

DELIVERING AND EVALUATING ON-LINE DEGREE PROGRAMS IN
CULINARY ARTS/MANAGEMENT: A SURVEY OF EDUCATORS AND
INDUSTRY PRACTITIONERS

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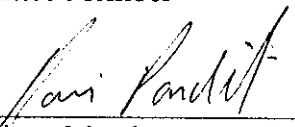
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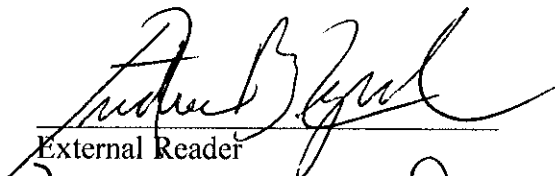
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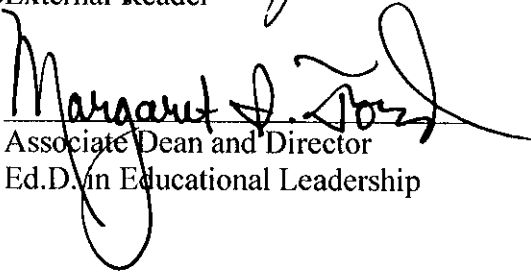
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ABSTRACT

This quantitative research examines the perceptions of culinary arts/management educators and culinary industry practitioners on the future of online culinary arts education. Specifically pertaining to the recommended procedures by educators and chefs to judge and critique the quality of food products in terms sensory modalities, and what the key quality indicators for online culinary arts programs may be. While much of the current literature concerning perceptions of online culinary arts education relates to students and faculty, little focus is on the design of effective online culinary arts curricula. Therefore, this study informs culinary arts educators who seek to understand how to teach practical culinary arts skills effectively and appropriately through online media.

An electronic survey was sent via email to 1,250 members of the American Culinary Federation (ACF) and the International Council of Hotel, Restaurant and Institutional Educators (ICHRIE). Undeliverable emails resulted in 1,204 potential participants. Participation was 18.8% ($n = 226$).

This study found significant differences between the two groups on the importance ratings of three of the professional courses and four of the general educational courses. Significant differences between the two groups were also found on the measures of importance on the factors of quality for an online culinary arts program. The results also demonstrated that there are no significant differences between culinary arts/management educators and industry practitioners on the recommended procedures to judge and critique the quality of the food products in terms of sensory modalities.

The findings of this study suggest that online culinary arts programs develop a curriculum that meets the essential demands for future culinarians. The design of such a program should incorporate more hands-on rather than theoretical content. Furthermore, curriculum should be designed to take into account gaps in knowledge of culinary arts students.

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CHAPTER 1

INTRODUCTION

Information technology has permeated nearly every aspect of people's lives. Technology is changing the way people, firms, and institutions present, disseminate, and communicate their messages, creating a ubiquitous learning environment and an accelerated information society. In an information society, achieving a high level of acquisition and management of knowledge is one of the key competitive advantages. Against this backdrop, information technology has expanded the realms of education and has added new dimensions of excellence to the ever-changing definition of education quality. Teachers are encouraged to make greater use of these new technological developments. Students also face more flexible environments where self-initiated education is possible, enabling them to be engaged in learning throughout their lifetimes.

Higher education in this country has changed significantly since the mid-nineteenth century when the United States' system was first modeled on the German educational system (Altbach, Berdahl, & Gumport, 2011). While college and university campuses are still relevant in higher education, technology has enabled institutions of higher learning to rethink the way in which students earn degrees. The Internet has provided learning opportunities to a more diverse group of people than face-to-face courses (Gaytan, 2007; Sperling, 2000). According to Larreamandy-Joerns and Leinhardt (2006), "Educators have at their disposal sets of tools in the form of the Internet and a science of learning and teaching that permits the alteration of the nature of instruction at the university level" (p.1). While students often choose online courses because of the convenience, they expect the instructional design to be of high quality. In 2012, there were approximately 7.1 million students taking at least one online course (Allen & Seaman,

2014). This represents rapid growth when compared to the 1.6 million online students in 2002. There were also approximately 3 million college students enrolled in degree programs taught exclusively online.

Originally, culinary arts education in the United States was based on the European apprenticeship model in which cooks learned their trade from a master chef at a worksite. In the early to mid-twentieth century, professional organizations such as the International Stewards Association and the American Culinary Federation called for the establishment of culinary schools and the development of an American approach to apprenticeship (Bonvillian & Singer, 2013). Early programs incorporated the theories of John Dewey and Charles Holton Cooley on vocational education. The first degree-granting culinary school, the Restaurant Institute of Connecticut, was established in 1946. Today it is known as the Culinary Institute of America. The growth in the number of culinary programs was very slow through the 1980s, but the number has expanded rapidly in the past 25 years. Today there are over 300 schools offering associate degrees in Culinary Arts, Culinary Management, or Culinary Technology (Eaton, 2013). Most online certificate programs in Culinary Arts Management require students to fulfill around 18 credits and can be completed within a year. Some institutions also offer non-credit continuing education certificates or individual courses related to culinary arts that are usually self-paced (Stierand & Lynch, 2008). Certificate programs in this field of study are designed to give students the managerial and business skills needed to oversee various operations within a restaurant or other culinary setting. The focus is not on how to prepare food, but on the many components needed to make food service a success, such as purchasing, food safety, menu design, event planning, and more (Eaton, 2013). Since these Culinary Arts Management courses are taken online and focus on the business side of the field, they do not usually involve hands-on

practice. Distance learners retrieve lectures, assignments, and other class materials from their school's virtual classrooms. Communication methods, like discussion boards or chat rooms, may be available for class interaction as well. There are some schools, however, that might require an internship even for certificate programs (Eaton, 2013).

A study by Gilbert and Guerrier (1997) documented industry expectations of graduates regarding their needs to perform adequately in the hospitality industry. This study highlighted the fact that culinary arts school graduates need a range of competencies to perform effectively in the industry (Gilbert & Guerrier, 1997). Gilbert and Guerrier (1997) found in their study a tension between the theoretical and practical aspects of the hospitality education curriculum. The researchers were also critical of the length of time hospitality graduates required to adapt to the practical industry environment (Gilbert & Guerrier, 1997).

Raybould and Wilkins' (2006) study found that hospitality industry practitioners were critical of the graduates' idealistic expectations of the demands of the hospitality industry. According to Raybould and Wilkins (2006) it is important for industry professionals and academic faculty to work closely together in the design of hospitality programs that create realistic expectations of graduates' industry skills. The researchers also stress the importance of internal communication. Internal communication is the transmission of information between all members of the online course (Raybould & Wilkins, 2006). It can take place via email, phone call, or video conversation. This practice should be used in the beginning of the program, so students have a clear understanding of the expectations of the hospitality industry (Raybould & Wilkins, 2006).

Despite the current need for and rising interest in enhancing the quality of interaction in online learning within the culinary arts discipline, studies on culinary arts educators' and

industry professionals' perceptions about interaction, quality, and outcomes are scarce (Barnes & Baskette, 2006). Barnes and Baskette determined that having knowledge and information about the needs of students is a starting point for the diagnosis of the current state of online learning in culinary arts. As such, the purpose of this study is to examine the perception of culinary arts educators and industry professionals on factors that indicate program quality in online culinary arts education.

Statement of the Problem

With online culinary arts programs being a relatively new segment of higher education, very little academic literature about the characteristics and methods of evaluating their quality exists (Hertzman, & Ackerman, 2010). Therefore this study begins to fill that gap in the literature in order to inform culinary arts and hospitality educators as they search for ways to understand how to best teach culinary arts skills effectively and appropriately through online curricula. The alignment of perceived best practices with what industry professionals and educators believe are important will lend to the credibility of online programs (Hertzman & Ackerman, 2010). Hertzman and Ackerman (2010) stressed that if colleges and universities are conferring degrees that are not perceived as credible in the hospitality industry, then institutions need to take a closer look at degree offerings, or do a better job of demonstrating to employers that instructional methods are not as important as the knowledge and skills acquired.

While much of the current literature concerning perceptions of online culinary arts education relates to student and faculty, little focus is on the design of effective online culinary arts curricula. Therefore, this study will address the overarching research question: What are the recommended characteristics and procedures by culinary arts/management educators and

industry practitioners to judge and critique the quality of the food products in terms of sensory modalities in online culinary arts/management programs? And to what extent can these characteristics and procedures be used as indicators for evaluating the quality of the programs?

Statement of Purpose

The purpose this study is to examine the perceptions of culinary arts/management educators and culinary industry practitioners on the future of online culinary arts education in order to determine their views on how best to prepare graduates exiting these programs for careers in the field. According to Jett (2010) “one transitional complication for college graduates is not being prepared to cope with the demands of industry” (p. 6). Peddle (2002) found in his research that the transition of graduating students from school to the workforce can be difficult. Students are not equipped with the proper knowledge and skills needed for industry success (Peddle 2002). Jett (2010) came to the conclusion that especially in the hospitality industry graduates need a tremendous amount of practical skills.

Jayawardena and Nettleford (2002) emphasized in their research findings that “the increase in numbers, the capacity of tourism enterprises and tourist demands for quality goods and services require well-trained personnel for the variety of jobs in the industry” (p. 215). With the results from her research Jett (2010) asks the question: “Are university level hospitality programs preparing graduates to be successful in industry” (p. 7)? To begin to answer that question, the definition of “successful” needs clarification. To that end, this study investigated the required skills and knowledge graduates need to be successful in an online program as perceived by culinary arts educators, chefs and chef owners in the hospitality industry.

Research Questions

This study will explore the views of educators and chefs on essential inputs, processes, and outcomes in an online culinary arts program. This study will further industry understanding of current culinary arts online course programs and learning technologies in higher education institutions.

The five research questions this study explores are:

- RQ1 What are the recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of food products in terms of sensory modalities, prepared by the online culinary arts students?
- RQ2 To what degree do culinary arts/management educators and industry practitioners agree or disagree on the specific subject of courses to be included in the online culinary arts curriculum?
- RQ3 What are the key factors of quality for an online culinary arts program as perceived by culinary arts/management educators and industry practitioners?
- RQ4 Is there a difference between the perceptions of culinary arts/management educators and industry practitioners with regards to the factors affecting the quality of the online culinary arts degree program?
- RQ5 What are the best practices for delivering an online culinary arts program?

Hypotheses

RQ1 Null Hypothesis

There are no recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of the food products in terms of sensory modalities, prepared by the students in an online culinary arts program.

RQ1 Alternative Hypothesis

There are recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of the food products in terms of sensory modalities, prepared by the online culinary arts students.

RQ2 Null Hypothesis

Culinary arts/management educators and industry practitioners agree on the specific subjects of courses to be included in the online culinary arts curriculum.

RQ2 Alternative Hypothesis 1

Culinary arts/management educators and industry practitioners disagree on the specific subjects of courses to be included in the online culinary arts curriculum.

RQ4 Null Hypothesis

There is no significant difference in the perceptions of the key quality dimensions of the online culinary arts programs between culinary arts/management educators and industry practitioners.

RQ4 Alternative Hypothesis

There is a significant difference in the perceptions of the key quality dimensions of the online culinary arts programs between culinary arts/management educators and industry practitioners.

Definition of Terms

For the purpose of ensuring uniformity and understanding the context of this study, selected terms are defined as follows.

American Culinary Federation (ACF): This term refers to a professional organization for chefs and cooks, founded in 1929, with the main goal of promoting the professional image of American chefs worldwide through education of culinarians at all levels (American Culinary Federation, 2011).

Chef: Chefs oversee the daily food service operation of a restaurant or other food service establishment. Chefs are usually responsible for directing cooks in the kitchen, dealing with food-related concerns, and providing leadership. They are also the most skilled cooks in the kitchen and use their creativity and knowledge of food to develop and prepare recipes and menus (Bureau of Labor Statistics, 2015).

CHRIE (ICHRIE): An acronym for The (International) Council on Hotel, Restaurant and Institutional Education. CHRIE is the primary professional organization to which hospitality educators belong and the body responsible for the planning, development, and implementation of the accreditation process for programs in hospitality administration. CHRIE organized the Accreditation Commission for programs in Hospitality Administration (ACPHA). Although CHRIE began considering the processes and standards for accreditation for hospitality programs in 1982, the Commission adopted formal accreditation status in 1990, and by March, 1996, had accredited 33 bachelor degree programs (National Restaurant Association, 2015).

Culinarian: This term refers to any professional working in a sector related to the foodservice or hospitality industry, including chefs, restaurateurs, foodservice operators, writers, photographers and stylists, marketers, vintners, sommeliers, nutritionists, and academics hailing from

hospitality, tourism, publishing, media, and other related industries and professions (Bureau of Labor Statistics, 2015).

Culinary Arts: A field where innate passion and creativity are mated to rigorous technique through formal schooling, offering many career options and opportunities for advancement. (Gisslen, 2007).

Culinary Educator: This term refers to an advanced-degree culinary professional who instructs students at a secondary, postsecondary, or vocational institution (American Culinary Federation, 2011).

Curriculum: The whole educational experience that is packaged as a degree program. Its constituent parts include modules or courses, which in turn may be specified as a series of syllabi or course contents (Wiles, 2009). Curriculum includes a loosely ordered set of goals founded on values, objectives and actions for learning and teaching towards those goals and a system of evaluation. It is a multi-dimensional living system with an active acceptance of change as a normal variable in educational planning that includes a set of standards, resources, and assessments used in instruction (Wiles, 2009).

Educational Assessment: The process of documenting, usually in measurable terms, knowledge, skills, attitudes, and beliefs. Assessment can focus on the individual learner, the learning community, the institution, or the educational system as a whole. Assessment represents an area of educational theory that has proven effective in improving instruction, learning, and accountability (Kirkpatrick & Kirkpatrick, 2006).

Externship – is an experiential learning opportunity, similar to internships but distinctly less rigorous, provided by educational institutions to give students short practical experiences in their field of study (Jordan, 2016).

Hospitality: A contemporaneous human exchange, which is voluntarily entered into, and designed to enhance the mutual well-being of the parties concerned through the provision of accommodation, and/or food and/or drink (Morrison & O'Mahony, 2003).

Hospitality industry: Commercial organizations that specialize in providing accommodation and/or food and/or drink, through a voluntary human exchange, which is contemporaneous in nature, and undertaken to enhance the mutual well-being of the parties concerned (Morrison & O'Mahony, 2003).

Internship - is a job training for professional careers. Interns may be college or university students, high school students, or post-graduate adults. These positions may be paid or unpaid and are usually temporary (Hemmerich, Hoepner, & Samelson, 2015).

Learning Management System (LMS): This term refers to the internet-based software that facilitates the delivery and tracking of e-learning across an institution. A learning management system can serve several functions beyond delivering e-learning content. It can simplify and automate administrative and supervisory tasks, track learners' competencies, and operate as a repository for instructional resources twenty-four hours a day (Ellis, 2009).

Learning Objective: This term is commonly interchanged with performance objectives or learning targets, defined as what participants will learn as a result of participating in an educational program (Mager, 1984).

Learning Outcomes: This term refers to statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course or program (Council for the Advancement of Standards in Higher Education, 2009).

National Restaurant Association (NRA): This term refers to a professional association of businesses, from restaurants and suppliers to educators and nonprofits, with the goal of leading America's restaurant industry into a new era of prosperity, prominence, and participation, thus enhancing the quality of life for all they serve (National Restaurant Association, 2015).

Online Learning: An instructional mode containing various characteristics such as non-contiguous two-way interactive communication and the use of technology to mediate learning through communication, social interaction, and knowledge delivery (Garrison & Shale, 1987). Online learning refers to training, education, coaching, and information delivered digitally (Dumchin, 2010).

Preparation of ingredients: Ingredients cut correctly and uniformly to provide an attractive appearance and even cooking. Use of proper ingredients for product, making certain that the final product is appealing in shape or size and appeared as if recipe was followed when cooked (Wu, 2011).

Sensory Modality: An aspect of a stimulus or what is perceived after a stimulus. The term sensory modality is often used interchangeably with sense. The basic sensory modalities include: taste, temperature, pressure, and smell (Small & Prescott, 2005).

Student Interaction and Communication: The communication that occurs between students in the online learning environment, either through email within and outside of the class, discussion postings, and/or teamwork on individual and group assignments (Palooff & Pratt, 2007).

Student learning outcome (SLO): This term refers to the specific knowledge or skills that the students should gain from an educational activity (Suskie, 2009).

Taste: Correct seasoning of a dish; the taste of the dish is as expected and comparable to the recipe; the overall flavor is balanced and enjoyable (Wu, 2011).

Technology-based instruction: The use of advanced technology, such as computers, smart phones, and various course management systems or instructional websites to deliver information, allocate assignments, and channel communication (Winters & Azevedo, 2005).

Work experience - is any experience that a person gains while working in a specific field or occupation. The expression is widely used to mean a type of volunteer work that is commonly intended for students to get a feel for professional working environments (Keep, 2013).

Significance of the Study

Education and cooking are two fundamental processes that sustain a society and reflect its values. These two activities predate the written word and contribute appreciably to the development of human civilization. Their formal convergence at the end of the 20th century created many professional opportunities within the food service industry and within the nascent academic discipline of culinary arts education. More than 350 post-secondary career culinary programs now operate in the United States (Kaplan, 2011), with a majority of the schools appearing in the last 20 years. Culinary arts education has changed the paradigm for evaluating the transfer of cooking knowledge, techniques, and values from one generation of cooks to the next.

This study will result in a database that includes the characteristics of a suggested core curriculum and a list of quality indicators for online culinary arts degree programs. It will add to the body of literature about quality assessment for institutions of higher education by studying a segment that has not been the subject of previous research. Online culinary educators may be able to use the findings of this study as a reference to align their programs with the perceptions of practicing chefs and chef owners. In addition, the findings may influence online culinary arts educators to think about the essential inputs, process and outcomes of their instructional delivery options.

Theoretical Framework

The concept of service quality in the hospitality industry is closely related to the nature of process. So, in the examination of the quality of the online learning course in culinary arts, it is necessary to understand theories and models pertaining to the student learning process. Therefore, the conceptual framework for this study was extracted from the following innovative researchers: Maureen Bowman's distributed learning model (1995); and Raquel Benbunan-Fich, Star Roxanne Hiltz, and Linda Harasim's online interaction model (2005).

Maureen Bowman, a professor of Academic Technology and Media Services at the California State University of Monterey Bay, is one of the pioneers in the area of technology and learning. She is known for her descriptions of distributed learning, and she published her ideas in a 1995 Syllabus magazine article. Distributed learning is defined as:

An instructional model that allows instructors, students, and content to be located in different, non-centralized locations so that instruction and learning occur independent of time and place. The distributed learning model can be used in combination with

traditional classroom-based courses, with traditional distance learning courses, or it can be used to create wholly virtual classrooms (Fleming & Hiple, 2004, p. 71).

The advancement of innovative communication technologies has inspired education in many ways, but distance education was attributed as the single most significant educational development for connecting adult teaching to adult learning (Wolff, Baumol, & Saini, 2014). Instructors and students may use a wide variety of technologies when participating in distance education, but according to recent research, the primary goals of the instructional methodology are to combine flexible learning environments with robust learning options (Liang & Chen, 2012). Attempts to define distance education revealed a common attribute: instructors and students in distance education courses are physically separated (Agalo & Agalo, 2014). As institutions more readily adopted innovative technologies as viable communication channels for instruction, distance education definition parameters expanded to include institution-based learning and the use of interactive communication tools (Simonson, Schlosser, & Orellana, 2011). Researchers agreed that the technology itself does not constitute distance education, but that distance education can be defined by how the technology is used in an educational setting (Revere & Kovach, 2011).

The educational community has benefited from research in face-to-face and online education environments including the impact on student perception, satisfaction, and achievement. In online education, some theories prominent in the research include the community of inquiry (Garrison, Anderson, & Archer, 2010), interaction equivalency (Miyazoe, & Anderson, 2010), and transactional distance (Moore, 1997). Miyazoe and Andersons (2010) interaction equivalency considers level of interaction between or among student and teacher, student and student, and student and content. Moore's (1997) theory of transactional distance

speaks to the separation between faculty and students or teacher and learner. Transactional distance is the psychological and communications space between faculty and students.

According to Garrison, Anderson, and Archer (2010) the evolution of educational technology is moving from classroom instruction to distance education, which necessitates a shift by educators and researchers. The shift that is required should focus on exploring and understanding how to most effectively approach the integration of both modalities for the benefit of student satisfaction and learning (Garrison, Anderson, & Archer, 2010).

Several research frameworks have been proposed in the past decade to guide research in the area of online learning. The online interaction learning model by Benbunan-Fich, et al. (2005) organizes research variables in terms of learning input, learning process, and output model for an online learning setting. Benbunan-Fich, et al's. (2005) model focuses on the role of communication fundamentals in the online learning process to predict learning outputs.

The first building block of the model: inputs, includes the following attributes: technology, instructor, student, and course or class. These four sets of characteristics act as moderator variables and influence how technology is modified for a specific course (Dennis, Wixom, & Vandenberg, 2001). Benbunan-Fich, et al's. (2005) model suggests that unless minimum levels of these moderator characteristics are reached, it is not expected that a specific course will be conducted in a way that leads to online communication that is necessary for satisfactory outcomes. An example of this would be the experience and work effort of the online instructor. If the instructor fails to show an active daily guided presence in the course, students will stop participating and will discontinue the class.

The second building block of the model is the learning process. This refers to the mediator variables, intervention and process. These mediator variables characterize the mode of adoption or use of the technology. For example students may or may not engage in collaborative assignments with other students, depending on the way the online instructor has designed the course. Depending on the extent of this process, the students in this particular course may or may not form a positive learning community. Garrison, Anderson, and Archer (2010), developed a theoretical framework to explain the extent to which online courses become online learning communities. This theoretical model states that online learning communities occur through three kinds of interactivity: social presence, teaching presence, and cognitive presence (Garrison, Anderson, & Archer, 2010).

The third building block of the model are the outcomes, which provide the dependent variable. Faculty satisfaction, student learning, access, cost effectiveness, and student satisfaction are the five outcome qualities identified by Benbunan-Fich, et al.'s (2005) online interaction model. One example of faculty satisfaction would be that the instructor discovers the online teaching experience professional, beneficial and personally rewarding. An example of student satisfaction would be that the student who completes the course would express satisfaction with the professor, course rigor, peer interactions, and support services. According to Song (2010) these desired five outcome qualities are also used as a synonym for the effectiveness of online learning.

Figure 1

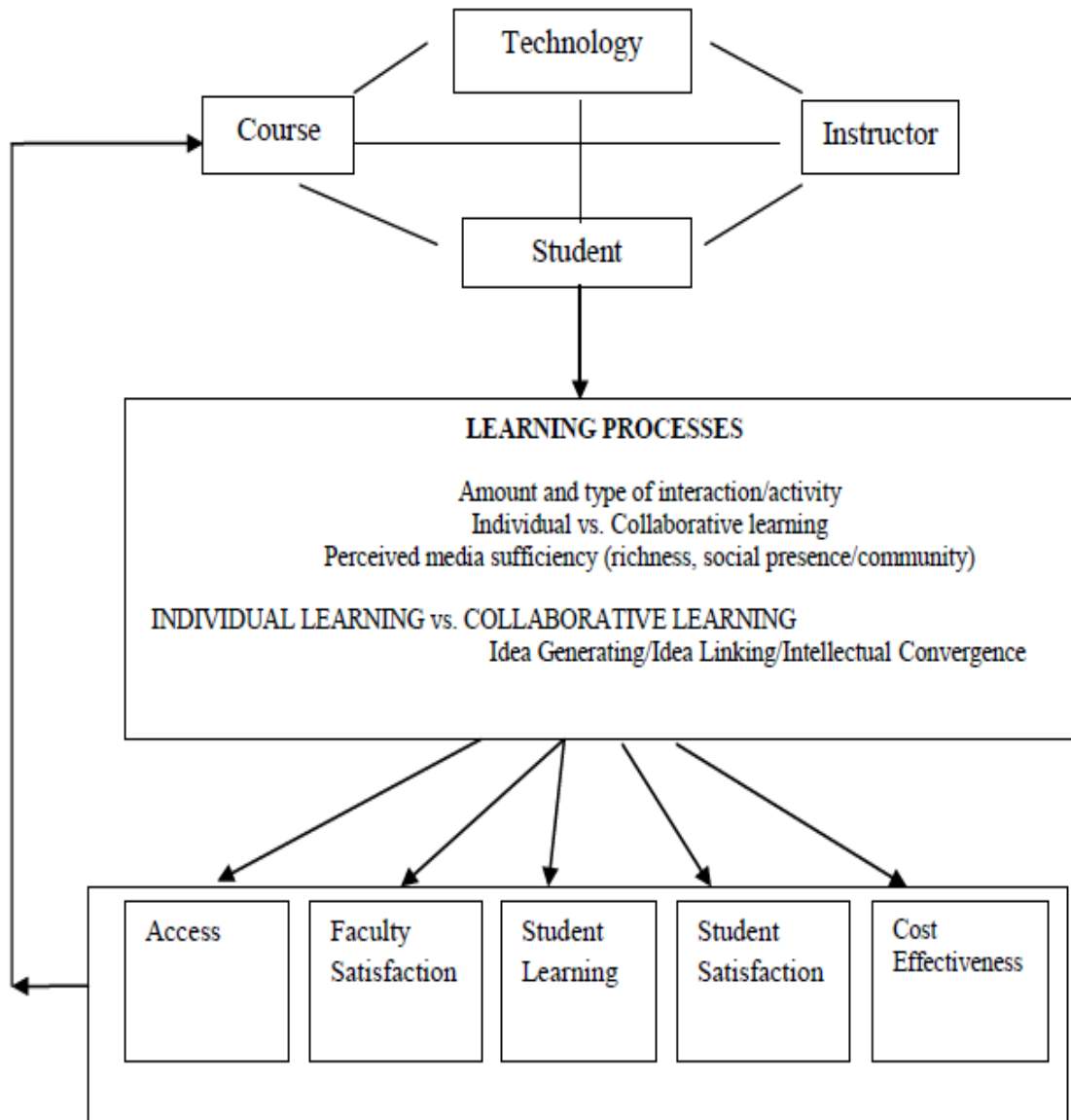
Dynamic Model of Online Interaction Learning Theory

Figure 1. Dynamic model of online interaction learning theory. From “*The online interaction learning model: An integrated theoretical framework for learning networks* (pp. 34), by R. Benbunan-Fich, S. R. Hiltz, and L. Harasim, In S. R. Hiltz and R. G. Goldman (Eds.), *Learning together online*, 2005, Mahwah, New Jersey: Lawrence Erlbaum Associates.

Target Population

The population in this study consists of culinary and hospitality educators and culinary arts professionals in the United States. The American Culinary Federation (ACF) is the largest professional chef's organization in North America. The organization represents approximately 17,500 members who belong to nearly 150 chapters in four regions across the United States. The International Council on Hotel Restaurant and Institutional Education (ICHRIE) is a non-profit professional association, with approximately 1,300 members in the United States that provides programs and services to continually improve the quality of global hospitality. Collectively, The American Culinary Federation and the International Council on Hotel Restaurant and Institutional Education service account for almost 31 percent of the restaurant and hotel workforce in the United States (National Restaurant Association, 2015).

This quantitative, non-experimental research has collected data using a survey sent to email addresses from the American Culinary Federation and the International Council on Hotel Restaurant and Institutional Education databases. Participants took this survey using the Qualtrics tool to complete all four sections. Individuals in the American Culinary Federation and the International Council on Hotel Restaurant and Institutional Education databases were potential recipients of the online questionnaire. Participants were asked to consent to participation at the end of the Informed Consent portion of the survey. Participation was considered as consent. Privacy and confidentiality were ensured by removing all identifying information after data collection and before analysis. Data from the study was collected and analyzed using SPSS Version 24.0. The documented analysis also includes demographic information on the background of the participants.

Overview of the Study

Chapter 1 discussed the background of the study, the research questions, the methodology used, and the significance and limitations of the study. Chapter 2 will provide a detailed literature review about general methods of quality assessment and specific methods used for culinary arts programs. Chapter 3 will describe the methods used to survey culinary arts educators and industry representatives about the importance of teaching technical and general skills and quality indicators for online culinary arts programs. It will also outline the procedure for collecting and verifying the collected data. Chapter 4 will describe the data analysis procedures used and the results. Finally, Chapter 5 will discuss the results and interpret the findings and significance of the study, providing recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

Online education has grown tremendously over the past ten years. The increased accessibility of the internet and the World Wide Web has created vast opportunities for non-traditional education through this medium. “The number of students taking at least one online course has expanded at a rate in excess of the growth of overall higher education enrollments” (Storey & Tebes , 2008, p. 3). The rapid growth of telecommunications technology has made teaching outside the traditional classroom possible for teachers, and provided learners with easy access to course material. Online programs have become a feasible option for contemporary education. With the rapid growth of online learning, including the entry of not-for-profit institutions, a difficult challenge has emerged for educators. The challenges include an ongoing concern with how equality of access is achieved, equitability of service and quality control (Storey & Tebes, 2008). An important solution is to direct the growth productively by finding the right balance between online and classroom learning. Online culinary schools offer a convenient way for students to earn a culinary arts degree while balancing other commitments and responsibilities in their personal and working lives.

According to Allen and Seaman (2006), and Cercone (2008), traditional lecture-mode teaching will decline and online learning will increase in the next twenty years. Instructional technology interfaces will be used more and more to support independent learning. However, there is little research that discusses online learning in culinary arts, even though these programs are growing in the post-secondary environment.

This literature review covers six broad areas of research: (1) online learning, (2) clear and structured online instruction, (3) culinary creativity, (4) employer perceptions of the online environment, (5) evaluating the quality and effectiveness of culinary arts curriculums, and (6) online culinary arts education. The searches for the review of literature on online culinary arts education were conducted in four major education search engines, namely: ERIC, Summit Multi Search, Education Full Text, and Google Scholar. The journal articles reviewed were published between the years of 2000 and 2015.

Online Learning

Allen and Seaman (2006) define online learning as a course where most or all of the content is delivered online. Instructors and students typically have no face-to-face meetings (Allen & Seaman, 2006). More than half of colleges and universities have used an online format, significantly advancing teaching and learning in education (Qian, 2005). According to Allen and Seaman (2006), there were 3.5 million students who were taking at least one online course during the fall of 2006. Data in 2010 by the Sloan Consortium show a substantial increase in online enrollment over the years, with over 5.6 million students taking at least one online course during the fall 2009 term; an increase of nearly one million students over the number reported the preceding year (Allen & Seaman, 2010). Additionally, around 30 percent of students in higher education enroll in at least one course online (Allen & Seaman, 2010). These authors also pointed to the fact that student enrollment has increased by approximately 10 percent every year with 20 percent of higher education students having taken an online course in the United States. Evidence points to online education growing with as many as 84 percent of undergraduate and graduate level programs in the United States offering online courses (Menchaca & Bekele, 2008). This growth may be attributed to the targeted learning audience perceiving the

convenience associated with online delivery (Menchaca & Bekele, 2008). Online learning can also be an excellent interactive and collaborative model to increase possibilities, to encourage participation, to break barriers faced by learners, and to negate adverse previous educational experiences (Knightley, 2007).

Menchaca and Bekele (2008) observed that the Internet, as an interface, is the most important teaching and learning tool developed in the last 100 years. It has been augmented with the proliferation of multimedia technology to better offset the isolation of at-distance interaction (Chan & Waugh, 2007). One way this has been accomplished is through the use of Informational and Communication Technology (ICT), a tool for learners that is used to receive, organize, develop, and transform information, and which is constantly updated to meet the needs of a wide variety of users worldwide. It is an approach that has been used for decades (Knightley, 2007), and has become an even more essential tool when partnered with online learning.

Online learning uses the internet as the medium for delivering information to a remote audience reducing time and space barriers to learning (O'Neil et al., 2009). The term refers to training, education, coaching, and information delivered digitally (Dumchin, 2010). The emerging research on teaching and learning suggests that the evolution of online education is changing the paradigm of teaching and teacher-student interactions. Online learners are required to take more responsibility and accountability for the learning process than learners in the face-to-face environment. This requirement may be very different from learners' previous educational experiences (Conrad & Donaldson, 2004). The online student is not simply taught by the instructor but must assume an active role in the learning process. The traditional role of faculty has been to lecture to students, and this method of teaching may be a learner expectation. However, online learning demands that students become more accountable for outcomes. As a

result, learners' become empowered and a compelling outcome is that the learner begins to view himself as a valued member of the learning environment rather than a passive recipient of knowledge provided by the instructor (Conrad & Donaldson, 2004). Learners tend to remember interactions and interpersonal connections made in the online-learning environment, rather than elements of the technology, as the most important course outcomes (Palloff & Pratt, 2001).

In the online environment, the faculty role becomes that of the content expert who is a guide, facilitator, or mentor (Palloff & Pratt, 2001). Faculty members are compelled to incorporate more active learning approaches and use collaborative, interactive, active-learning techniques (Watkins, 2005). According to Smart and Cappel (2006), multiple studies have found that learners' active involvement in the teaching and learning process facilitates and enhances learning and is termed active learning. Online courses are interactive as a result of new technologies and web-based activities. Faculty have the ability to establish active learning environments where learners are engaged with course content and learn by doing (Smart & Cappel, 2006). Faculty planning to teach online may have to conduct a critical evaluation of their current instructional methods in order to ensure that they are using learner-centered pedagogy (Palloff & Pratt, 2001). In addition, instructors must pay greater attention to detail, schedules, and structure. According to O'Neil et al. (2004), online faculty are expected to be available and responsive 24 hours a day to adult learners who expect, and may need, increased supportive measures as a result of the learners' busy, demanding schedules. Due to this online faculty may feel increased pressure as well.

O'Neil et al. (2004) stressed the value of recognizing and validating each learner's input, offering opportunities for group collaboration, and the importance of maintaining group cohesiveness. In addition, the aforementioned authors suggested that it is important that the

online instructor provide opportunities for learners to work together to achieve mutual goals. In the successful learning environment, the instructor may garner student participation by asking probing or clarifying questions about learners' postings or the instructor may ask learners to share professional expertise.

Most research designed to evaluate online nursing courses or programs of study use qualitative rather than quantitative methodology. Research has addressed learner satisfaction with the online method of delivery, best practices in online educational settings, and student satisfaction with online learning (Leners & Sitzman, 2006). Most studies have evaluated learner or faculty feelings regarding the online learning experience rather than analyzing or interpreting objective outcome data.

Successful cognitive learning experiences can occur in the online environment (Rudestam & Schoenholtz-Read, 2010). Frith and Kee (2003) conducted a mixed-methods study to evaluate students' cognitive learning, satisfaction, and motivation to complete courses. In collecting objective data, the researchers assessed the learning of 75 undergraduate nursing students with two multiple-choice examinations in a six-week online cardiac rhythm interpretation course (Frith & Kee, 2003). Results validated that successful cognitive learning could occur in an online course. Moreover, learners expressed satisfaction with the online learning experience through their responses to the qualitative data assessment.

Researchers have found that online nursing courses may successfully meet learners' needs (O'Neil et al., 2009). Buckley (2003) conducted a mixed-methods study to evaluate the transition of a face-to-face course to a web-enhanced course and finally to a web-based course in a baccalaureate degree nursing program. The transition occurred during three concurrent semesters

with 58 undergraduate nursing students participating in the study. As the course format changed from a face-to-face course to an online course, the researcher compared examination scores, course grades, and perceptions of learners enrolled in the three types of courses (Buckley, 2003). Although the research results demonstrated no differences in learner outcomes, the research yielded significant differences in learner satisfaction levels, with the web-enhanced course receiving the highest ratings.

Subsequent to an identified need to increase learner opportunities in nursing education and to design educational programs to meet individual learner needs more successfully, Tung and Chang (2008) conducted a qualitative study to examine online nursing courses in Taiwan. The researchers compiled and analyzed e-mail questionnaire responses and telephone interview responses of 267 undergraduate nursing students at six Taiwanese universities. The researchers concluded that the higher the compatibility of the online nursing course with individual learner needs, the higher the perceived usefulness (Tung & Chang, 2008).

Gabbert and Sims (2007) conducted a qualitative study of 227 nursing students either currently enrolled or recently completing online nursing courses to investigate nursing students' perceptions of teacher-student interactions in their online nursing courses. The investigators used a Likert-style questionnaire, with higher scores indicating student perceptions of increased levels of supportive, caring teacher-student interactions and lower scores indicating decreased levels of supportive, caring teacher-student interactions. Results indicated that students perceived the interactions with nursing instructors in the online environment to be caring and supportive. The researchers demonstrated that the effectiveness of the instructor had a greater effect on student satisfaction with learning than the method of delivery (Gabbert & Sims, 2007).

Greater use of online education is an expectation by learners today. How it is used, the quality of the courses, and how the outcomes are evaluated are all important issues. Learners are involved and proficient with information technology and expect schools and faculty to use it. Learners are able to adjust their school schedule to personal needs when they are able to take classes online. Such learners accept responsibility for their own learning. Online courses provide more opportunities for interactive as opposed to lecture-based learning, using cases, interactive gaming techniques, and much more (Institute of Medicine, 2011).

Clear and Structured Online Instruction

Since online education is becoming a popular, cost effective option, Crawford-Ferre and Wiest (2012) note that it is important that the instruction is as effective as traditional classroom education. Based on a review of the literature, effective instruction in online learning should include: clear and organized instruction, immediate student feedback, positive teacher presence, a sense of collaboration and community and technical support (Crawford-Ferre & Wiest, 2012). Both traditional and online courses must have clearly defined learning objectives. Clearly defined learning objectives along with immediate feedback help students get a better understanding of material presented and the ability to apply corrections for future assignments (Gayton, 2005). Sadera, Robertson, Song, and Midon, (2009) found that students rated their online courses more positively if feedback on assignments was prompt. Feedback is especially vital in an online environment because students are held accountable for initiating the learning process and completing work (Sadera, Robertson, Song, & Midon, 2009).

Conversely, Crawford-Ferre and Wiest (2012) built upon previous research and found that waiting for instructor feedback can have learning benefits. If students have to wait for

instructor response, they are more likely to depend on peers, which can foster a community of collaboration. These discussions allow students to develop trust, be decisive and share diverse opinions (Crawford-Ferre & Wiest, 2012). To be able to do this effectively, however, both students and instructors must have adequate training in the necessary technology, universal platforms and available technical support on call. Instructors must also create a safe learning environment by using clear expectations and create a friendly online persona by using ice breakers and emoticons. They should also encourage students to respond and reflect. It is also important for online instructors to form their own communities with other online instructors to gain a sense of community (Crawford-Ferre & Wiest, 2012).

Online learning is often asynchronous in that teaching and learning are not limited by time and place. Online education includes the use of CD-ROMS, computer-based conferencing, web-based bulletin boards, or e-mail rather than web-based chats, internet relay chats, multiple-user domains, or audio-conferences used in synchronous learning (Aragon, 2003). Asynchronous communication does not mandate that participants be connected to the communication device at the same time (Levine, 2005). A variety of online learning activities including presentations, study guides, debates, group discussions, games, role-playing activities, and case studies can facilitate learner development of critical thinking and problem-solving abilities (O'Neil et al., 2009). The online learning activities are designed to enhance learner engagement, refine learner understanding, and facilitate leadership development. Online learning principles are in alignment with adult learning principles. In developing online activities to meet the unique needs of adult learners, it is critical that successful online learning strategies be incorporated. Fidishun (2000) stated that learners' sense of accomplishment may be addressed through the provision of activities designed to develop learners' self-esteem. One such activity is the completion of

sequential learning modules, as this instructional strategy may help motivate learners' completion of a larger task. Mastery learning is a framework for planning instructional sequences (Joyce, Weil, & Calhoun, 2004). According to this theory, any student is able to master learner objectives if appropriate time, materials, and instruction are provided. Bloom and Carroll (1971) proposed the concept, and subsequently, Bloom (1971) offered the observation that a dissection of the larger unit into smaller units assists learners in mastering the content (Joyce, Weil, & Calhoun, 2004). Programmed instruction is in concert with andragogy and has been successfully used in all levels of online education programs. The student is able to review content as often as necessary for mastery, and as a result, the individual's self-esteem is enhanced. Conrad and Donaldson (2004) indicated that experts in online learning are in agreement that learner interaction is vital to the successful online learning experience. Yet, an interactive and collaborative educational model may be counter-intuitive to adults who were encouraged to be competitive during their earlier educational experiences (Conrad & Donaldson, 2004). Adult learners need to feel safe in the learning environment and may need guidance to feel secure. As a result, adults can become active participants and demonstrate leadership skills.

Culinary Creativity

Jeou-Shyan Horng and Meng-Lei Hu (2008) conducted a research project at the Jinwen University of Science and Technology that explored the ways in which culinary creativity fits a modified version of Wallas's classic 1926 model of the creative process. In order to analyze the process through which chefs create a specific culinary work, the researchers used a qualitative research method. Horng and Hu used in-depth interviews with creative culinary artists, and content analysis of international culinary contest records. Data was collected during a 6-month trip abroad, from February to July, 2005, during which the researchers visited restaurants and

schools around the globe. The interviews suggested that creative culinary artists were able to inject the concept of fashion into their culinary designs. Please see Figure 2 for circulation model of culinary creativity developed through the research study by Horng and Hu (2008).

Figure 2

Circulation Model of Culinary Creativity

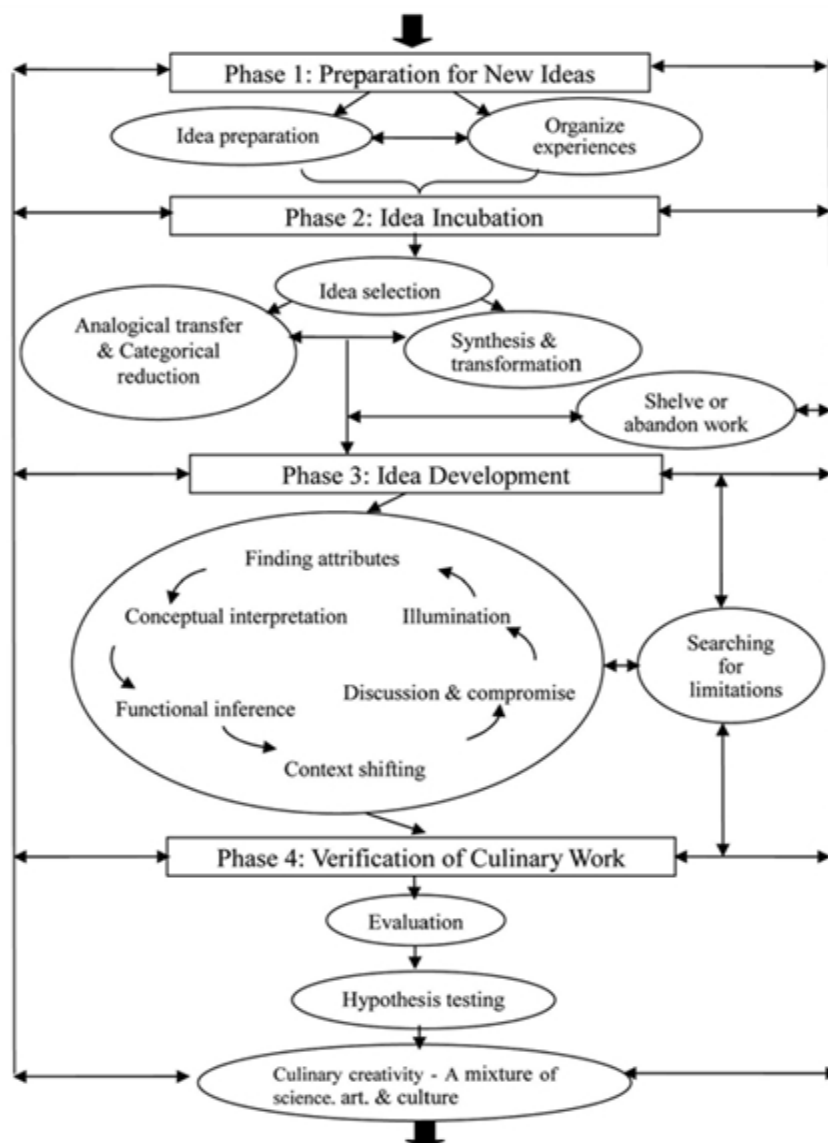


Figure 2. Circulation Model of culinary Creativity. From “The mystery in the kitchen: Culinary creativity. *Creativity Research Journal*, 20(2), 221-230. doi: 10.1080/10400410802060166 Praeger/Greenwood.

One potentially important finding from the study of Horng and Hu (2008) was that especially in the two middle stages, but even in the first and final phases, participants seemed to feel that imagination played a more vital role than preexisting knowledge. Clearly it was thought that culinary artists can learn much from one another - perhaps even more than from schools, books, and traveling. Another, related recurrent theme was that culinary artists need to have enough free time away from their jobs in order to practice their art freely, for pure enjoyment, as the best poets write poetry and the best musicians compose music (Horng & Hu, 2008).

A different study by Kang-Lin Peng, Ming-Chu Lin and Tom Baum (2012) explored the origin of culinary creativity and trainability in culinary education from the perspective of industry and academic chefs in the Chinese culture in Taiwan. This study was conducted by mixed methods in 3 stages. For the first stage, in-depth interviews with 36 culinary educators and chefs were conducted in Taiwan. The aim of the interviews was to elicit views and opinions from the participants (Creswell, 2009). Open-ended questions were used to identify possible determinants of culinary creativity. For the second stage, a decision algorithm was used to investigate the priority of factors that influenced culinary creativity. The Analytical hierarchy process is also suitable for qualitative and quantitative research because it makes the selection process very transparent by revealing it in detail and putting complicated questions into a systematic layout. For the third stage, the modified Delphi method was used to get a consensus of the effects of education and training on culinary creativity (Peng, Lin, & Baum, 2013). The results show that constructing a model of culinary creativity can be done based on creativity models in general and then adding specific principles and influences from education and training. The Analytical hierarchy process results show the chefs' perspectives in evaluating and prioritizing culinary creativity components. The major consensus from the modified Delphi

method according to Pen, Lin and Baum (2013) is that culinary creativity can fit into creativity in general with certain conditions. On trainability, culinary creativity could be taught and cultivated to improve and advance the quality and quantity of culinary creativity.

The term creative arts will most likely call to mind the visual, musical, and literary arts. In comparison, culinary art has traditionally been seen as something more like a craft, given its obvious practicality. Yet, like carpentry and dress-making, the culinary arts obviously have their creative side; this becomes obvious when speaking of world-class fashion-designers and chefs (Horng & Hu, 2008). In support of this theory Horng and Hu (2008) completed a study looking at the relationship between a culinary artist's invisible creative process and his or her creative performance. Horng and Hu (2008) developed a conceptual model that extended the classical model of Amabile (1996). A questionnaire was developed by first interviewing 17 culinary artists with established international reputations. The candidates included 8 Western cuisine specialists, 6 Chinese cuisine artists, and 3 pastry specialists. Most of the interview candidates had either judged or won prizes at international and domestic culinary competitions. Their interview transcripts and other relevant documents were analyzed by the researchers, and grounded theory was used to interpret their creative process. The findings suggest that there are four phases in the creative culinary process, which are idea preparation, idea incubation, idea development, and verification of the work's creativity. The creative culinary process, which has sub-processes, have direct, positive, cumulative effects on one another and on the overall process. The sub-processes also have a direct, positive, cumulative impact on the culinary artist's creative performance (Horng, & Hu, 2008). The results of this study have clear implications for the understanding and promotion of creativity, not only in the culinary arts, but in all arts.

Employer Perceptions of the Online Environment

Employer perceptions of the effectiveness of online learning are important in today's economy. Research by Astani and Ready (2010) revealed mixed employer perceptions of online education. The object of their study was to determine employers' opinions about online learning to help educational institutions better target their audiences. The authors surveyed employers as they would ultimately be hiring the graduates of online educational institutions. A survey instrument was developed for data collection. The 25 question survey was based on issues about online learning environments. The survey was divided into four parts which included General Information, Personal Experience with Online Learning, General Perception about Online Learning and Employer's Experience with Online Learning. A five point Likert Type Scale (5-Strongly Agree through 1-Strongly disagree with an anchored midpoint) was used. The aim was to collect data from employers to help determine which areas of online programs and classes need improvement (Astani & Ready 2010).

The first part of the survey, General Information, included a random sample of 240 employers from the North Central region of the United States. Employers ranged from supervisors to senior managers and owners. 27% of the sample pool had 500 employees or more, while 18% worked at mid-size companies (101-500 employees) and 53% worked at small companies (less than or equal to 100) (Astani & Ready, 2010).

The second part of the survey involved statements concerning employers' experience with online courses. A total of 240 employers were interviewed; 52% of the employers had experience with online learning. 60% of the participants with online experience believe that online courses are as rigorous as traditional face to face courses, which indicates employers'

general satisfaction with online learning environments. A total of 70.4% of employers with online experience indicated that they believed online courses were intellectually challenging, showing that employers generally believe that online students work to meet academic expectations and demonstrate high levels of engagement in critical and analytical thinking, which are vital skills for the work place (Astani & Ready, 2010).

For the most part, employers believe that the quality of online and traditional learning is the same, which should serve to reassure students about the reputation of online education in the external community. While employers in the present study were concerned with students' ability to work in teams, and ability to voice opinions, they were less concerned with a perceived lack of student interaction and with students lacking technological skills if they received an online degree. Since teamwork is very important in business organizations, higher education institutions should work to improve this aspect of learning. Overall, the results revealed that employers have a favorable opinion of online learning. A limitation of this study is sample size for employers in all sectors (Astani & Ready, 2010). The positive perception of online degrees suggested by Astani and Ready (2010) is also supported in other findings.

In contrast, a review of literature regarding the employers' perceptions of online education by Linardopoulos (2012) yielded results showing that there is a much greater likelihood that a candidate with an online degree would be viewed less favorably for employment purposes compared to a candidate with a face-to-face degree. Linardopoulos (2012) finds a discrepancy between the employers' perception as depicted in "popular" publications and the majority of findings in peer reviewed/scholarly papers. The comprehensive literature review on this topic reveals the majority of popular media and papers present online degrees as "viable options" for students who want to advance their education. However, the authors do argue that in

general those papers also warn potential applicants regarding the risk component associated with pursuing an online degree (Linardopoulos, 2012). In opposition to the above study, Lindopoulos' (2012) review of the literature found also that local staffing company managers, state that a degree from a properly accredited institution is positive no matter how you earn it.

In a series of studies, Adams and Defleur (2006) attempted to compare the applicants' potential of getting hired based on whether their degree was obtained online, face-to-face or via a hybrid instructional method. The studies focused on a number of disciplines and in almost all cases, the results indicated that the candidate with a traditional degree had a much better chance of gaining employment (Linardopoulos, 2012).

The full review of the literature concluded that some fields do prefer applicants to have online degrees such as: information technology, accounting, and other knowledge-based fields. The highest acceptance rates of online degrees are in the fields of Internet and new media, high technology and marketing versus more traditional fields such as law and medicine. In general, the research presented both positive and negative perceptions on online degrees. There was no clear preference for traditional schooling over online education.

Evaluating the Quality and Effectiveness of Culinary Arts Curriculums

Müller, VanLeeuwen, Mandabach, and Harrington, (2009) establish that students entering the field of culinary training have perceptions and expectations of what they should be taught to be successful and how well their culinary school is meeting their needs. Employed graduates may have different perceptions on the value of the education a school's educational processes have delivered. At the same time, the hospitality industry is constantly evaluating the graduate performance and forms perceptions on how well the educational system has prepared

the students for their positions (Müller, et al., 2009). The ascension of the chef to an exalted status is an on-going occurrence. It was not until 1971 that the culinarians' job classification status changed from domestic to professional in the United States (VanLandingham, 1995). According to VanLandingham (1995) this change was the first of many that brought about a heightened awareness of the glamour and viability of the profession as well as increased demand for skilled professionals in the hotel and restaurant industry. Rapid changes in food technology, food science, agricultural methods and changes in educational requirements have caused institutions to examine the programs and courses offered (Harrington, et al., 2005).

Hertzman and Ackerman (2010) conducted a study to determine which categories and indicators of quality are best suited to evaluating associate degree culinary arts programs. The researchers surveyed a national sample of culinary educators and industry chefs in the USA. This study used quantitative survey procedures based on Dillman's (2000) tailored design method (TDM). The TDM was formulated as an extension of social exchange theory, a sociological theory used to explain why individuals are motivated to engage in certain social behaviors. Applied to mail, phone, and internet surveys it emphasized writing questionnaires that include interesting questions that respondents would see as useful and easy to answer (Dillman, 2000). The researcher developed a survey instrument that asked participants to rate the importance of 50 characteristics in determining the quality of culinary programs on a five point Likert-type scale, with 1 equal to not important and 5 equal to extremely important with an anchored midpoint. The characteristics were divided into eight categories based on the literature (Hertzman & Ackerman, 2010). The final category, student learning opportunities, combined elements of the hospitality literature regarding the importance of work experience and internships, as well as the general education and community college research concerning the

importance of interaction with peers and faculty and participation in activities outside the classroom.

A total of 594 usable surveys were returned for an overall response rate of 42.33%. Of these, 193 (32.5%) surveys were returned by educators and 401 (67.5%) by industry chefs. A culinary associate degree was the highest level of education achieved by 37.4% of the respondents, while 22.5% held culinary, hospitality, or other types of bachelor degrees, and 15.3% held master degrees. Over 46% achieved certified chef status through the American Culinary Federation (Hertzman & Ackerman, 2010). The data analysis of Hertzman and Ackerman (2010) revealed the five most important indicators of quality, based on mean scores, to be: sanitation of kitchen laboratories, industry experience of faculty, subject experience of faculty, required internship, and job placement rates. From these data, the researchers developed a list of 20 suggested quality indicators. The results of this study, particularly the list of suggested quality indicators, provides the large variety of associate degree culinary arts program (ADCAP) stakeholders, including ADCAP administrators and faculty, employers, and prospective students with a basis for comparing and evaluating programs (Hertzman & Ackerman, 2010). As an exploratory study, this research did not attempt to develop a specific model for ADCAP quality or a ranking system.

Associate professor Joseph La Lopa at Purdue University conducted a study focusing on the completion rates of culinary arts schools and what percentage of graduates found employment after the conclusion of their degree. La Lopa and four honors students from the hospitality school conducted a telephone survey of 100 programs across the country; 51 of the schools agreed to participate. The results of the surveys included the following: Less than half of the programs calculated their retention rate. For those that did, the mean retention rate was 81

percent, based on a range of 30 percent to 98 percent (Berta, 2005). About three-quarters of those surveyed calculated their placement rates for graduates. The mean placement rate was 92.5 percent, based on a range of 60 percent to 100 percent. Three-quarters of the programs offered an associate's degree; only 14 percent offered bachelor's degrees. The mean number of fulltime faculty was nine; the range was one to 55 (Berta, 2005). La Lopa also to the conclusion that more research is still needed if educators are going to be able to improve their programs and better prepare students for lifelong careers in the hospitality industry.

Slightly different results are revealed in a case study by Müller, VanLeeuwen, Mandabach, and Harrington (2009). The purpose of this study was to examine and compare current culinary students, graduated culinary students, and industry responses to educational skills attained. The study utilized survey methodology. An analysis was done of curriculum information published and currently offered by institutions teaching traditional face-to-face culinary arts programs to determine the practical and theoretical content for the survey and following evaluation methodology suggested by Ornstein and Hunkins (1989) (Müller, VanLeeuwen, Mandabach, & Harrington, 2009). The questions in the survey were formulated to measure and evaluate criteria referenced perceptions of major stakeholders such as current students and graduates. In addition, the surveys were developed using established curricular culinary educational competencies that had been implemented at the college.

Overall, this study reveals several issues. First, all three groups (current students, graduated students and industry practitioners) were satisfied with traditional culinary technical skills. However, there is a consistent perception that skills in communication need to be improved. Current and graduated students conveyed a low satisfaction with overall writing skills and satisfaction with many others: overall learning, overall program, teacher relevancy, and

relevant topics. Current students and graduated students differed on the level of satisfaction in problem solving skills, computer skills and speaking skills. Current students had a much higher satisfaction level for these three items than did graduated students. Graduated student perceptions were more closely aligned with industry perceptions on these issues (Müller et al., 2009).

The findings of this case study have several implications for educators and administrators in the culinary and foodservice fields. By examining the positives in the responses of this study, perceptions of the value and satisfaction in the areas of teamwork and technical skills responses of all three groups provide support for curriculum quality in these areas. In addition, most students (90.5%) and graduates (85.7%) are satisfied with the overall performance of their culinary program (Müller et al., 2009). Overall learning also was rated satisfactory by students (88.1%) and graduates (91.1%).

Müller, VanLeeuwen, Mandabach, and Harrington's exploratory study presents some interesting questions and might be replicated with revised questions that focus on improving the educational process. A variety of strategies might be developed to improve communication education across a program's culinary curriculum. Culinary educators might consider stressing the importance of developing an agenda supporting the relevance of language pedagogy in culinary education.

Muller, VanLeeuwen, Mandabach, and Harrington (2009) believe culinary education curriculum has its roots in the vocational education movement of the late 19th and early 20th centuries and traditionally focused on achieving student mastery of core technical culinary competencies. Today, vocational education is more commonly known as career and technical

education. Even so, the focus remained the same, mastery of core technical competencies. In the United States, the most recognizable authority on culinary arts competencies is the American Culinary Federation (ACF). The ACF was instrumental in elevating the executive chef profession from service status to professional category in 1976 in the U.S. Department of Labor's Dictionary of Official Titles (American Culinary Federation, 2011). Another one of the ACF's major accomplishments was the establishment of a postsecondary accrediting body, the American Culinary Federation Educational Institute (ACFEI) Accrediting Commission in 1986. The ACFEI Accrediting Commission is known as the American Culinary Federation Educational Foundation Accrediting Commission (ACFEFAC) today. The ACFEF Accrediting Commission is made up of ACF certified chefs who obtained professional certification through the association's rigorous testing process (American Culinary Federation, 2016).

The ACFEFAC is recognized by the Council on Higher Education Accreditation, and has developed an extensive set of culinary arts competencies, called ACF required knowledge and competencies. The ACFEFAC required knowledge and competencies follow the framework of competency-based education. Each student graduating from an ACFEFAC accredited program has to demonstrate mastery of all the required competencies as listed by the ACFEFAC before the graduate can be certified as a Certified Culinarian (see Appendix E for complete list of ACF required knowledge and competencies).

Online Culinary Arts Education

According to Allen and Seaman (2014) one of the biggest changes to education has been the proliferation of online courses. New resources like live web-based lectures, live webcam instruction, and blog tutorials provide new opportunities for culinary arts programs. Since the

subject matter is very new it is particularly difficult to find peer-reviewed journal articles, but these articles will be likely forthcoming in the future. This next section of this literature review focuses on the fast development of online culinary arts education from 2011 to 2016. Escoffier Online International Academy is the largest online culinary arts educational institution in the world. The most accurate and up-to-date information was found in published hospitality industry trade journals.

Escoffier Online International Culinary Academy is the first school to offer certifications in both culinary arts and pastry arts in an online educational setting. Escoffier Online, in affiliation with the Escoffier Foundation of France, delivers culinary education via the web, with a curriculum designed to help students develop real-world kitchen credentials (Eaton, 2013). Students leverage Escoffier's online interface, featuring a series of interactive learning modules with detailed video tutorials. Escoffier Online was launched in 2012 by the Triumph Higher Education Group and has been approved by a number of leading culinary organizations, including the American Culinary Federation (ACF) Chicago Chefs of Cuisine Inc., and the American Personal & Private Chef Association (Eaton, 2013).

The Escoffier Online program is designed to take two to four months and focuses on the building blocks of cooking, with core courses covering culinary basics, groundwork and essentials. Each course includes a series of interactive learning modules addressing culinary arts topics. Every module culminates with an assessment that includes a self-evaluation, recipe preparation and one-on-one mentor review (Eaton, 2013).

Escoffier Online launched successfully the Baking and Pastry program in December of 2013, which has been approved by a number of leading culinary organizations, including the

American Personal & Private Chef Association, Chefs of Cuisine of Chicago, Inc., a Chapter of the American Culinary Federation, and the Bread Bakers Guild of America (Eaton, 2013). The school launched the first Spanish-language culinary school online in July 2013. This new curriculum is available to Spanish-speaking students, allowing them to achieve certification in the field of culinary arts. The Hispanic workforce is set to increase from 23 million in 2010 to 32 million workers by 2020 (Bureau of Labor Statistics, 2015). This new program was designed specifically for this demographic (Eaton, 2013).

In 2014 Escoffier Online started providing free online culinary demonstrations to high school classes through interactive webinars. As part of the Escoffier Online student outreach program through educational organizations such as ProStart and Family, Career and Community Leaders of America, Inc. (FCCLA), students can gain culinary insight and interact with an industry expert (PR, 2016). Many states including Texas, California, Washington, Kansas, Minnesota, Colorado, New Jersey, West Virginia, Massachusetts, and Florida participate in the weekly demonstrations. In addition to offering weekly online culinary demonstrations, the Escoffier team is creating online tutorials to aid teachers in continuing education (PR, 2014). This partnership represents a new learning module in vocational education with a vision for online culinary arts education.

Conclusion

This literature review of culinary arts and online education literature yielded six themes. Each topic was divided into subtopics. Researchers addressed online learning, structured online instruction, culinary creativity, employer perceptions of the online environment, the quality and

effectiveness of culinary arts curriculums, and online culinary arts education. Some findings were related while others diverged.

Overall, the findings in this literature review indicated that the advantages of online learning outweigh the disadvantages, both in significance and number. Online culinary arts education is entrenched in the industry, and the learning and practical benefits of this mode of instruction can be positive. The researched articles indicate that online teachers and online students need to realize that culinary arts online teaching and learning entails many new, and often very different, roles, duties, and obligations. The culinary arts online classroom challenges both the teacher and the student in new and different ways, and included in this challenge is a great deal of work (Bonvillian & Singer, 2013).

Areas of future research should include the detailed development of curricula for online culinary arts programs. Therefore it is critical that the viewpoint of professional chefs and culinary and hospitality educators regarding the online delivery mode is identified and analyzed. Specifically, more research is needed in determining criteria on how to correctly and consistently critique and judge the practical culinary arts skills that involve sensory modalities that are difficult to convey in an online platform, including the components of “Flavor”, “Taste”, and “Aroma”.

CHAPTER 3

METHODOLOGY

This chapter presents the methods which were used to provide baseline data about the characteristics of online culinary arts degree programs and the quantitative survey research methods used to analyze the perceptions of culinary educators and industry professionals concerning factors relating to the quality of online culinary arts programs. Five research questions were explored.

- RQ1 What are the recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of food products in terms of sensory modalities, prepared by the online culinary arts students?
- RQ2 To what degree do culinary arts/management educators and industry practitioners agree/disagree on the specific subjects to be included in the online culinary arts curriculum?
- RQ3 What are the key factors of quality for an online culinary arts program as perceived by culinary arts/management educators and industry practitioners?
- RQ4 Is there a difference between the perceptions of culinary arts/management educators and industry practitioners with regards to the factors affecting the quality of the online culinary arts degree program?
- RQ5 What are the best practices for delivering an online culinary arts program?

The chapter describes the research question, the selection of the population studied, the sampling frame, and the development of the research instrument, the data collection techniques, and the data analysis procedures.

Rationale for Quantitative Survey Methodology

As discussed in Chapter 2, the development of online degrees in culinary arts is relatively new. A large body of research about these programs does not yet exist. Research about related types of education can inform the discussion, but has limits as to its direct applicability. Therefore, this study attempts to explore and describe the features of online culinary arts programs and to suggest methods for evaluating their quality and effectiveness.

Quantitative survey methods represent the best design for descriptive and exploratory research, due to the fact that these surveys can be administered in many modes, are relatively inexpensive, and that the anonymity of these surveys allows respondents to answer with more honest and valid responses (Babbie, 2001; Glatthorn, 1998). In addition, survey research is also the preferred method for gathering original data to describe a population that is too large to observe directly (Babbie, 2001). With over 270 culinary schools and 130,000 chefs and cooks (Bureau of Labor Statistics, 2016) in the United States, the population under study can definitely be considered large.

The methodology for this study followed Dillman's (2000) Tailored Design Method (TDM). TDM offers methods for increasing the quality of information received and response rates, while reducing error in self-administered surveys. It incorporates elements of social exchange theory to design surveys people want to complete. This is done through offering intangible and/or tangible rewards for survey completion, reducing the risk of respondents'

experiencing anxiety or embarrassment due to completing the survey, and limiting the amount of inconvenience for and establishing trust with the respondents (Dillman, 2000). Tailored Design Method also involves modifying the survey to suit the situation by considering the nature of the population and the research instrument.

The term survey research refers to the acquisition of information from one or more groups of people by asking them questions and tabulating their responses. Survey research may inquire about opinions, attitudes, or experiences, and that information, once tabulated, is described to the reader in a report or manuscript (Leedy & Ormrod, 2010). There were a total of 1,250 members on the email list of the American Culinary Federation (ACF) and the International Council of Hotel, Restaurant and Institutional Educators (ICHRIE). This research used a survey design that was sent as a link via email to all culinary arts/management educators and industry professionals on the email list of the ACF and ICHRIE.

Type of Research Methodology

Online surveys offer researchers several advantages. These include reduced cost, faster response turnaround, and the ability to download data directly to statistical software (Van Selm & Jankowski, 2006). Email is now ubiquitous and a common means of business communication, making this an attractive means for surveying a professional population.

Conceptual Model

The conceptual model and the foundation of this study were based on an integration of an earlier study completed by Hertzman, (2006) and the theoretical framework of Bowman (1999) and Benbunan-Fich, Hiltz, and Harasim (2005), consultations with a consulting team, and a

review of the core competencies deemed essential by the American Culinary Federation (ACF) for industry certification of Certified Executive Chefs (ACF, 2016). This model can be found in Appendix C. The quantitative survey method mapped to the theoretical framework of Benbunan-Fich, Hiltz, and Harasim (2005), with an extension of the outcomes in online learning, the third and final building block of the online interaction and learning model by Benbunan-Fich, Hiltz, and Harasim (2005).

Population and Sampling Frame

The population for the study consisted of two groups: culinary arts/management educators, and industry representatives. The Bureau of Labor Statistics (2016) estimates the population of culinary industry chefs and managers to be 132,000 people. Since sampling this entire population was not feasible, a sampling frame was chosen, which included active members of the American Culinary Federation (ACF) and the International Council of Hotel, Restaurant and Institutional Educators (ICHRIE). With random sampling, each individual has an equal probability of being selected for the study, ensuring that the sample will be representative of the population (Keppel, 1991).

American Culinary Federation members were selected for this study since the members of this organization are professional, established, and successful culinarians who are chefs and chef owners. Members of this organization are typically at the executive chef/owner level, which puts them in the position of hiring potential entry-level culinarians for their organizations.

Educators affiliated with ICHRIE are hospitality and tourism educators from universities offering programs in hotel and restaurant management, foodservice management, and culinary arts. ICHRIE was founded in 1946 and is a nonprofit professional association which provides

programs and services to continually improve the quality of global education, research, service, and business operations in the hospitality and tourism industry (ICHRIE, 2006).

The ACF, a professional, organization for chefs and cooks, was founded in 1929 in New York City by three chefs' organizations the Société Culinaire Philanthropique, the Vatel Club and the Chefs de Cuisine Association of America. Today, ACF is the largest professional chef's organization in North America. The organization has 17,000 members who belong to over 150 chapters in four regions across the United States. The ACF is the culinary leader in offering educational resources, training, apprenticeship and programmatic accreditation designed to enhance professional growth for all current and future chefs and pastry chefs. In addition, ACF operates the most comprehensive certification program for chefs in the United States. The different groups that comprise membership include chefs, chef owners, sous chefs, executive chefs, culinary educators, and hotel and restaurant related professionals. The targeted groups for this survey from the ACF membership directory were culinary educators, chef practitioners, and chef owners located in the United States. Since the research questions focused on the competencies for online culinary arts degrees, this is the subset of the foundation that would possess the professional knowledge base necessary to successfully determine appropriate knowledge level and skillsets. The sample set for the study included the subpopulation which includes chefs, chef owners, and culinary arts educators.

There are currently 1,300 members of ICHRIE located in the United States and Europe. The different groups that comprise membership include the following: individual memberships for educators at secondary schools (High Schools), individual memberships and institutional memberships for educators at institutions granting baccalaureate and graduate degrees, individual memberships for retired educators, individual memberships for full-time graduate

students, individual memberships for industry professionals, associations, business, or government executives, and individual and institutional memberships for educators affiliated with institutions granting associate degrees and diplomas. The sample set for this study included culinary arts and hospitality management educators.

Using the formula outlined in Dillman (2000), with a 95% confidence interval, 15% sampling error, and active membership numbers for the ACF and ICHRIE, a sample of 43 industry practitioners and 42 hospitality/culinary arts educators was necessary for valid data analysis. The researcher sent out 1,250 surveys. The final sample consisted of 162 educators and 64 industry practitioners.

Data Collection Method

The data collection strategies considered for this study included mail, web-based surveys and the Delphi method. According to Harold and Turoff (1975) the Delphi method is a structured communication technique or method, originally developed as a systematic, interactive forecasting method which relies on a panel of experts (Harold, & Turoff, 1975). A comparison of mail, fax, and web-based surveys indicated that the web-based surveys yielded the highest response rate (44.2 1%) compared to mail (26.27%) and fax (17%) (Cobanoglu, Warde & Moreo, 2001). Based on these results, Cobanoglu, Warde & Moreo (2001) assert that to ensure maximum response rate, the preferred method for distributing surveys was through the web-based survey method. The data collection strategies used in this study were based on Dillman's theory of Survey Response as Social Exchange (Dillman, 2000).

According to Dillman (2000), the three elements that are critical for predicting a particular action include rewards, costs, and trust. Thibaut and Kelley (1959) have noted that

being regarded positively by another person has reward value to many people. Dillman's (2000) theory on ways to provide rewards is to show positive regard for the respondent. Dillman recommends providing respondent's with the reasons that a survey is being done, providing a number to call with questions, and addressing correspondence. These are small, but not inconsequential ways of showing positive regard to questionnaire recipients (Dillman, 2000). Dillman discusses strategies for reducing social costs which include avoiding subordinating language, avoiding embarrassing questions, avoiding inconvenience, making questionnaires appear short and easy, and minimizing requests to obtain personal information. Finally, Dillman (2000) recommends using deadline dates for returning a questionnaire and completing an interview.

Instrumentation

An electronic survey instrument (Appendix B) using Qualtrics was deployed. Qualtrics is a private research software company, based in Provo, Utah. The company was founded in 2002 by Scott M. Smith, Ryan Smith, Jared Smith and Stuart Orgill (Albaum, & Smith, 2006). Survey items have been used in prior survey research on the topic of quality indicators for culinary arts associate degree programs (Hertzman, 2006; Gersh, 2011). The questions that relate to the research questions were adapted from Hertzman (2006). He established face validity by performing a two-step testing process. First, six culinary educators, six industry experts, and a marketing research consultant were asked to analyze the survey and cover letters. This process established the content validity of the survey and provided a basis for revising the instrument (Hertzberg, 2006). To further validate the survey, Hertzman piloted the survey with a larger group of educators and industry representatives. The pilot study was performed at the American Culinary Federation National Convention in San Antonio from July 30 - August 2, 2005

(Hertzberg, 2006). Hertzman also performed a reliability analysis to determine how well each group of subjects measured their construct. The Cronbach alphas for the professional and general subjects were .863 and .898, respectively, indicating that the variables were indeed appropriate for the construct (Hertzman 2006). For the purpose of this study six questions were added to Hertzman's survey instrument; adapted from the American Culinary Federation certification manual for professional chefs (ACF, 2016) and a personal interview with the Ashlea Tobeck (Tobeck, 2016). Ashlea Tobeck is the executive chef at the Auguste Escoffier School of Culinary Arts, in Boulder, CO. The survey instrument (see Appendix B) administered to culinary arts, hospitality educators and industry representatives consist of four sections. The following is a description of each section.

The first page of the survey provided information about the voluntary nature of the survey, the general purpose of the survey, Institutional Review Board (IRB) considerations, and provides the researcher's contact information. Participants were required to answer a question at the end of the page in the affirmative as an informed consent to participate.

The first section of the survey consisted of basic demographic information about the respondent, including the respondent's number of years in the hospitality and/or culinary arts industry, highest level of education, gender, and current residential location. Obtaining this information allowed for more detailed analysis about similarities and differences in the perceptions of the survey participants.

The second section was divided into two categories: professional courses and general courses. The list of the twenty professional courses combined the courses recommended by Wollin and Gravas (2002), and the twelve knowledge areas required for culinary arts programs

to gain ACF accreditation (American Culinary Federation, 2016). The lists of 13 general subjects included courses on teaching communication, writing, and critical thinking skills, as well as science, social science and humanities topics. The survey asked respondents to rate the importance of offering classes in these subject areas on a five point Likert scale, with one being “not important” and five “extremely important.” The advantageous side of the Likert Scale is that it is the most universal method for survey collection, therefore questions framed in this fashion are easily understood. The responses are easily quantifiable and subjected to computation (Norman, 2010).

The third section of the survey listed potential quality indicators for online culinary arts degree programs. These indicators were divided into four categories. Two categories, resources and student learning opportunities, were specifically derived by the author of the survey (Hertzman 2006) from the general quality and engagement literature (Astin, 1984; Kuh & Vesper 1997; Pascarella & Terenzini, 1991). The other two categories, faculty and program outcomes, were derived from the above authors, as well as the hospitality literature and the ACF professional chef standards. The survey asked the respondents to rate the importance of each of these factors in evaluating the quality of an online culinary arts program on a five point Likert scale, with one being “not important” and five “extremely important.”

The fourth section consisted of questions asking the respondents to identify methods and standards to evaluate practical culinary arts skills including sensory modalities such as taste and flavor in online culinary arts programs. The survey asked the respondents to rate the importance of each of these factors in evaluating practical culinary arts skills in an online environment on a five point Likert scale, with one being “not important” and five “extremely important.” The survey ended with an open question giving participants the options to note their

“recommendations on the standards to evaluate practical culinary arts skills in online culinary programs that were not mentioned in this survey. If you have none, please type “none”.” Copies of the final questionnaire and cover letter appear in Appendix B.

Procedures

Using the formula outlined in Dillman (2000), with a 95% confidence interval, 15% sampling error, and the active membership numbers of the ACF (17,000) and ICHRIE (1,300), a sample of 43 industry practitioners and 42 hospitality/culinary arts educators was necessary for valid data analysis. The researcher sent out 1,250 surveys, of which 810 surveys were emailed to members of the American Culinary Federation, and 440 surveys were emailed to members of the International Council of Hotel, Restaurant and Institutional Educators. Note that while there were 1,250 email addresses only 1,204 were deliverable.

In order to increase the response rate, the researcher used the procedures outlined by Dillman (2000), including the use of a pre-letter/email, and follow-up email. All individuals listed on the contact list of the American Culinary Federation Member and the International Council of Hotel, Restaurant and Institutional Educators were potential recipients of this online survey. The population sample for this study was the email list created by the researcher with the assistance of the certification office of the ACF and the communications office of ICHRIE. Participants were asked to consent to participation at the end of the Informed Consent page. Participation was considered as consent.

The methodology involved in data collection ensured the privacy of participants. Confidentiality was maintained, so all respondents were free to answer items honestly. The names of respondents were not associated with any replies generated in the reports.

All questionnaires were sent during the months of October and November 2016. The questionnaire was built in Qualtrics and participants were asked to complete the questionnaire within 2 weeks. A follow up email was sent after 1 week to participants who had not yet responded to the survey. One week later, another email reminder was sent. A final reminder was sent 1 week after the third reminder. A response rate of no less than 15% was anticipated for this survey.

Data Analysis

The dependent variable in this study was the level of importance of the competencies. The data was analyzed between two groups: culinary arts/management educators and industry practitioners.

For purposes of analysis, the means and the standards deviations were calculated. According to Babbie (1990), descriptive statistics are a method for presenting quantitative descriptions in a manageable form. A quantitative approach is one in which the investigator employs strategies of inquiry such as experiments and surveys, and collects data on predetermined instruments that yield statistical data. This study also included inferential statistics to ensure the reliability of the findings. According to Vaart (1998) inferential statistics make inferences about populations using data drawn from the population.

The survey data were downloaded to IBM SPSS Version 24.0. Following this, the first step was to clean the data, check for missing values, outliers, and any other anomalies (Trochim, 2000). Data analysis included calculating descriptive statistics for the dependent variable. Descriptive statistics included the means and standard deviations. The researcher used frequency

distributions and percentages for qualitative data. To answer the research questions independent-sample *t* tests were conducted.

Ethical Considerations

This research project was submitted to the Southern New Hampshire Institutional Review Board (IRB) for approval. No research was conducted until IRB approval was granted. An email invitation was sent to all selected participants. The email emphasized that participation was voluntary, and that the participant may withdraw at any point by simply closing the browser on their computer. The survey included an informed consent and explained the purpose of the survey, how the data will be used, that responses will be anonymous and/or confidential, and no email addresses will be tracked by the researcher. Participants were provided with the contact information of the researcher and could request a copy of the results. Email addresses of respondents were not collected or tracked by the researcher. Email addresses were not tied to any responses in the reports generated from the surveys.

Limitations

The following were limitations of this study:

1. Study participants were limited to members of the American Culinary Federation and the International Council on Hotel Restaurant and Institutional Education. The ACF and ICHRIE are only two professional associations affiliated with the culinary arts and the sample size of chefs and culinary/hospitality educators is limited.
2. The researcher is a certified executive chef and certified culinary educator by the American Culinary Federation, and works in a private, nonprofit university that offers

culinary arts degree programs. Any biases as a result of these activities were recognized by the researcher, and addressed by asking culinary arts educators and professional chefs to review the study and instrument.

3. Study data were limited to only those members of both organizations who volunteered to complete the electronic survey. This could have affected the completion rate of the survey and the research outcome.
4. Respondents may have provided answers perceived as socially desirable rather than honest answers. These actions could have influenced the true outcome of the research questions.
5. Respondents' may have answered the questionnaire with their personal beliefs, rather than answers that represent their professional opinion. This action could have influenced the integrity of the research survey outcome.
6. Respondents' command of a computer, as well as command of the English language may have hindered participation. These limitations could have impeded the respondents from completing the survey in a timely manner.
7. The accuracy of the responses may have been compromised if participants did not clearly understand the survey questions.
8. Cultural bias may have been reflected in respondent answers. The participants may have been interpreting and judging the survey questions by standards inherent to their own culture.

9. The questionnaire did not allow for follow-up or clarifying comments by the respondents.
This obstructed the researcher's ability in clarifying participant responses.
10. Generalizing study results to other locations or degree programs may not be appropriate.

Summary

This chapter outlined a quantitative study that provided baseline data about the subjects taught in and characteristics of online culinary arts degree programs. The quantitative analysis involved statistical analysis of an online survey distributed to culinary arts professionals and educators to rank their perceptions of the importance of teaching those subjects and the factors potentially indicating the quality of online culinary arts programs. The researcher used information from guidebooks and websites to generate a data collection method that worked well with the selected population sample. Data was collected through an electronic survey and analyzed using SPSS.

CHAPTER 4

ANALYSIS OF THE DATA

In this chapter, the findings from the quantitative analysis related to the research questions are discussed. This study was designed to examine the perception of culinary arts/management educators and industry practitioners on factors that indicate program quality in online culinary arts education, and to identify recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of the food products in terms of sensory modalities, prepared by the online culinary arts students.

Chapter One outlined the background of the problem and identified five specific research questions. This chapter will answer those research questions by presenting an analysis of secondary data regarding the quality factors of online culinary arts programs. It will also provide analysis of the data obtained by surveying culinary arts/management educators and industry practitioners regarding the importance of teaching particular subjects in the curriculum of online culinary arts programs.

This chapter begins with a description of the survey responses, explains the data analysis, and then details the characteristics of the survey respondents. The five primary research questions are presented with associated hypotheses along with the results of statistical analysis.

Data Collection and Response Rate

An email requesting participation was sent to 1,250 members of the American Culinary Federation (ACF) and the International Council of Hotel, Restaurant and Institutional Educators (ICHRIE). The email was sent with a direct link to the survey instrument located on the Qualtrics

website. The initial deployment resulted in 38 undeliverable email recipients and 8 email addresses blocked the Qualtrics survey. This left 1,204 addresses that received the survey. The initial survey was sent out on the third Wednesday morning of October 2016 followed by reminders on the following five Wednesdays. The survey was open for participation for a total of 6 weeks.

Respondents needed to answer *yes* to the question “Your completion of this survey indicates your consent to participate in this research study. Do you wish to participate in this survey?” in order to indicate consent and proceed to the survey (see Appendix B). Any respondent answering *no* did not meet the criteria to participate in this survey. There were 252 *yes* responses to the consent participation question. Those 252 respondents went on to the first question of the survey, where they specified their current professional career. Twenty-six of the respondents selected “other” and were eliminated, to guarantee a clear survey comparison between culinary arts/management educators and industry practitioners. In total 226 respondents affirmed their current professional career as chef, chef owner, hospitality educator, and culinary arts educator. These 226 respondents (18.8%) of the 1,204 survey recipients constitute the final sample from which the following analysis is drawn.

Data Analysis

The data was imported into SPSS ver. 24 (IBM Corp, Armonk, NY). Descriptive statistics, counts and percentages, were computed for demographic variables and survey content questions. The data was analyzed for the two professional groups, culinary arts/management educators and industry practitioners (chefs and chef owners). The dependent variable in this study was the level of importance of the competencies. Descriptive statistics were used to

measure means and standard deviations. The researcher used frequency distribution and percentages for the qualitative data. Inferential statistics were also computed by the researcher.

Independent-sample tests were used to analyze the quantitative data. The independent-sample t test is an inferential statistical test that determines whether there is a statistically significant difference between two unrelated groups. The independent-sample t test assumes at least interval level data. The ratings associated with this survey are considered ordinal level data. However, the results associated with the t test for interval and ordinal level data has been shown to lead to the same outcomes (Rosenthal, 2016). Norman's (2010) research focused on whether parametric tests can be used to interpret the results of Likert scales, which are ordinal. He studied the controversy of interpreting Likert scales which are ordinal, so parametric statistics could not be used. Norman (2010) states "Parametric statistics can be used with Likert data, with small sample sizes, unequal variances, and with non-normal distributions, with no fear of 'coming to the wrong conclusion'" (p. 631). Miller and Salkind (2002) also acknowledged with the findings from their research, that there is disagreement on interpreting the level of measurement for Likert scales, and stated:

Still others have taken the position that although most of the measurements used do not go beyond ordinal scales, little harm is done in applying statistics to them that are appropriate for use with interval scales. The result is that statistics appropriate to interval scales continue to be widely used in the analysis of social data, whether the assumptions of interval scaling are met or not (p. 450).

The Cronbach's Alpha for this research study was calculated to measure reliability (internal consistency). A reliability coefficient of 0.7 or higher is considered satisfactory in most social science research (Diedenhofen, & Musch, 2016).

Description of Participants

Data from the 226 participants were analyzed. Not every participant answered every question, but all available responses were used in data analysis. The final sample of respondents ($N=226$) for this study included 162 educators and 64 industry practitioners for a response rate of 18.8% of the 1,204 delivered emails. In the educator sample, there were 56 hospitality educators surveyed and 106 culinary educators. In the practitioners/owners sample, there were 55 chef practitioners and 9 chef owners. Table 1 provides a detailed description of the respondents who participated in the survey.

Table 1

Summary Profile of Respondents

Characteristic	<i>N</i>	Percentage
Gender		
Male	166	73.5
Female	60	26.5
Nationality		
United States	210	92.9
Non-United States	16	7.1
Years of Work Experience		
1-5	8	3.5
6-10	35	15.5
11-15	27	11.9
16-20	30	13.3
21+	126	55.8
Highest Level of Education		
High School/GED	10	4.4
Associate Degree	59	26.1
Bachelor Degree	56	24.8
Master's Degree	63	27.9
Doctoral Degree	38	16.8

Combined, 68.8% of the survey respondents had at least 16 years of industry experience with the majority of the participants (55.8%) having 21+ years in the hospitality/culinary industry. Most of the participants were male (73.5%). The majority of the participants were United States residents (92.9%). The respondents were highly educated with 44.7% of the respondents holding a graduate degree, 27.9% with a master's degree and 16.8% holding doctoral degrees.

Table 2 shows which degree program the educators were teaching in and what educational delivery method the educators practiced.

Table 2

Educational Experience Educators

Characteristic	<i>N</i>	Percentage
Degree Program Teaching		
Certificate Program	23	14.2
Associate Degree Program	84	51.8
Bachelor Degree Program	23	34.0
Educational Delivery Method		
Traditional Face to Face	77	47.5
Online	2	1.2
Face to Face and Online	83	51.3

Combined, the majority (52.5%) of the educators had experience in online educational delivery methods and practices. While 47.5% of the participants only had experience in the traditional face-to-face educational delivery methods and practices. More than half of the participants (51.8%) worked in an associate degree program, with 34.0% teaching in a bachelor degree program and 14.2% in a certificate program.

Research Question 1

What are the recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of food products prepared by online culinary arts students in terms of sensory modalities?

RQ1 Null Hypothesis

There are no recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of the food products prepared by online culinary arts students in terms of sensory modalities.

RQ1 Alternative Hypothesis

There are recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of the food products prepared by online culinary arts students in terms of sensory modalities.

The composite mean of the level of importance of each competency was determined for the recommended procedure to judge and critique the quality of the food products in terms of sensory modalities. Each of the five possible responses was assigned a value of 1 to 5 as indicated below in Table 3.

Table 3

Importance Ratings of Competency Statements

Level	Composite Mean
Not Important	1
Slightly Important	2
Moderately Important	3
Very Important	4
Extremely Important	5

Table 4 indicates the mean and standard deviation for each of the six competency domains of the entire sample group of culinary arts/management educators and industry practitioners.

Table 4

Combined Ratings of Practitioners and Educators Recommended Standards to Evaluate Practical Culinary Arts Skills

	<i>N</i>	Minimum	Maximum	Mean	Std. Deviation
Required Practical Internship for Online Culinary Arts Students	226	1	5	4.50	.785
Students Finish the Online Culinary Arts Program with a Six-Week Externship	226	1	5	4.33	.962
Online Students are required to Work Several Hours per Week under the Supervision of a Local Executive Chef	226	1	5	4.26	.951
Weekly Cooking Assignments Include Submission of Multiple Photos of the Final Product and Cooking Process	226	1	5	4.16	1.016
Weekly Cooking Assignments Include a Written Description of the Process and Flavor Profile of the Finished Product	226	1	5	4.15	.979
Teaching Flavor and Taste Analysis Courses to the Students in the Beginning of the Online Culinary Program	226	1	5	4.12	.950

In Table 4, industry practitioners and culinary arts/management educators rated all of the six factors, which are standards to judge and critique practical culinary arts skills in an online educational setting, as very important or extremely important. The respondents which included the combined group of industry practitioners and educators provided the following ratings: Required practical internship for online culinary arts students with a $M = 4.50$ and $SD = .785$, Teaching flavor and taste analysis courses to the students in the beginning of the culinary arts program $M = 4.12$ and $SD = .950$, Online students are required to work several hours per week under the supervision of a local executive chef $M = 4.26$ and $SD = .951$, Weekly cooking assignments include submission of multiple photos of the final product and cooking process $M = 4.16$ and $SD = 1.016$, Weekly cooking assignments include a written description of the process and flavor profile of the final product $M = 4.15$ and $SD = .979$, Students finish the online culinary arts program with a six-week externship $M = 4.33$ and $SD = .962$.

Industry practitioners and culinary arts/management educators considered a required practical internship for online culinary arts students the most important recommended procedure to judge and critique the quality of the food products in terms of sensory modalities, and considered teaching flavor and taste courses to the students in the beginning of the online culinary arts program as the least important.

Table 5 separates results between the culinary arts/management educators and industry practitioners. Results indicate the mean and standard deviation for each of the six factors for the group of culinary arts/management educators and industry practitioners separately.

Table 5

Practitioners and Educators Recommended Standards to Evaluate Practical Culinary Arts Skills

	Profession	N	Mean	Std. Deviation
Required Practical	Practitioners	64	4.47	.734
Internship for Online	Educators	162	4.51	.806
Culinary Arts Students				
Students Finish the Online	Practitioners	64	4.47	.734
Culinary Arts Program	Educators	162	4.28	1.035
with a Six-Week				
Externship				
Online Students are				
required to Work Several	Practitioners	64	4.45	.711
Hours per Week under the	Educators	162	4.19	1.023
Supervision of a Local				
Executive Chef				
Weekly Cooking				
Assignments Include	Practitioners	64	4.22	.934
Submission of Multiple	Educators	162	4.14	1.049
Photos of the Final				
Product and Cooking				
Process				
Weekly Cooking				
Assignments Include a	Practitioners	64	4.25	.756
Written Description of the	Educators	162	4.12	.1054
Process and Flavor Profile				
of the Finished Product				
Teaching Flavor and Taste				
Analysis Courses to the	Practitioners	64	4.19	.833
Students in the Beginning	Educators	162	4.09	.993
of the Online Culinary				
Program				

The findings in Table 5 indicate that industry practitioners and culinary arts/management educators rated the procedure of a required practical internship for online culinary arts students closest to extremely important and therefore the most significant procedure to judge and critique the quality of the food products in terms of sensory modalities. Industry practitioners rated the required practical internship for online culinary arts student at $M = 4.47$, $SD = .734$ and culinary

arts/management educators rated the required practical internship for online culinary arts students at $M = 4.52$, $SD = .806$. Industry practitioners rated that students finish the online culinary arts program with a six-week externship at $M = 4.47$, $SD = .734$ and culinary arts/management educators rated that students finish the online culinary arts program with a six-week externship at $M = 4.28$, $SD = .1035$. Industry practitioners rated that online culinary arts students are required to work several hours per week under the supervision of a local executive chef at $M = 4.45$, $SD = .711$ and culinary arts/management educators rated that online culinary arts students are required to work several hours per week under the supervision of a local executive chef at $M = 4.19$, $SD = 1.023$. Since industry practitioners and culinary arts/management educators rated a required practical internship, required work hours under the supervision of an executive chef, and finishing the online culinary arts program with a six week externship the highest of the six procedures and since their means fall between very important and extremely important, an assumption can be made that courses which have these practical procedures embedded within them should be included in a core curriculum for an online culinary arts degree program. Reliability analysis revealed a Cronbach's alpha of .822 indicating that the variables appropriately measured the construct. A reliability coefficient of 0.7 or higher is considered satisfactory in most social science research (Diedenhofen, & Musch, 2016).

Based on these findings and the importance that industry practitioners and culinary arts/management educators place on these standards to evaluate practical culinary cooking skills, it can be concluded that a required practical internship, weekly work hours under the supervision of an executive chef, and a six-week externship are the most recommended procedures to judge and critique the quality of the food products prepared by online culinary arts students in terms of

sensory modalities. These results allow the research to conclude that the null hypothesis doesn't apply.

Research Question 2

To what degree do culinary arts/management educators and industry practitioners agree or disagree on the specific subjects of courses to be included in an online culinary arts curriculum?

As discussed in Chapter 3, the survey asked respondents about the importance of professional and general culinary arts courses by providing a rating on a Likert-type scale from one to five, with one signifying not important and five signifying extremely important. The number of respondents is $N = 226$.

RQ2 Null Hypothesis

Culinary arts/management educators and industry practitioners agree on the specific subjects of courses to be included in the online culinary arts curriculum.

RQ2 Alternative Hypothesis 1

Culinary arts/management educators and industry practitioners disagree on the specific subjects of courses to be included in the online culinary arts curriculum.

Table 6 illustrates the mean and standard deviation for the industry practitioners and culinary arts/management educators for the professional courses.

Table 6

Practitioners and Educators Ratings for Professional Courses

	Profession	N	Mean	Std. Deviation
Culinary Skills and Procedures	Practitioners	64	4.77	.496
	Educators	162	4.70	.714
Basic Cooking/Hot Foods	Practitioners	64	4.55	.589
	Educators	162	4.66	.732
Advanced Cookery	Practitioners	64	4.03	.872
	Educators	162	3.97	1.054
French Classical Cuisine	Practitioners	64	3.69	.974
	Educators	162	3.49	1.035
International Cuisine	Practitioners	64	3.66	.912
	Educators	162	3.79	.949
Garde Manger	Practitioners	64	3.63	.984
	Educators	162	3.77	.961
Introductory Baking	Practitioners	64	4.00	.959
	Educators	162	4.25	.926
Advanced Baking	Practitioners	64	3.34	.963
	Educators	162	3.46	1.110
Sanitation	Practitioners	64	4.78	.548
	Educators	162	4.91	.311
Nutrition	Practitioners	64	3.84	.996
	Educators	162	4.15	.954
Food Science	Practitioners	64	3.59	1.035
	Educators	162	3.46	1.028
Foodservice Purchasing	Practitioners	64	4.23	.831
	Educator	162	4.27	.772
Food/Beverage Cost Control	Practitioners	64	4.30	.920
	Educators	162	4.42	.729
Dining Room Service	Practitioners	64	3.34	1.027
	Educators	162	3.73	.952
Restaurant/Bar Management	Practitioners	64	3.64	1.045
	Educators	162	3.75	.946
Food Styling/Presentation	Practitioners	64	3.70	1.003
	Educators	162	3.49	1.076
Cooking for Restricted Diets	Practitioners	64	3.67	1.070
	Educators	162	3.56	.984
Culinary Career Development	Practitioners	64	3.84	.859
	Educators	162	3.90	.986

As illustrated in Table 6, the industry practitioners and culinary arts/management educators means and standard deviations for the professional courses are similar. The mean for both the educator and practitioner groups for the professional courses all fall within the moderately important to extremely important range. Both the industry practitioners and culinary arts/management educators rated the course culinary skills and procedures with $M = 4.77$, and $M = 4.70$ respectively, indicating a mean of very important to extremely important.

The significance of the findings comparing the culinary arts/management educators and industry practitioners is that the perceptions of the two groups in regard to professional courses to be included in the online culinary arts curriculum are notably similar. There were differences in the mean ratings of the professional courses of sanitation 4.78 for practitioners and 4.91 for educators, nutrition 3.84 for practitioners and 4.15 for educators, and dining room services 3.34 for practitioners and 3.73 for educators.

To determine whether there was statistical significance in the observed differences surrounding the courses of nutrition and dining room service, a *t*-test was performed and the results are displayed in Table 7.

Table 7

T-test for Equality of Means - Practitioners and Educators - Ratings of Professional Courses

	<i>t</i>	<i>df</i>	<i>p value</i>
Culinary Skills and Procedures	.698	224	.486
Basic Cooking/ Hot Foods	-1.107	224	.269
Advanced Cookery	.418	224	.676
French Classical Cuisine	1.329	224	.185
International Cuisine	-.966	224	.335
Garde Manger	-1.027	224	.306
Introductory Baking	-1.787	224	.075
Advanced Baking	-.754	224	.451
Sanitation	-2.176	224	.031
Nutrition	-2.135	224	.034
Food Science	.860	224	.391
Foodservice Purchasing	-.319	224	.750
Food/Beverage Cost Control	-1.057	224	.292
Dining Room Service	-2.675	224	.008
Restaurant/Bar Management	-.781	224	.435
Food Styling/ Presentation	1.382	224	.168
Cooking for Restricted Diets	.739	224	.460
Culinary Career Development	-.409	224	.683

Table 7 displays the results of the *t*-test between culinary arts/management educators and industry practitioners for each professional course to test whether there is a difference between the mean scores at a level of significance of .05. The mean score of the sanitation course is statistically significant with $t(223) = -2.176, p = .031$ which indicates that culinary arts/management educators rated the sanitation course as being more important than industry practitioners. The mean score of the nutrition course is also statistically significant with $t(223) = -2.135, p = .034$ which indicates that culinary arts/management educators rated the nutrition course as being more important than industry practitioners. Finally, the difference in the mean

score of the dining room service course is also statistically significant with $t(223) = -2.675, p = .008$ which indicates that culinary arts/management educators rated the dining room service course as being more important than industry practitioners.

Table 8 illustrates the mean and standard deviation for the industry practitioners and culinary arts/management educators for the general subject courses.

Table 8

Practitioners and Educators Importance Ratings for General Courses

	Profession	N	Mean	Std. Deviation
Computer	Practitioners	64	3.75	.891
Concepts	Educators	162	3.92	.972
Business Math	Practitioners	64	4.17	.883
	Educators	162	4.40	.765
Principles of	Practitioners	64	3.58	.989
Economics	Educators	162	3.10	.988
English	Practitioners	64	3.59	1.065
Composition	Educators	162	3.72	.949
Business	Practitioners	64	3.83	1.001
Writing	Educators	162	3.91	.922
General Biology	Practitioners	64	2.67	.818
	Educators	162	2.48	.998
General	Practitioners	64	2.75	.756
Chemistry	Educators	162	2.58	1.020
History	Practitioners	64	2.83	1.032
	Educators	162	2.52	1.047
Introduction to	Practitioners	64	2.77	.938
Psychology	Educators	162	2.94	1.007
Introduction to	Practitioners	64	2.69	.957
Sociology	Educators	162	2.81	.981
Hospitality law	Practitioners	64	3.98	.845
	Educators	162	3.68	.995
Spanish	Practitioners	64	3.44	.957
	Educator	162	3.12	1.065

As illustrated in Table 8, the industry practitioners and culinary arts/management educators means and standard deviations for the general courses are similar. The means for both

the educator and practitioner groups for the professional courses all fall within the moderately important to very important range. Both the industry practitioners and culinary arts/management educators rated the course business math $M = 4.17$, and $M = 4.30$ respectively, indicating a mean of very important.

In comparing the means of the industry practitioners and the culinary arts/management educators, the data indicates that there is not a statistically significant difference between the means of the two groups. The significance of the findings comparing the culinary arts/management educators and industry practitioners is that the perceptions of the two groups in regard to general courses to be included in the online culinary arts curriculum are notably similar. The four differences between the industry practitioners and culinary arts/management educators are in the courses of principles of economics at 3.58 and 3.10, history at 2.83 and 2.52, hospitality law at 3.98 and 3.68, and Spanish at 3.44 and 3.12 respectively.

To determine whether there is statistical significance in the observed differences surrounding the courses of principles of economics, history, hospitality law, and Spanish, a *t*-test was performed and the results are displayed in Table 9.

Table 9

T-test for Equality of Means - Practitioners and Educators - Ratings of General Courses

	<i>t</i>	<i>df</i>	<i>p value</i>
Computer Concepts	-1.211	224	.227
Business Math	-1.106	224	.270
Principles of Economics	3.243	224	.001
English Composition	-.843	224	.400
Business Writing	-.613	224	.541
General Biology	1.356	224	.176
General Chemistry	1.206	224	.229
History	1.971	224	.050
Introduction to Psychology	-1.183	224	.238
Introduction to Sociology	-.842	224	.401
Hospitality law	2.166	224	.031
Spanish	2.093	224	.037

Table 9 displays the results of the *t*-test between culinary arts/management educators and industry practitioners for each general course to determine whether there is a difference between the mean scores at a level of significance of .05. The difference in the mean score of the principle of economics course is statistically significant with $t(223) = 3.243$, $p = .001$ which indicates that industry practitioners rated the principle of economics course as being more important than culinary arts/management educators. The difference in mean score of the history course is statistically significant with $t(223) = 1.971$, $p = .050$ which indicates that industry practitioners rated the history course as being more important than culinary arts/management educators. The mean score of the hospitality law course is also statistically significant with $t(223) = -2.166$, $p = .031$ which indicates that industry practitioners rated the course as being more important than culinary arts/management educators. The difference in the mean score of the Spanish course is statistically significant with $t(223) = 2.093$, $p = .037$ which indicates that industry practitioners rated the Spanish course as being more important than culinary arts/management educators. The

presence of a significant difference suggests that culinary arts/management educators and industry practitioners disagree on the specific subject of courses to be included in the online culinary arts curriculum. This allows the researcher to reject the null hypothesis.

Research Question 3

What are the key factors of quality for an online culinary arts program as perceived by culinary arts/management educators and industry practitioners?

Analysis of the participant's ratings for the key factors of quality for an online culinary arts program revealed the six most important factors of quality, based on the highest means, to be: industry experience of the faculty (4.64), required internship/externship (4.46), percentage of graduates employed in the professional field (4.36), teaching experience of the faculty (4.31), percentage of students completing the degree (4.23), and faculty participating in continuing education (4.23). The five least important key factors of quality for an online culinary arts program, based on the lowest means, were: size of the program (3.54), percentage of graduates pursuing advanced training (3.50), ethnic diversity of the faculty (3.45), opportunities to participate in culinary competitions (3.38), and gender diversity of the faculty (3.36).

The factors of quality were divided into four categories: 1) Resources, 2) Faculty, 3) Student Services, and 4) Outcomes. Tables 10 through 13 show the importance ratings of all quality factors by category.

Table 10

Quality Factors of Resources

	<i>N</i>	Minimum	Maximum	Mean	Std. Deviation
Amount of Financial Aid to Students	226	1	5	4.16	.895
Tuition and Fees Charged	226	1	5	4.10	.916
Size of Library/Resource Center	226	1	5	3.61	1.028
Size of the Program	226	1	5	3.54	1.108

Culinary arts/management educators and industry practitioners rated all of the four quality factors of resources as moderate to very important. The participants considered the amount of financial aid to students the most important and the size of the program the least important quality factor of resources for an online culinary arts program.

Table 11

Quality Factors of Faculty

	<i>N</i>	Minimum	Maximum	Mean	Std. Deviation
Industry	226	3	5	4.64	.567
Experience of Faculty	226	2	5	4.31	.755
Teaching Experience of Faculty	226	1	5	4.23	.817
Participation in Continuing Education (Such as Seminars, Conventions, Competitions, Research)	226	1	5	3.93	1.141
Professionally Certified Faculty	226	1	5	3.93	.921
Ratio of Full-time to Part-time Faculty	226	1	5	3.45	1.182
Ethnic Diversity of Faculty	226	1	5	3.36	1.236
Gender Diversity of Faculty	226	1	5		

Culinary arts/management educators and industry practitioners rated all of the seven quality factors of faculty as very important to extremely important. The participants considered the industry experience of the faculty the most important and the gender diversity of the faculty the least important quality factor of resources for an online culinary arts program. The table shows that the respondents considered the qualifications of the faculty very important when evaluating the quality of an online culinary arts program, as three of the factors with the highest means fell into this category. Interestingly, the faculty category also had two factors with means

in the lowest levels of importance. Respondents placed little emphasis on diversity, as gender diversity and ethnic diversity of faculty had only moderate importance.

Table 12

Quality Factors of Student Services

	<i>N</i>	Minimum	Maximum	Mean	Std. Deviation
Required Internship/Externship	226	1	5	4.46	.865
Availability of Career Placement Services	226	2	5	4.22	.830
Availability of Academic Advising	226	2	5	4.21	.746
Required Work Experience	226	1	5	4.12	1.055
Opportunities to Participate in School/Community Events	226	1	5	3.76	.932
Opportunities to Participate in Culinary Competitions	226	1	5	3.38	.1172

Culinary arts/management educators and industry practitioners rated all of the six quality factors of student services as moderate to very important. The participants considered a required internship/externship and the availability of career placement services the two most important factors and the opportunities to participate in school/community events and the opportunities to participate in culinary competitions for students the two least important quality factors of student services for an online culinary arts program.

Table 13

Quality Factors of Outcomes

	<i>N</i>	Minimum	Maximum	Mean	Std. Deviation
Percentage of Graduates Employed in the Professional Field	226	1	5	4.36	.772
Percentage of Students Completing Degree	226	1	5	4.23	.799
Average Starting Salary of Graduates	226	1	5	3.80	.943
Percentage of Graduates Pursuing Advanced Training	226	1	5	3.50	.994

Culinary arts/management educators and industry practitioners rated all of the four quality factors of outcomes as moderate to very important. The participants considered the percentage of graduates employed in the professional field the most important and percentage of graduates pursuing advanced training the least important quality factor of outcomes for an online culinary arts program.

Reliability Analysis

The author performed reliability analysis to determine how well each group of factors measured the construct of each category. Construct validity is the appropriateness of inferences made on the basis of observations or measurements. Construct validity examines the question: Does the measure behave like the theory says a measure of that construct should behave (Messick, 1998)? Three of the four categories had Cronbach alphas of .7 or higher indicating that they were very good indicators of the factor. The category of “resources” had the lowest Cronbach Alpha .609.

Table 14

Reliability Analysis of Factors for Quality for an Online Culinary Arts Program

Category	Cronbach Alpha
Resources	.609
Faculty	.740
Student Services	.700
Outcomes	.727

The final analysis of the data revealed that the ten most important factors of quality for an online culinary arts program as perceived by culinary arts/management educators and industry practitioners are:

1. Industry Experience of the Faculty $M = 4.64$
2. Required Internship/Externship $M = 4.46$
3. Percentage of Graduates Employed in the Professional Field $M = 4.36$
4. Teaching Experience of the Faculty $M = 4.31$
5. Percentage of Students Completing the Degree $M = 4.23$
6. Faculty Participation in Continuing Education $M = 4.22$
7. Availability of Career Placement Services $M = 4.21$
8. Availability of Academic Advising $M = 4.16$
9. Amount of Financial Aid to Students $M = 4.12$
10. Required Work Experience $M = 4.10$

The analysis showed also that a minimum of two quality factors from each of the four categories: resources, faculty, student services, and outcomes were represented in the ten most important factors of quality for an online culinary arts program as perceived by culinary arts/management educators and industry practitioners.

Research Question 4

Is there a difference between the perceptions of culinary arts/management educators and industry practitioners with regards to the factors affecting the quality of the online culinary arts degree program?

As discussed in Chapter 3, the survey asked respondents to rate the importance of factors affecting the quality of the online culinary arts degree program on a Likert-type scale from one to five, with one signifying not important and five signifying extremely important. The number of respondents are 162 educators and 64 industry practitioners.

RQ4 Null Hypothesis

There is no significant difference in the perceptions of the key quality dimensions of the online culinary arts programs between culinary arts/management educators and industry practitioners.

RQ4 Alternative Hypothesis

There is a significant difference in the perceptions of the key quality dimensions of the online culinary arts programs between culinary arts/management educators and industry practitioners.

In analyzing the differences in perceptions of the two groups on factors they regarded as important in evaluating the quality of online culinary arts programs, the researcher found several variations. Both culinary arts/management educators and industry practitioners gave the highest mean importance rating to industry experience of the faculty ($M = 4.66$ and $M = 4.58$). The

culinary arts/management educators considered required internship/externship ($M = 4.43$) and teaching experience of faculty ($M = 4.36$) the next two most important factors. While the industry practitioners agreed on the second most important factor ($M = 4.55$), they selected percentages of graduates employed in the professional field ($M = 4.39$) as the third most important factor. Culinary arts/management educators rated percentages of graduates employed in the professional field ($M = 4.35$) and availability of academic advising ($M = 4.34$) 4th and 5th in importance levels, while industry practitioners placed tuition and fees charged ($M = 4.19$) and teaching experience of the faculty ($M = 4.17$) as 4th and 5th, respectively.

Table 15 illustrates the mean and standard deviation for the industry practitioners and culinary arts/management educators for the quality factors of resources.

Table 15

Quality Factors of Resources for Individual Groups

	Profession	<i>N</i>	Mean	Std. Deviation
Size of the Program	Practitioners	64	3.55	1.112
	Educators	162	3.53	1.110
Tuition and Fees Charged	Practitioners	64	4.19	.957
	Educators	162	4.07	.899
Amount of Financial Aid to Students	Practitioners	64	4.13	1.000
	Educators	162	4.17	.853
Size of Library/Resource Center	Practitioners	64	3.83	.952
	Educators	162	3.52	1.047

As illustrated in Table 15, the industry practitioners and culinary arts/management educators means and standard deviations for the factors of resources are similar. The mean for both the educator and practitioner groups for resources all fall within the moderately important to very important range. For the resource category, the culinary arts/management educators

considered tuition and fees charged the most important and the size of the library/resource center the least important, while the industry practitioners considered the tuition and fees charged the most important and the size of the program the least important.

In comparing the means of the industry practitioners and the culinary arts/management educators, the data indicates that there is not a statistically significant difference between the means of the two groups, with the exception of the size of the library/resource center at 3.83 and 3.52 respectively. To determine whether there is statistical significance in the observed differences surrounding this quality factor, a *t*-test was performed and the results are displayed in Table 16.

Table 16

T-test for Equality of Means – Practitioners and Educators – Ratings of Resources

	<i>t</i>	<i>df</i>	<i>p value</i>
Size of the Program	.098	224	.922
Tuition and Fees Charged	.884	224	.378
Amount of Financial Aid to Students	-.361	224	.718
Size of the Library/Resource Center	2.013	224	.045

Table 16 displays the results of the *t*-test between culinary arts/management educator and industry practitioner ratings for each resource factor to determine whether there is a difference between the mean scores at a level of significance of .05. The difference in the mean scores of the size of the library/resource center is statistically significant with $t(223) = 2.013, p = .045$ which indicates that industry practitioners rated this resource factor as being more important than culinary arts/management educators.

Table 17 illustrates the mean and standard deviation for the industry practitioners and culinary arts/management educators for the quality factors of faculty

Table 17

Quality Factors of Faculty for Individual Groups

	Profession	N	Mean	Std. Deviation
Ratio of Full-time to Part-time Faculty	Practitioners	64	3.69	.852
	Educators	162	4.02	.932
Industry Experience of Faculty	Practitioners	64	4.58	.612
	Educators	162	4.66	.548
Teaching Experience of Faculty	Practitioners	64	4.17	.865
	Educators	162	4.36	.703
Professionally Certified Faculty	Practitioners	64	4.09	.988
	Educators	162	3.86	1.193
Faculty Participation in Continuing Education (Such as Seminars, Conventions, Competitions, Research)	Practitioners	64	4.11	.819
	Educators	162	4.28	.813
Ethnic Diversity of Faculty	Practitioners	64	3.20	1.287
	Educators	126	3.55	1.126
Gender Diversity of Faculty	Practitioners	64	3.09	1.205
	Educators	126	3.46	1.237

As illustrated in Table 17, the industry practitioners and culinary arts/management educators means and standard deviations for the factors of faculty are similar. The mean for both the educator and practitioner groups for faculty all fall within the moderately important to extremely important range. Culinary arts/management educators and industry practitioners gave the two highest means of importance to industry experience of the faculty and teaching

experience of the faculty. Both groups also gave the two lowest means of importance to ethnic diversity of faculty and gender diversity of faculty.

In comparing the means of the industry practitioners and the culinary arts/management educators, the data indicates that there is not a statistically significant difference between the means of the two groups, with the exception of the size of the ratio of full-time faculty to part-time faculty at 3.69 and 4.02, and the gender diversity of the faculty at 3.09 and 3.46 respectively. To determine whether there is statistical significance in the observed differences surrounding these two quality factors, a *t*-test was performed and the results are displayed in Table 18.

Table 18

T-test for Equality of Means – Practitioners and Educators – Ratings of Faculty

	<i>t</i>	<i>df</i>	<i>p value</i>
Ratio of Full-time to Part-time Faculty	-2.508	224	.013
Industry Experience of Faculty	-.984	224	.326
Teaching Experience of Faculty	-1.733	224	.085
Professionally Certified Faculty	1.365	224	.173
Faculty Participation in Continuing Education (Such as Seminars, Conventions, Competitions, Research)	-1.400	224	.163
Ethnic Diversity of Faculty	-1.999	224	.047
Gender Diversity of Faculty	-2.037	224	.043

Table 18 displays the results of the t -test between culinary arts/management educators and industry practitioners for each faculty factor to test whether there is a difference between the mean scores at a level of significance of .05. The difference in the mean scores of the ratio of full-time to part-time faculty is statistically significant with $t(223) = -2.508, p = .013$ which indicates that culinary arts/management educators rated this faculty factor as being more important than industry practitioners. The difference in the mean scores of the ethnic diversity of the faculty is also statistically significant which indicates that culinary arts/management educators rated this faculty factor as being more important than industry practitioners, $t(223) = -1.999, p = .047$. Finally the difference in the mean scores of the gender diversity of the faculty is also statistically significant with $t(223) = -2.037, p = .043$ which indicates that culinary arts/management educators rated this faculty factor as being more important than industry practitioners.

Table 19 illustrates the means and standard deviations for the industry practitioners and culinary arts/management educators for the quality factors of student services.

Table 19

Quality Factors of Student Services for Individual Groups

	Profession	<i>N</i>	Mean	Std. Deviation
Availability of Career Placement Services	Practitioners	64	4.06	.871
	Educators	162	4.28	.807
Availability of Academic Advising	Practitioners	64	3.88	.766
	Educators	162	4.34	.697
Opportunities to Participate in Culinary Competitions	Practitioners	64	3.55	1.007
	Educators	162	3.32	1.228
Opportunities to Participate in School/Community Events	Practitioners	64	3.72	.899
	Educators	162	3.77	.948
Required Internship/Externship	Practitioners	64	4.55	.733
	Educators	162	4.43	.911
Required Work Experience	Practitioners	64	4.14	.990
	Educators	126	4.12	1.083

As illustrated in Table 19, the industry practitioners and culinary arts/management educators means and standard deviations for the factors of student services are similar. The means for both the educator and practitioner groups for faculty all fall within the moderately important to very important range. Culinary arts/management educators and industry practitioners gave the highest means of importance to required internship/externship. Culinary arts/management educators gave availability of academic advising the second highest mean score, while industry practitioners placed required work experience second. Both groups gave the two lowest means of importance to opportunities to participate in school/community events and opportunities to participate in culinary competitions.

In comparing the means of the industry practitioners and the culinary arts/management educators, the data indicates that there is not a statistically significant difference between the

means of the two groups, with the exception of the availability of academic advising at 3.88 and 4.34 respectively. To determine whether there was statistical significance in the observed differences surrounding this quality factor, a *t*-test was performed and the results are displayed in Table 20.

Table 20

T-test for Equality of Means – Practitioners and Educators – Ratings of Student Services

	<i>t</i>	<i>df</i>	<i>p value</i>
Availability of Career Placement Services	-1.817	224	.071
Availability of Academic Advising	-4.385	224	.000
Opportunities to Participate in Culinary Competitions	1.343	224	.181
Opportunities to Participate in School/Community Events	-.383	224	.702
Required Internship/Externship	.899	224	.370
Required Work Experience	.149	224	.881

Table 20 displays the results of the *t*-test between culinary arts/management educators and industry practitioners for each student services factor to determine whether there is a difference between the mean scores at a level of significance of .05. The difference in the means of the availability of the academic advising factor is statistically significant with $t(223) = -4.385$, $p = .000$ which indicates that culinary arts/management educators rated this student service factor as being more important than industry practitioners.

Table 21 illustrates the mean and standard deviation for the industry practitioners and culinary arts/management educators for the quality factors of outcomes.

Table 21

Quality Factors of Outcomes for Individual Groups

	Profession	<i>N</i>	Mean	<i>p value</i>
Percentage of Students Completing Degree	Practitioners	64	4.14	.899
	Educators	162	4.26	.760
Percentage of Graduates Employed in the Professional Field	Practitioners	64	4.39	.657
	Educators	162	4.35	.814
Average Starting Salary of Graduates	Practitioners	64	3.61	1.093
	Educators	162	3.88	.869
Percentage of Graduates Pursuing Advanced Training	Practitioners	64	3.53	.925
	Educators	162	3.48	1.023

As illustrated in Table 21, the industry practitioners and culinary arts/management educators means and standard deviations for the factors of outcomes are extremely similar. Culinary arts/management educators and industry practitioners gave the two highest means of importance to percentage of graduates employed in the professional field and percentage of students completing the degree. Both groups gave the two lowest means of importance to average starting salary of graduates and percentage of graduates pursuing advanced training.

In comparing the means of the industry practitioners and the culinary arts/management educators, the data indicate that there is not a statistically significant difference between the mean of the two groups, with the exception of the average starting salary of graduates at 3.61 and 3.88 respectively. To determine whether there was statistical significance in the observed

differences surrounding this quality factor, a *t*-test was performed and the results are displayed in Table 22.

Table 22

T-test for Equality of Means – Practitioners and Educators – Ratings of Outcomes

	<i>t</i>	<i>df</i>	<i>p value</i>
Percentage of Students Completing Degree	-1.006	224	.315
Percentage of Graduates Employed in the Professional Field	.394	224	.694
Average Starting Salary of Graduates	-1.931	224	.055
Percentage of Graduates Pursuing Advanced Training	.338	224	.735

Table 22 displays the results of the *t*-test between culinary arts/management educators and industry practitioners for each outcome factor to determine whether there was a statistically significant difference between the mean scores at a level of significance of .05. The mean score of average starting salary was not statistically significant with $t(223) = -1,931$ $p = .055$. This makes outcomes the only section with no statistically significant differences in the mean scores.

Culinary arts/management educators and industry practitioners had some differences in the order of importance of the factors in the categories of resources, faculty, and student services. It was shown through *t*-tests that culinary arts/management educators and industry practitioners differed significantly on their perceptions of the importance of five of the characteristics that were potential quality indicators for online culinary arts associate degree programs based on the standard of $p < .05$. The presence of a significant difference suggests respondents did perceive a

difference between potential quality indicators for online culinary arts associate degree programs. This supports the alternative hypotheses, that there is a significant difference in the perceptions of the key quality dimensions of the online culinary arts programs between culinary arts/management educators and industry practitioners.

Research Question 5

What are the best practices for delivering an online culinary arts program?

The last section of the survey was an open response question asking the respondents to recommend effective practices for delivering an online culinary arts program that were not included in the survey. A total of 106 participants chose to respond to this question.

All comments on effective practices for delivering an online culinary arts program were consolidated into one list for data analysis. The primary round of coding was performed to identify themes (Creswell, 2013) from which analytic generalizations (Yin, 2014) were constructed. The most frequently mentioned responses fell into five main areas: contemporary curriculum, skill competencies, practical testing, sensory modalities, and internship/externship.

Table 23 illustrates the frequency and percentages of recommended practices for an online culinary arts program.

Table 23

Frequency of Recommendation of Effective Practices for an Online Culinary Arts Program

Recommendation	Frequency	Percentage
Contemporary Curriculum	28	33.3
Competencies	20	23.8
Practical Testing	15	17.8
Sensory Modalities	11	13.2
Internship/Externship	5	5.9
Hybrid Teaching	2	2.4
Financial Cost	2	2.4
Rouxbe	1	1.2

A total of 106 participants (46.9%) responded to the question about effective practices. Of these respondents 84 (79.2%) recommended effective practices for online culinary arts programs. Twenty two (20.8%) participants did not recommend an online culinary arts program and stated that it would not be possible to implement successfully. Seven of the 22 comments mentioned that online courses for culinary arts are not effective, and that the only way to teach practical culinary skills is in a hands-on environment. Other comments from this group addressed that certain subjects such as cost control, sanitation, menu design, and nutrition lend themselves to online learning as they do not require hands on or practical experience. Of particular note two respondents of the group of 84 stated that “Online instruction lends itself to cheating”. One respondent stated “There is no real accountability”. The same respondent noted that “The school would need to put a system in place to help ensure the honesty and truth behind a students work and food pictures”. The participant also argued that in this way the professors can feel confident that the students are not lying about their progress or editing photos.

Twenty eight participants (33.3%) submitted recommendations towards a modern online culinary arts curriculum. These recommendations included that the online culinary arts

curriculum needs to have a strong focus on practical cooking skills, which must be hands on, with professional feedback. One participant stated “The institution should partner with local hotels/restaurants and use industry chefs and hospitality managers to provide feedback on the practical cooking skills.” A different participant stated “Students should be encouraged to seek an industry professional that would serve as a mentor in this process. The mentors would assist both professor and the student.” Finally participants recommended that the curriculum needs to heavily focus on work experience, internships, and graduate placements. New courses in the curriculum should focus on food science, nutrition, sustainability, cost control, recipe balancing, innovation and menu writing.

Twenty participants (23.8%) submitted recommendations towards competencies for online culinary arts programs. These recommendations included that evidence of skill competency is paramount, and students must document their experiences in different forms such as video, photos, blogging, and written and verbal explanation of the completed practical culinary procedures. American Culinary Federation certified executive chefs need to be strongly involved in the judging and critiquing of students’ practical skills. The American Culinary Federation should also be involved in the certification process for each online culinary arts school to ensure high and equal educational standards. To this particular subject one participant stated that “The competencies should focus intensely on correct cooking techniques, precise knife cuts, and accurate sanitation skills.”

Fifteen participants (17.8%) submitted recommendations on the practical skill testing. These recommendations included that practical exams should be evaluated by chefs, who have been approved by a university. These chefs must be professionally trained and meet several requirements such as, years in the industry, education certification, and relationship with

organizations like the American Culinary Federation (ACF) or the National Restaurant Association. Of particular note two respondents of this group stated that “Practical tests should be administered at least once per semester at standard testing sites, and should be similar to the ACF certified culinarian exam.” Another respondent noted that “The faculty should receive ongoing training in online pedagogy to ensure successful engagement of all online culinary arts students.”

Eleven participants (13.2%) submitted recommendations towards sensory modalities. These recommendations included that sensory modality tests need to have special grading rubrics which should contain students critiquing their own performance including flavor profile and palatability. Students should use the video performance to describe their culinary arts viewpoint with a demonstration of a philosophy example. It was also recommended to use Proctorio for all online sensory modality tests. Proctorio is a digital proctoring solution for online exams that will ensure the integrity of the examinations, while being convenient for students.

Other comments addressed the subject of internship, hybrid teaching and financial costs. The participants recommended internships and externships as an important requirement for online culinary arts students to gain imperative practical and industry specific knowledge. The internship/externship should be a minimum of 3 months in length to make it more efficient and valuable. Participants raised concerns about the high cost of culinary arts education and recommended that hybrid or online courses could be a great path to cost savings for the institution. Of particular note was one respondent who recommended teaching practices from the online culinary arts school Rouxbe. Overall, comments revealed additional insight in the area of assessing practical culinary arts skills in an online curriculum. A complete transcript of

respondent comments regarding effective practices for delivering an online culinary arts program are in Appendix F.

Summary

The data the researcher accumulated through the use of the survey instrument provided baseline information about the recommended procedures by culinary arts/management educators and industry practitioners on how to judge and critique the quality of the food products in terms of sensory modalities, and the key factors of quality for an online culinary arts program. The data allowed the researcher to assess their opinions on the importance of offering various subjects and the importance of using certain factors as quality indicators for online culinary arts degree programs.

This study found significant differences between the two groups as to the mean scores of importance on three of the professional courses and four of the general educational courses. The researcher also found significant differences between the two groups as to the mean scores of importance on the factors of quality for an online culinary arts program. The differences were found in the categories of resources, faculty, and student services. The two groups agreed on all factors in the category of outcomes.

The data show that there are no significant differences between culinary arts/management educators and industry practitioners on the recommended procedures to judge and critique the quality of the food products in terms of sensory modalities. A required practical internship, weekly work hours under the supervision of an executive chef, and a six-week externship were the most frequently and highly recommended procedures to judge and critique the quality of the food products in terms of sensory modalities, prepared by the online culinary arts students.

In addition, responses to the open question suggested modern and motivating practices and recommendations to improve the procedures to judge and critique practical culinary arts skills in an online setting.

Chapter 5 will address potential explanations for these responses, identify how they correspond to the related studies discussed in the literature review, and discuss their significance for the various stakeholders of culinary arts education.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary of the Research Problem, Questions, and Methodology

The purpose of this study was to identify the key factors of quality and effective practices for delivering an online culinary arts program as perceived by culinary arts/management educators and industry practitioners. The five research questions this study addressed were: (1) What are the recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of food products in terms of sensory modalities, prepared by online culinary arts students? (2) To what degree do culinary arts/management educators and industry practitioners agree or disagree on the specific subject of courses to be included in the online culinary arts curriculum? (3) What are the key factors of quality for an online culinary arts program as perceived by culinary arts/management educators and industry practitioners? (4) Is there a difference between the perceptions of culinary arts/management educators and industry practitioners with regards to the factors affecting the quality of the online culinary arts degree program? (5) What are the best practices for delivering an online culinary arts program?

An electronic survey was sent to culinary arts/management educators and industry practitioners in the United States. The survey was open for 6 weeks beginning in late October and continuing through mid-December 2016. Of 1,204 usable email addresses, 252 (20.9%) respondents agreed to participate in the survey. Of the 252 respondents, 226 (18.8%) respondents qualified to answer the entire survey by responding to the first two questions correctly. The final sample of respondents ($N = 226$) for this study surveyed included 162 educators and 64 industry

practitioners. In the educator sample, there were 56 hospitality educators surveyed and 106 culinary arts educators. In the industry practitioner sample, there were 55 chefs and 9 chef owners. This chapter discusses the significant findings and conclusions of this research. A discussion of the implications of the findings and recommendations for further research are presented.

Discussion

This study compared the perceptions of culinary arts/management educators and industry practitioners on the quality factors for an online culinary arts program and the recommended procedures to judge and critique the quality of the food products in terms of sensory modalities, prepared by the online culinary arts students to determine if significant differences exist. A summary of the significant findings of each research question and a discussion of its relevance to the current literature follows.

Sensory Modalities

Research Question 1: What are the recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of food products in terms of sensory modalities, prepared by the online culinary arts students?

The results of this study found that industry practitioners and culinary arts/management educators considered a required practical internship for online culinary arts students, weekly work hours under the supervision of an executive chef, and a six-week externship are the most recommended procedures to judge and critique the quality of the food products. There were no significant differences between the two groups.

Previous researchers who examined culinary arts programs also found that culinary educators and chefs believed active learning in the forms of hands-on culinary skills courses, required work experience, and industry internships were extremely important characteristics of a quality culinary arts education (Hertzman, 2006; Gersh, 2011). Also, previous researchers support the finding that it is paramount that culinary arts and hospitality educators understand how to teach culinary arts skills effectively and appropriately through online curricula (Hertzman, & Ackerman, 2010). In contrast McPhee and Söderström (2012) debated whether online learning remained secondary to traditional learning in a classroom due to paralinguistic cues. Paralinguistic cues were variations of speed, rhythm, volume, pitch, inflection, and tone of how a person communicated (Patel, 2015). Porter, Pitterle, and Hayney (2014) discovered students performed moderately better in the online content delivery format, than students in the traditional face-to-face content delivery format. This was because students were spending more time with the content being learned.

Hertzman's (2006) research looked at common characteristics of associate degree culinary arts programs and to what extent can each of these characteristics be used as an indicator for evaluating the quality of the program. Because the survey for this study was modeled after Hertzman's instrument, findings from different areas of the culinary arts field, traditional face-to-face education vs. online education, further validates the results of both studies.

Courses in the Online Culinary Arts Curriculum

Research Question 2: To what degree do culinary arts/management educators and industry practitioners agree/disagree on the specific subject of courses to be included in the online culinary arts curriculum?

The findings of this study revealed that there were significant differences between the two groups as to the mean scores of importance of the professional courses and the general educational courses. For the professional courses, the sanitation course, the nutrition course, and the dining room service course exposed significant differences in the mean score of importance of culinary arts/management educators and industry practitioners. For the general education courses, the courses of Hospitality Law, History, Spanish, and Principles of Economics uncovered significant differences in the mean scores of importance between the two groups.

It is noteworthy that industry practitioners assigned higher importance levels than culinary arts/management educators to courses such as Hospitality Law, General Chemistry, History, Spanish, and Principles of Economics because the knowledge and competencies presented in these courses might be utilized more frequently as a chef advances in his/her career. The educators had higher mean ratings for practical courses, such as Introductory Baking, Basic Cooking, Garde Manger, and International Cuisine, acknowledging the role these courses have in providing the foundation of knowledge for other courses. There are other studies (Berta, 2005; Müller et al., 2009) that looked at curriculum design for traditional culinary arts programs. A study conducted by Hertzman (2006) showed that culinary educators and chefs believed active learning in the form of hands-on culinary skills courses, required work experience, and industry internships were extremely important characteristics of a quality culinary arts education. The participants in Hertzman's (2006) study agreed that courses offering the specific writing, and critical thinking skills like Business Math, Computer Concepts, and Business Writing should be

included in the curriculum, but did not place high importance on the full range of general education subjects. The research findings of this study confirm the results of Hertzman's (2006) study that culinary arts educators and industry practitioners strongly believe in an active hands-on practical approach to culinary arts education.

Quality Factors Online Culinary Arts Programs

Research Question 3: What are the key factors of quality for an online culinary arts program as perceived by culinary arts/management educators and industry practitioners?

Analysis of the participant's ratings for the key factors of quality for an online culinary arts program revealed the ten most important factors of quality, based on the highest means were:

- | | |
|---|------------|
| 1. Industry Experience of the Faculty | $M = 4.64$ |
| 2. Required Internship/Externship | $M = 4.46$ |
| 3. Percentage of Graduates Employed in the Professional Field | $M = 4.36$ |
| 4. Teaching Experience of the Faculty | $M = 4.31$ |
| 5. Percentage of Students Completing the Degree | $M = 4.23$ |
| 6. Faculty Participating in Continuing Education | $M = 4.22$ |
| 7. Availability of Career Placement Services | $M = 4.21$ |
| 8. Availability of Academic Advising | $M = 4.16$ |
| 9. Amount of Financial Aid to Students | $M = 4.12$ |
| 10. Required Work Experience | $M = 4.10$ |

The factors of quality were divided into four categories: resources, faculty, student services, and outcomes.

The study found that culinary arts/management educators and industry practitioners considered the qualifications of the faculty very important when evaluating the quality of an online culinary arts program, as three of the factors with the highest means fell into this category. The emphasis on faculty corresponds to the high weight given to faculty resources, such as teaching and industry experience, in the national rankings of educational institutions (Gater, 2012) and to Blumin's (1988) findings that 72% of community college administrators believed faculty teaching experience to be an important quality indicator.

The culinary arts/management educators and industry practitioners considered three student service factors — availability of academic advising, availability of career placement, and required work experience — to be important quality indicators for an online culinary arts program. The participants recognized, as did Pascarella and Terenzini (1991) that colleges with effective student services have higher graduation rates. The American Culinary Federation Education Foundation Accrediting Commission (ACFEFAC) also evaluates these services as part of its accreditation standards (American Culinary Federation, 2016). However, these results differ from those of the community college and hospitality quality research which did not mention these services as quality indicators (Gould & Bojanic, 2012).

The resource factor that the culinary arts/management educators and industry practitioners considered most important was the amount of financial aid to students. In this respect, the respondents' opinions appeared similar to those of the accrediting agencies, which have lessened the importance of resources, such as libraries and resource centers, as compared to program assessment and outcomes, when evaluating programs (WASC, 2015). However, this result contrasts with Blumin's (1988) findings that over 90% of community college

administrators thought the resource characteristics of number of students and total budget were important quality indicators.

Two of the outcomes factors, percentage of graduates employed in the field and percentage of students completing the degree, were determined to be important quality indicators by culinary arts/management educators and industry practitioners. Of note, the mean importance rating of percentage of graduates employed was higher than the rating for percentage of students completing the degree, revealing that it is imperative for online culinary arts schools to build strong relationships with industry employers. This corresponds to Blumin's (1988) findings that 93% of the respondents used percentage of graduates employed as a quality indicator versus 88% which used rate of retention. The hospitality management education literature also recognizes placement rates as an important quality indicator (Casado, 1991). It appears that culinary arts/management educators and industry practitioners recognize that the primary reason students go to culinary school is to get a job and that the degree is a resource to this end for many students. La Lopa, Xie, Cornwell, Sleeman, and Halterman (2005) found that culinary arts schools had an average placement rate of 92.5%, indicating that students are successful in finding employment. Employment of chefs and cooks is projected to grow nine percent from 2014 to 2024, faster than the average for all occupations (National Restaurant Association, 2015). Most job opportunities for chefs and cooks are expected to be in food services, including restaurants and hotels. Job opportunities also will result from the need to replace workers who leave the profession (Bureau of Labor Statistic, 2016).

Differences in Perceptions

Research Question 4: Is there a difference between the perceptions of culinary arts/management educators and industry practitioners with regards to the factors affecting the quality of the online culinary arts degree program?

The research study found several statistically significant differences in the evaluation of the perception of the two groups on factors they regarded as important in evaluating the quality of online culinary arts programs. Both culinary arts/management educators and industry practitioners gave the highest mean importance rating to industry experience of the faculty ($M = 4.66$ and $M = 4.58$). The culinary arts/management educators considered required internship/externship ($M = 4.43$) and teaching experience of faculty ($M = 4.36$) the next two most important factors. While the industry practitioners agreed on the second most important factor ($M = 4.55$), they selected percentages of graduates employed in the professional field ($M = 4.39$) as the third most important factor. Culinary arts/management educators rated percentages of graduates employed in the professional field ($M = 4.35$) and availability of academic advising ($M = 4.34$) 4th and 5th in importance levels, while industry practitioners placed tuition and fees charged ($M = 4.19$) and teaching experience of the faculty ($M = 4.17$) as 4th and 5th, respectively.

The difference in mean score of the size of the library/resource center was statistically significant with $t(223) = 2.013$, $p = .045$ which indicates that industry practitioners rated this resource factor as being more important than culinary arts/management educators. The difference in mean score of the ratio of full-time to part-time faculty was statistically significant with $t(223) = -2.508$, $p = .013$ which indicates that culinary arts/management educators rated this faculty factor as being more important than industry practitioners. The difference in mean score of the ethnic diversity of the faculty was also statistically significant with $t(223) = -1.999$, $p = .047$

which indicates that culinary arts/management educators rated this faculty factor as being more important than industry practitioners. The difference in the mean score of the gender diversity of the faculty was also statistically significant with $t(223) = -2.037, p = .043$ which indicates that culinary arts/management educators rated this faculty factor as being more important than industry practitioners. Lastly the difference in the mean score of the availability of academic advising factor was statistically significant with $t(223) = -4.385, p = .000$ which indicates that culinary arts/management educators rated this student service factor as being more important than industry practitioners.

The single largest statistically significant difference between culinary arts/management educators and industry practitioners was their mean importance rating for the online culinary arts program having availability of academic advising for students. Educators gave this characteristic a mean importance score of 4.34, while industry chefs gave it a score of 3.88. Educators understand the importance of this factor to ensure a successful student graduation rate, and with this a better chance of employment in the professional field. The results of this study suggest that culinary arts/management educators must do a better job of explaining the role of academic advising to industry practitioners and providing incentives for better employment opportunities.

Another unexpected result, found in this study was that the industry practitioners rated the importance of the percentage of graduates seeking advanced training much higher than culinary arts/management educators did. This might reflect their personal negative experience in the job market because they did not have a two or four-year degree, or their understanding that continuing education is necessary to being a successful chef. This supposition is explored more under the section on suggested areas for future research.

Effective Practices

Research Question 5: What are the effective practices for delivering an online culinary arts program?

The most important recommended effective practice for an online culinary arts program found by this study, is that the curriculum needs to have a strong focus on practical cooking skills, which must be hands-on, with professional feedback. The participants recommended internships and externships as an important requirement for online culinary arts students to gain imperative practical and industry specific knowledge. The findings of this study suggest that internships or externships need to be a minimum of three months in length to make it more efficient and valuable. It is recommended that universities should partner with local hotels or restaurants and use industry chefs and hospitality managers to provide feedback on the practical cooking skills of the online culinary arts students. The findings suggest that students seek an industry professional that would serve as a mentor in this process. The mentors would assist both professor and student. It is suggested that the curriculum should heavily focus on work experience, internships, and graduate placements.

The findings of this study suggest that the practical cooking exams are evaluated by chefs, who have been approved by a university. These chefs must be professionally trained and meet several requirements such as, a specific number of years in the industry, education certification, and relationship with organizations like the American Culinary Federation (ACF) or the National Restaurant Association (NRA). The findings also suggest that the practical tests be administered at least once per semester at standard testing sites, and that the test is similar to the ACF certified culinarian exam. The faculty should receive ongoing training in online

pedagogy to ensure successful engagement of all online culinary arts students. This corresponds to Armstrong's (2011) findings. Armstrong's (2011) study of student perception of the role of communication between online instructor and student revealed students' perception of instructor communication set the tone of the environment for how students were learning. The instructor and student online communication was seen as a measure of engagement. The more engaged the instructor's communication was the more motivated the students were to learn at a higher level with greater retention of the content.

According to the data the evidence of skill competency is paramount, and students must document their experiences in different forms such as video, photos, blogging, and written and verbal explanation of the completed practical culinary procedures. It is suggested that American Culinary Federation certified executive chefs be highly involved in the judging and critiquing of students' practical skills. The findings also suggest that the American Culinary Federation be involved in the certification process of each online culinary arts school to ensure high and equal educational standards. The competencies should focus intensely on correct cooking techniques, precise knife cuts, and accurate sanitation skills. This corresponds with the findings in Ewell's (2009) study. Ewell (2009) recommended two paradigms for assessment. One for improvement and the other for accountability. The researcher believes that culinary arts education should embed assessment in the curriculum. For example, if culinary arts schools can create a measure of practical cooking skills tracked as part of the course work, the institution will not need to recreate data to show improvement or accountability. That way, when major external stakeholders in higher education, like state and federal government agencies demand information about institutional performance, a culinary arts school can readily provide the data (Ewell, 2009).

The results of this study suggest that sensory modality tests have special grading rubrics which contain students critiquing their own performance including flavor profile and palatability. Students should use video performance to describe their culinary arts viewpoint with a demonstration. One participant suggested “Proctorio [be] used for all online sensory modality tests.” Proctorio is a digital proctoring solution for online exams that can ensure the integrity of the examination, while being convenient for students. Clayton, Blumberg, and Auld, (2010) displayed similar recommendations as a result of their study. The researchers concluded that online education put greater responsibility on designers and educators to create coherence between program elements in an informed design process. It is a collaborative process that requires an awareness of the significance of new media usage, learner involvement and situational pressures that challenge educators to include thinking, that maximizes the learning centered experience. Empirical studies (Johnson et al, 1999; Lim et al, 2008) make it clear that the wholesale adoption of the traditional teaching paradigm is not appropriate for online education (Clayton, Blumberg & Auld, 2010).

The findings from this study have relevance beyond the world of the online culinary arts profession in terms of practical skill teaching in an online educational setting. This study provides valuable insight regarding culinary arts/management educators and industry practitioners’ perceptions of the future of culinary arts education and the restaurant and hospitality industry’s demands for technical skilled and educated professional cooks, chefs, and industry professionals.

Implications

Ultimately, the results of this study may identify suggested procedures to critique the quality of food products in terms of sensory modalities, and essential factors that can be used to evaluate the quality of an online culinary arts program.

The theoretical framework for this study was based on the online interaction model by Benbunan-Fich, et al. (2005) which organizes research variables into three building blocks: inputs, learning process, and outcomes. The findings of this study correspond with the suggestions and recommendations of Benbunan-Fich, (2005) model for the following research variables:

1. Inputs:

The model suggests that unless minimum levels of input by moderator characteristics are reached, it is not expected that a specific course will be conducted in a way that leads to online communication that is necessary for satisfactory outcomes.

The results of this study regarding the high importance of quality indicators concerning the experience of faculty indicate that culinary arts educators should reflect the correct balance of industry and subject expertise, and teaching experience. Therefore, the results of the data analysis encourages program administrators to carefully evaluate their hiring standards, assign culinary arts instructors to teach subjects in which they have industry related experience, develop procedures for training instructors, and meet culinary arts faculty continuing education requirements.

2. Learning Process:

The learning process refers to mediator variables, intervention and process. Benbunan-Fich, et al. (2005) state that these types of interactions are related to the extent to which collaborative learning pedagogy is used.

Using the results of this study as a foundation for improving current and designing new online culinary arts curricula may ensure that students are exposed to courses, and experiences considered important by culinary educators and industry practitioners. It is the responsibility of the university to integrate competencies into their pedagogy which align with hospitality industry needs and which produce graduates that are industry ready.

3. Outcomes:

The third building block of the model are the outcomes, which provide the dependent variable. Faculty satisfaction, student learning, access, cost effectiveness, and student satisfaction are the five outcome qualities identified by Benbunan-Fich, et al. (2005) in their online interaction model.

The findings of this study coincide with the five quality outcomes identified in the Benbunan-Fich, et al. (2005) model. Based on this survey's findings, the researcher would recommend an additional outcome quality for the specific case of online culinary arts education. These online programs may consider incorporating a strong focus on practical, hands-on cooking skills, with professional feedback into the curriculum. The findings indicate that internships and externships are important requirements for online culinary arts students to gain necessary practical and industry specific knowledge. The additional outcome will influence the inputs by adding experienced industry practitioners to this section. The new focus on practical skills competencies will also influence the learning process with an increased amount of interaction between student, instructor and chef.

The addition of this final quality outcome may assist aspiring culinarians in receiving cutting-edge industry training and education at the technical and conceptual level which serves to mirror the demands of the industry today as well as preparing students for a professional career in the culinary arts and hospitality industry.

The following section describes how the study adds to the larger body of academic literature regarding quality assessment for online culinary arts programs and has implications for culinary arts/management educators, the food service industry, students and the American Culinary Federation.

Culinary Arts/Management Educators

The professional and general courses recommended by this study balanced the opinions of the culinary arts/management educators and industry practitioners regarding what subjects are important to include in an online culinary arts curriculum. Although the researcher does not assert that it is appropriate for every online culinary arts program to follow these course recommendations, it does provide a tool for culinary arts educators to use in evaluating their degree requirements or designing new culinary arts online curricula.

Based on the survey findings, online culinary arts programs may consider incorporating a strong focus on practical cooking skills, which must be hands-on, with professional feedback into the curriculum. Internships and externships are an important requirement for online culinary arts students to gain necessary practical and industry specific knowledge. Incorporating the competencies identified in this study may enable faculty and administrators to develop an online culinary arts curriculum which may ensure that academia connects industry and educator needs. Using the results of this study as a foundation for improving current and designing new online

culinary arts curricula may ensure that students are exposed to courses, and experiences considered important by culinary educators and industry practitioners. It is the responsibility of the university to integrate competencies into their pedagogy which align with the hospitality industry needs and produce graduates that are business ready. Such consistency in core competencies may help aspiring culinarians receive cutting-edge industry training and education, at the technical and conceptual level which serve to mirror the demands of the industry today as well as prepare students for a professional career in the culinary arts and hospitality industry.

The recommended factors for quality indicators of this study for online culinary arts programs provides culinary arts/management educators with information about what characteristics they may consider using to compare their online culinary arts program with other programs and which factors to focus their time and resources on. The study results regarding the high importance of quality indicators concerning the experience of faculty indicate that culinary arts educators should consider the correct balance of industry and subject expertise, and teaching experience. Therefore, the results of the data analysis encourages program administrators to carefully evaluate their hiring standards, assignment of culinary arts instructors to teach subjects in which they have industry related experience, procedures for training instructors, and culinary arts faculty continuing education requirements.

In addition, the inclusion of both outcome characteristics, such as percentage of graduates employed in the industry and percentage of students graduating, suggests that culinary arts/management educators and industry practitioners assess how to provide quality services in these areas.

Food Service Industry

The number of food service industry employees is expected to increase to 16.5 million people by 2025, with at least a 16% increase from 2014 in the number of chefs and food preparation workers needed (National Restaurant Association, 2016). Only 39% of industry employees have some type of college education. However, industry representatives have expressed the concern that food service managers will need more education and certification (National Restaurant Association, 2016). Existing and future online culinary arts programs could represent a major source of educated culinary arts and hospitality industry employees.

The National Restaurant News, one of the largest hospitality industry publications recently acknowledged the importance of creating new opportunities to improve culinary arts education and with this a platform to enhance work/life balance and hospitality career longevity (Flaherty, 2016). The inclination of industry practitioners to participate in this study indicates that they are truly interested in creating new effective opportunities to teach culinary arts skills. These chefs and other foodservice managers who hire culinary arts program students and graduates may use the recommended curriculum course from this study to evaluate whether a school provides its students with training in the subjects identified as important. They may also use the list of quality indicators to evaluate the overall quality of the online culinary arts program.

This study has demonstrated that industry practitioners may not recognize the importance of the availability of academic advising for online culinary arts students. Since that characteristic is considered to be the top quality indicator in this study, perhaps this study will prompt industry practitioners to realize the value of becoming involved with online culinary arts programs and serving as industry expert advisors during internships, so that the chefs can make their opinions and professional recommendations known.

Students

Potential online culinary arts students and their families may also use the recommended curriculum courses and the list of quality indicators to compare online culinary arts programs. Educational opportunities abound for an individual interested in pursuing a culinary arts college education. Today's traditional college student, as well as a working adult looking for additional credentials, needs to make informed choices when choosing a degree program. Research by Public Agenda (2014) indicates, that working adults without a degree who were considering going back to school, wanted a school that offered online courses where they could graduate quickly.

Prospective culinary arts students will likely want to know the standards of the field in which they intend to work, and whether or not the online culinary arts degree program meets those standards. Failing to do so can be a waste of time and money for students and parents. Because every occupation is different, knowing the value of an online culinary arts degree in the marketplace is crucial. Students will likely want to talk with industry employers as well as career counselors, before enrolling in an online culinary arts program. Students may want to be careful and check the accreditation status of all online culinary arts programs to which they intend to apply.

American Culinary Federation

The American Culinary Federation is the only organization in the United States that professionally accredits culinary arts certificate and degree programs. There are currently 256 post-secondary culinary arts and pastry programs that hold ACFAC accreditation (ACF, 2017). The ACF may use this study to evaluate the appropriateness of its accreditation standards and

required knowledge areas for future online culinary arts programs. The results of this study revealed that professional certification of the faculty was not an important quality indicator for online culinary arts programs. The ACF may want to use this study to evaluate the appropriateness of its accreditation standards and required knowledge areas. The organization might consider using this study as a basis for conducting its own surveys to evaluate carefully its accreditation requirements, for online culinary arts programs and the relevancy of these innovative educational programs.

Similar to the culinary arts emergence as a vocation, other professional areas of education such as Nursing have implemented online associate and bachelor degree programs. Correspondingly, these vocational programs have incorporated practical skills courses into their curricula. The American Culinary Federation may use the survey findings to identify required culinary arts fundamental courses and practical skill testing procedures recommended by industry practitioners and culinary arts/management educators to enhance its' accreditation practices.

Recommendation for Further Research

This study represents a first step in describing and evaluating online culinary arts programs. The moderately high response rate to the survey and the enthusiastic comments of the participants indicate that future studies about online culinary arts would be positively received. The following are the researcher's recommendations for future research that will advance the body of knowledge about online culinary arts education.

The researcher suggests resurveying the industry practitioners and culinary arts/management educators with an adjusted questionnaire, learning lessons from this study. This

may help simplify the survey and rework demographics to take out potential cross-correlations. The survey needs a wider array of respondents. The researcher also advocates surveying the very important stakeholder groups of culinary arts students and recent graduates of online culinary arts programs.

The potential student interested in a career in the hospitality industry has many educational options ranging from apprenticeships, and certificate programs to associate degrees in culinary arts or in closely related majors, such as food service or hospitality management. Research evaluating what employers expect from graduates of an online culinary arts program and whether the type of this degree affects the students' entry-level and long-term career and salary opportunities and choices is needed.

Future studies could evaluate whether value-added assessment techniques can identify how the subjects taught and the characteristics of the online culinary arts programs affect outcomes measures, such as scores on culinary skills tests, retention, graduation, and placement rates, and satisfaction of graduates. Additional research is needed to provide a scientific foundation and to incorporate evidence-based practical training into online culinary arts programs.

More research should be done on using technologies in online culinary arts programs. In the current learning environment, most online courses are related to content knowledge. Very little research has been conducted to explore hands-on training online. Specifically, what are the best technologies for online hands-on culinary arts skills training?

Future research on online culinary arts education should be completed with the addition of international participants.

Future research could also expand upon online culinary arts educational studies regarding the importance and structure of work experience and internship/externship requirements.

Conclusion

This study sought to discover recommended procedures by culinary arts/management educators and industry practitioners to judge and critique the quality of the food products in terms of sensory modalities and to identify characteristics that can be used to evaluate the quality of online culinary arts programs.

According to the literature reviewed in Chapter two, teaching hands-on cooking skills might be a challenge in the development of online instruction for culinary arts programs. However, the results of this study indicate that teaching culinary arts cooking methods through an online medium may be a viable alternative, particularly for reaching those current and potential students who are truly at distance from the traditional face-to-face instructional settings.

Based on the findings of this study and the importance that industry practitioners and culinary arts/management educators place on these practical procedures it can be concluded that a required practical internship, weekly work hours under the supervision of an executive chef, and a six-week externship are the most recommended procedures to judge and critique the quality of the food products in terms of sensory modalities, prepared by the online culinary arts students. As derived from the mean importance ratings assigned by culinary arts/management educators and industry practitioners, the most important quality indicators for online culinary arts programs are industry experience of the faculty, required internship/externship, percentage of graduates employed in the field, teaching experience of the faculty, and percentage of students completing the degree. The size of the program, percentage of graduates perusing advanced

training, ethnic diversity of the faculty, opportunities to participate in culinary competitions, and gender diversity of the faculty were considered the least important quality factors. There were statistically significant differences in the opinions of culinary arts/management educators and industry practitioners as to the importance ratings of some quality factors and courses to be included in the online culinary arts curriculum.

The findings of this study suggest that online culinary arts programs develop a curriculum that meets the essential demands for future culinarians as perceived by chefs and chef owners. The design of such a program should incorporate more hands-on rather than theoretical content. Furthermore, curriculum should be designed while taking into account gaps in knowledge of culinary arts students. Better education of future chefs on culinary fundamental skills would improve the quality of online culinary arts school graduates and with this the future of the food service industry. For this reason, online culinary arts programs should consider incorporating practical education as a significant element of their curricula.

The researcher concludes that future research should evaluate what employers expect from graduates of an online culinary arts program and whether type of degree affects the students' entry-level and long-term career and salary opportunities and choices. The researcher also suggests that future research is needed to provide a scientific foundation and to incorporate evidence-based real-world training into online culinary arts programs.

References

- Adams, J., & Defleur, M.H. (2006), "The acceptability of online degrees earned as a credential for obtaining employment", *Communication Education*, 55(1), 32-45.
- Agalo, J., & Agalo, J. (2014). Increasing equity and access to education in Kenya: The role of open and distance learning in teacher development. *Research Journal in Organizational Psychology and Educational Studies*, 3(2), 62. Retrieved from <http://rjopes.emergingresource.org/>
- Albaum, G. S., & Smith, S. M. (2006). *Handbook of Marketing Research*. London, United Kingdom: Sage Publications.
- Allen, I.E. & Seaman, J. (2014). *Grade change: Tracking online Education in the United States*. Babson Survey Research Group and Quahog Research Group, LLC.
- Allen, I. E., & Seaman, J. (2006). *Making the grade: Online education in the United States*. Needham, MA: Sloan-C.
- Allen, I. E., & Seaman, J. (2010). *Staying the course: Online education in the United States*. Needham, MA: Sloan-C.
- Altbach, P. G., Berdahl, R. O., & Gumport, P. J. (2011). *American higher education in the twenty-first century: social, political, and economic challenges*. Baltimore: Johns Hopkins University Press, 2011
- American Culinary Federation. (2011). About ACF: Who we are. Retrieved from <http://www.acfchefs.org/Content/NavigationMenu2/About/Overview/default.htm>

- American Culinary Federation. (2016). ACF Apprenticeship Program. Retrieved from <http://www.acfchefs.org/ACF/Education/Apprenticeship/Apprentices/ApprenticeshipProgramTypes/ACF/Education/Apprenticeship/Apprentices/ProgramTypes/>
- American Culinary Federation, (2016). *Executive Chef Certification competency model*. Retrieved May 5, 2016 from https://www.acfchefs.org/download/documents/certify/certification/candidate_handbook_cec.pdf
- American Culinary Federation, (2017). Accreditation for Culinary Arts and Baking and Pastry Programs. Retrieved From <https://www.acfchefs.org/ACF/Education/Accreditation/ACF/Education/Accreditation/>
- Aragon, S. R. (2003). *Facilitating learning in online environments*. San Francisco, CA: Jossey-Bass.
- Armstrong, D. A. (2011). Students' perception of online learning and instructional tools: A qualitative study of undergraduate students' use of online tools. *Turkish Online Journal of Educational Technology*, 10(3), 222-226.
- Astani, M. and Ready, K. (2010). Employer perceptions of online vs. traditional face to face Learning. *The Cambridge Business Review*, 16(2), 91-96.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, 25, 297-308.
- Babbie, E. (1990). *Survey Research Methods*. Belmont, CA: Wadsworth

- Babbie, E. (2001). *The Practice of Social Research*, ed. Belmont, CA: Wadsworth/Thomson Learning.
- Barnes, B. & Baskette, M. (2006). *American Culinary Federation's Guide to culinary certification*. New Jersey: Pearson.
- Benbunan-Fich, R., Hiltz, S. R., & Harasim, L. (2005). The online interaction learning model: An integrated theoretical framework for learning networks. In S. R. Hiltz, R.G. Goldman (Eds.), *Learning together online* (pp. 20-37). Mahwah, New Jersey:
- Berta, D. (2005). Growing field of culinary schools difficult to evaluate. *Nation's Restaurant News*, 39(37), 16.
- Biggs, J. B. (1979). Individual differences in study processes and the quality of learning outcomes. *Higher Education Research*, 8, 381-394.
- Bloom, B. S., & Carroll, J. B. (1971). *Mastery learning: Theory and practice*. J. H. Block (Ed.). New York: Holt, Rinehart and Winston.
- Blumin, M.F. (1988). *Assessing Quality of Community Colleges: Dimensions, Criteria and Indicators*. Doctoral Dissertation: Cornell University. DAI-A 49/10, p. 2943, April 1989.
- Bonvillian, W. B., & Singer, S. R. (2013). The online challenge to higher education: The future of universities may depend on blending the strengths of online education and those of face-to-face education--for the benefit of both students and the nation. *Issues in Science and Technology*, 29(4), 23.

- Boyer, P. (2003). *College Rankings Exposed™1: The Art of Getting a Quality Education In the 21st Century*. Lawrenceville, NJ: Thomson Peterson's.
- Bowman, M. (1999). What is distributed learning? *News & Advice from the Technology Collaborative*, 2(1), 1-5.
- Buckley, K. M. (2003). Evaluation of classroom-based, web-enhanced, and web-based Nutrition courses for undergraduate nursing. *Journal of Nursing Education*, 42(8), 367-375.
- Bureau of Labor Statistics. (2015). *Chefs, head cooks, and food preparation and serving supervisors*. Retrieved from <http://www.bls.gov/oco/ocos330.htm>
- Bureau of Labor Statistics. (2016). *Occupational Outlook Handbook, 2004-05 Edition: Chefs, Cooks, and Food Preparation Workers*. Retrieved on March 30, 2016 from <http://www.bls.gov/oco/print/ocosl61.htm>.
- Braude, S., & Merrill, J. (2013). The chancellor's new robes: Online education. *Creative Education*, 4(7A2), 50-52. doi:10.4236/ce.2013.47A2009
- Bruffee, K. A. (1999). Collaborative learning: Higher education, interdependence, and the Authority of Knowledge (2nd ed.). Baltimore: John Hopkins University Press.
- Casado, M. (1991). *Perceptions of Corporate Recruiters, Alumni and Educators Toward Critical Factors of Hotel/Restaurant Management Programs: A Comparative Study*. Doctoral Dissertation: Northern Arizona University. DAI-A 52/10, p. 3507, April 1992.
- Cercone, K. (2008). Characteristics of adult learners with implications for online learning design. *AACE Journal*, 16(2), 137-159.

- Chan, S., & Waugh, R. (2007). Factors affecting student participation in the online learning environment at the open University of Hong Kong. *Journal of Distance Education*, 21(3), 23-38.
- Clayton, K., Blumberg, F., & Auld, D. P. (2010). The Relationship between Motivation, Learning Strategies and Choice of Environment whether Traditional or Including an Online Component. *British Journal Of Educational Technology*, 41(3), 349-364.
- Cobanoglu, C., Warde, B., & Moreo, P. J. (2001). A comparison of mail, fax and web-based survey methods. *International Journal of Market Research*, 43(4), 441.
- Conrad, R., & Donaldson, J. (2004). *Engaging the online learner: Activities and resources for creative instruction*. San Francisco, CA: Jossey-Bass.
- Council for the Advancement of Standards in Higher Education (2009). CAS learning and development outcomes. In L. A. Dean (Ed.), *CAS professional standards for higher education* (7th ed.). Washington, DC: Author.
- Crawford-Ferre, H., and Wiest, L. (2012). Effective online instruction in higher education. *The Quarterly Review for Distance Education* 13(1), 11-14 Information Age Publishing, Inc.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles: Sage.
- Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: SAGE.

- Culinary Institute of America. (2006). *The Professional Chef* (8th ed.). Hoboken, N.J: John Wiley & Sons.
- Dennis, A. R., Wixom, B. H., & Vandenberg, R. J. (2001). Understanding Fit and Appropriation Effects in Group Support Systems via Meta-Analysis. *MIS Quarterly*, (2). 167.
- Diedenhofen, B., & Musch, J. (2016). cocron: A Web Interface and R Package for the Statistical Comparison of Cronbach's Alpha Coefficients. *International Journal Of Internet Science*, 11(1), 51-60.
- Dillman, D.A. (2000). *Mail and Internet Surveys: The Tailored Design Method* New York: John Wiley & Sons, Inc.
- Dillman, Don A., Smyth, Jolene D., Christian, Leah Melani. (2009). *Internet, Mail and Mixed-Mode Surveys: The Tailored Design Method*, 3rd edition. John Wiley: Hoboken, NJ.
- Dumchin, M. (2010). Redefining the future of perioperative nursing education: A conceptual framework. *AORN Journal*, 92(1), 87-100.
- Eaton, M. P., (2013). *This Week*. NBCC launches culinary arts management. This Week Online
- Ellis, R. (2009). A field guide to learning management system. American Society for Training & Development. Retrieved from [http://www.astd.Org/NR/rdonlyres/12ECDB99-3B91-403E-9B15-7E597444645D/23395/LMS Fieldguide_20091.pdf](http://www.astd.Org/NR/rdonlyres/12ECDB99-3B91-403E-9B15-7E597444645D/23395/LMS%20Fieldguide_20091.pdf).
- Epstein, P. (2006). Online, campus, or blended learning: What do consumers prefer and why? *Distance Learning*, 3(3), 35.

- Ewell, P. T. (2009). Assessment, accountability, and improvement: Revisiting the tension. *National Institute for Learning Outcomes Assessment, 11*(2), 1-23.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149-1160.
- Fidishun, D. (2000). *Andragogy and technology: Integrating adult learning theory as we teach with technology*. Retrieved from <http://frank.mtsu.edu/~itconf/proceedOO/fidishun.htm>
- Flaherty, D. (2016) *Work-life balance is key to career longevity*. Retrieved from <http://www.nrn.com/>
- Fleming, S., & Hiple, D. (2004). Distance education to distributed learning: Multiple formats and technologies in language instruction. *CALICO Journal, 22*(1), 63-82.
- Frith, K. H., & Kee, C. C. (2003). The effect of communication of nursing student outcomes in a web-based course. *Journal of Nursing Education, 42*(8), 350-360.
- Gabbert, W. L. & Sims, R. (2007). *Teacher-student interactions in online nursing education*. Retrieved from <http://www.ascilite.org.au/conferences/singapore07/procs/Gabbert.pdf>
- Garrison, D. R., Anderson, T., & Archer, W. (2010). The First Decade of the Community of Inquiry Framework: A Retrospective. *Internet And Higher Education, 13*(1-2), 5-9.
- Garrison, D. R., & Shale, D. (1987). *Mapping the boundaries of distance education: Problems in defining the field*. *The American Journal of Distance Education, 1*(1), 7-13.

- Gater, D.S. (2012). *A Review of Measures Used in U.S. News & World Report's "America's Best Colleges"*. Gainesville, FL: University of Florida, The Lombardi Program on Measuring University Performance.
- Gayton (2005). Asynchronous meeting times in an online environment. *Journal of Online Education*.
- Gaytan, J. (2007). Visions shaping the future of online education: Understanding its historical evolution, implications, and assumptions. *Online Journal of Distance Learning Administration, X(II)*. Journal URL: <http://www.westga.edu/~distance/ojdla/>
- Gersh, I. (2011). *Culinary industry practitioners and educators' perceptions of core competencies for a four-year bachelor's degree in the culinary arts* (Order No. 3472690). Available from ProQuest Dissertations & Theses Global. (890219223). Retrieved from <http://ezproxy.snhu.edu/login?url=http://search.proquest.com.ezproxy.snhu.edu/docview/890219223?accountid=3783>
- Gilbert D. and Guerrier Y. (1997) UK hospitality managers past and present, *Service Industries Journal*, 17, pp115-132.
- Gisslen, W. (2007). *Professional cooking* (6th ed.). Hoboken, N.J: John Wiley.
- Glatthom, AA. (1998). *Writing the Winning Dissertation: A Step-by-Step Guide*. Thousand Oaks, CA: Corwin Press, Inc.
- Gould, S.L. & Bojanic, D.C. (2012). Exploring hospitality program rankings. *Journal of Hospitality and Tourism Education*, 14(4), 24-32.
- Harasim, L. (1990). *On-line education: Perspectives on a new medium*: New York:

Harold A. Linstone, Murray Turoff (1975), *The Delphi Method: Techniques and Applications*, Reading, Mass.: Addison-Wesley, ISBN 978-0-201-04294-8

Harrington, R., Mandabach, K., Thibodeaux, W. & VanLeeuwen, D. (2005). A multi-lens framework explaining structural differences across foodservice and culinary education. *International Journal of Hospitality Management*, 24(2), 195-218

Hemmerich, A. L., Hoepner, J. K., & Samelson, V. M. (2015). Instructional Internships: Improving the Teaching and Learning Experience for Students, Interns, and Faculty. *Journal Of The Scholarship Of Teaching And Learning*, 15(3), 104-132.

Hertzman, J. L. (2006). *Identifying the characteristics of and quality indicators for associate degree culinary arts programs: A survey of educators and industry* (Order No. 3226619). Available from ProQuest Dissertations & Theses Global. (304964545). Retrieved from <http://ezproxy.snhu.edu/login?url=http://search.proquest.com.ezproxy.snhu.edu/docview/304964545?accountid=3783>

Hertzman, J., & Ackerman, R. (2010). Evaluating quality in associate degree culinary arts programs. *Quality Assurance in Education*, 18(3), 209-226.
doi:10.1108/09684881011058650

Horng, J, & Hu, M., (2008). The mystery in the kitchen: Culinary creativity. *Creativity Research Journal*, 20(2), 221-230. doi:10.1080/10400410802060166 Praeger/Greenwood.

Institute of Medicine. (2011). *The future of nursing: leading change, advancing health*. Washington, DC: The National Academies Press.

International Council on Hotel, Restaurant, and Institutional Education. *Guide to college*

- programs in hospitality, tourism & culinary art* (2006). Richmond, VA:
- Jayawardena, C., & Nettleford, R. (2002). *Tourism and hospitality education and training in the Caribbean*. Kingston, Jamaica: University Press of the West Indies.
- Jett, L. G. (2010). *A validation study of university level food and beverage curriculum* (Order No. 3488799). Available from ProQuest Dissertations & Theses Global. (911227031). Retrieved from <http://ezproxy.snhu.edu/login?url=http://search.proquest.com.ezproxy.snhu.edu/docview/911227031?accountid=3783>
- Johnson, S. D., Aragon, S. R., Shaik, N., & Palma-Rivas, N. (1999). Comparative Analysis of Online vs. Face-to-Face Instruction
- Jordan, K. A. (2016). Enhancing externships to meet expectations for experimental education. *Clinical Law Review*, 23(1), 339-395.
- Joyce, B., Weil, M., & Calhoun, E. (2004). *Models of teaching* (7th ed.). New York, NY:Pearson.
- Kaplan, D. (2011). *The guide to cooking schools: Cooking schools, courses, vacations apprenticeships and wine programs throughout the world*. Retrieved from <http://cookingcareer.shawguides.com/>
- Keep, E. (2013). Review of vocational education - the Wolf report. *British Journal Of Sociology Of Education*, 33(2), 315-322.
- Keppel, G. (1991). *Design and analysis: A researcher's handbook* (3rd ed.). Englewood Cliffs, N.J: Prentice Hall.

- Kirkpatrick, D., & Kirkpatrick, J. (2006). *Evaluating training programs: The four levels*. San Francisco, CA: Berrett-Koehler.
- Knightley, W. (2007). Adult learners online: Students' experiences of learning online. *Australian Journal of Adult Learning*, 47(2), 265-278.
- Kuh, G. D., & Vesper, N. (1997). A comparison of student experiences with good practices in undergraduate education between 1990 and 1994. *The Review of Higher Education*, 21(1), 43-61
- La Lopa, J., Xie, T., Cornwell, K., Sleeman, K., & Halterman, S. (2005). Culinary programs answer the call: The 2005 national survey of American culinary programs. *Chef Educator Today*, Autumn 2005, 23-24.
- Larreamendy-Joerns & Leinhardt, (2006). Going the distance with online education. *Review of Educational Research*, 76(4), 567-605. Journal URL: http://www.aera.net/publications/Default.aspx?menu_id=42&id=319
- Leedy, P.D. & Ormrod, J.E. (2010). *Practical research: Planning and design*. Upper Saddle River, New Jersey: Pearson.
- Leners, D. W., & Sitzman, K. (2006). Graduate student perceptions: Feeling the passion of caring online. *Nursing Education Perspective*, 27(6), 315-319.
- Levine, S. J. (2005). *Making distance education work: Understanding learning and learners at a distance*. Okemos, MI: LearnerAssociates.net.

- Liang, R., & Chen, D. (2012). Online learning: Trends, potential and challenges. *Creative Education*, 3(8), 1332-1335. doi:10.4236/ce.2012.38195
- Lim, J., Kim, M., Chen, S., & Ryder, C. (2008). An empirical investigation of student achievement and satisfaction in different learning environments. *Journal Of Instructional Psychology*, 35(2), 113-119.
- Linardopoulos, N. (2012). Employers' perspectives of online education. *Campus-Wide Information Systems*, 29(3), 189-194. doi: 10.1108/10650741 211243201
- Maclean, R. & Rauner, F. (2008). *Hanbdblbook of Technical and Vocational Education and Training Research*. Germany: Springer.
- Mager, R.F. (1984). Preparing instructional objectives. (2nd ed.). Belmont, CA: David S. Lake.
- McPhee, I., & Söderström, T. (2012). Distance, online and campus higher education: Reflections on learning outcomes. *Campus-Wide Information Systems*, 29(3), 144-155.
doi:http://dx.doi.org/10.1108/10650741211243166
- Menchaca, M. P., & Bekele, T. A. (2008). Learner and instructor identified success factors in distance education. *Distance Education*, 29(3), 231-252.
doi:10.1080/01587910802395771
- Messick, Samuel (1998). "Test validity: A matter of consequence". *Social Indicators Research*. 45 (1-3): 35–44. doi: 10.1023/a:1006964925094
- Miller, D. C., & Salkind, N. J. (2002). *Handbook of research design and social measurement*. [electronic resource]. Thousand Oaks, [Calif.]; London: SAGE, c2002.

- Miyazoe, T., & Anderson, T. (2010). Empirical Research on Learners' Perceptions: Interaction Equivalency Theorem in Blended Learning. *European Journal of Open, Distance And E-Learning*, (1),
- Moore, M. G. (1989). Three types of interaction. *American Journal of Distance Education*, 3(2), 1-6.
- Moore, M. G. (1997). Theory of transactional distance. In D. Keegan (Ed.) *Theoretical principles of distance education* (pp. 22-38). London: Routledge.
- Morrison, A., & O'Mahony, G. (2003, February). The liberation of hospitality management education. *Internarional Journal of Conremporary Hospitality Management*, 15(1), 38.
- Müller, K. F., VanLeeuwen, D., Mandabach, K., & Harrington, R. J. (2009). The effectiveness of culinary curricula: A case study. *International Journal of Contemporary Hospitality Management*, 21(2), 167-178. doi:10.1108/09596110910935660
- National Restaurant Association. (2015). *Facts at a glance*. Retrieved from <http://www.restaurant.org/research/facts/>
- National Restaurant Association. (2016). *Facts at a glance*. Retrieved from <http://www.restaurant.org/research/facts/>
- No. Author. (2013). Online Learning. Excelsior College.
- Norman, G. (2010). "Likert scales, levels of measurement and the "laws" of statistics". *Advances in Health Science Education. Vol 15(5)* pp625-632

- O'Neil, C. A., Fisher, C. A., & Newbold, S. K. (2009). *Developing online learning environments in nursing education* (2nd ed.). New York, NY: Springer.
- Ornstein, A. C., & Hunkins, F. P. (1989). Theoretical perspectives of curriculum theory. *High School Journal*, 72196-202.
- Palloff R. M., & Pratt, K. (2007). *Building online learning communities: Effective strategies for the virtual classroom*. San Francisco: Jossey-Bass.
- Palloff, R. M., & Pratt, K. (2001). *Lessons from the cyberspace classroom: The realities of online teaching*. San Francisco, CA: Jossey-Bass.
- Pascarella, E.T. & Terenzini, P.T. (1991). *How College Affects Students: Findings and Insights from Twenty Years of Research*. San Francisco: Jossey Bass Inc.
- Patel, D. T. (2015). *Expressing you: Taking your communication to the next stage*. Retrieved from http://www.expressingyou.com/article/paralinguistic_communication3.php
- Peddle, M. T. (2002). Frustration at the factory: Employer perceptions of workforce deficiencies and training trends. *Journal of Regional Analysis & Policy*, 30(1) 23- 40.
- Peng, K., Lin, M., & Baum, T. (2013). The constructing model of culinary creativity: An approach of mixed methods. *Quality and Quantity*, 47(5), 2687-2707. doi: <http://dx.doi.org/10.1007/s11135-012-9680-9>
- Perry, E. H., & Pilati, M. L. (2011). Online learning. *New Directions For Teaching & Learning*, 2011(128), 95-104. doi:10.1002/tl.472

- Porter, A. L., Pitterle, M. E., & Hayney, M. S. (2014). Comparison of online versus classroom delivery of an immunization elective course. *American Journal of Pharmaceutical Education*, 78(5), 1-96. Retrieved from <http://search.proquest.com/docview/1544417023?accountid=35796>
- PR, N. (2016). Escoffier Schools teams up with Meals on Wheels Boulder for Auguste Escoffier's 170th birthday. *PR Newswire US*.
- Public Agenda. (2014). Profiting higher education? What students, alumni and employers think about for-profit colleges? Retrieved from www.publicagenda.org/pages/profitting-higher-education
- Qian, Y. (2005). Designing online learning activities that make sense online: Theory into practice. In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International conference 2005* (pp. 564-566). Chesapeake, VA: AACE.
- Raybould, M., & Wilkins, H. (2006). Generic skills for hospitality management: A comparative study of management expectations and student perceptions. *Journal of Hospitality and Tourism Management*, 13(2), 177-188. doi:10.1375/jhtm.13.2.177
- Revere, L., & Kovach, J. (2011). Online technologies for engaged learning. *Quarterly Review of Distance Education*, 12(2), 113-124. Retrieved from <http://www.infoagepub.com/quarterly-review-of-distance-education.html>
- Rosenthal, J. M. (2016). Probability and Statistics. *Salem Press Encyclopedia Of Science*,

- Rudestam, K. E. & Schoenholtz-Read, J. (2010). *Handbook of online learning* (2nd ed.). Los Angeles, CA: Sage.
- Sadera, W. A., Robertson, J., Song, L., & Midon, M. N. (2009). The role of community in online learning success. *Journal of Online Learning and Teaching*, 5(2), 277.
- Saltzbert, S., & S. Polyson. (1995). Distributed learning on the World Wide Web. *Syllabus*, 9(1): 10-12.
- Simonson, M., Schlosser, C., & Orellana, A. (2011). Distance education research: A review of the literature. *Journal of Computing in Higher Education*, 23(2-3), 124-142.
doi:10.1007/s12528-011-9045-8
- Small, D. & Prescott, J. (2005). Odor/taste integration and the perception of flavor. *Experimental Brain Research*. 166 (3–4): 345–357. doi:10.1007/s00221-005-2376-9.
- Smart, K. L. & Cappel, J. J. (2006). Students' perceptions of online learning: A comparative study. *Journal of Information Technology Education*, 5, 201-219.
- Song, S. M. (2010). *E-learning: Investigating students' acceptance of online learning in hospitality programs* (Order No. 3438813). Available from ProQuest Dissertations & Theses Global. (848922079). Retrieved from
<http://ezproxy.snhu.edu/login?url=http://search.proquest.com.ezproxy.snhu.edu/docview/848922079?accountid=3783>
- Sparron, D. (2004). Online at midnight: MLIS opportunities. *Knowledge Quest* [H.W.Wilson – EDUC], 33(1), 38.

- Sperling, J. G. (2000). *Rebel with a cause: The entrepreneur who created the University of Phoenix and the for-profit revolution in higher education*. New York: Wiley.
- Stierand, M., & Lynch, P. (2008). The art of creating culinary innovations. *Tourism and Hospitality Research*, 8(4), 337-350. doi:10.1057/thr.2008.28
- Storey, V. A., & Tebes, M. L. (2008). Instructor's privacy in distance (online) teaching: Where do you draw the line? *Online Journal of Distance Learning Administration*, 11(2). Retrieved from [http:// www.westga.edu/~distance/ojdla/summer112/storey112.html](http://www.westga.edu/~distance/ojdla/summer112/storey112.html).
- Suskie, L. (2009). *Assessing student learning: A common sense guide* (2nd ed.). San Francisco: Jossey-Bass.
- Thibaut, J.W., & Kelley, H.H. (1959). *The social psychology of groups*. New York: Wiley
- Toback, A. (2016, May 19). Personal interview.
- Tribe, J. (2002). The Philosophic Practitioner. *Annals of Tourism Research*, 29(2), 338-357.
- Trochim, W. (2000). *The Research Methods Knowledge Base*, 2nd Edition. Atomic Dog Publishing, Cincinnati, OH.
- Tung, F-C, & Chang, S-C. (2008). A new hybrid model for exploring the adoption of online nursing courses. *Nurse Education Today*, 28, 293-300.
- Vaart, A.W. (1998) *Asymptotic Statistics* Cambridge University Press. ISBN 0-521-78450-6

- VanLandingham, P.G. (1995). Effects of change in vocational and occupational education on teaching culinary arts in America. Non-published manuscript.
- Van Selm, M. & Jankowski, N.W. (2006). Conducting online surveys. *Quality & Quantity*, 40, 435-456. <http://dx.doi.org10.1007/s11135-005-8081-8>
- Watkins, R. (2005). *75 e-learning activities: Making online learning interactive*. San Francisco, CA: Pfeiffer.
- Western Association of Schools & Colleges (WASC). (2015). *The Nature and Use of Evidence*. Retrieved from <http://www.wascweb.org> on January 12, 2016.
- Whitston, K. (1998). Key skills and curriculum reform. *Studies in Higher Education*, 23(3), 307-319.
- Wiles, J. (2009). Leading curriculum development. Thousand Oaks, CA: Corwin Press.
- Winters, F. & Azevedo, R. (2005). High school students' regulation of learning during computer-based science inquiry. *Journal of Educational Computing Research*, 33(2), 189-217.
- Wollin, M. & Gravas, S. (2002). A proposed curriculum and articulation model for two year degree programs in culinary arts. *Journal of Hospitality and Tourism Education*, 14(2), 46-53.
- Wolff, E., Baumol, W., & Saini, A. (2014). A comparative analysis of education costs and outcomes: The United States vs. other OECD countries. *Economics of Education Review*, 39, 1-21. doi:10.1016/j.econedurev.2013.12.002

Wu, A. (2011). Chinese culinary competition: An impressive and sumptuous spectacle.

Retrieved from <http://www.theepochtimes.com/n2/content/view/43724>.

Yin, R. K. (2014). *Case study research: Design and methods*. Thousand Oaks, CA: SAGE.

Appendix A

Pre – Letter/Email

Dear Chef or Hospitality/Culinary Educator,

Within the next few days, you will receive a request via email to complete a brief questionnaire for an important study being conducted by Southern New Hampshire University. Your name was selected for this survey because you are an active Chef member of the American Culinary Federation or the International Council of Hotel, Restaurant and Institutional Education. I am writing in advance because many people like to know ahead of time that they will be contacted.

This project seeks to identify the characteristics and quality indicators of an online culinary arts degree program. It is a significant study that will help culinary and hospitality educators, industry chefs and managers, the American Culinary Federation, and the International Council of Hotel, Restaurant and Institutional Education distinguish what classes and program characteristics are most important in providing a quality education and training in online culinary arts programs for future cooks, and chefs in the foodservice industry.

Thank you for your time and consideration. It is only with the assistance of professionals like you, that this research can be successful. I look forward to receiving your survey response.

Sincerely,

Stefan Ryll, CEC, CCE, AAC

Appendix B

Data Collection Instrument

INFORMED CONSENT FORM

You are invited to participate in a research study about online culinary arts education. Stefan Ryll, a doctoral student at Southern New Hampshire University in Manchester, New Hampshire, is conducting this study as part of his doctoral program in Educational Leadership. The following information is provided for you so that you can make an informed decision on whether or not to participate in this short, electronic survey. You are eligible to participate because you are a chef or hospitality/culinary arts educator and a member of the American Culinary Federation (ACF) or the International Council on Hotel Restaurant and Institutional Education (CHRIE).

As a chef or culinary/hospitality educator, you have invaluable knowledge and opinions about the state of culinary arts education. This research will involve your participation in an electronic survey that will take approximately 10 minutes to complete. Participation in this study is voluntary and you may withdraw at any time by simply closing your browser. Individual responses will be anonymous. Survey results will only be reported in aggregate form. There are no foreseeable risks from participating in this survey. There are no financial costs to you for participating in this study. You will not be compensated for your time. The results of the study will be published in a doctoral dissertation and may ultimately be presented in other formats such as academic journal articles or conference presentations. You may request a copy of the survey results by contacting the researcher.

The Southern New Hampshire University Institutional Review Board (SNHU IRB) has reviewed and approved this research proposal. The SNHU IRB is a committee whose task it is to make sure that research participants are protected from harm. More information about the Southern New Hampshire University Institutional Review Board may be found by contacting Audrey Rogers at irb@snhu.edu

If you have any questions or concerns about this study, or would like to receive a copy of the survey results, you may contact Stefan Ryll at Southern New Hampshire University, 2500 North River Road, Manchester, NH 03106: s.ryll@snhu.edu

Your completion of this survey indicates your consent to participate in this research study. Do you wish to participate in this survey?

☐ Yes ☐ No

SECTION ONE - DEMOGRAPHIC QUESTIONS

Directions

For each of the following questions, please choose the option that best describes you.

1. Specify your current professional career

Chef	
Chef Owner	
Hospitality Educator	
Culinary Arts Educator	
Other	

2. If Hospitality Educator or Culinary Arts Educator is selected:
What degree program are you teaching in?

Associate Degree Program	
Bachelor Degree Program	
Certificate Program	

3. What educational delivery method do you practice?

Traditional Face to Face	
Online	
Both – Traditional Face to Face and Online	

4. Specify the number of years of work experience you have had in the hospitality/culinary industry

1-5 Years	
6-10 Years	
11-15 Years	
16-20 Years	
21 + Years	

5. Gender

Female	
Male	

6. Specify your highest education

High School/ GED	
Associate's Degree	
Bachelor's Degree	
Master's Degree	
Doctoral Degree	

7. What is your nationality?

United States	
Country other than United States	

SECTION TWO - SUBJECT AREAS

Directions

Below you will find a list of 18 professional and 12 general subjects that may be taught in an online culinary arts degree program. Please rate the importance of including each subject in the curriculum on a scale of 1 to 5, with 1 meaning not important, 2 - slightly important, 3 - moderately important, 4 - very important, and 5 - extremely important. In your rating, consider whether the subject teaches skills and knowledge necessary for an online culinary art school graduate to succeed as a cook/chef or in an entry-level management position in the culinary arts industry. Please select your rating.

PROFESSIONAL COURSES

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Culinary Skills and Procedures	1	2	3	4	5
Basic Cooking/ Hot Foods	1	2	3	4	5
Advanced Cookery	1	2	3	4	5
French Classical Cuisine	1	2	3	4	5
International Cuisine	1	2	3	4	5
Garde Manger	1	2	3	4	5
Introductory Baking	1	2	3	4	5
Advanced Baking	1	2	3	4	5
Sanitation	1	2	3	4	5
Nutrition	1	2	3	4	5
Food Science	1	2	3	4	5
Foodservice Purchasing	1	2	3	4	5
Food and Beverage Cost Control	1	2	3	4	5
Dining Room Service	1	2	3	4	5
Restaurant/Bar Management	1	2	3	4	5
Food Styling/ Presentation	1	2	3	4	5
Cooking for Restricted Diets	1	2	3	4	5
Culinary Career Development	1	2	3	4	5

GENERAL COURSES

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Computer Concepts	1	2	3	4	5
Business Math	1	2	3	4	5
Principles of Economics	1	2	3	4	5
English Composition	1	2	3	4	5
Business Writing	1	2	3	4	5
General Biology	1	2	3	4	5
General Chemistry	1	2	3	4	5
History	1	2	3	4	5
Introduction to Psychology	1	2	3	4	5
Introduction to Sociology	1	2	3	4	5
Hospitality law	1	2	3	4	5
Spanish	1	2	3	4	5

SECTION THREE - QUALITY INDICATORS**Directions**

Below you will find a list of characteristics of online culinary arts programs. Please rate the importance of each characteristic in evaluating the quality of the program. In thinking about the characteristics, consider if each is a factor you would consider when deciding whether to recommend the program to potential culinary students, or to employ its students and graduates. Please rate each characteristic on a scale of 1 to 5, with 1 meaning not important, 2 - slightly important, 3 - moderately important, 4 - very important, and 5 - extremely important. Please select your rating.

RESOURCES

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Size of the Program (Number of Students)	1	2	3	4	5
Tuition and Fees Charged	1	2	3	4	5
Amount of Financial Aid to Students	1	2	3	4	5
Size of Library/Resource Center	1	2	3	4	5

FACULTY

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Ratio of Full-time to Part-time Faculty	1	2	3	4	5
Industry Experience of Faculty	1	2	3	4	5
Teaching Experience of Faculty	1	2	3	4	5
Professionally Certified Faculty	1	2	3	4	5
Faculty Participation in Continuing Education (Such as Seminars, Conventions, Competitions, Research)	1	2	3	4	5
Ethnic Diversity of Faculty	1	2	3	4	5
Gender Diversity of Faculty	1	2	3	4	5

STUDENT SERVICES / LEARNING OPPORTUNITIES

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Availability of Career Placement Services	1	2	3	4	5
Availability of Academic Advising	1	2	3	4	5
Opportunities to Participate in Culinary Competitions	1	2	3	4	5
Opportunities to Participate in School/ Community Events	1	2	3	4	5
Required Internship/Externship	1	2	3	4	5
Required Work Experience	1	2	3	4	5

OUTCOMES

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Percentage of Students Completing Degree	1	2	3	4	5
Percentage of Graduates Employed in the Professional Field	1	2	3	4	5
Average Starting Salary of Graduates	1	2	3	4	5
Percentage of Graduates Pursuing Advanced Training	1	2	3	4	5

SECTION FOUR – JUDGE AND CRITIQUE PRACTICAL CULINARY ARTS SKILLS

Directions

Below you will find a list of standards to evaluate practical culinary arts skills including sensory modalities such as taste and flavor in online culinary arts programs. Please rate the importance of each standard in evaluating the practical skills of online culinary arts students. Please rate each characteristic on a scale of 1 to 5, with 1 meaning not important, 2 - slightly important, 3 - moderately important, 4 - very important, and 5 - extremely important. Please select your rating.

STANDARDS TO EVALUATE PRACTICAL CULINARY ARTS SKILLS

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Required Practical Internship for Online Culinary Arts Students	1	2	3	4	5
Teaching Flavor and Taste Analysis Courses to the Students in the Beginning of the Online Culinary Program	1	2	3	4	5
Online Students are required to Work Several Hours per Week under the Supervision of a Local Executive Chef	1	2	3	4	5
Weekly Cooking Assignments Include Submission of Multiple Photos of the Final Product and Cooking Process	1	2	3	4	5
Weekly Cooking Assignments Include a Written Description of the Process and Flavor Profile of the Finished Product	1	2	3	4	5
Student Finish the Online Culinary Arts Program with a Six-Week Externship	1	2	3	4	5

Please provide your recommendations on the standards to evaluate practical culinary arts skills in online culinary programs **that were not mentioned in this survey**. If you have none, please type “none”.

Appendix C

Reminder Email

Dear Chef or Hospitality/Culinary Educator,

Last week you were emailed a survey seeking your insight regarding the importance of specific subjects taught in and factors indicating the quality of online culinary arts degree programs. Your name was selected because you are an active member of the American Culinary Federation or the International Council of Hotel, Restaurant and Institutional Education.

Your contribution is extremely important in obtaining accurate results for this study. It is only by receiving responses from nearly everyone selected for the study that I can ensure that the results are truly representative of hospitality/culinary educators and industry chefs.

If you have already completed the questionnaire, please accept my sincere thanks. If not, please do so as soon as possible. I am very grateful for your help on this important project.

Sincerely,

Stefan Ryll, CEC, CCE, AAC

Appendix D

Conceptual Model for Professional Chef Competencies

American Culinary Federation

Manage all Aspects of Food, Products and Equipment

- Develop culinary concepts based on market research data.
- Develop specifications (quality, quantity, nutrition, etc.).
- Create, select, test and evaluate recipes.
- Food presentation.
- Product execution (work flow).
- Disseminate product information internally.
- Participate in the design of all areas of the facility.
- Supervise and direct baking and pastry production.

Ensure Safety and Sanitation

- Ensure proper sanitation by preventing time/temperature violations and cross-contamination.
- Demonstrate proven risk management practices.

Manage Marketing, Merchandising & Strategic Public Relations

- Participate in the development of a marketing plan.
- Promote the product by articulating and communicating culinary concepts to the market.

Fiscal Responsibility

- Ability to make decisions during the budget process.
- Analyze financial reports.
- Meet financial goals by controlling costs and maximizing efficiency.

Ethics, Professional and Legal Issues

- Perform the duties of the profession in a manner consistent with the ACF Culinarians' Code.
- Perform the duties of the profession in a manner consistent with governing laws, codes and regulations.
- Demonstrate social responsibility to the customer, industry and community

Think Creatively

- Develop innovative approaches and imaginative solutions that meet real needs.

Apply Professional, Product of Technical Expertise

- Apply expertise to real world situations.

Improve Continuously

- Constantly assess and adapt current practices to perform a task better, faster or more efficiently.

Attention to Detail

- Ensure that data is accurate, work is thorough and to the highest quality standards.

Build Strong Relationships

- Foster trust and cooperation among coworkers, customers and suppliers; develop and sustain personal contact in order to provide mutual benefit.

Share Information

- Provide information so that coworkers, customers and suppliers understand and can take action.

Drive for Results

- Work to achieve high levels of personal and organizational performance in order to meet or exceed objectives.

Foster Teamwork

- Work well in a team environment and motivate teams to sustain exceptional levels of performance

Cooking

- Consistently demonstrate culinary techniques and knowledge while preparing safe, nutritious and appetizing food.

Delegation

- Assign tasks using such techniques as needs analysis, individual skills assessment, objective setting and communication.

Organization

- Demonstrate ability to proactively prioritize needs, put first things first, and effectively manage resources.

Performance Management, Supervisory

- Demonstrate ability to relate to, communicate with and motivate employees to sustained high performance and quality levels.

Planning

- Skilled in determining whether tasks should be attempted, identifying the most effective way of completing the task,
and preparing who to overcome unexpected difficulties

Reference: ACF Website

https://www.acfchefs.org/download/documents/certify/certification/candidate_handbook_cec.pdf

Appendix E
Culinary Arts Program
Required
Knowledge and Competencies
ACFF ACCREDITING COMMISSION



PURPOSE: To develop skills in knife, tool and equipment handling and apply principles of food preparation to produce a variety of food products. To operate equipment safely and correctly. To apply knowledge of laws and regulations relating to safety and sanitation in the kitchen.

COMPETENCIES: Students will be able to:

1. Demonstrate knife skills, hand tool and equipment operation, emphasizing proper safety techniques.
2. Identify the parts/components of a recipe.
3. Describe and use a standardized recipe.
4. Outline the procedure for writing a standardized recipe.
5. Write a standardized recipe.
6. Identify and use utensils, pots and pans and demonstrate safe practices using stoves, mixers, ovens, etc.
7. Define and describe the sautéing process.
8. Prepare a variety of foods using the sauté techniques.
9. Evaluate the quality of sautéed items.
10. Define and describe the processes of pan-frying and deep-frying.
11. Fry a variety of foods to their proper doneness.
12. Evaluate the quality of fried foods.
13. Define and describe the roasting and baking processes.
14. Compare and contrast roasting to baking, poeleing.
15. Roast meats, poultry, and fish to the correct doneness to develop the best flavor and texture in the finished dish.
16. Evaluate the quality of roasted items.
17. Define and describe the barbecue process.
18. Select and prepare meats and seasonings and barbecue them to the appropriate doneness.
19. Evaluate the quality of barbecued items.
20. Define and describe the process of grilling and broiling.
21. Grill and broil foods to the proper doneness.

22. Evaluate the quality of grilled and broiled items.
23. Define and describe the processes of braising and stewing, noting the similarities and differences.
24. Braise and stew foods to the proper doneness.
25. Evaluate the quality of braised and stewed items.
26. Define and describe the process of shallow poaching.
27. Prepare shallow-poached foods properly and produce a sauce that incorporates the cooking liquid.
28. Evaluate the quality of shallow-poached items.
29. Define poaching and simmering and correctly identify the temperature range at which each occurs.
30. Poach and simmer foods to the proper doneness.
31. Evaluate the quality of poached and simmered foods.
32. Define and describe the boiling and steaming process
33. Prepare boiled and steamed foods to the proper doneness.
34. Evaluate the quality of boiled and steamed items.
35. Utilize standard weights and measures to demonstrate proper scaling and measurement techniques.
36. Identify and use herbs, spices, oils and vinegar, condiments, marinades and rubs.
37. Evaluate the quality of herbs, spices, oils, vinegar, condiments, marinades, and rubs.
38. Perform basic fabrication tasks with meat, poultry, seafood and variety meats.
39. Using the basic cooking methods, prepare meat, seafood, poultry, and variety meats to the proper doneness.
40. Evaluate the quality of prepared meats, seafood, poultry, and variety meats
41. Define stock and describe its uses.
42. Identify different types of stocks.
43. List the basic ingredients needed for making stocks.

44. Describe the functions of the ingredients.
45. Describe the process of making stocks.
46. Prepare a variety of stocks.
47. Evaluate the quality of a properly made stock.
48. Define, describe and explain the purpose of sauces.
49. Identify and prepare the grand sauces.
50. Prepare a variety of non-grand/classical sauces.
51. List the basic ingredients needed for making grand and non-grand sauces.
52. Describe the functions of the ingredients in sauces.
53. Evaluate the quality of a properly made sauce.
54. Define and describe soup and identify its two basic categories.
55. Prepare a variety of soups from each category.
56. Describe the process of making each category of soup.
57. Evaluate the quality of a properly made soup.
58. Identify a variety of fruits, vegetables, starches, legumes and grains.
59. Prepare a variety of fruits, vegetables, starches, legumes and grains using the basic cooking methods.
60. Evaluate the quality of prepared fruits, vegetables, starches, legumes and grains.
61. Define salad dressing and describe its purposes.
62. Identify, define, and describe the types of salad dressings.
63. Prepare a variety of salad dressings and evaluate the quality of each.
64. Identify a variety of common salad greens.
65. Prepare and dress greens for a salad.
66. Evaluate the quality of properly prepared and dressed green salad.
67. Identify, describe, and prepare a variety of composed salads.

68. Evaluate the quality of composed salads.
69. Identify, and describe the purpose of the elements of a sandwich.
70. Prepare a variety of hot and cold sandwiches.
71. Evaluate the quality of sandwiches.
72. Identify and prepare a variety of breakfast meats.
73. Evaluate the quality of prepared breakfast meats.
74. Describe a variety of preparation techniques used in egg cookery.
75. Cook eggs using a variety of preparation techniques.
76. Evaluate the quality of prepared eggs.
77. Identify and prepare a variety of breakfast batter products.
78. Evaluate the quality of prepared breakfast batter products.

PURPOSE: To develop skills in producing a variety of cold food products. To prepare items appropriate for buffet presentation, including decorative pieces.

1. Identify tools and equipment used in garde manger, emphasizing safety and sanitation procedures.
2. Define and describe hors d'oeuvre, appetizers, and canapés.
3. Explain the importance of presentation and garnishing for hors d'oeuvre, appetizers, and canapés.
4. Prepare a variety of hors d'oeuvre, appetizers, canapés and basic garnishes.
5. Evaluate the quality of hors d'oeuvre, appetizers, and canapés.
6. Define aspic gelee and describe its functions. Demonstrate fundamental skills in the preparation and uses of aspic.
7. Evaluate the quality of aspic gelee and items coated with it.
8. Define and describe forcemeat and its various forms including pate, terrine, galantine, mousseline, and sausage.

9. Prepare and present a variety of forcemeat products.
10. Evaluate the quality of forcemeat products.
11. Demonstrate food presentation techniques using a variety of plates, platters and trays.
12. Evaluate the quality of prepared plates, platters and trays.
13. Produce decorative centerpieces (i.e. fruit, vegetable carvings, salt dough, tallow and ice carvings).
14. Define and describe various methods in which food is preserved (i.e. brining, salting, curing, and smoking).
15. Prepare foods for preservation and prepare preserved foods.
16. Evaluate the quality of preserved foods.
17. Define and describe a variety of cheese categories.
18. Discuss how various cheeses are made and their uses.
19. Use cheese as an ingredient in recipes.
20. Taste various cheeses and evaluate their quality.

PURPOSE: To describe the characteristics, functions, and food sources of the major nutrients and how to maximize nutrient retention in food preparation and storage. To apply the principles of nutrient needs throughout the life cycle to menu planning and food preparation.

1. Identify current USDA My Pyramid principles and food groups
2. List the nutrient contributions of each food group
3. Discuss the nine areas where dietary guidelines make recommendations.
4. Develop recipes and menus using dietary guide-line recommendations, food guides and food labels
5. Evaluate recipes and menus using dietary guideline recommendations, food guides and food labels

6. Discuss characteristics, functions and best sources of each of the major nutrients.
7. List the primary characteristics, functions and sources of vitamins, water and minerals
8. Describe the process of human digestion
9. Determine energy needs based upon basal metabolic rate and exercise expenditure
10. Discuss and demonstrate cooking techniques and storage principles and portion sizes for maximum retention of nutrients and effective weight management
11. Discuss exchange groups.
12. Identify common food allergies and determine appropriate substitutions. (i.e. Gluten, sugar, lactose free)
13. Discuss contemporary nutritional issues (i.e. vegetarianism, heart healthy menus and religious dietary laws).
14. Apply emerging technologies (computerization) for nutrient analysis (i.e. Internet, recipe analysis software)
15. Discuss marketing of healthy menu options
16. Discuss weight management and exercise and nutrition over the life cycle

Appendix F

Respondent Comments

Culinary arts online not recommended/ not possible to practice successful

I don't feel that culinary professionals can be trained "on-line" deep understanding can only be had with hands on, practical practice, and constant ongoing live evaluation. This business already has far too many "book learned" and unable people leaving real culinary schools as graduates expecting to be hired, at high levels, without the skills to back up their degree or demands

I don't believe that an online culinary degree is going to carry any weight. If an instructor is not there to taste anything, how are the students going to know it's correct? Culinary arts is too hands on for an online program. My other concern is the equipment, commercial equipment is much different than home use. If a graduate goes into a restaurant and doesn't know how to use anything, it reflects very poorly on the program.

The only questions I would have are; how would the online professor critique the student's food if it is an online course. How will they learn the fundamentals of flavor profiles through trial and error if there is not someone right in front of them?

I do not feel that at this time, with the current shift of students entering culinary programs, that an online curriculum for cooking is necessary or adequate.

This survey was difficult to answer based on differentiating an online program vs a non-online program. I answered the questions based on what was needed for any culinary program. How they can be achieved via on-line, I guess will be up to the institution based on the quality of program they want to deliver. Culinary is not an online curriculum. You need the advice and training from a career professional to show you the correct procedures so that you are not picking up bad habits and false interpretations of recipes and techniques. These skills cannot be learned from online learning. Certain subjects lend themselves to online learning as they do not require hands on or practical experience. Subjects such as cost control, sanitation, menu design, math English, business theory etc.. I do not believe culinary standards can be achieved online, and that the creation of such programs diminishes the integrity, rigor, and relevance of the subject matter.

I'm not sure that online classes are the way to go in this industry. Hands on, working side by side with experienced people is truly the way to go.

Although online is the wave of the future, I do not see how a student can learn Culinary Arts Methods, taste, evaluation, working as a team, without being in a classroom. Most Chefs will want things done their way, not necessarily the proper way.

On line culinary is absurd.

There is a reason Culinary Arts is called just that. The feedback and outcomes need to be in person. Let me ask you this, would you hire a cook, chef, after seeing their online presentation without tasting it? Watching Sanitation, workflow? Would you certify a chef by watching them online? I think not!

Online culinary education is not effective. It should not be explored.

Face to face is the best way to teach and evaluate the students. Online teaching lends itself to cheating. There is no real accountability.

Longer mandatory internships or externships. Also put a system in place to help ensure the honesty and truth behind a students work and food pictures. This way the professors can feel confident that the students are not lying about their progress or editing photos.

I'm not sure online culinary training is a good idea. We have wrestled with the idea for a while and can't justify doing it; submitting a picture does not give any indication of flavors, intensities, balance, or many other factors. Utilizing chefs from different restaurants does not provide consistency. It would be very difficult to do.

I don't feel that online cooking courses have ANY place in culinary education. The critically important aspects of working in a commercial kitchen with others, station MEP, timing and tasting along the way are not things that can ever be accomplished successfully outside of the kitchen or through a computer screen. These programs give students false hope that they have the skills they need to be successful in a business of face to face interactions. The art of hospitality can't be taught digitally with no personal interactions.

I don't like the idea of cooking at home and submitting photos. Home is not a professional kitchen. I have taken several on line college classes and hated them.

I think that an online cooking program is ridiculous cooking is an art online class are bad also I took them and they are fast pace so it's hard to learn the craft of cooking sitting behind a computer. They need to be in a kitchen cooking and practice.

I do not agree with an on-line degree in culinary arts and would not recommend a program of this type to any student. The critical components of hospitality, customer service, and culinary arts cannot be taught in this format and students now have no work ethic, minimal soft employment skills, and aren't molded for the demands of this industry, Schools are not teaching students that this industry demands long hours, hard work, and dedication. They think it's all glorified by television and we need to make this a priority unless the only important item is filling classes and graduating students.

An online course is only worthwhile if there is a mentor program in terms of the student working under a chef. Being a chef is so technical that a completely online program is probably not worth the money.

None other than, practical skills should never be taught online!!!!!!

I have difficulty seeing how the online format can replace in-class experience for the hands-on portion of the classes. For example, you MUST have instruction and practice in knife cuts, sauté' braising, flavor and taste profiles, etc. Photos and written work just seems to me to be insufficient.

I do not think you can teach culinary strictly online

I answered all these questions, I feel an online course for culinary arts is not practical. Skills and techniques are practiced procedures that take repetition. A 6 week internship is not getting the skills to dice 50lbs of onions in an hour or butcher a chicken into 9 cuts in 50 seconds. Or tasting 4lbs of raspberry frostings and everybody is asking what's missing and you as the instructor can taste it and say 1 teaspoon of salt and tell them why you said it and add the salt and the student face lights up on how good the frosting is.

Practical Testing

To evaluate on line students they should do a test 1 each semester at the school location or by an instructor at a local location. It's hard to teach flavor over the internet

Judged Practical's

I think a required Practical Test should be administered similar to the CC exam from the ACF would be a good benchmark for the graduate for an online student.

Video documentation of actual cooking to gauge mastery of skills.

You could have asked about faculty training and experience in online pedagogy. Keeping students engaged in an online environment is a skill not easily mastered.

I think the number of students who fail to pay student loans should be a factor in evaluating a program's success. I require videos of the completed cooking assignment and that is much better than photos.

Some type of practical final where skills are evaluated in person

Only a 6 week Externship?!?!? ...and online training....that would take how long compared to?

There are many different levels of culinary professionals. Some students are happy and accomplished as a line cook and others want to own their own business or manage multiple people. Whatever the case it is important that REAL WORLD experience is brought into the program. This is something that a controlled class room or the comfort of your personal kitchen cannot teach. Learning to work in a high stress, fast passed facility is very important. There are a lot of people who want to cook, however find that in the real world you do not have 2 hours to make one cake or cut onions, you MUST multi task and have a good sense of team work and ALL of the demands of a working kitchen. Practical exams should be evaluated by a chef, who themselves, have been approved by a university. This person doesn't have to be professionally trained but should meet some requirements such as: Years in the industry, education, relationship with organizations like the ACF etc... I do realize that it would be a large task to approve all of the chefs that an online student is working under however a list of appropriate chefs/ businesses in one's area might suffice. If one is not available the student could request that his or her chef be approves to evaluate their practical skills.

Internship/Externship

The internship at the end of the culinary arts education should be a minimum of 3 month in length to make it more efficient and valuable.

Apprenticeships with qualified culinarians.

Internship and externships are a must for online students they need the experience

Skill Competencies

Evaluation during a service period - how does the individual perform under pressure - mise en place - communication and teamwork?

Video of the student performing standard culinary skills, as well as giving verbal reports to demonstrate good communication skills

You could conduct a live phone interview, asking questions that involve recipes, so that the student will not be able to look them up online. Perhaps a spot quiz or test? Multiple cooking practical's, perhaps on specific dishes or regions. Team cooking tests where they cook as a team, as teamwork is very important.

Practical skills can be judged/critiqued by local ACF chefs (CEC required)

Being this is an online class a six week externship seems very challenging. Being I had no professional experience and completed my associate degree from LCB. The extern process was

still challenging for me because I had Pro-Chef 3 and a Certified Master Chef showing me and pushing me. I will say making sure the student works with a Certified Chef either from the ACF or the CIA is valuable.

Proper temperature for proteins/cold dishes/soups etc. at time of service Proper cuts are followed
Holding conditions for product before cooking

Submitting video of knife skills, cooking basics (sauté), etc.

Evidence of skill competency is paramount. I teach an online cooking course and have them document their experiences. Think about having them do a blog to document. Let me know if you need more info here and I'm happy to share. mark.molinaro@nau.edu

I believe video of cooking process would be better than pictures.

Concept development

Knife skills. Team work.

Basic knife skills are a necessity for any on line culinary student. Let them show the instructor different knife cuts.

Cooking methods and technique ... how are these evaluated for an online course? Also how is teamwork and social interactions evaluated?

Required site visits to various sites and or stages

Emphasize soft skills!

Not just photos but actual videos of student completing cooking assignments and includes verbal explanation of steps completed. Then a verbal critique of the completed dish.

Contemporary Curriculum

As a recruiter for a large company and I recruit at most of the culinary colleges, it has recently come up on the changes which need to happen with most culinary curriculum. The hospitality industry is changing at such a rapid pace that by the time new curriculum is developed it almost needs to be re done. The basic premise of cooking fundamentals for a two year program is a must but a combination of culinary and business bachelor programs really need to be re designed and I personally see that at most of the colleges we visit. Food science, nutrition, sustainability have become fore front for J&W and business relationships, economics and even basic accounting are absolute no brainers, unfortunately many entering the business have no clue about them. Yes we need to know how to cook but you better have other skills if you want to be a successful leader in today's environment.

I don't think that it will be easy to implement an online culinary program. How are you supposed to learn just by watching a video and making your own assessments and submitting your feedback to a student online? I think it would be beneficial if a student could take their elective classes online (such as English, Public Speaking and basic Economics). This field is a hands on industry, while also needing to know how to understand revenue projections, costing, budgeting, purchasing and technical culinary skills. There needs to be teachers teaching that are active or have been recently active in the field. We need to be able to tell students what the industry is really like, not just teach them how to cook. Students need to receive the same demand as the industry ask for in real life. Somethings cannot be taught in a classroom. The technical cooking skills need to be hands on, with professional feedback. The university should be bringing in local industry chefs or hospitality managers to provide feedback on practical exams.

I believe there should be a test in the beginning of the course to evaluate your current knowledge of culinary arts. Teachers could then asses where the general student body's knowledge is and determine what material is important.

Online program would need partnerships with local kitchens to give students the opportunity to get practical learning. Online cannot give a great analysis of practical cooking they need hands on with a local chef.

On line culinary degree good idea but actual time in a professional kitchen grinding is essential to the value of that degree. A 10 year line cook/ sous chef should not have the same degree as a stay at home mom who went on line and got her degree while cooking at home in her slippers. Punctuality, sense of urgency, mise en place, digging out of the weeds!!! These are essentials of the culinary field.

Portion control, recipe balancing, innovation & menu writing

Resources and Evaluating Skills. The school should partner with businesses. As a business owner & Chef I could benefit by retention of qualified staff, and affiliation with SNHU. Students should be encouraged to seek an industry professional that would serve as a mentor in this process. The 'Mentors' would assist both professor and the student.

I truly believe that there is a place in post-secondary education for online or blended programs. I do not think that a hands on production "COOKING OR BAKING" production class regardless of level can or should be offered online. I believe the best way forward for both institutions & Schools is a blended program BUT we need to be very careful of what is offered online.

I think that the professional instructors should have more control of the program as professionals and not the administration who has no experience in the program but, yet take control of how things should be done.

The risks associated with online education can only be mitigated with a contractual partnership of on-site supervisors with the educational association. Compliance procedures monitoring this relationship must be in place to ensure institutions maintain ethics and integrity. Stakeholders previously involved in this relationship include; accrediting organizations, educational institutions, department of education, and lending organizations. The inclusion of Industry Partners and organizations requires additional planning and compliance preparation. Proprietary schools dedicate extensive resources maintain compliance and regulating student outcomes, however, I have not seen State Operated Colleges and Universities with infrastructures to support high placement rates and low attrition rates. The latter is a result of non-standardized performance requirements for accrediting institutions.

Focus on the practical skills associated with the craft, minimize certifications (except serve safe) and competitions, advanced classes. Heavy focus on work experience, apprenticeships, internships and graduate placements.

Externships should occur earlier in the program, after basic fundamentals are taught in order to establish perspectives.

Just to ensure that "placement" is based on a work position which uses the skills taught in the program and is not simply random employment in the sector.

For an associate degree or higher there should have some work experience prior to becoming enrolled. So many student I see complete over half of the course with not having worked in the industry and then getting shocked at the amount of time and dedication it takes to perform the job.

Must have strong partnership with local based chef who knows the standard of the school. Assessments can be done with this local based chef...

Interactions with Front of House (one team dynamic). Introductory food/beverage pairing.

I firmly believe that the key to any online program is that it maintains the same standards as on-ground or hybrid programs. As such following such principles as fostered by the Quality Matters program or other online certification platforms is a definite must!

Recommend "Benchmark" Projects or Practical exams throughout the course of study. Some form of face to face, brick and mortar evaluation.(realizing that this goes against the concept of Online edu)

The concept of "Online Culinary Arts Education" with the goal of entry level supervisor in a professional establishment will be successful in some cases. Similar to the status quo "Culinary School" experience. Not every Graduate will be truly ready for such an endeavor. The expected outcomes and individual results must be realistically and clearly communicated to the participants that in order to achieve the highest results, a strict adherence to the program and

dedication to the system be paramount. The availability of real time Q&A and "lifeline" Faculty advising would be key. An analysis of "who learns best online" or some form of "Meyers Briggs" personality study might help in the entry process and would lead to better results on the other end.

Sensory Modalities

Several sensory evaluations CANNOT be assessed accurately online no matter how much spin you put on your reasoning. The survey does not evaluate the responder's opinion on the practicality and effectiveness of such a program in replacing a traditional culinary school. Once again, as usual, ACF is interested in the money and income rather than chefs.

I don't know how to evaluate online cooking. Very questionable.

The Practical skills should be a video of the student performing specific skills / tasks, ability to have the entire work area in the screenshot, a specific grading rubrics, include student critiquing their own work / performance include the flavor profile and palatability.

Include uploading video of student performing weekly cooking assignment along with verbally demonstrating key steps. Bench-test students at end of each on-line cooking course. Requires on campus visit.

Here at HCC we use PROCTORIO for on-line tests. Do you have such a tool to ensure all menu production is being done by the registered student? Just submitting photos is not enough.

Many of these choices were difficult because they really require hands on discussion and visual responses that the online environment cannot meet.

I think another key component is Communications.

Final exam to prepare a meal or specific product, proctored and graded by a designated chef practitioner in local area.

A video describing Culinary Philosophy with a demonstration of philosophy example

I believe a brief video synopsis explaining the process from beginning to end, including purchasing the necessary ingredients all the way up to plating.

Rouxbe Culinary School

There is a school called Rouxbe, and it claims to teach people how to cook via, the internet. This can be used as a case study for this type of research

Hybrid Teaching

I don't believe it can be done totally as an online degree. A hybrid program would be better. Most of the classes on line, with residencies for testing and experiential work.

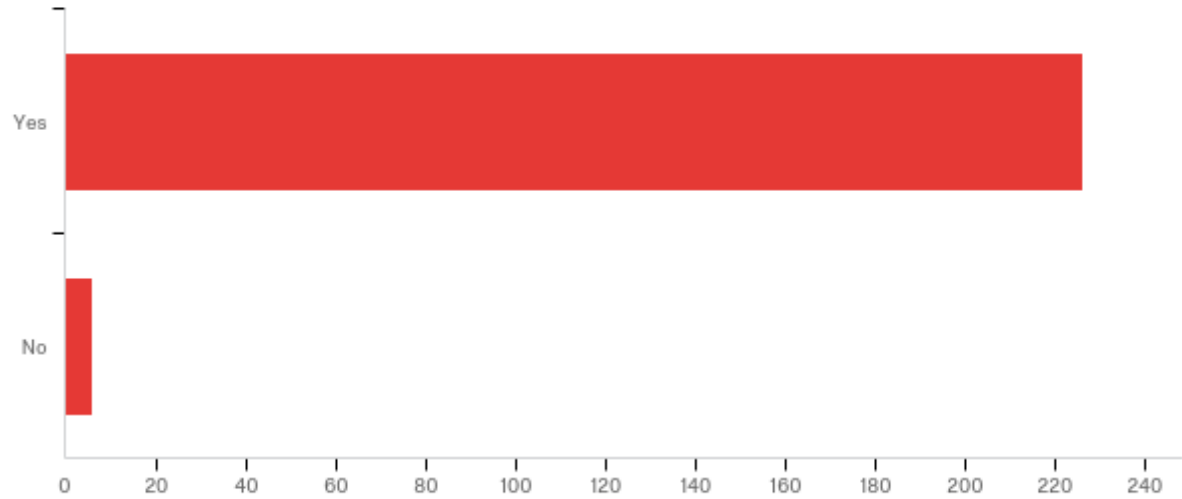
Financial Cost

The problem with most culinary degrees is that they are expensive and lead to jobs that do not pay living wages with the kind of benefits you can raise a family on. Industry does not value culinary degrees. If someone wants to pursue a culinary career they should skip the expensive degree and just dive in. Whatever you do, don't go into debt for a culinary degree.

Appendix G

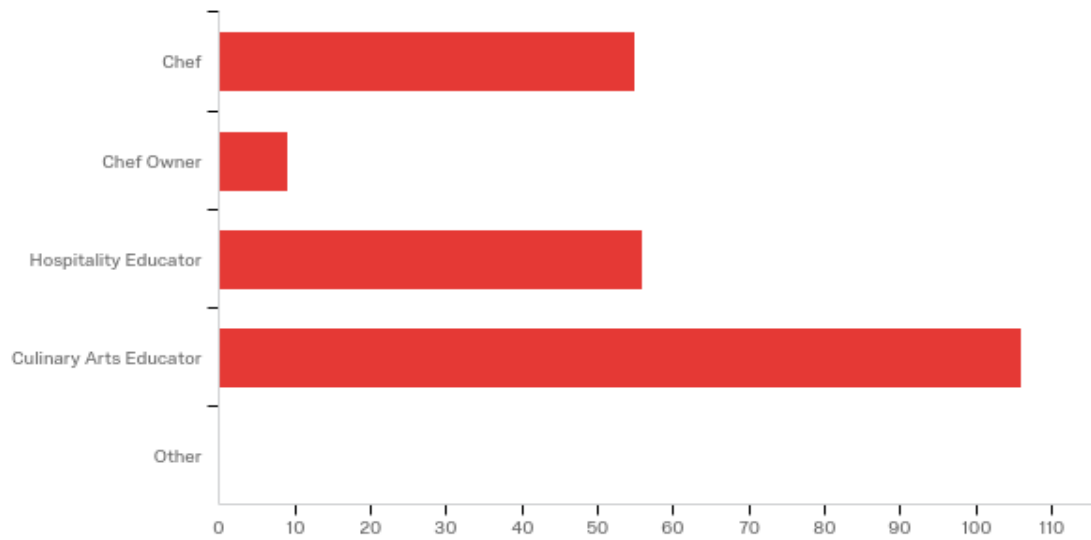
Survey Results

Question 1: Informed Consent



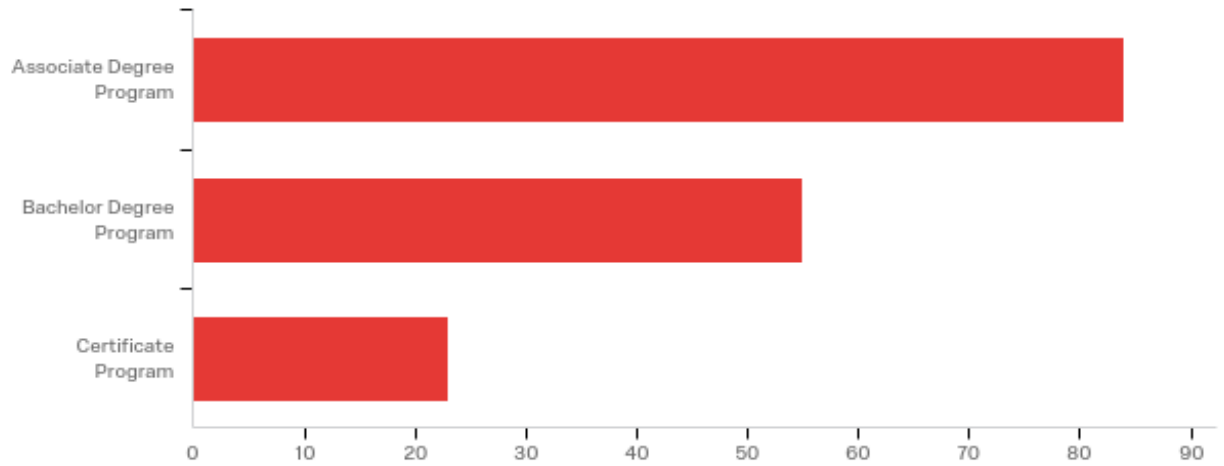
#	Answer	%	Count
1	Yes	97.41%	226
2	No	2.59%	6
	Total	100%	232

Question 2: Specify your current professional career



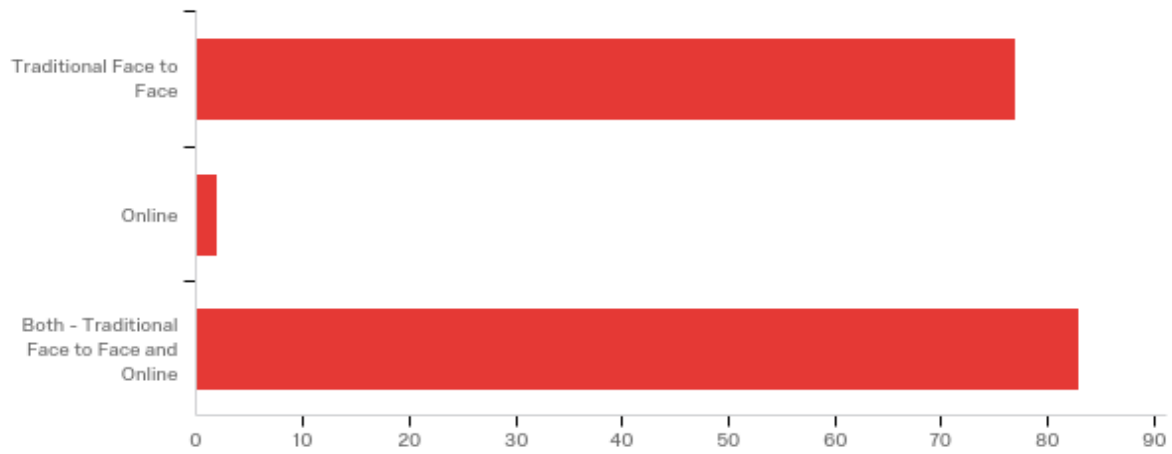
#	Answer	%	Count
1	Chef	24.34%	55
2	Chef Owner	3.98%	9
3	Hospitality Educator	24.78%	56
4	Culinary Arts Educator	46.90%	106
5	Other	0.00%	0
	Total	100%	226

Question 3: What degree program are you teaching in?



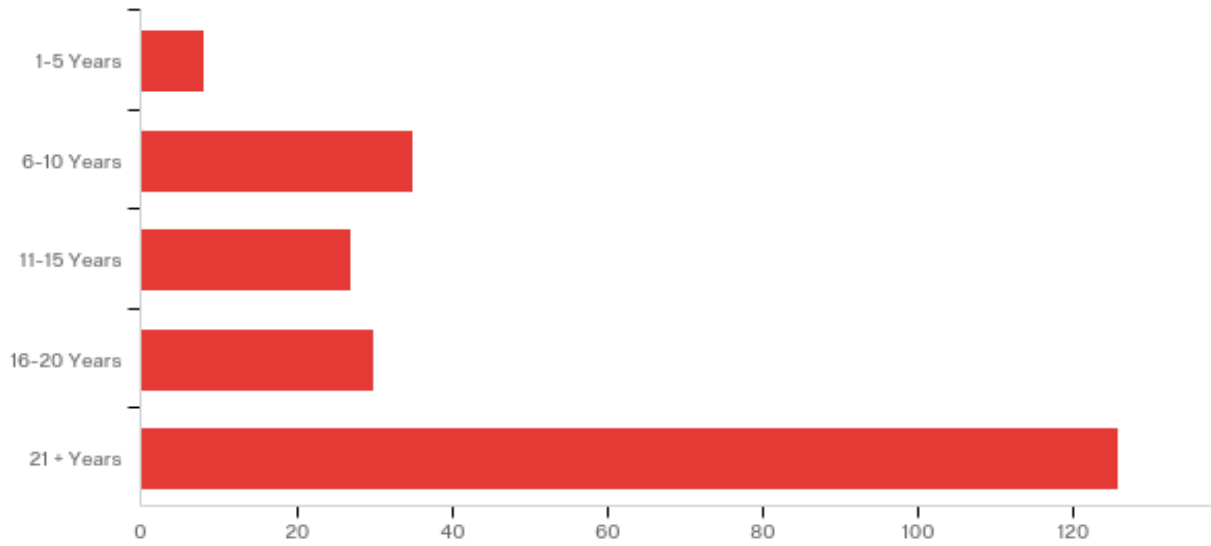
#	Answer	%	Count
1	Associate Degree Program	51.85%	84
2	Bachelor Degree Program	33.95%	55
3	Certificate Program	14.20%	23
	Total	100%	162

Question 4: What educational delivery method do you practice?

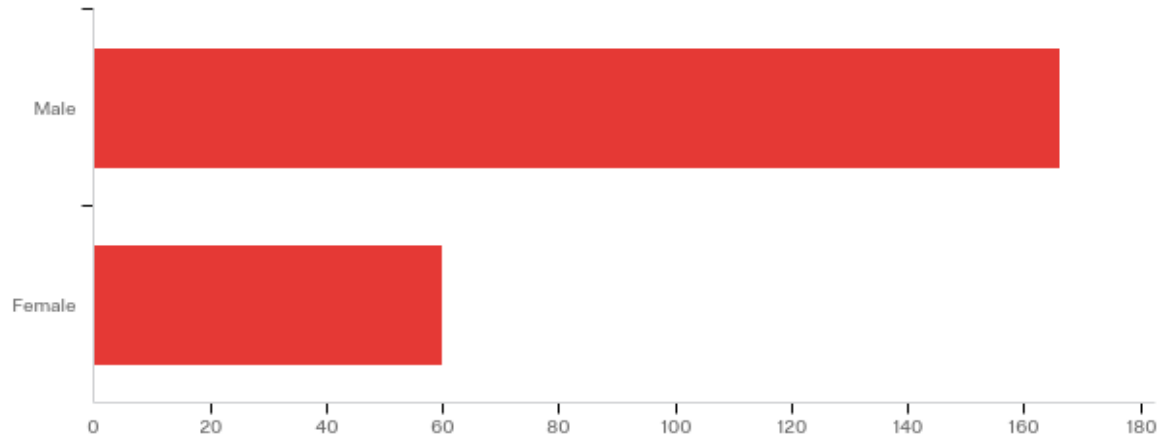


#	Answer	%	Count
1	Traditional Face to Face	47.53%	77
	Total	100%	162
2	Online	1.23%	2
3	Both - Traditional Face to Face and Online	51.23%	83

Question 5: Specify the years of work experience you have had in the hospitality industry

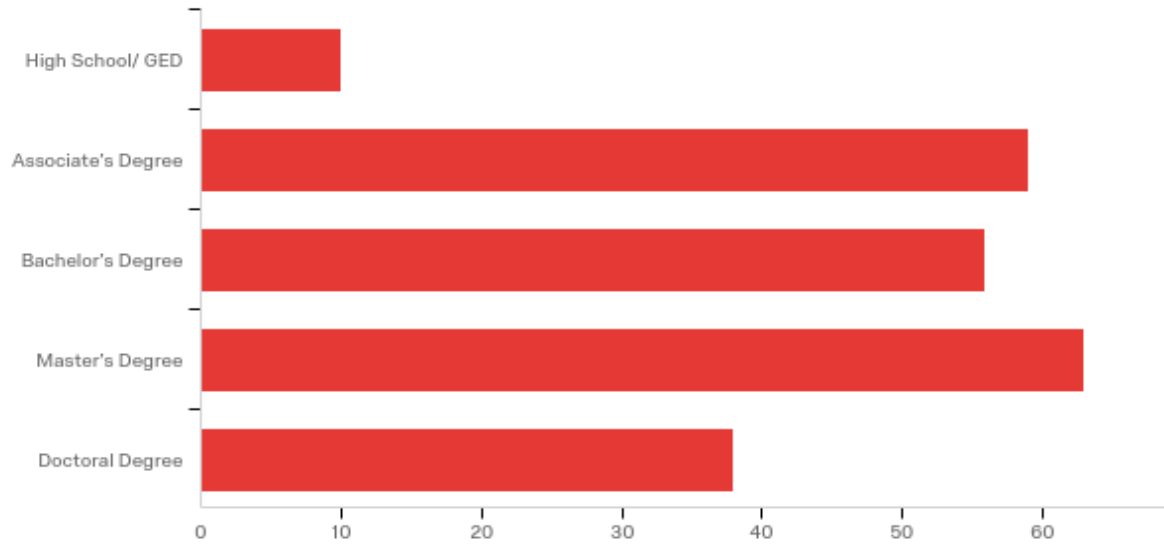


#	Answer	%	Count
1	1-5 Years	3.54%	8
2	6-10 Years	15.49%	35
3	11-15 Years	11.95%	27
4	16-20 Years	13.27%	30
5	21 + Years	55.75%	126
	Total	100%	226

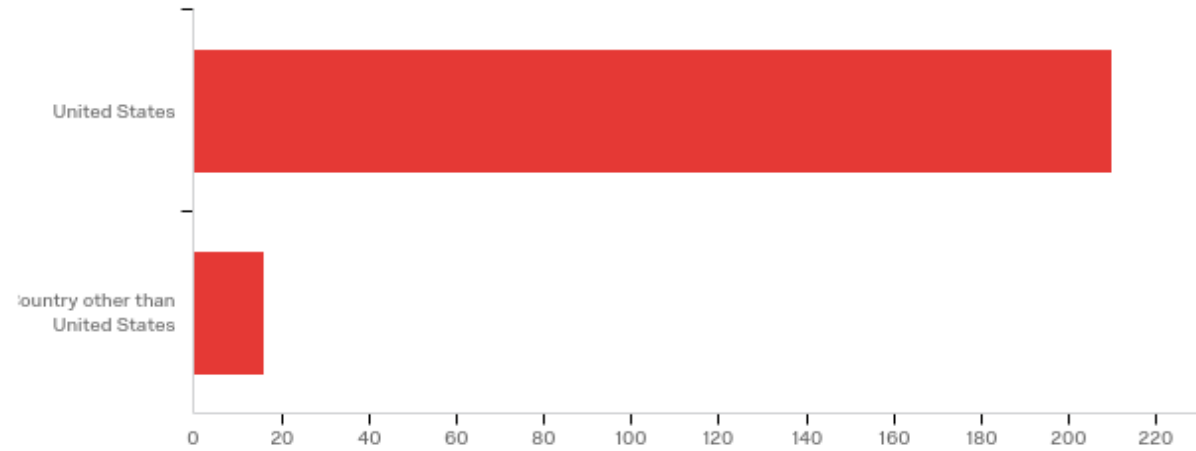
Question 6: Gender

#	Answer	%	Count
1	Male	73.45%	166
2	Female	26.55%	60
	Total	100%	226

Question 7: Specify your highest level of education

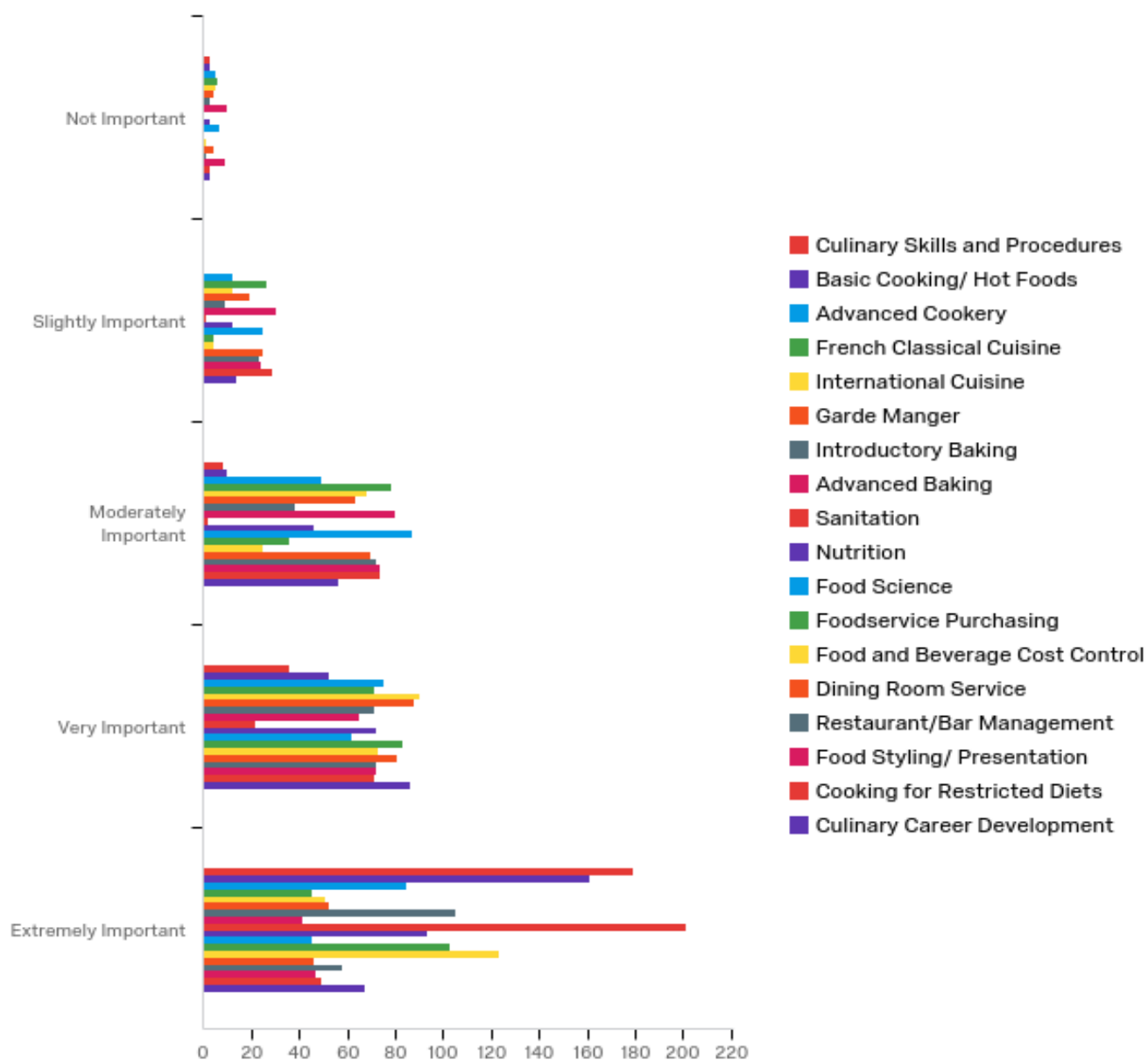


#	Answer	%	Count
1	High School/ GED	4.42%	10
2	Associate's Degree	26.11%	59
3	Bachelor's Degree	24.78%	56
4	Master's Degree	27.88%	63
5	Doctoral Degree	16.81%	38
	Total	100%	226

Question 8: What is your nationality?

#	Answer	%	Count
1	United States	92.92%	210
2	Country other than United States	7.08%	16
	Total	100%	226

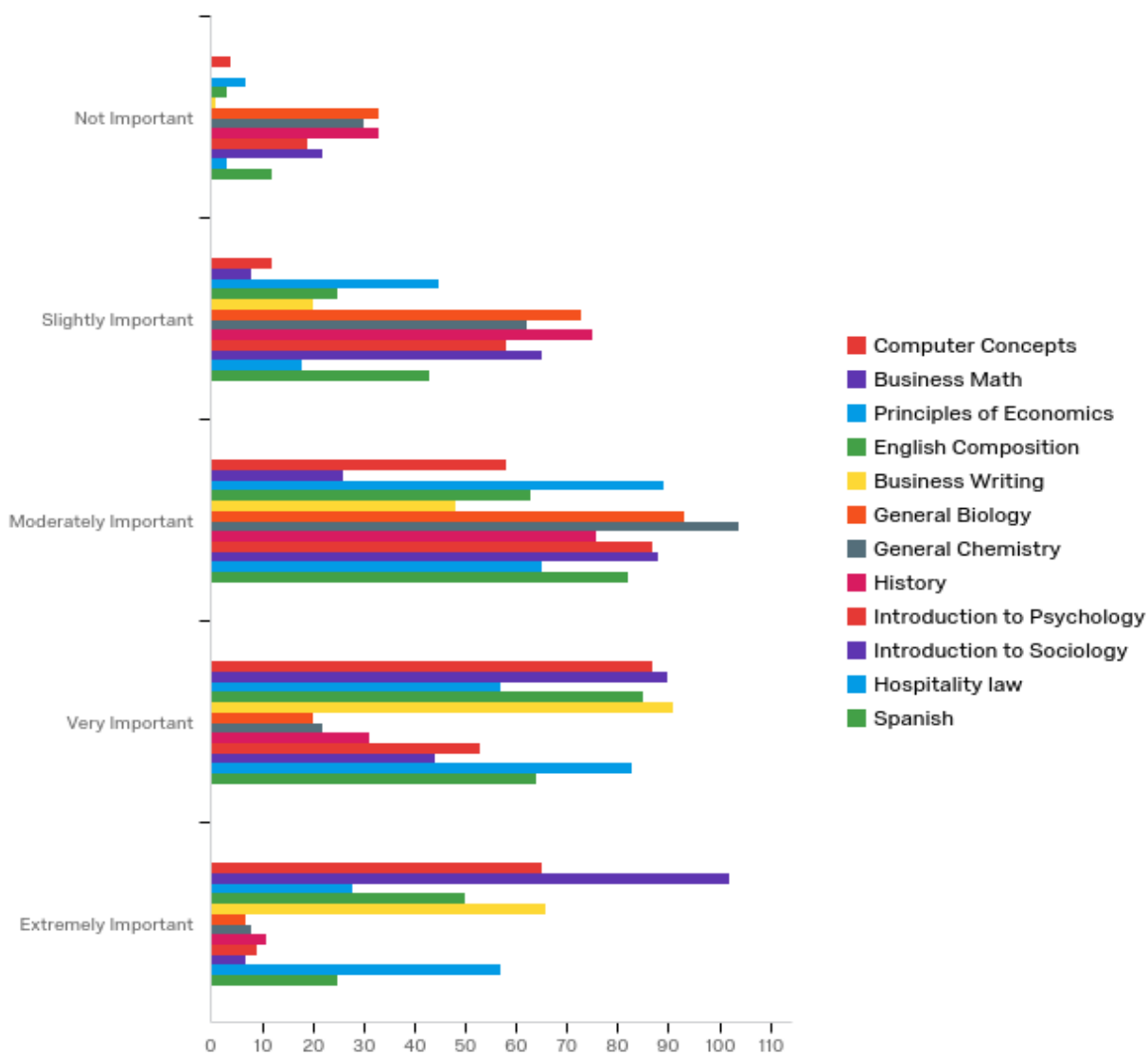
Question 9: Professional Courses



#	Field	Not Important		Slightly Important		Moderately Important		Very Important		Extremely Important		Total
1	Culinary Skills and Procedures	1.33%	3	0.00%	0	3.54%	8	15.93%	36	79.20%	179	226
2	Basic Cooking/ Hot Foods	1.33%	3	0.00%	0	4.42%	10	23.01%	52	71.24%	161	226
3	Advanced Cookery	2.21%	5	5.31%	12	21.68%	49	33.19%	75	37.61%	85	226
4	French Classical Cuisine	2.65%	6	11.50%	26	34.51%	78	31.42%	71	19.91%	45	226
5	International Cuisine	2.21%	5	5.31%	12	30.09%	68	39.82%	90	22.57%	51	226
6	Garde Manger	1.77%	4	8.41%	19	27.88%	63	38.94%	88	23.01%	52	226
7	Introductory Baking	1.33%	3	3.98%	9	16.81%	38	31.42%	71	46.46%	105	226
8	Advanced Baking	4.42%	10	13.27%	30	35.40%	80	28.76%	65	18.14%	41	226
9	Sanitation	0.00%	0	0.44%	1	0.88%	2	9.73%	22	88.94%	201	226
10	Nutrition	1.33%	3	5.31%	12	20.35%	46	31.86%	72	41.15%	93	226
11	Food Science	3.10%	7	11.06%	25	38.50%	87	27.43%	62	19.91%	45	226
12	Foodservice Purchasing	0.00%	0	1.77%	4	15.93%	36	36.73%	83	45.58%	103	226
13	Food and Beverage Cost Control	0.44%	1	1.77%	4	11.06%	25	32.30%	73	54.42%	123	226
14	Dining Room Service	1.77%	4	11.06%	25	30.97%	70	35.84%	81	20.35%	46	226
15	Restaurant/Bar Management	0.44%	1	10.18%	23	31.86%	72	31.86%	72	25.66%	58	226
16	Food Styling/ Presentation	3.98%	9	10.62%	24	32.74%	74	31.86%	72	20.80%	47	226
17	Cooking for Restricted Diets	1.33%	3	12.83%	29	32.74%	74	31.42%	71	21.68%	49	226
18	Culinary Career Development	1.33%	3	6.19%	14	24.78%	56	38.05%	86	29.65%	67	226

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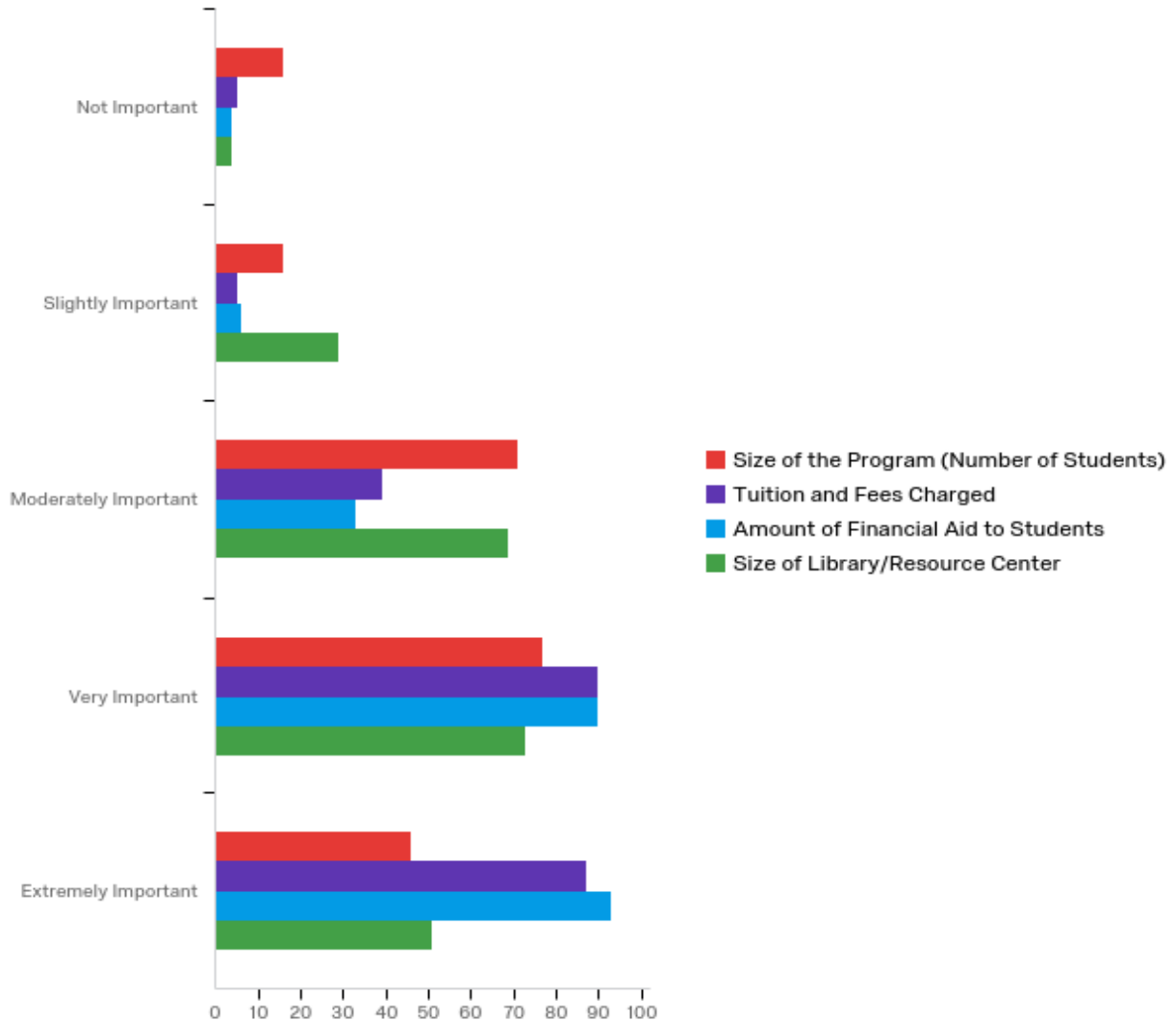
Question 10: General Course



#	Field	Not Important		Slightly Important		Moderately Important		Very Important		Extremely Important		Total
1	Computer Concepts	1.77%	4	5.31%	12	25.66%	58	38.50%	87	28.76%	65	226
2	Business Math	0.00%	0	3.54%	8	11.50%	26	39.82%	90	45.13%	102	226
3	Principles of Economics	3.10%	7	19.91%	45	39.38%	89	25.22%	57	12.39%	28	226
4	English Composition	1.33%	3	11.06%	25	27.88%	63	37.61%	85	22.12%	50	226
5	Business Writing	0.44%	1	8.85%	20	21.24%	48	40.27%	91	29.20%	66	226
6	General Biology	14.60%	33	32.30%	73	41.15%	93	8.85%	20	3.10%	7	226
7	General Chemistry	13.27%	30	27.43%	62	46.02%	104	9.73%	22	3.54%	8	226
8	History	14.60%	33	33.19%	75	33.63%	76	13.72%	31	4.87%	11	226
9	Introduction to Psychology	8.41%	19	25.66%	58	38.50%	87	23.45%	53	3.98%	9	226
10	Introduction to Sociology	9.73%	22	28.76%	65	38.94%	88	19.47%	44	3.10%	7	226
11	Hospitality law	1.33%	3	7.96%	18	28.76%	65	36.73%	83	25.22%	57	226
12	Spanish	5.31%	12	19.03%	43	36.28%	82	28.32%	64	11.06%	25	226

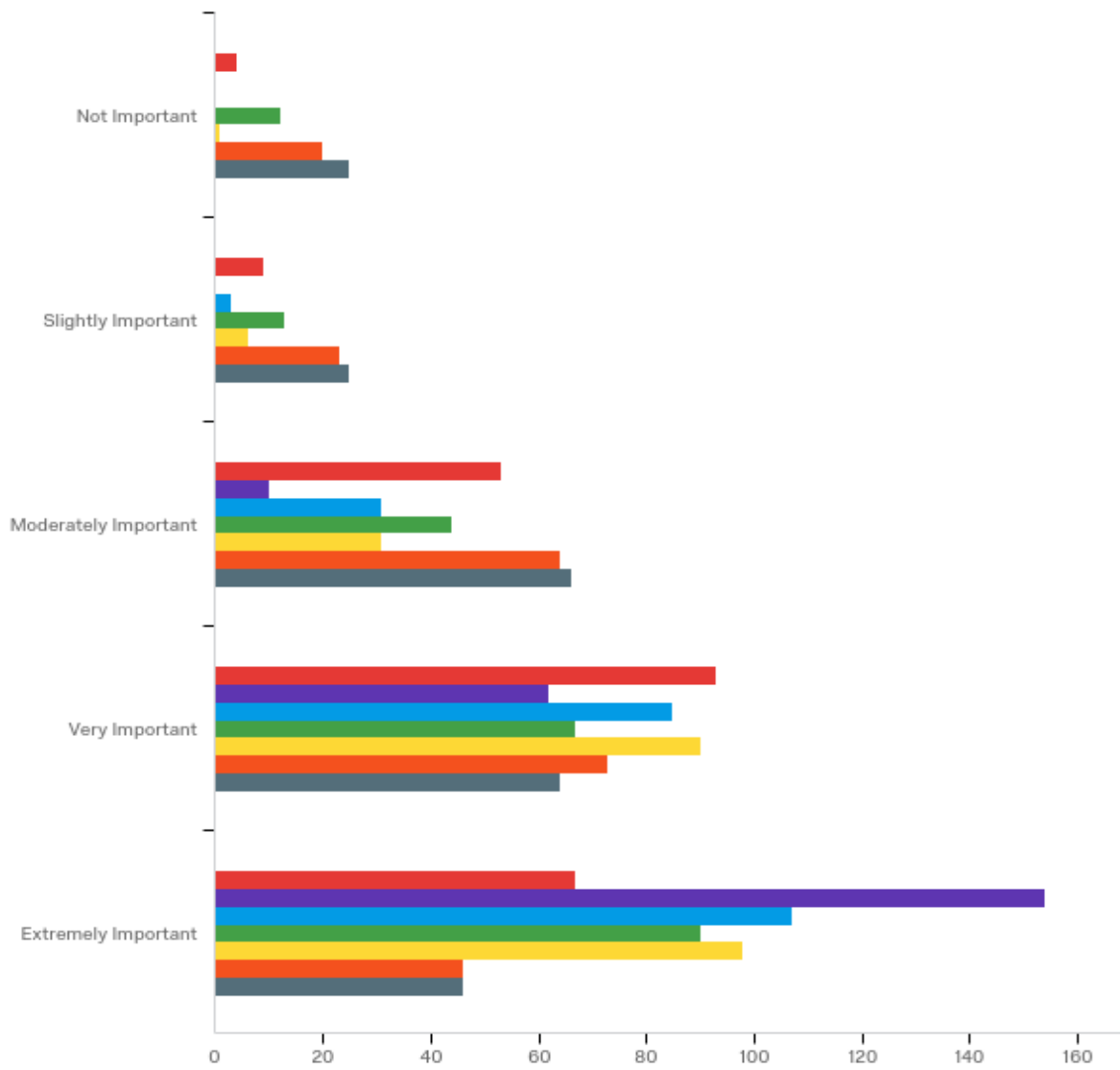
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Question 11: Resources



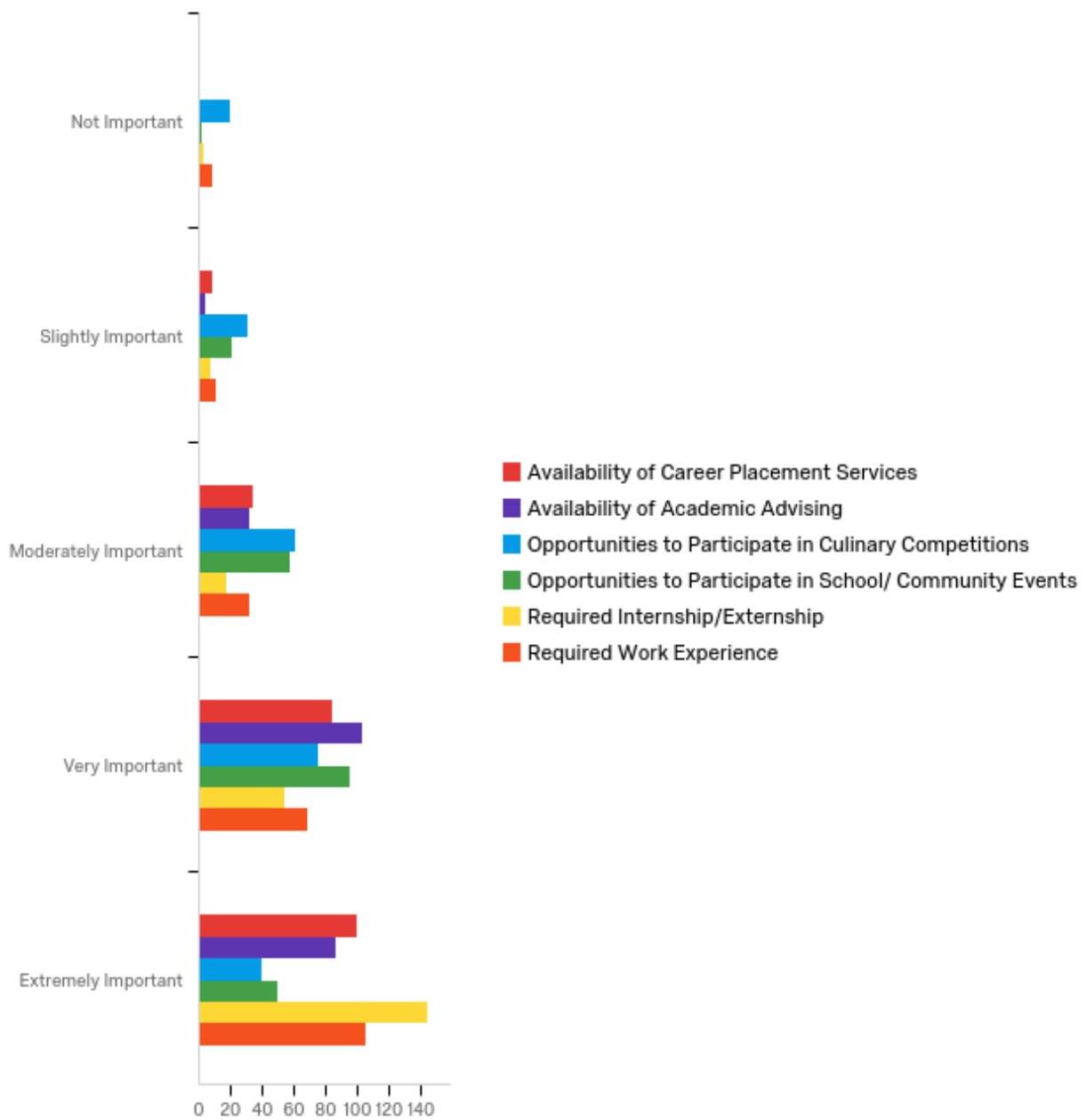
#	Field	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important	Total
1	Size of the Program (Number of Students)	7.08% 16	7.08% 16	31.42% 71	34.07% 77	20.35% 46	226
2	Tuition and Fees Charged	2.21% 5	2.21% 5	17.26% 39	39.82% 90	38.50% 87	226
3	Amount of Financial Aid to Students	1.77% 4	2.65% 6	14.60% 33	39.82% 90	41.15% 93	226
4	Size of Library/Resource Center	1.77% 4	12.83% 29	30.53% 69	32.30% 73	22.57% 51	226

Showing Rows: 1 - 4 Of 4

Question 12: Faculty

#	Field	Not Important		Slightly Important		Moderately Important		Very Important		Extremely Important		Total
1	Ratio of Full-time to Part-time Faculty	1.77%	4	3.98%	9	23.45%	53	41.15%	93	29.65%	67	226
2	Industry Experience of Faculty	0.00%	0	0.00%	0	4.42%	10	27.43%	62	68.14%	154	226
3	Teaching Experience of Faculty	0.00%	0	1.33%	3	13.72%	31	37.61%	85	47.35%	107	226
4	Professionally Certified Faculty	5.31%	12	5.75%	13	19.47%	44	29.65%	67	39.82%	90	226
5	Faculty Participation in Continuing Education (Such as Seminars, Conventions, Competitions, Research)	0.44%	1	2.65%	6	13.72%	31	39.82%	90	43.36%	98	226
6	Ethnic Diversity of Faculty	8.85%	20	10.18%	23	28.32%	64	32.30%	73	20.35%	46	226
7	Gender Diversity of Faculty	11.06%	25	11.06%	25	29.20%	66	28.32%	64	20.35%	46	226

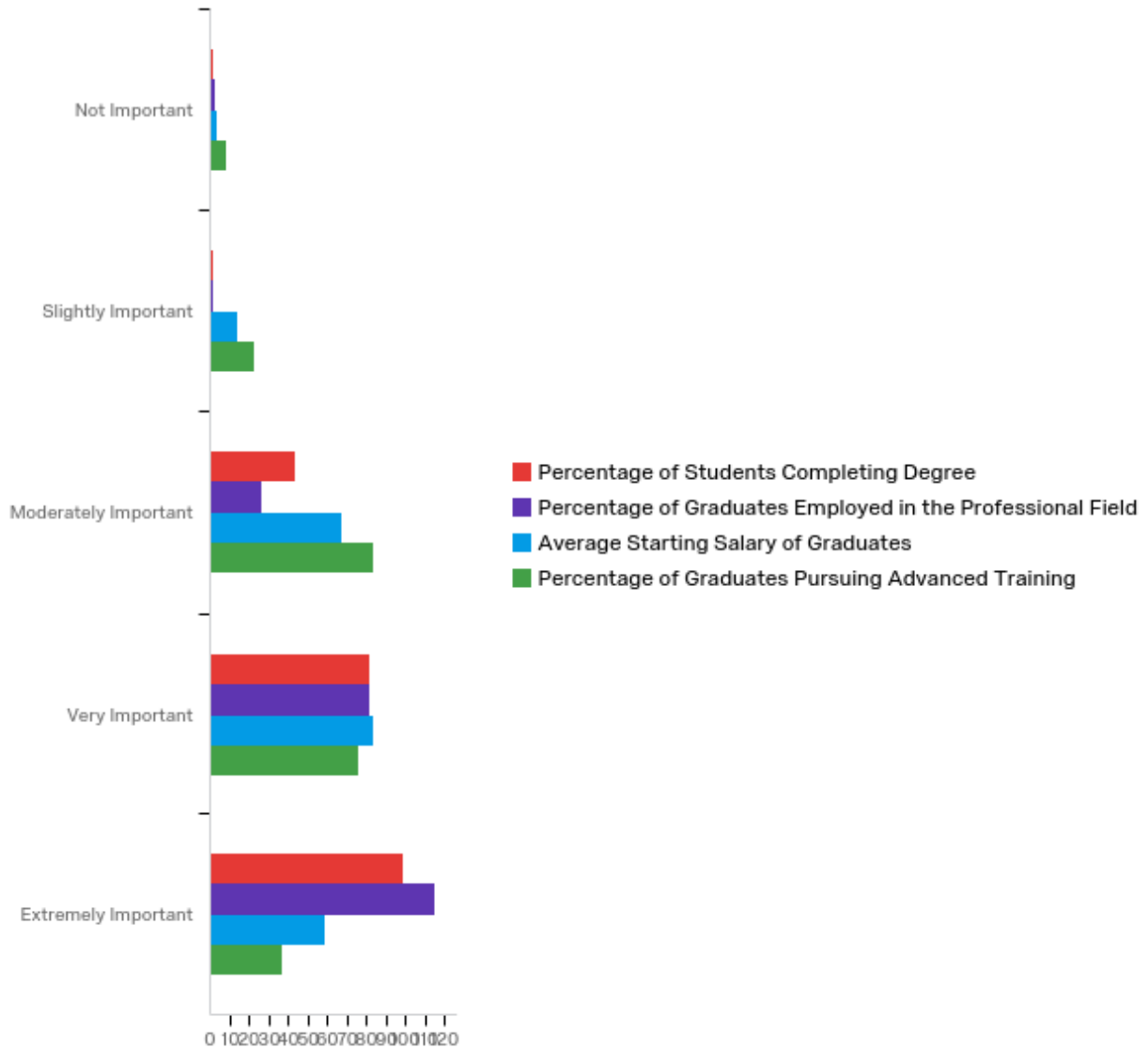
Showing Rows: 1 - 7 Of 7

Question 13: Student Services/ Learning Outcomes

#	Field	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important	Total
1	Availability of Career Placement Services	0.00% 0	3.54% 8	15.04% 34	37.17% 84	44.25% 100	226
2	Availability of Academic Advising	0.00% 0	1.77% 4	14.16% 32	45.58% 103	38.50% 87	226
3	Opportunities to Participate in Culinary Competitions	8.41% 19	13.72% 31	26.99% 61	33.19% 75	17.70% 40	226
4	Opportunities to Participate in School/Community Events	0.88% 2	9.29% 21	25.22% 57	42.48% 96	22.12% 50	226
5	Required Internship/Externship	1.33% 3	3.10% 7	7.52% 17	23.89% 54	64.16% 145	226
6	Required Work Experience	3.54% 8	4.87% 11	14.16% 32	30.53% 69	46.90% 106	226

Showing Rows: 1 - 6 Of 6

Question 14: Outcomes



#	Field	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important	Total
1	Percentage of Students Completing Degree	0.44% 1	0.44% 1	19.03% 43	36.28% 82	43.81% 99	226
2	Percentage of Graduates Employed in the Professional Field	0.88% 2	0.44% 1	11.50% 26	36.28% 82	50.88% 115	226
3	Average Starting Salary of Graduates	1.33% 3	6.19% 14	29.65% 67	36.73% 83	26.11% 59	226
4	Percentage of Graduates Pursuing Advanced Training	3.54% 8	9.73% 22	36.73% 83	33.63% 76	16.37% 37	226

Showing Rows: 1 - 4 Of 4

Question 15: Standards to Evaluate Culinary Practical Skills



#	Field	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important	Total
1	Required Practical Internship for Online Culinary Arts Students	1.33% 3	0.88% 2	7.52% 17	27.43% 62	62.83% 142	226
2	Teaching Flavor and Taste Analysis Courses to the Students in the Beginning of the Online Culinary Arts Program	0.88% 2	5.75% 13	17.26% 39	33.19% 75	42.92% 97	226
3	Online Students are required to Work Several Hours per Week under the Supervision of a Local Executive Chef	2.21% 5	2.65% 6	14.16% 32	28.76% 65	52.21% 118	226
4	Weekly Cooking Assignments Include Submission of Multiple Photos of the Final Product and Cooking Process	3.54% 8	3.10% 7	14.16% 32	32.30% 73	46.90% 106	226
5	Weekly Cooking Assignments Include a Written Description of the Process and Flavor Profile of the Finished Product	3.54% 8	2.21% 5	13.27% 30	37.17% 84	43.81% 99	226
6	Students Finish the Online Culinary Arts Program with a Six-Week Externship	2.65% 6	3.10% 7	9.73% 22	27.43% 62	57.08% 129	226

Showing Rows: 1 - 6 Of 6

Question 16: Please provide your recommendations on the standards to evaluate practical culinary arts skills in online culinary programs that were not mentioned in this survey. If you have none, please type "none".

