = New England Association of Schools & Colleges,
MSA = Middle States Association,
SACS = Southern Association of Colleges & Schools,
NCA = North Central Association,
WASC = Western Association of Schools & Colleges.

Bonferroni adjustment, to adjust the $p < .05$ significance level, the $p < .003$ (.05/20) was used.

Table 50
Comparison of Group Means by Textbook Used Regarding Perceived Importance of Cooking Techniques Competencies (*N* = 148)

Item	Competency		*Culinary Essentials* (*n* = 119)	*On-Cooking* (*n* = 14)	*Pro Chef* (*n* = 15)	*F*	*p*
55	Sauté	M	4.21	4.00	4.40	.80	.49
		SD	.70	.78	.82		
65	Stir Fry	M	4.08	3.64	4.06	1.47	.22
		SD	.78	.84	.96		
66	Roasting	M	4.06	4.00	4.50	.12	.95
		SD	3.78	1.00	.70		
83	Steaming	M	4.05	3.71	4.26	1.02	.38
		SD	.86	.91	.79		
56	Broiling	M	4.03	3.57	4.20	1.55	.20
		SD	.84	.85	.86		
57	Grilling	M	3.98	3.64	4.20	1.37	.25
		SD	.80	1.00	.86		
64	Braising	M	3.92	3.57	3.40	2.02	.11
		SD	.89	.75	.91		
58	Shallow Fry	M	3.91	3.50	3.46	2.36	.07
		SD	.83	.76	1.06		
61	Stewing	M	3.86	3.42	3.66	1.22	.30
		SD	.90	.75	.72		
60	Griddling	M	3.80	3.35	3.73	1.34	.26
		SD	.93	1.08	.96		
59	Deep Frying	M	3.76	3.28	3.93	1.54	.20
		SD	1.00	1.06	.96		
62	Poaching	M	3.67	3.35	3.60	.44	.72
		SD	1.10	1.00	.98		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .004$ (.05/12) was used to determine significant differences.

Table 51
Comparison of Group Means by Textbook Used Regarding Perceived Importance Perceived Importance of Food Preparation Competencies (*N* = 148)

Item	Competency		*Culinary Essentials* (*n* = 119)	*On-Cooking* (*n* = 14)	*Pro Chef* (*n* = 15)	*F*	*p*
78	Sauces	M	4.02	3.71	3.66	.87	.45
		SD	.92	1.13	1.39		
79	Salads	M	3.99	3.71	3.80	.73	.53
		SD	.86	.82	1.01		
74	Seafood	M	3.58	3.14	3.80	1.50	.21
		SD	.91	.94	1.08		
76	Pork	M	3.57	3.64	3.40	.25	.86
		SD	.80	.84	.91		
80	Canapés	M	3.49	3.50	3.26	.50	.68
		SD	.91	.85	.96		
75	Flat fish	M	3.29	2.78	3.13	1.25	.29
		SD	.94	.89	1.06		
77	Cold soups	M	2.99	2.57	2.73	1.23	.30
		SD	.90	.93	.88		
73	Lamb dishes	M	2.94	2.42	2.40	2.53	.06
		SD	.93	.85	.91		
81	Breakfast	M	3.82	3.85	3.93	.09	.96
		SD	.87	.86	.70		
85	No. America	M	3.77	3.64	3.73	.17	.91
		SD	.84	.63	.96		
84	Italian cuisine	M	3.71	3.42	3.60	.64	.59
		SD	.84	.75	.91		
88	European	M	3.68	3.28	3.66	.96	.41
		SD	.87	.91	.90		
87	So. America	M	3.63	3.28	3.46	.96	.41
		SD	.86	.82	.83		

Table continues . . .

Table 51 [Continued]

Item	Competency		*Culinary Essentials* (*n* = 119)	*On-Cooking* (*n* = 14)	*Pro Chef* (*n* = 15)	*F*	*p*
86	Asian cuisine	M	3.60	3.35	3.46	.74	.53
		SD	.85	.84	.83		
82	Non alcoholic	M	3.14	2.78	3.46	1.70	.17
		SD	.95	1.31	.74		
83	Galatines	M	2.65	2.42	2.33	.69	.55
		SD	1.04	.93	.81		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/16) was used to determine significant differences.

Table 52
Comparison of Group Means by Textbook Used Regarding Perceived Importance of Culinary Arts Essentials Competencies (*N* = 148)

Item	Competency		*Culinary Essentials* (*n* = 119)	*On-Cooking* (*n* = 14)	*Pro Chef* (*n* = 15)	*F*	*p*
68	Read a recipe	M	4.84	4.92	4.86	.22	.88
		SD	.49	.26	.35		
69	Proper meas.	M	4.74	4.78	4.73	.16	.92
		SD	.54	.57	.45		
67	Knife skills	M	4.65	4.57	4.60	.12	.95
		SD	.63	.93	.73		
72	Food present.	M	4.35	4.07	4.46	1.13	.33
		SD	.78	.91	.74		
71	Herbs/spices	M	4.09	3.78	4.00	.85	.46
		SD	.80	.89	.65		
70	Meat cutting	M	3.61	3.42	3.40	1.12	.34
		SD	.88	.93	.82		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .008$ (.05/6) was used to determine significant differences.

Table 53
Comparison of Group Means by Textbook Used Regarding Perceived Importance of Course Development Competencies (*N* = 148)

Item	Competency		*Culinary Essentials* (*n* = 119)	*On-Cooking* (*n* = 14)	*Pro Chef* (*n* = 15)	*F*	*p*
98	Employability skills	M	5.28	5.35	5.60	.37	.77
		SD	1.18	.84	.63		
106	Employ var. teaching	M	5.22	5.07	5.33	.17	.91
		SD	1.18	.73	.97		
97	Integrate academic	M	5.18	5.21	5.13	.06	.98
		SD	1.22	.89	.74		
104	Write lesson plans	M	5.12	5.21	5.26	.13	.94
		SD	1.22	.97	.88		
100	Align cur instruction	M	5.11	5.21	5.00	.08	.96
		SD	1.18	.89	1.30		
102	Assess Effectiveness	M	5.08	5.28	4.40	1.54	.20
		SD	1.20	.91	1.80		
95	Establish syllabus	M	5.05	5.14	5.26	.22	.87
		SD	1.29	.94	.70		
99	Identify outcomes	M	5.03	5.07	5.14	.04	.99
		SD	1.18	.91	.77		
101	Analyze content	M	4.98	4.78	4.80	.19	.90
		SD	1.22	1.12	1.26		
103	Develop budget	M	4.95	5.14	4.80	.30	.82
		SD	1.24	.77	1.74		
96	Develop objectives	M	5.06	5.21	5.33	.31	.82
		SD	1.33	1.05	.81		
105	Individualize instruct.	M	5.01	5.00	5.06	.12	.94
		SD	1.18	.78	1.22		
107	Address special need	M	5.00	4.92	5.00	.14	.93
		SD	1.19	.73	1.13		

Table continues . . .

Table 53 [Continued]

Item	Competency		Culinary Essentials (*n* = 119)	On-Cooking (*n* = 14)	Pro Chef (*n* = 15)	*F*	*p*
91	Promote course	M	5.00	4.85	4.93	.16	.92
		SD	1.33	.77	1.27		
94	Develop outline	M	4.93	5.14	5.26	.45	.72
		SD	1.38	1.02	.70		
93	Research content	M	4.92	5.07	5.06	.11	.95
		SD	1.27	.73	1.27		
108	Provide remedial inst.	M	4.85	4.92	5.00	.27	.84
		SD	1.19	.73	1.19		
89	Conduct assessment	M	4.66	4.46	4.46	.16	.92
		SD	1.43	1.95	1.68		
92	Develop profile	M	4.65	4.50	4.40	.35	.78
		SD	1.57	1.09	1.91		
90	Assess feasibility	M	4.64	4.78	4.46	.17	.91
		SD	1.40	.57	1.68		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/20) was used to determine significant differences.

Table 54
Comparison of Group Means by Employment Type Regarding Perceived Importance of Cooking Techniques Competencies (*N* = 96)

Item	Competency		Restaurant (*n* = 51)	Resort (*n* = 23)	Catering (*n* = 22)	*F*	*p*
55	Sauté	M	4.26	4.30	4.27	.03	.97
		SD	.69	.70	.76		
63	Steaming	M	4.22	3.81	4.22	1.85	.16
		SD	.72	1.09	.92		
66	Roasting	M	4.18	3.95	4.00	.69	.50
		SD	.81	.99	.81		
57	Grilling	M	4.14	3.81	4.00	.92	.40
		SD	.82	.18	.92		
65	Stir Fry	M	4.06	3.95	4.22	.62	.53
		SD	.72	.99	.81		
56	Broiling	M	4.02	3.77	3.95	.56	.57
		SD	.83	1.06	.89		
64	Braising	M	4.00	3.72	4.04	.93	.39
		SD	.85	.93	.84		
58	Shallow Fry	M	4.00	3.63	3.72	2.36	.07
		SD	.79	.95	.98		
62	Poaching	M	3.91	3.31	3.86	2.67	.07
		SD	.98	1.17	.99		
59	Deep Frying	M	3.89	3.52	3.68	1.09	.34
		SD	.97	.98	1.08		
60	Griddling	M	3.89	3.45	3.81	1.60	.20
		SD	.88	1.14	.95		
61	Stewing	M	3.81	3.81	3.77	.01	.98
		SD	.93	1.00	.97		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .004$ (.05/12) was used to determine significant differences.

Table 55
Comparison of Group Means by Employment Type Regarding Perceived Importance of Food Preparation Competencies (*N* = 96)

Item	Competency		Restaurant (*n* = 51)	Resort (*n* = 23)	Catering (*n* = 22)	*F*	*p*
79	Salads	M	4.02	3.90	3.95	.12	.88
		SD	.88	.94	1.04		
78	Sauces	M	3.95	3.68	3.91	.50	.60
		SD	1.11	1.17	.92		
76	Pork dishes	M	3.68	3.36	3.45	1.11	.33
		SD	.77	1.13	.96		
74	Seafood	M	3.54	3.45	3.50	.05	.94
		SD	.94	1.29	.85		
80	Canapés	M	3.60	3.31	3.54	.52	.59
		SD	.98	1.21	1.18		
75	Flat fish	M	3.25	2.91	3.18	.90	.41
		SD	.93	1.15	.95		
77	Cold soups	M	3.06	2.86	2.90	.33	.71
		SD	1.02	1.12	1.01		
73	Lamb dishes	M	2.91	2.63	2.63	.89	.41
		SD	1.02	1.04	.90		
81	Breakfast	M	3.85	3.90	3.81	.05	.95
		SD	.87	.99	.90		
85	American c.	M	3.70	3.59	3.77	.21	.80
		SD	.92	1.03	.87		
84	Italian cuisine	M	3.70	3.45	3.77	.76	.47
		SD	.94	.96	.86		
86	Asian cuisine	M	3.64	3.47	3.59	.26	.76
		SD	.91	.92	.79		
88	European cui	M	3.60	3.45	3.68	.32	.72
		SD	.93	1.05	.89		

Table continues . . .

Table 55 [Continued]

Item	Competency		Restaurant (*n* = 51)	Resort (*n* = 23)	Catering (*n* = 22)	*F*	*p*
87	So. America cuisine	M	3.60	3.22	3.68	1.63	.20
		SD	.91	.97	.89		
82	Non alcoholic bev.	M	3.29	3.04	3.00	.64	.53
		SD	1.11	1.39	.92		
83	Galatines	M	2.72	2.45	2.40	.93	.40
		SD	1.12	1.05	.85		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/16) was used to determine significant differences.

Table 56
Comparison of Group Means by Employment Type Regarding Perceived Importance of Culinary Arts Essentials Competencies (*N* = 96)

Item	Competency		Restaurant (*n* = 51)	Resort (*n*=23)	Catering (*n*=22)	*F*	*p*
68	Read/follow a recipe	M	4.91	4.81	4.09	.79	.45
		SD	.27	.39	.29		
69	Proper measurement	M	4.81	4.85	4.81	.07	.92
		SD	.44	.35	.50		
67	Knife skills	M	4.66	4.59	4.81	.91	.40
		SD	.55	.66	.50		
72	Food presentation	M	4.45	4.28	4.45	.40	.67
		SD	.74	.84	.73		
71	Herbs/spices/oils	M	4.10	4.04	3.90	.41	.66
		SD	.77	.86	.92		
70	Meat cutting	M	3.75	3.45	3.59	.75	.47
		SD	.91	1.14	.85		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .008$ (.05/6) was used to determine significant differences

Table 57
Comparison of Group Means by Employment Type Regarding Perceived Importance of Course Development Competencies (*N* = 96)

Item	Competency		Restaurant (n = 51)	Resort (n = 23)	Catering (n = 22)	F	p
106	Employ var. teaching	M	5.22	5.31	5.04	.28	.75
		SD	1.27	1.35	.95		
104	Write course lesson plans	M	5.10	5.36	5.13	.31	.72
		SD	1.35	1.43	.94		
98	Employability skills in curr.	M	5.08	5.40	5.40	.82	.44
		SD	1.30	1.36	.79		
97	Integrate academic/voc	M	5.04	5.36	5.22	.56	.57
		SD	1.30	1.36	.81		
100	Align curr. to instruction	M	5.00	5.40	5.09	.77	.46
		SD	1 27	1.36	1.23		
102	Assess cur. effectiveness	M	4.95	5.27	4.95	.42	.65
		SD	1.47	1.42	1.17		
95	Establish course syllabus	M	4.93	5.22	5.22	.62	.54
		SD	1.29	1.44	.86		
101	Analyze curr. to content	M	4.91	5.22	4.95	.44	.64
		SD	1.31	1.41	1.17		
103	Develop course budget	M	4.89	5.18	4.72	.56	.56
		SD	1.43	1.43	1.45		
99	Identify course outcomes	M	4.87	5.31	5.27	1.41	.24
		SD	1.26	1.35	.82		
107	Address special needs	M	4.95	5.31	4.77	1.17	.33
		SD	1.30	1.35	.97		
105	Individualize instruction	M	4.93	5.22	4.81	.61	.54
		SD	1.31	1.44	1.00		
96	Develop performance obj.	M	4.91	5.40	5.00	.99	.37
		SD	1.42	1.36	1.23		

Table continues . . .

Table 57 [Continued]

Item	Competency		Restaurant (*n* = 51)	Resort (*n* = 23)	Catering (*n* = 22)	*F*	*p*
108	Provide remedial instruction	M	4.89	5.18	4.77	.62	.53
		SD	1.29	1.40	1.02		
94	Develop course outline	M	4.87	4.95	5.00	.06	.93
		SD	1.45	1.49	1.27		
91	Promote course/program	M	4.83	5.00	5.09	.29	.74
		SD	1.46	1.66	.81		
93	Research course content	M	4.83	5.13	4.54	1.10	.33
		SD	1.26	1.35	1.40		
89	Conduct needs assessment	M	4.55	4.54	4.52	.01	.99
		SD	1.47	1.99	1.36		
90	Assess course feasibility	M	4.54	4.63	134	.18	.83
		SD	1.44	1.83	1.36		
92	Develop course profile	M	4.50	5.04	4.45	1.02	.36
		SD	1.65	1.46	1.65		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .004$ (.05/20) was used to determine significant differences.

Table 58
Comparison of Group Means by Experience as a Cook Regarding Perceived Importance of Cooking Techniques Competencies (*N* = 103)

Item	Competency		Years of Experience as a Cook: < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* = 10)	20+ (*n* = 12)	*F*	*p*
55	Sauté	M	4.29	4.23	4.00	4.50	4.45	1.34	.25
		SD	.68	.74	.78	.70	.68		
65	Stir Fry	M	4.18	4.00	3.86	4.30	4.00	.68	.60
		SD	.65	.96	.91	.67	.63		
63	Steaming	M	4.12	4.06	3.82	4.50	4.36	1.51	.20
		SD	.61	.99	.92	.70	.67		
66	Roasting	M	4.12	4.06	3.86	4.30	4.09	.54	.70
		SD	.71	1.05	.79	.82	.94		
57	Grilling	M	4.06	3.96	3.82	4.40	4.09	.72	.57
		SD	.99	1.07	.89	.69	.83		
56	Broiling	M	4.06	3.84	3.68	4.40	4.18	1.58	.18
		SD	.92	1.00	.84	.69	.75		
58	Shallow Fry	M	3.93	3.94	3.51	4.00	3.54	2.36	.07
		SD	.92	.93	.87	.94	.82		
64	Braising	M	3.93	4.09	3.62	4.00	3.72	1.25	.29
		SD	.85	.97	.86	.81	.64		
61	Stewing	M	3.93	3.84	3.65	3.90	3.36	.83	.51
		SD	.92	1.00	.97	.87	.80		
62	Poaching	M	3.87	3.72	3.51	3.90	3 .71	.45	.77
		SD	.95	1.25	.94	.99	.75		
60	Griddling	M	3.81	3.75	3.62	3.70	3.72	.11	.97
		SD	.75	1.11	1.05	1.15	.64		
59	Deep Frying	M	3.75	3.63	3.58	4.11	3.90	.55	.69
		SD	.93	1.27	.94	1.05	.83		

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .004 (.05/12) was used to determine significant differences.

Table 59
Comparison of Group Means by Experience as a Cook Regarding Perceived Importance of Food Preparation Competencies (*N* = 103)

Item	Competency		Years of Experience as a Cook < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* = 10)	20+ (*n* = 12)	*F*	*p*
79	Salads/dressings	M	3.87	4.00	3.75	4.00	4.09	.37	.82
		SD	.88	.91	1.22	.81	.83		
76	Pork dishes	M	3.62	3.60	3.37	3.70	3.54	.38	.82
		SD	.88	1.02	.86	.67	.82		
74	Seafood dishes	M	3.62	3.30	3.58	3.50	3.81	.68	.60
		SD	.88	1.21	.90	.84	.89		
78	Sauces	M	3.50	3.84	3.51	4.10	4.45	1.89	.11
		SD	1.09	1.20	1.18	.87	.82		
80	Canapés	M	3.43	3.60	3.20	3.70	3.63	.73	.57
		SD	1.03	1.28	1.01	1.05	.80		
75	Flat and round fish	M	3.37	3.18	2.86	3.10	3.18	.77	.54
		SD	1.02	1.21	.83	.99	.69		
77	Cold soups	M	3.25	3.12	2.55	3.00	2.72	1.83	.13
		SD	.93	1.29	.68	1.05	.78		
73	Lamb dishes	M	3.06	2.81	2.51	2.60	2.81	.90	.46
		SD	.99	1.28	.68	.74	.85		
81	Breakfast items	M	3.93	3.90	3.58	3.80	4.18	1.19	.35
		SD	.77	.89	.94	.78	.87		
85	No. America cuisine	M	3.62	3.84	3.37	3.70	3.63	.94	.44
		SD	.88	1.06	.90	.82	.92		
84	Italian cuisine	M	3.62	3.72	3.41	3.60	3.63	.41	.79
		SD	.95	1.06	.90	.84	.92		
88	European cuisines	M	3.50	3.60	3.41	3.70	3.54	.23	.92
		SD	1.03	1.08	.90	.82	.82		
86	Asian cuisines	M	3.50	3.59	3.41	3.70	3.63	.28	.89
		SD	.96	.94	.86	.82	.92		

Table continues . . .

Table 59 [Continued]

Item	Competency		Years Experience as a Cook < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* = 10)	20+ (*n* = 12)	*F*	*p*
87	So. America cuisine	M	3.50	3.54	3.31	3.60	3.63	.38	.82
		SD	.96	1.09	.80	.84	.92		
82	Non alcoholic bev.	M	2.93	3.24	3.06	3.60	3.00	.66	.62
		SD	1.23	1.25	1.06	.96	1.00		
83	Galatines	M	2.65	2.54	2.37	2.90	2.63	.49	.74
		SD	1.20	1.22	.77	.87	.92		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/16) was used to determine significant differences.

Table 60
Comparison of Group Means by Experience as a Cook Regarding Perceived Importance of Culinary Arts Essentials Competencies (*N* = 103)

Item	Competency		Years Experience as a Cook: < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* = 10)	20+ (*n* = 12)	*F*	*p*
68	Read/follow a recipe	M	4.87	4.90	4.86	4.90	4.90	.10	.98
		SD	.34	.29	.35	.31	.30		
69	Proper measurement	M	4.87	4.78	4.75	4.80	4.90	.30	.87
		SD	.34	.49	.51	.63	.30		
67	Knife skills	M	4.68	4.57	4.72	4.60	4.72	.26	.90
		SD	.47	.79	.59	.69	.46		
72	Food presentation	M	4.62	4.15	4.41	4.60	4.36	1.15	.33
		SD	.71	.88	.86	.69	.67		
71	Herbs/spices/oils	M	4.06	4.00	4.00	3.90	4.00	.05	.99
		SD	.85	.88	.84	.87	.89		
70	Meat cutting	M	3.81	3.63	3.51	3.70	3.54	.28	.89
		SD	.83	.99	1.05	.82	.82		

Note. Using the Bonferroni adjustment to adjust the p < .05 significance level, the p < .008 (.05/6) was used to determine significant differences.

Table 61
Comparison of Group Means by Experience as a Cook Regarding Perceived Importance of Course Development Competencies (*N* = 103)

Item	Competency		Years Experience as a Cook < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* =10)	20+ (*n* = 12)	*F*	*p*
104	Write lesson plans	M	5.05	5.25	5.24	5.20	5.00	.13	.97
		SD	1.52	1.21	1.32	.78	1.18		
106	Employ var. teaching	M	5.05	5.18	5.17	5.50	5.27	.22	.92
		SD	1.51	1.20	1.25	.70	.78		
98	Employability skills	M	4.94	5.21	5.31	5.50	5.45	.49	.74
		SD	1.61	1.18	1.25	.84	.68		
97	Integrate academic	M	4.94	5.28	5.17	5.30	5.00	.30	.87
		SD	1.47	1.17	1.22	.94	.89		
95	Establish syllabus	M	4.94	5.18	5.00	5.00	5.36	.30	.87
		SD	1.47	1.14	1.30	.94	1.02		
100	Align instruction	M	4.94	5.06	5.17	5.30	5.18	.16	.95
		SD	1.47	1.38	1.25	.82	.87		
99	Identify outcomes	M	4.94	5.06	5.03	5.10	5.36	.22	.92
		SD	1.47	1.20	1.23	.87	.81		
102	Assess Effectiveness	M	4.94	5.00	5.10	5.10	5.09	.05	.99
		SD	1.47	1.34	1.63	.87	.70		
101	Analyze content	M	4.94	4.87	5.00	5.10	5.27	.22	.92
		SD	1.47	1.33	1.36	.87	.78		
103	Develop budget	M	4.88	4.90	4.93	5.20	5.09	.12	.97
		SD	1.49	1.55	1.48	.91	1.04		
107	Address special need	M	5.00	5.12	4.96	4.90	4.63	.34	.85
		SD	1.50	1.15	1.26	.73	1.20		
108	Provide instruction	M	5.00	5.07	4.86	4.90	4.54	.44	.77
		SD	1.50	1.17	1.30	.73	1.29		
105	Individualize instruct.	M	5.00	5.03	4.93	5.00	4.81	.07	.99
		SD	1.51	1.20	1.25	.70	.78		

Table continues . . .

Table 61 [Continued]

Item	Competency		Years Experience as a Cook < 5 (*n* = 17)	5-10 (*n* = 34)	11-15 (*n* = 30)	16-20 (*n* = 10)	20+ (*n* = 12)	*F*	*p*
96	Develop objectives	M	4.94	5.00	4.99	5.20	5.63	.64	.63
		SD	1.47	1.54	1.33	.91	.67		
94	Develop outline	M	4.94	4.90	4.79	5.00	5.45	.46	.76
		SD	1.47	1.55	1.42	.81	.93		
91	Promote course	M	4.86	4.96	4.96	5.00	4.91	.02	1.00
		SD	1.49	1.17	1.49	.94	1.64		
93	Research content	M	4.70	4.81	4.86	4.90	5.36	.48	.75
		SD	1.44	1.51	1.18	.73	1.02		
92	Develop course	M	4.70	4.40	4.72	4.90	4.72	.27	.89
		SD	1.49	1.86	1.64	.87	1.10		
89	Conduct assessment	M	4.58	4.67	4.64	4.90	4.27	.25	.90
		SD	1.41	1.51	1.54	.87	1.79		
90	Assess feasibility	M	4.53	4.53	4.69	4.70	4.54	.07	.99
		SD	1.70	1.48	1.41	1.05	1.43		

Note. Using the Bonferroni adjustment to adjust the $p < .05$ significance level, the $p < .003$ (.05/20) was used to determine significant differences.