INCREASING FOOD SAFETY COMPLIANCE

WITH ONLINE RESOURCES

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A

PROJECT

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By

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Abstract

Food-borne illness is a top concern for public policy and public health in the U.S., causing nearly 48 million incidents yearly. The number of confirmed food-borne illness outbreaks has declined over recent years as regulation and control measures of the Food and Drug Administration have increased. However, despite increased regulations and decreased outbreaks, there are still a large number of food safety violations, and it is imperative that food service employers continue to encourage good food safety practices. Mandated training has produced varying results on the improved inspection scores of restaurant establishments, but understanding the barriers to food safety and employing food safety intervention measures has had positive results on improving the employees' food safety compliance behaviors. There is an opportunity to explore new interventions and mediums to increase safe food handling behaviors. This project describes the development of a food safety resource, FoodSafetyKnowledge.org. The site exists as a singular location for managers to find all of the necessary safety and sanitation resources in one accessible and convenient place. The discussion and analysis includes feedback from other food service professionals, and I offer recommendations to improve the site for future use.

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Acknowledgements

This project took a considerable amount of time and would not have been possible without the support of several mentors and colleagues. I would like to acknowledge the Alaska Cabaret, Hotel, and Restaurant Retailers Association staff for allowing me the time to complete this project as well as being such significant supporters of its focus.

I learned and was inspired by my mentor, Timothy Doebler, who pushed me, encouraged me, and often was my sounding board. Mr. Doebler has been involved in my entire coursework at the University of Alaska Anchorage, from my Associate's degree, Bachelor's degree, and now Master's degree completion. I hope to one day to make this kind of impact with my students. Thank you, Tim.

I learned so much from my students and my interactions with them in our classroom. They are my driving force and inspiration to keep evolving, progressing, and developing.

I also would like to thank my family and friends who have supported me through my completion of my degree. They listened to me, they pushed me when I thought I couldn't keep going, and encouraged me to achieve my goals.

But most importantly, this is for you, Mom. I love you and miss you dearly every single day.

Chapter 1 Introduction

I saw a headline in the newspaper. Another restaurant had been hit with a food-borne illness outbreak. I did not just see it in that paper though. I saw it on Facebook, Twitter, on the news, and even my friends and coworkers were talking about it. I am sure it is no secret where I did not eat my lunch that day.

Restaurants and drinking establishments are charged with providing the public safe, sanitary, and of course delicious food. In today's fast-paced environment, any slip on those charges results in damning effects. A food-borne illness outbreak, a failed health inspection, or a worker seen not washing their hands in a restroom: all of this becomes public knowledge quickly and can be damaging to an establishment's reputation.

The widely publicized food-borne illness outbreak of *Escheria Coli* that occurred with Chipotle Mexican Grill has had multiple negative effects on the chain (Jennings, 2016). The outbreak included 60 reported cases of a rare strain of Shiga toxin producing *Escheria Coli* from 11 different states and 22 hospitalized patients (Centers for Disease Control, 2016). The company experienced a 44 percent decline in net income, largely attributed to the outbreak and a criminal investigation into the establishments' food safety protocols (Jennings, 2016).

For the average restaurant worker, this type of pressure is a strong motivator to do the right thing and to be food safe. Currently, any food or drink establishment worker in the state of Alaska must possess a state or municipality food worker card or a Certified Food Protection Manager (CFPM) certification in order to work with or around food. Most obtain this by attending a one-day, eight-hour class, where they are presented an extensive amount of material before being administered a 90-question exam.

I teach the National Restaurant Association's ServSafe Manager course, and have been teaching it for the last four years for Anchorage's hospitality workers. I have seen the pressures that food-borne illness puts on restauranteurs and their employees. One outbreak can easily shut a business down for good, causing financial and personal strain to all involved. These people are well-meaning, small business men and women, looking to share their creativity with their guests. Seeing these pressures motivated me to develop a way of assisting these individuals in making their lives easier and allowing them to focus on what they do best: make delicious food.

My own progression through the Career and Technical Education Master's degree (MSCTE), as well as my progression in attaining my undergraduate degrees, has helped me to focus on solving this problem. I have learned to use observation to consider the appropriate direction for future learning. I have also experienced the benefits of virtual classrooms: they allow me to continue to work full-time and have a family, making schooling a real possibility as they offer the ability to attend from any location. This type of reflection was essential in discovering my focus in this project.

I recalled my first days at the University of Alaska, specifically on how distance education was implemented. Distance classes were offered in television, telephone, and self-paced online lessons. These lessons were basic in design and lacked the element of interaction between the teacher and students. I personally felt that these earlier distance courses did not provide me with the level of understanding that I feel is essential to comprehension of the material.

Today's distance courses are much more dynamic. The addition of technologies such as video conferencing and digital blackboards have elevated the quality of the virtual classroom. Online learners can now obtain a level of interaction comparable to that of a traditional

classroom. Distance learning has transformed with the improvement of connectivity and increase in Internet bandwidth.

In thinking of this project, I also reflected on the learning process. Through my Career and Technical Education (CTE) classes, I developed my own philosophy of education. It is a blend of elements from constructivism and andragogy; I believe in student-centered education that informs my teaching practice and allows me to mold the learning as appropriate for the respective learner. I feel that this an important practice when teaching adults from a variety of backgrounds and learning styles.

As I primarily serve adult workers in the hospitality industry, education is focused on relevant topics for the day-to-day operations. Though food safety protocols are certainly relevant, they can also be confusing, intimidating, and somewhat uninteresting to the average food worker. My teaching plan has to be designed to overcome these hurdles and be catered toward multiple learning styles.

By experiencing this evolution in distance-delivery and technology-enhanced teaching at the University, I saw the potential for transforming and improving how I teach safety and sanitation. In my work with the Alaska State Restaurant Association, I developed the plan for this project. The food safety classes at the association include a wide variety of learning types and are limited to just 8 hours of instruction and testing. Since the class time cannot be changed, the best way to meet students' needs is to deliver supplemental content outside the classroom. The current design of the course has not taken advantage of virtual learning, nor created opportunities for students to deepen their understanding outside the traditional classroom. I felt that this was an untapped resource that I wanted exploit to broaden the educational opportunities for my students.

Chapter 2 Literature Review

The restaurant industry employs over 14 million people, making it the second largest private sector employer in the nation (National Restaurant Association, 2015). In Alaska, the restaurant industry employment is expected to grow by 16.1 percent over the next ten years, landing the state in the top ten states with the largest amount of job growth (National Restaurant Association, 2015). Restaurant sales in Alaska have increased by 3.2 percent over the last year (National Restaurant Association, 2015). Patrons continue to eat out, and 58% of Americans eat at a foodservice establishment at least once a week (Rasmussen Reports, 2013).

As Americans continue to frequent eating establishments, the serving and preparation of safe foods is an important priority of both the consumer and foodservice location. Food-borne illness is a top concern for public policy and public health in the U.S., causing nearly 48 million incidents yearly (Gostin, 2011). The number of confirmed food-borne illness outbreaks has declined over recent years as regulation and control measures of the Food and Drug Administration have increased (Matyas, Cronquist, Cartter, Tobin-D'Angelo, Blythe, & Smith, 2010; Gostin, 2011). To continue this positive trend, it is imperative that food service employers continue to encourage good food safety practices.

Required Food Safety Training

Due to the increasing number of American meals consumed away from home, state regulations have focused on restaurants and eating places, such as coffee cafes, institutions that serve food, or bars serving snacks and drinks (Binkley, Nelson, & Almanza, 2008). In Alaska, the Food Code requires mandatory food service training for all employees in the establishment who serve or prepare food. At least one person per shift is required to obtain a Certified Food

Protection Manager (CFPM) certification, which shows that the employee has received 8 hours of food safety training and passed the CFPM exam.

This certification is valid for five years and requires a retest before subsequent renewal certification. All other food handlers must obtain a State of Alaska Food Worker Card (or Anchorage Food Worker card for those employed in the Municipality of Anchorage), which demonstrates that the employee has received 4 hours of food safety training and passed the Food Worker examination (Alaska Department of Environmental Conservation, 2012; Municipality of Anchorage, 2010).

Incorporation of Training and Intervention Procedures

The Food and Drug Administration recommends that food service establishments be inspected twice in a calendar year in an effort to prevent food-borne illness. However, the number of food-borne illnesses has not declined solely due to the inspection process alone, but when coupled with a mandatory food safety certification (Jones, Pavlin, LaFleur, Ingram, & Schaffner, 2004). As inspections are conducted biannually, it is important that food service managers understand the risks and control measures to mitigate potential food-borne illness hazards (Hertzman & Barrash, 2007; Murphy, DiPietro, Kock, & Lee, 2010).

The incorporation of inspections and mandatory training will not ensure full compliance with food safety practices, but can when combined with management practices that emphasize the importance of food safety practices. Restaurants managers who incorporate intervention techniques such as reminders or incentives along with food safety training performed significantly better in food service inspections than those establishments who received training alone (York, Brannon, Shanklin, Roberts, Barrett, & Howells, 2008). Incorporating food safety training education alone is not enough to ensure compliance with food safety procedures

(Clayton & Griffith, 2004; Green & Selman, 2005; Manning & Snider, 1993; Mortlock, Peters, & Griffith, 2000), and analyzing the effects of incorporating food safety interventions, mandatory training, and inspections would be an interesting approach for future research.

Perceived Barriers to Food Safety Compliance

To be an effective manager in food safety practices it is important to understand what the employee perceives to be the barriers to serving or preparing safe foods. Staff education and motivation are important factors in an employee's commitment to the industry, and having such a committed workforce is vital to an establishment's success (Kusluvan & Kusluvan, 2000). York et al. (2008) incorporated the Theory of Planned Behavior (TPB) to assist in predicting and changing behaviors. This theory emphasizes that if an employee believes or perceives that he or she cannot perform a certain behavior, then that employee will not change it. Employees are more likely to perform the correct food safety behaviors if the perceived barriers are lowered or removed completely (Howells, Roberts, Shanklin, Pilling, Brannon, & Barrett, 2008).

The most common barriers to food safety include inadequate training, lack of time to perform the correct procedures, insufficient equipment, and poor attitudes toward food safety compliance (Green & Selman, 2005; Howells et al., 2008; Kanagui-Munoz, Garriot, Flores, Cho, & Groves, 2012). Additionally, managers expressed that they would be more likely to enhance their food safety programs if they were afforded more time and received funding for program enhancement, and if employees were motivated and engaged (Roberts & Sneed, 2003). Addressing these barriers enhances the need for more effective food safety training and an incorporation of intervention procedures (Hertzman & Barrash, 2007).

Limitations of the Current Food Safety Training Curriculum

The current design of the food safety program focuses on increasing the food handlers' knowledge base on what being food-safe entails by use of textbook, PowerPoint lessons, and assessments such as chapter quizzes and the formal certification exam. The course is also designed to cover a large amount of material for a variety of different types of foodservice establishments, making its scope somewhat general in nature. The information is delivered in six hours and covers ten chapters of material.

The course delivery is limited to certain learning styles, such as auditory or textual learners. Visual or kinesthetic learners tend to find the traditional education methods more difficult to comprehend (Higgins, 2009). Multidimensional programs that focus on multiple learning strategies and are tailored to a variety of learning styles are most successful in teaching adults (Chernish, DeFranco, Lindner, & Dooley, 2005). The current program lacks the incorporation of hands-on skill learning and experiential, on-the-job learning specific to the employees' type of establishment. Thus the responsibility of such training rests on the establishment manager or owner.

Another charge to the respective manager or owner is the incorporation of an ongoing food safety training program (Cenci-Goga, Ortenzi, Bartocci, Oliviera, Clementi, & Vizzani, 2005). When presented with new information, employees will hear the information the first time, recognize it the second time, and learn it the third time the information is presented (Walker, 1999). Continuing the conversation on food safety keeps the importance of good food safety practices fresh in employees' minds and enforces the expectation that employees practice the appropriate procedures. However, most locally owned establishments do not have a developed

food safety program and rely on what information their employees receive from the mandatory food safety course.

Relevant Learning Theories

Research on adult learners has been concerned with their motivations, past experiences, and readiness to learn (Knowles et.al, 2005). Different from school-aged learners who are dependent on teachers and structure, adult learners enjoy self-directed learning and the ability to learn from personal experiences and experiences shared by fellow colleagues. The motivation to learn is intrinsic and very much driven on the adult's current personal education need. Non-formal, learner-centered education seems to be the best approach in meeting the needs of adult learners.

Andragogy. Led by Malcom Knowles (1984), andragogy is the theory that applies to the study of adult learners. The basic principles include a consideration of the adult's personal experiences, intrinsic motivation, transition of self-concept from dependent to independent learners, and their readiness and orientation to learning. What makes andragogy different from pedagogy, besides the transition to independence, is that adults need to be involved in the planning of the learning and the concepts are not only relevant but also problem-centered.

Constructivism. Constructivism is a learner-centered theory, based on the idea that the learner constructs his or her own knowledge and meaning from experience. It accepts that learners have multiple perspectives in regards to learning, that it is personal, and learners will interpret their learning in their own way (Alonso, Lopez, Manrique, & Vines, 2005). This compliments the ideals and motivations of the adult learner, making it a viable concept in developing learner content.

The founders of this theory are John Dewey and Lev Vygotsky. In Dewey's *Democracy and Education* (1916), he challenged the then-current design of education and emphasized the importance of learning by doing. He described how the learner is affected by his/her environment and that those affects develop their understanding. Vygotsky, similar to Dewey, believed the learning and development are collaborative activities. He advanced the concept of a *Zone of Proximal Development* (1978) centered on how a student learns an activity and transitions from not knowing, being assisted, and then performing without assistance.

Differentiated Learning

As education and training move toward a learner-centered design, opportunities exist for training programs to cater towards multiple learning styles to create a more diverse and effective classroom culture. By providing multiple strategies for the learning, differentiating how managers provide those lessons, and continual observation and assessment, students have multiple opportunities to show and grow their learning in the classroom and online (Smith & Throne, 2009). Technology-assisted learning has improved the student's acquisition of knowledge (Hui, Hu, Clark, Tam, & Milton, 2007). By focusing on learner-centered strategies, the current food safety programs could be more successful in transferring knowledge on to food service workers.

By differentiating how they teach and applying a constructivist theory, educators and trainers move the learning responsibilities toward the student. This learner-focused education allows trainers or educators to tailor lessons for the respective learner and deepen their understanding of the material (Smith & Throne, 2009). Differentiated instruction aims to grow the student learning by adapting instruction in various ways for our diverse learners (Tomlinson, 2001).

As diverse as classrooms and working establishments are, managers, educators, and trainers must also remember that each student learns in a different way. Students from different backgrounds, cultures, and experiences are entering the same classroom, in person and online. Redesigning how information is taught is becoming increasingly important as education and training moves to the virtual environment (Smith, 2014).

Technology-Assisted Learning

The advent of new technologies with greater scope and prevalence has enhanced traditional learning in the formal classroom and created opportunities outside the classroom for learning (Chiva & Manthorpe, 2009; Schuller & Watson, 2009). The prevalence of online learning and incorporation of web-based courses has increased rapidly over the last decade (Mims-Ward, 2012). Older workers prefer learning strategies that involved on-the-job training and team-based activities to formal training (Canning, 2011). Because adult learner participants prefer hands-on and audiovisual learning activities (Kanagui-Munoz et al., 2012), it behooves the learning design to include an online element.

Food safety programs that incorporate various media, such as videos and other interactive games, improve a food handler's performance and are more widely preferred by learners (DiPietro, 2006). The prevalence of technology devices and improvements in connectivity allow for more development in audiovisual learning (Smyth, 2011). Interactive media allows the learner to decide where and when his/her learning will happen, allowing for more learner-centered education (Smyth, 2011). In understanding the adult learner, managers must remember the preference toward self-directed learning (Walker, 1999). Online learning caters to a variety of learners: those with time constraints, those in remote areas, and those who prefer longer review of the material (Twyford et al., 2009).

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Distinction between Traditional Learning and Training

It is important to discuss the difference between training and the classroom environment to which these theories and principles generally refer. First, training usually evolves due to a need of the business or the learner (Gorlitz & Tamm, 2016). For example, a food worker attending a food safety class in order to work in the industry is doing so based on a career need. Because of this, learners interact with the material much differently than traditional education. Their performance in these trainings directly affects their position in the company and their personal well-being (Masadeh, 2016). Training is also largely directed by the learners themselves.

Because of this learner direction, the benefits of technology-assisted education are highly beneficial in training. Little time exists during work hours for training purposes, and what cannot be covered during work is often taken home by the respective learner. Having online resources available to the learner at anytime, anywhere can assist them in the training completion.

Summary

The implementation of mandated training has had varying results on the improved inspection scores of restaurant establishments. Understanding the barriers to food safety and employing food safety intervention measures has had positive results on improving employees' food safety compliance behaviors. There is an opportunity to explore new interventions and mediums to further increase the development of safe food handling behaviors.

The current design of the food safety curriculum meets the requirements of the respective state food code mandates, but is limited in fulfilling the learning needs of food service professionals. Students who attend the course receive a large amount of information on food safety, but are not afforded the ability to practice skills nor enough time to fully develop their

understanding. By developing resources that support further understanding and skill development, the anticipation is that employees will perform food safety skills better, inspection scores would improve, and the number of food-borne illnesses would decrease.

Chapter 3 Method

I have been a ServSafe instructor for four years and currently teach the course twice a month at my place of employment. ServSafe is a nationwide food safety training program designed by the National Restaurant Association Solutions program. I have had students from many different backgrounds, levels of experience, and cultures. My classroom consists of hospitality business owners and managers, line cooks, dish washers, nurses, daycare attendants, coffee cart attendants, and chefs. Having such a varied classroom has highlighted the importance of understanding different learning styles, levels of experience, and the opportunities that exist to further assist my students in understanding the material and learning the skills they need to keep food safe.

The course is designed as a one-day review of the ServSafe Manager course book (a ten chapter textbook). Upon completion of the review, the students are administered a ninety-question, multiple choice, two-hour, timed, closed-book exam. The expectation for students is that they will obtain their textbook at least two weeks prior to their scheduled class session and read through the text before attending class. In addition to the text, students can also obtain a diagnostic study exam, as well as a pretest to further their comprehension of the material.

Many of my students express their lack of time in preparing for the class and many have had to reschedule to maintain their responsibilities in their businesses. Furthermore, the requirement of certification of at least one person per shift – as mandated by the state food code – puts a heavy burden on students who feel their professional wellbeing is at stake. I have observed the amount of stress and anxiety that is placed on students when they do not feel competent in the material and fear they may lose their businesses because they cannot pass the exam.

I have had several managers request support materials that they can use in their establishments to support their in-house training programs. Many express that their employees are not retaining the material from class and need more opportunities to engage with it. These requests, coupled with the previously expressed pressures, encouraged me to develop a supporting resource to better assist my students and, in turn, the industry performance in safety and sanitation.

Need for FoodSafetyKnowledge.org

After performing a thorough literature review and considering the needs of my students, I felt that the development of support material accessible to establishment managers would be an effective resource for the hospitality industry. Considering the variable hours that my students work, the material would be best to be delivered through on online platform. The recent developments in technology and prevalence of the Internet, smart phones, computers, and tablet devices makes this option quite viable for students as it is available to nearly all students for access. Choosing the online platform allows the food handler to view the material anytime and anywhere, thus making it convenient for his/her respective schedule.

In the beginning of this project, I considered creating food safety videos covering the three food safety skills most often under-performed in food safety inspections: proper hand washing, proper sanitation of food surfaces, and prevention of cross contamination (Hertzman & Barrash, 2007). Using an online platform such as YouTube and developing videos that teach the food handler a specific food safety skill would enhance the current formal training. As I considered what skills might be needed to create these videos, it seemed prudent to determine what was already available in the realm of food safety and sanitation training videos.

What I soon discovered is that there are a multitude of food safety and sanitation videos online on YouTube, TeacherTube, and other social media sites that are well-made, teach the current material, and visually show the viewer the proper skills to prevent food-borne illness. I was able to locate excellent videos depicting the skills of proper hand washing, cleaning and sanitizing of surfaces, and skills and techniques to prevent cross contamination. It seemed there was no need to 'reinvent the wheel' and that another avenue should be explored for supporting my students.

Having found reliable resources in online videos, I considered downloadable print materials. Employees who are able to view printed posters at their place of employment reminding them of the proper procedures for food safety are more likely to perform those procedures correctly than employees without printed reminders (Chapman, Eversley, Fillion, MacLaurin, & Powell, 2010; York et al., 2008). After researching the existing resources in print materials, I again discovered that there was a good bank of posters, flyers, and other print resources that are easily downloaded and reproduced for use in an establishment.

Many resources exist online that can assist managers in creating successful food safety programs, however these resources are in many locations, exist on different websites, and can take valuable time to locate, download, and disseminate. Additionally, assessing the quality of these resources requires a thorough review to ensure the resource is credible for use as study material. Time is a precious commodity and the average manager may not be willing or able to expend hours locating and developing training components (Foote, 2004; Howells et al., 2008). As resources are developed for managers, designers must keep the resource of time in mind and it must be considered in determining the best way to assist managers in developing their establishment protocols.

Considering these factors, I determined the best way to use the available resources in a more productive way would be to curate them into one location by developing a website that puts all of those important and useful materials in one place. Such a resource would exist as a singular location for managers to find all of the necessary safety and sanitation resources in one place and could be accessed when convenient for the food safety professional. Additionally, the online dissemination would make this a viable resource to food safety managers nationwide and thus makes it a resource readily available to the entire food service industry.

Creating FoodSafetyKnowledge.org

Prior to creating the website, I took the time to research other sites that serve as information hubs. I looked specifically at their structure, content, ease of use, and other factors that would be important to potential users. What I discovered was that no website existed that included all the information pertinent to the food safety professional.

To design the site, I choose to use a Wordpress platform (www.wordpress.com) as I am already familiar with this design platform and would not need to spend additional time learning website design on another program. Websites can be created free of charge and offer sufficient storage as well as many free tools to aid in site creation. This platform is not only easy to use in website development, but also easy to use for the consumer. In order for technology to be most effective it must be easy to use and understand (Penfold, 2009). Wordpress is designed for the user to easily navigate and better focus on the material presented rather than any technological hurdles, as its design has a limited number of menus, a clean look, and several navigating tools.

I began first by registering an account on the site and choosing a web address. I choose to name the site FoodSafetyKnowledge.org as I felt it clearly informs the reader of the site's focus. To create a tagline that described the site, I chose "tips and tricks to help managers develop their

food safety training programs." This tagline also assists in making the site easier to find in Internet searches.

With the basics created, I was then prompted to design the content of the page. Designing the content is a challenging decision-making process. As I considered what should be included I reflected on the needs of the respective audience. Morgan (2004) notes that the concern of the training needs of the hospitality and tourism industry are the predominant factor in the curriculum design, and I sought to feature the industry in everything I did to develop the site.

Here, I applied a backwards design and considered what outcomes I expected to see from users of the site. The Understanding by Design method (Wiggins & McTighe, 2005) promotes starting with the end in mind, and is a planning process to guide curriculum, assessment, and instruction. It is based on seven key tenets:

1. Learning is enhanced with purposeful curricular planning;

2. The framework is focused on the development and deepening of student understanding and transfer of learning;

3. Understanding is revealed when students independently make sense of and transfer their learning through authentic performance;

4. Effective curriculum is planned backward from long-term, desired results;

5. Teachers are coaches of understanding;

6. Constant reviewing and reflection on intentions of the curriculum compared to its outcomes;

7. The results inform needed adjustments in curriculum as well as instruction so that student learning is maximized.

I considered this method as a means to design curriculum, rather than a means to direct

assessment, and some of the questions that guided the content included:

- What do managers need to set up their food safety programs?

- What videos should I include to cover the necessary skills needed to be food safe?

- What print materials should I include?

- What resources should be referenced on the site?

- What other support materials should I include?

Developing these questions further, I formulated them into goals for the site:

- I want the site to become a single resource for food service professionals to obtain
  information about food safety guidelines.

- I want to the site to be a useful resource for food service professionals to deepen
  their understanding of food safety and sanitation.

- I want the site to be flexible in design and able to adapt to future needs of
  learners.

Content

Using these questions and goals as a guide for development, I choose a menu of the

following pages: *Home*, *About*, *Food Codes*, *Food Safety in the News*, *Food Safety Resources*,

Posters and Flyers, *Training Videos*, and *What Managers Need*. The *Home* and *About* pages,

necessary to any site, give a welcome message to viewers as well as set the theme for the site.

Figure 3.1 shows the landing page of the website.

Food code. The *Food Code* page was included as it is the governing document for all

food and drink establishments. Finding a state or municipal food code can be challenging as

navigating the government sites can require a bit of ingenuity and investigative work to locate
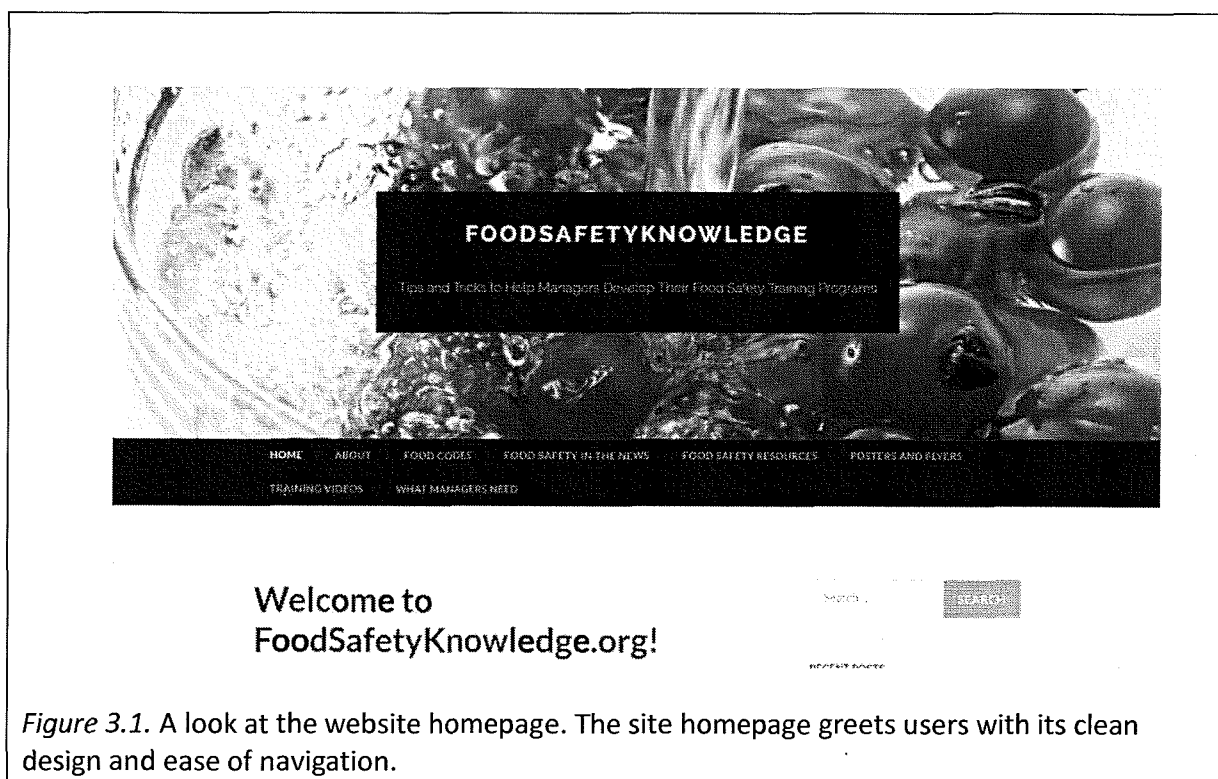
Figure 3.1. A look at the website homepage. The site homepage greets users with its clean design and ease of navigation.

them and even more to find them in a downloadable format. Initially, I considered only adding the state food code for Alaska and the municipal food code for Anchorage, the two governing codes for our great state. I soon decided that inclusion of each state food code would be an easy and smart addition as the site includes content for food managers nationwide. In Figure 3.2, a snapshot showing a listing of available food codes on the site is shown.

Food safety in the news. Including the *Food Safety in the News* page allows me to upload and share current news articles that can serve as reminders of the importance of training and illness prevention methods. Staying up-to-date with the news can prove challenging in itself without a bit of help. I decided to use Google Alert, an Internet application that browses the Internet will send notifications via email if any new information about a specific topic is shared. I set up several alerts to keep me up-to-date with the latest news (google.com/alerts). I included

Food Codes

Click to the links below to view:

2013 FDA Food Code

Alabama Food Code

Alaska Food Code

Anchorage Alaska Municipal Food Code

Arizona Food Code

Arkansas Food Code

California Food Code
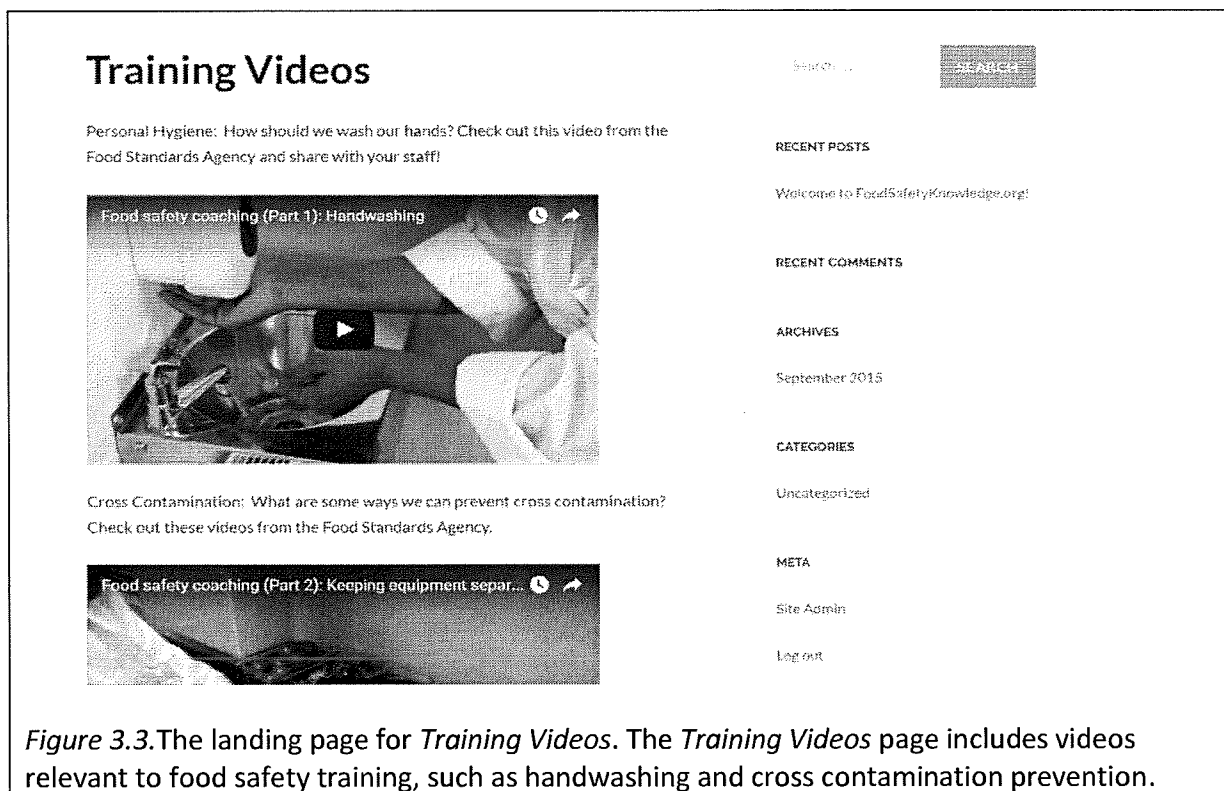
Colorado Food Code

Connecticut Food Code

Figure 3.2. A look at the *Food Codes* page. A snapshot of the *Food Codes* page depicts a listing of some of the available food codes on FoodSafetyKnowledge.org.

the topics of "food safety knowledge," "food safety training," "food-borne illness," "safety and sanitation," and "food safety."

Food safety resources. The *Food Safety Resources* page includes links to various government, social media threads, and websites. This addition is in support for those learners who would like to delve deeper into their learning. This page will continue to evolve over time as more resources become available. For instance, articles related to food safety, changes in the food code, or special food safety courses will be posted here.

Posters and flyers. The use of posters and flyers can increase the incorporation of the necessary skills for the prevention of food-borne illness (York et al., 2008). On the *Poster and Flyers* page, managers can download and print various materials to post in their establishments. In my research I discovered foodsafety.gov, a government site created by the Food Safety Working Group to educate the public on the importance of food safety. From the site I also joined their Facebook page, where many print materials are posted and shared with their audience. From both their site and social media site, I was able to download several print materials, such as a flyer on the various food-borne illnesses and their sources, the "Cooking for Groups" poster that details the importance of keeping hot food hot and cold for cold, and a poster depicting the proper storage order for various items under refrigeration. Though most of the materials are geared towards the home cook, the knowledge also applies to the professional cooking environment. All resources added to my FoodSafetyKnowledge.org website abide by copyright law and reference the appropriate source.

Training videos. Sites like YouTube and TeacherTube offer many resources for online skill development. I discovered many different videos to cover the essentials for hand washing, cleaning of surfaces, and prevention of cross contamination. Though there are many videos related to food safety, each one must be viewed and considered for its appropriateness for the site. The videos each had to be screened to ensure they include the correct information and were updated with recent changes in the food code. On the *Training Videos* page of my site I grouped these resources together in one place. Embedding the videos onto the page keeps the viewer on the site, and still gives credit to the creator of the video. I chose to focus on videos relative to food safety training and, in keeping with the time constraints of food handlers, tried to include videos no longer than five minutes in length. Figure 3.3 shows a screenshot of the page.

*Figure 3.3.*The landing page for *Training Videos*. The *Training Videos* page includes videos relevant to food safety training, such as handwashing and cross contamination prevention.

Launching the Site

The site went live in September of 2015. I knew that it was time to launch the site when each page included the intended content. The only marketing done in sharing the site was through word of mouth. At the time of this writing in March, 2016, the site has received 66 visitors from 11 different countries and a total of 71 views. A discussion on the impact of the number of visits is described in Chapter 4.

Summary

FoodSafetyKnowledge.org is designed to assist food workers, managers, and restauranteurs in operating a safe establishment. It is a tool to be utilized in the restaurant training design and training programs as a resource that can help food workers deepen their understanding. It is my hope that it will prove to be a viable, trusted, and frequented resource that food workers will go to when they have food safety related questions or needs. As this is the first

rendition of the site, there are several opportunities moving forward to make it better in the future.

Chapter 4 Discussion

During the design and execution of FoorSafetyKnowledge.org, I have noted several ideas and recommendations for improvement in the project. The site is in its first phase and I anticipated at its inception that there would be opportunity for enhancement. This reflection is important with any new training tool as no tool is perfect and without flaw.

Strengths

An important first reflection is on the positive aspects of the site. In addition to my own critical reflections, to identify the strengths of the site, I solicited feedback obtained from foodservice professionals to be site reviewers. I also collaborated with my project advisor to determine what we felt were the most important qualities of the site.

Navigability. As many government websites are notoriously hard to navigate, I discovered that locating and downloading food safety resources was not easy task. In my design of the site, I focused on alleviated that difficulty. The site is more navigable than government websites, where information is buried deep and cumbersome for the user. The website pages are clearly labeled and the content is presented in a clean, uncluttered format. Additionally, the site's design is mobile-compatible, making it easy to use on smartphones or tablets, the preferred devices of the intended audience.

Centralized. Prior to the creation of the site, a number of resources existed in regard to food safety, however they did not exist in one location. The site design includes those resources in one location, making it easy to locate. With the website, the information that food workers need is in one location. Users can go to one website, rather than 50 different sites and food managers who span different regions can find everything they need in one place. The site

alleviates the burden of locating support materials from a large number of sites and allows the user to find everything he or she needs in a single, self-contained resource.

Time-saving. Since users will not have to navigate difficult government websites, this saves time for managers or restaurant owners who are developing programs or protocols. The decision to include each state Food Code is another positive that presents the necessary information for users directly on the site. By removing the burden of time that would have been spent trying to locate quality content, managers will in turn utilize their time more effectively in creating their food safety programs.

Quality content. The information on the site has been scrutinized and validated for users of the site. The content is current, well maintained, and is continually updating as new information becomes available. By utilizing my connections with professional associations, Google alerts specific to food safety, and receiving email updates, I have a number of resources for content for the site. Managers can trust the site, and knowing that information has already been vetted, do not have to determine what information is valid. I have made a personal commitment to continually review new content and keep the site updated.

Responsive to perceived needs. The site has been designed with the user in mind. I considered what their needs were and how best to satisfy those needs. The intention was thoughtful, user- and learner-centered, and based on a thorough literature review. As this is the first iteration of the site, it is certainly not without flaw but also well designed to respond to change.

Weaknesses

Opportunities certainly exist for improvements to the website. Most the identified weaknesses were selected based on my personal reflection of the site's design. I reflected on the

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original intentions of FoodSafetyKnowledge.org and considered if the end product met those primary targets.

Ongoing maintenance. Responsibility for the upkeep of site is not being shared with a team, but falls entirely on me. This is certainly a challenge of time, considering that this is not institutionalized or funded by any organization. Though this responsibility is a personal undertaking, it is certainly relevant to the work I do for the hospitality industry. I am committed to the maintenance of the site and its relevance to my career allows me to continue to keep the content relevant, but the lack of support for this work is a challenge.

Unaffiliated nature. Additionally, the independent nature of the site may challenge the perception of credibility. Because the site is not associated with a well-known university or food research institute, users may perceive the information and content on the site as having less credibility compared to sites created with institutional support. This is a challenge that can only be overcome by ensuring that any included content is accurate, credible, and relevant to the intended users.

Interactivity. The site does not currently allow for users to interact with the content. As online communities are a significant part of education technology, this would be an important addition to the site design (Jackson, Jackson, & Chambers, 2013). By allowing users to ask questions, provide their own content, and interact with an online forum, I would be able to develop more responsive content.

Marketing plan. Another weakness of the project is the low interaction and usage of the site to date. This low traffic is likely due to the fact that the project did not include a marketing element. Had the site been shared during food safety courses or social media outlets, it may have

experienced more traffic. Future improvements for the project should include the development of a dynamic marketing plan that includes ways to increase awareness and access to the site.

Use of the site. It is historically and perennially difficult to engage this audience. Though the information is responsively developed, it can still be challenging to encourage users to actually use the site. This is a challenge for many training resources (Allen & Seaman, 2006). By incorporating a marketing plan and continuing to keep the content current, I hope to increase the number of users of the site.

The intention of the site that users would access it inside and outside of their working enlistments also brings up a possible point of contention. It is my belief that managers will find and utilize the site outside of work as their time to do so tends to be outside typical restaurant hours. However, the average food worker probed to use the site outside of normal work hours may require that an hourly wage be paid for any time spent working on their own. This is an important consideration for establishments who wish to utilize the site for their non-salaried employees.

Professional Feedback

Because I was curious for feedback beyond my own reflections and in consideration of the intended user for this site, I wanted to engage with potential users of the site. I informally reached out to five food service professionals with a strong background in hospitality and food safety. To do so, I emailed a private link to each reviewer and asked them to consider the content, the site design, the quality of the site, and any other comments or suggestions they might have. Their responses were similar to and complemented my own reflections, but did include a bit more to consider.

The general feedback was one of favor in the website design, that it was uncluttered, and the number of resources available to the user in one place. The mobile design of the site was also favored as users could access it from a smartphone, tablet, or computer. Users also found the site easy to navigate and commented that the setup was self-explanatory.

Improvement suggestions focused on including a forum in which users could ask questions and provide feedback. It was recommended to include a *Frequently Asked Questions* page for users to locate answers to common conundrums. Additionally, the inclusion of a contact page, where users could leave questions or concerns was highly recommended. It seems that the most important resource the site could offer is a continual mentorship between the food worker and the food safety expert. Palloff and Pratt (1999) suggest that best practice in online learning includes the incorporation of a learning community, where a group of individuals who are interested in a common topic or area are engaged in knowledge-related transactions, can transform and deepen their understanding together. This is an opportunity for FoodSafetyKnowledge.org.

Website Goals

Considering the original intentions of the site, I reflect on the goals that I outlined for the project, and how well the current iteration meets those objectives. First, I wanted the site to become a one-stop shop for food workers in understanding food safety, learning how to be food safe, and accessing tools managers need to implement the correct practices. In order to meet this goal, the site should include a defined food safety training plan, or at least the building blocks for owners and managers to create one. As managers and owners have a limited amount of time to set aside for training plan design, to further assist them and ensure that the correct food safety practices will be implemented, the site should include a ready-made product so that managers

would not have to create one themselves (York et al., 2008). This would make the success of such implementation much more likely. At this time, the website does not incorporate this resource.

Another goal of the site was to create it with the ability to adapt and change as needed or as new information becomes available. The trouble often seen with online training tools is the lack of continual updates (Russell, 2010). This type of stagnation can deter the user from utilizing the site, causing them to locate information elsewhere, and therefore not solving the issues stated earlier in this paper. My choice to develop a website also charges me with the responsibility to keep it current. This requires an extensive amount of time and continual review of new or updated information.

Next Steps

The site's current design includes a number of resources for users to increase their food safety knowledge. What the site lacks is a more defined focus on what a safety training program should look like or include. Moving forward, I would like to incorporate more user interactions, such as food safety quizzes or sample food safety scenarios with tasks for the user to further and deepen their understanding.

Another important addition would be a way for users to interact with each other as well as the site itself. By creating a site that encourages interaction and social support it then becomes a learning community where users can provide vital feedback to the design (Kochery, 2003). This could be accomplished by the addition of an online forum on the page or the incorporation of a Rich Site Summary (RSS) feed. This would allow me to continually consider what the users need to further the effectiveness of the site.

Being that the site can be accessed anytime and anywhere, it may also prove useful to a much broader audience than I had originally considered. The information the site provides is useful to more than just the professional chef, but also to the home cook, educators teaching culinary arts in high schools, or university faculty. The increased popularity of sophisticated home-cooked meals also brings on a number of new food safety concerns for the household kitchen. As I consider improvements in the future of the site, it would seem beneficial to market its usefulness beyond the professional kitchen.

It is important to note that no marketing plan was implemented in the design and execution of this project. Going further, it will prove useful to draft a marketing plan in getting the site utilized in its target market. Future improvements will need to contemplate the best ways to market the website and track it use in public.

Summary

As I experienced the transformation of distance learning over time, so too should I consider the same transformation in the site into the future. It is important that I continually check in with users to obtain their feedback on the site's design, content, strengths, and weaknesses. By keeping the learner needs as my motivation, it is important to remember that those needs will ebb and flow over time.

Chapter 5 Conclusion

After four years of teaching food safety and sanitation, it is truly exciting to see my original dream come to fruition in the creation of the site. I have been able to reflect on the process of the project and it still amazes me that this was just a simple idea just a short year ago. I hope that the users of the site can see it as viable and reliable resource that they can utilize for years to come. It was also refreshing and fun to challenge myself in creating this resource.

I am also encouraged by the recent and continuing growth of Alaska's hospitality industry. Progressively more restaurants, bars, cafes, and other eating establishments are opening, showing a positive trend in the industry's future. Though other economies in the state struggle to stay viable, it is encouraging to see my industry gain strength. Even with my recent departure from Alaska, I still feel a strong connection to the last frontier and care deeply about its success.

As technology has improved in connectivity and availability, it has become an accessible tool for the entire Alaska hospitality industry. Many restaurants have incorporated new technologies into their restaurants that benefit customers, employees, and owners. Additions such as tablet devices on guest tables, mobile reservations, social media, and new payment methods show that technology is changing the restaurant world. Some of the advances will serve to improve the experience not only for the patron, but for the restaurant employees as well.

FoodSafetyKnowledge.org was created for managers and food service workers to find the information and skills they need to make their businesses more successful. Merging all of the needed resources into one location was purposeful. I intended to alleviate the burden of time managers would have used in locating reliable resources on their own by making them available

in one place. I would like to continue keeping a learner-centered focus by adding more resources and to further the effectiveness of the site.

The project has truly helped me better understand how I can best assist my students. I have learned much about the adult learner and the dynamics of andragogy. This has helped to shape me into a better educator, one who is more able to be effective in what and how I teach. I would like to continue to design more resources that best serve my students and their training needs.

Applying the constructivist learning theory and continuing to keep a learner-centered focus, I look to improve the site based on the opportunities I defined and to incorporate the feedback I received. I feel that the most important improvement is the inclusion of an online community element. Adult learners thrive on experience and I feel that providing a way to share those experiences will be a strong value-added element. Connecting the industry through the site will have strong benefits in growing the website.

I also would like to define other needs for Alaska's hospitality businesses. As my role evolves into that of a consultant, I have made a personal goal to continue to look for opportunities to develop our industry and help owners grow their businesses. As managers are challenged with rising food prices, increasing health insurance premiums, and the ever-changing economy, I would like to provide resources that are low or no cost and relative to their concerns. I am grateful that my job position allows me to continue developing resources and compliments my personal as well as career passions.

The creation of this project was a great learning experience. I hope to continue learning as the website evolves. No two days are alike and I believe that every challenge is an opportunity for learning. I continue to be inspired by my students and their experiences. I understand the

unique position they are in and the pressures they deal with daily. I am challenged to support their learning needs by listening, observing, and adapting my pedagogy. By continuing to be a learner-focused educator, I am encouraged with developing myself and my students.

References

Alaska Department of Environmental Conservation (2012). Alaska State Food Code. Juneau, AK. Retrieved from https://dec.alaska.gov/commish/regulations/pdfs/18%20AAC%2031.pdf

Allen, I. E. & Seaman, J. (2006) *Making the grade: Online education in the United States.* Needham, MA: Babson Survey Research Group.

Alonso, F., Lopez, G., Manrique, D., & Vines, J. M. (2005). An instructional model for web-based e-learning education with a blended learning process approach. *British Journal of Educational Technology, 36*(2), 217-235. doi:10.1111/j.1467-8535.2005.00454.x

Binkley, M., Nelson, D., & Almanza, B. (2008). Impact of manager certification on food safety knowledge and restaurant health inspection scores in Tippecanoe County, Indiana. *Journal of Culinary Science & Technology, 6*(4), 343-350.

Canning, R. (2011). Older workers in the hospitality industry: Valuing experience and informal learning. *International Journal of Lifelong Education, 30*(5), 667-679.

Cenci-Goga, B. T., Ortenzi, R., Bartocci, E., Oliveira, C., Clementi, F., & Vizzani, A. (2005). Effect of the implementation of HACCP on the microbiological quality of meals at a university restaurant. *Food-borne Pathogens and Disease, 2*(2), 138-145.

Centers for Disease Control and Prevention (2016). Multistate outbreaks of Shiga toxin-producing Escherichia coli O26 infections linked to Chipotle Mexican Grill restaurants (final update). *CDC Online,* Retrieved from http://www.cdc.gov/ecoli/2015/o26-11-15/

Chapman, B., Eversley, T., Fillion, K, MacLaurin, T, & Powell, D. (2010). Assessment of food safety practices of food service food handlers (risk assessment data): Testing a communication intervention (evaluation of tools). *Journal of Food Protection, 73*(6), 1101-1107.

Chernish, W. N., DeFranco, A. L., Lindner, J. R., & Dooley, K. E. (2005). DOES IT MATTER? Analyzing the results of three different learning delivery methods. *Quarterly Review of Distance Education, 6*(2), 87.

Chiva, A. & Manthorpe, J. (2009). *Older Workers in Europe.* Maidenhead, UK: Open University Press. doi: 10.3384/ijal.1652-8670.1161IX

Clayton, D. A. & Griffith, C. J. (2004). Observation of food safety practices in catering using notational analysis. *British Food Journal, 106*(3), 211-227.

Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education.* New York, NY: MacMillan.

DiPietro, R. B. (2006). Return on investment in managerial training: Does the method matter? *Journal of Foodservice Business Research, 7*(4), 79-96.

Foote, D. A. (2004). Temporary workers: managing the problem of unscheduled turnover. *Management Decision, 42*(7/8), 963-974.

Görlitz, K., & Tamm, M. (2016). Revisiting the complementarity between education and training - the role of job tasks and firm effects. *Education Economics, 24*(3), 261-279. doi:10.1080/09645292.2015.1006182

Gostin, S. K. (2011). Food and Drug Administration regulation of food safety. *Journal of the American Medical Association, 306*(1), 88-89.

Green, L. R. & Selman, C. (2005). Factors impacting food workers' and managers' safe food preparation practices: a qualitative study. *Food Protection Trends, 25*(12), 981-990.

Hertzman, J. & Barrash, D. (2007). An assessment of food safety knowledge and practices of catering employees. *British Food Journal, 109*(7), 562-576.

Higgins, S. (2009). *Learning to learn.* Durham, UK: Beyond Current Horizons, 1-19.

Howells, A. D., Roberts, K. R., Shanklin, C. W., Pilling, V. K., Brannon, L. A., & Barrett, B. B. (2008). Restaurant employees' perceptions of barriers to three food safety practices. *Journal of the American Dietetic Association, 108*(8), 1345-1349. doi:10.1016/j.jada.2008.05.010

Hui, W., Hu, P. J., Clark, T. H. K., Tam, K. Y., & Milton, J. (2008). Technology-assisted learning: A longitudinal field study of knowledge category, learning effectiveness and satisfaction in language learning. *Journal of Computer Assisted Learning, 24*(3), 245-259. doi:10.1111/j.1365-2729.2007.00257.x

Jackson, L. C., Jackson, A. C., & Chambers, D. (2013). Establishing an online community of inquiry at the distance education centre, Victoria. *Distance Education,* 34(3), 353.

Jennings, L. (2016). Criminal probe of Chipotle food-safety practices expanded system wide. *National Restaurant News Online, 108,* Retrieved from http://nrn.com/fast-casual/criminal-probe-chipotle-food-safety-practices-expanded-systemwide

Jones, T. F., Pavlin, B. I., LaFleur, B. J., Ingram, L. A., & Schaffner, W. (2004). Restaurant inspection scores and foodborne disease. *Emerging Infectious Diseases, 10*(4), 688-692. doi:10.3201/eid1004.030343

Kanagui-Munoz, M., Garriott, P. O., Flores, L. Y., Cho, S. & Groves, J. (2012). Latina/o food industry employees' work experiences: Work barriers, facilitators, motivators, training preferences, and perceptions. *Journal of Career Development, 39*(1), 118-139.

Knowles, M. (1984). *The adult learner: A neglected species.* Houston, TX: Gulf Publishing.

Knowles, M. S., Holton, E. F., & Swanson, R. A. (2005). *The adult learner: The definitive classic in adult education and human resource development.* Irvine, CA: Elsevier.

Kochery, T. S. (2003). *IGP brainstorming: Investigating a methodology that accommodates to personal characteristics in idea-generating groups.* Minneapolis, MN: University of Minnesota.

Kusluvan, S. & Kusluvan, Z. (2000). Perceptions and attitudes of undergraduate tourism students towards working in the tourism industry in Turkey. *Tourism Management, 21,* 251-269.

Manning, C. K. & Snider, O. S. (1993). Temporary public eating places: Food safety knowledge, attitudes, and practices. *Journal of Environmental Health, 56*(1), 24-28.

Matyas, B., Cronquist, A., Cartter, M., Tobin-D'Angelo, M., Blythe, D., & Smith, K. (2010). Preliminary FoodNet data on the incidence of infection with pathogens transmitted commonly through food — 10 states. *Morbidity and Mortality Weekly Report, 59*(14), 418-422.

Masadeh, M. (2012). Training, education, development and learning: What is the difference? *European Scientific Journal, 8*(10), 62.

Mims-Word, M. (2012). The importance of technology usage in the classroom, does gender gaps exist. *Contemporary Issues in Education Research (CIER), 5*(4), 271. doi:10.19030/cier.v5i4.7271

Mitchell, R. E., Fraser, A. M., & Bearon, L. B. (2007). Preventing food-borne illness in food service establishments: Broadening the framework for intervention and research on safe food handling behaviors. *International Journal of Environmental Health Research, 17*(1), 9-24.

Morgan, M. (2004). From production line to drama school: Higher education for the future of tourism. *International Journal of Contemporary Hospitality Management, 16*(2), 91-99.

Mortlock, M., Peters, A., & Griffith, C. (2000). A national survey of food hygiene training and qualification levels in the UK food industry. *International Journal of Environmental Health, 10*(1), 111-123.

Municipality of Anchorage (2010). Anchorage Food Code. Anchorage, AK. Retrieved from http://www.muni.org/Departments/health/Admin/environment/FSS/Documents/AnchorageFoodCodeBookletFinal.1.25.10.pdf

Murphy, K. S., DiPietro, R. B., Kock, G., & Lee, J. (2010). Does mandatory food safety training and certification for restaurant employees improve inspection outcomes? *International Journal of Hospitality Management, 30*(1), 150-156.

Nakayama, S., & Jin, G. (2015). Safety training: Enhancing outcomes through virtual environments. *Professional Safety, 60*(2), 34.

National Restaurant Association (2015). *2015 Restaurant Industry Forecast.* Retrieved from https://www.restaurant.org/Downloads/PDFs/News-Research/research/ForecastExecSummary2015-FINAL.pdf

Palloff, R. & Pratt, K. (1999). *Building learning communities in cyberspace: Effective strategies for online classroom.* San Francisco, CA: Jossey-Bass.

Penfold, P. (2009). Learning through the world of second life - A hospitality and tourism experience. *Journal of Teaching in Travel & Tourism, 8*(2/3), 139-159.

Rasmussen Reports (2013). "58% eat at a restaurant at least once a week", July 11, 2013, in *Lifestyle* . Retrieved from http://www.rasmussenreports.com/public_content/lifestyle/general_lifestyle/july_2013/58_eat_at_a_restaurant_at_least_once_a_week

Roberts, K. R. & Sneed, P. J. (2003). An assessment of the status of prerequisite and HACCP programs in Iowa restaurants. *Food Protection Trends, 23,* 808-816.

Russell, C. (2010). Perpetually updating. *Journal of College Science Teaching, 39*(5), 82.

Schuller, T. & Watson, D. (2009) *Learning through Life* Leicester, UK: National Institute of Adult Continuing Education.

Smith, G. E., & Throne, S. (2009). *Differentiating instruction with technology in middle school classrooms.* Eugene, OR: International Society for Technology in Education.

Smith, T. K. (2014). Elementary science instruction: Examining a virtual environment for evidence of learning, engagement, and 21st century competencies. *Education Sciences, 4*(1), 122-138. doi:10.3390/educsci4010122

Smyth, R. (2011). Enhancing learner–learner interaction using video communications in higher education: Implications from theorising about a new model. *British Journal of Educational Technology, 42*(1), 113-127. doi:10.1111/j.1467-8535.2009.00990.x

Tomlinson, C. A. (2001). *How to differentiate instruction in mixed-ability classrooms.* Alexandria, VA: Association for Supervision & Curriculum Development (ASCD).

Twyford, K., Crump, S., & Anderson, A. (2009). Satellite lessons: Vocational education and training for isolated communities. *Rural Society, 19*(2), 127-135.

Vygotsky, L. S. (1978). *Mind In society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Walker, E. (1999). Characteristics of the adult learner. *The Diabetes Educator, 25*(6), 16-24.

Wiggins, G., & McTighe, J. (2005). *Understanding By Design.* Alexandria, VA: Association for Supervision & Curriculum Development (ASCD).

York, V. K., Brannon, L. A., Shanklin, C. W., Roberts, K. R., Barrett, B. B., & Howells, A. D. (2008). Intervention improves restaurant employees' food safety compliance rates. *International Journal of Contemporary Hospitality Management, 21*(4), 459-478.