



COVID-19 SPECIAL EDITION

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**JOURNAL OF CULINARY EDUCATION BEST PRACTICES
COVID-19 SPECIAL EDITION
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Letter from The Publisher

Mary G. Petersen, M.S., HAAC, HOGT
The Center for the Advancement of Foodservice Education (CAFÉ)

Mark Twain is quoted: I'm in favor of Progress; it's Change I don't like."

But that's assuming we have a choice!

Change has roared into our world, affecting everyone and everything, ranging from government to medicine, from employment to education, from relationships to hierarchies.

Perhaps some people would say that these adjustments have been or could be considered progress. But more people are struggling with what the "new normal" will look like.

Those of us involved with education are being challenged in every aspect of its delivery and evaluation. Add in culinary arts' principles of cooking as well as regarding cooking as both a business and a passion, we have mountains to climb to change what we are teaching and how we are teaching it.

Kudos to the educators featured in this Special Edition as they recommend staying grounded on important principles ranging from student engagement to F&B operations...and much in between.

These researchers have put a lot of thought into this forced-upon-us change and are reporting on principles we can benefit from while we declare progress!

Thank you to our editor, Dr. Jean Hertzman, for her professionalism and her attention to details that brings this edition to all of you involved with best practices in culinary arts education. Be sure to share this information and contribute your ideas to future editions of "The Journal for Culinary Education Best Practices."

Letter from The Editor

Jean L. Hertzman, Ph.D., CCE, CSW
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If there is anything that the Covid-19 pandemic has taught us, it is that culinary educators are resilient and ready to do our best to educate and cater to the needs of our students no matter what challenges we face. We also pull together to share our knowledge and experiences with each other. Without the usual summer outlets for meeting and networking, such as CAFÉ's Leadership Conference, the ACF National Convention, the ICHRIE Conference and many other state and local events, we have managed to work together virtually more than ever before.

We had a large response to the Call for Papers for this special edition. It includes seven opinion pieces reflecting on how culinary educators have adapted their pedagogy to customize, adapt, create engagement with their students, include curbside and delivery, and maintain contacts with industry. There are three full-length articles focusing on the diverse topics of addressing students' mental health challenges, operators' responses to Covid-19, and the increased importance of preparing seafood post-pandemic. We really appreciate that so many authors made such great efforts during this extraordinarily busy time to share their thoughts and research with the CAFÉ membership.

Many thanks to the reviewers who took their time to provide valuable feedback to improve the manuscripts presented here.

Mark D'Alessandro, Kingsborough Community College
David Goldberg, CEC, CEPC, Kingsborough Community College
Rob Hansen
Keith Mandabach Ed.D CEC AAC, New Mexico State University
Paul Mendoza, Galveston College
Jeffrey Miller, Ph.D., Colorado State University
Kim Nugent, Ed.D., Kim Nugent Enterprises

We hope this special edition kickstarts renewed interest in writing articles to share our pedagogy and best practices with our peers. We are accepting submissions by October 11 for publication in Volume 3, Issue 2 to be published in November. After that time, articles will be reviewed as submitted and published on a regular basis. We would love to return to publishing a new issue at least 6 times per year.

Creating Engagement for Students During COVID-19

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Abstract

This paper highlights practices implemented by instructors during the COVID-19 pandemic. Indiana University of Pennsylvania Academy of Culinary Arts (Academy) chef instructors had to rapidly adapt to the changes that took place as a result of the pandemic. Chefs had to take it upon themselves to relay the information to students at a distance. Incorporating the likes of Zoom, D2L (learning management system) provided by the school, and social media, Chefs and students were able to interact and create engaging learning environments. I will highlight the successes and the struggles that both chefs and students faced during this time period, as well as discuss ideas for the future of face-to-face instruction in the labs post COVID-19. The impact that this pandemic has had on us in the education field and the impact the pandemic has had on the industry who recruits our students.

From our experiences, the discussion of incorporating hybrid class structure and limiting face-to-face instruction is going to pose challenges for lab courses, however, related courses or theory courses, is going to advance the way we approach our teachings. Incorporating more technology and allowing for more flexibility to be in class versus “zooming”, when we approach the lab courses. Allowing for this flexibility, utilizing virtual demos, Zoom, and other distance learning tools, will help us to adapt and overcome any challenges in the future of this pandemic. The uncertainty of it all makes planning very challenging. Scheduling courses to incorporate our students affected by COVID-19, as well as incorporating new students, abiding by federal financial aid guidelines, and a myriad of other challenges. As educators and chefs, we have taken on that “never give up” and “adapt and overcome” mentality. It is important to highlight the challenges that are faced by everyone, not just educators, but students, parents, employers, and the like.

Keywords: COVID-19, Culinary Arts, Education, Adapting, Online Education,

Creating Engagement for Students During COVID-19

As instructors, we are faced with the challenge of creating engagement for our students in a normal setting. Now, faced with the COVID-19 pandemic, we are challenged further. As educators, we now must deal with the inability to meet face to face. We are expected to create an engaging environment for our students at a distance. Given the time frame in which we had to take face-to-face instruction and flip it to solely online instruction, the issue at hand should be clear, we could not give a complete experience for our lab classes. There needed to be more time to adapt or postpone them until a later date. The important thing to remember when facing this challenging time, is that we are all facing the same challenges. We will be discussing the modalities, the creativity of other instructors, and the challenges faced by all the stakeholders involved.

The Situation at Hand

Instruction during and after COVID-19 was and is unknown territory to all of us, especially to our students who abruptly saw a change in their day-to-day lives. Students who expected to be in the kitchen, learning how to prepare food, working as a team to accomplish tasks, and learning to become a culinarian, saw this all come to abrupt halt. At the Academy we were told two days before spring break that the break would be extended for one more week to allow us time to “put our courses online for the next two weeks. For us at the Culinary school, this was a theory course for ten days and three different lab courses for every day.

The challenge then came to keep the students excited about learning. With the abrupt change to their expectations of class, we had to transition rapidly to online instruction and students no longer would be in the kitchens. Chefs began brainstorming ideas on how to incorporate interactive demonstrations at a distance. With technologies like Zoom and current social media, Chefs were able to achieve this. We found that we were able to create an engaging conversation with the students via Zoom, as well as set up virtual demonstrations. One Chef sent a grocery list to their students, that way if the student was able to get out and get groceries, they could follow along live at home with the instructor.

When speaking to students, it was a consensus that the sudden change in instruction was very challenging. For those students in theory classes, the original class structure was based in the classroom and not a kitchen, and they did not enjoy the sudden change. Chefs were faced with negative responses and attitudes towards the work being done. Speaking to parents about the situation at hand, an overwhelming number of parents were not happy with the situation either. The calls consisted of parents wanting answers. Unfortunately, we did not have any. There still are no clear-cut answers. Approaching the start of the fall semester, it is still very unclear as to what will take place. Leadership within the schools, local governments, and the federal government are not willing to agree on a stable plan to move forward. It keeps getting pushed down to the management to “come up with a plan” (T. Barnes, personal communication, May 1st, 2020)

The problem we are now faced with, is being a one-year program, we must bring in a new class, bring back the current students, and get all these students out on externship. Which leads to one more major kink in the chain, the lack of foodservice establishments running as normal. The restaurant industry is in a very unstable place right now, so placing students on externships at the end of their time at the school has become ever more challenging.

Adapting to the Challenges

One thing as instructors and chefs, we will adapt and overcome these challenges. We have started this process by putting our heads together and approaching this pandemic as a team. Working in a way that there is no blame to be put on any one person. Our number one priority is the student. Shifting the focus back to providing our students with the best and safest educational experience they can receive. Working with instructional designers and creating media that moves us forward in the way we teach, is the only way to overcome this challenge. Instructors now are faced with moving into modalities that may have been foreign to them, but as instructors, we are lifetime learners. Now is our time to adapt and overcome.

It is important to keep in mind that not all students learn the same. As educators we learned this in our years of college. Saying that all students will learn from a PowerPoint presentation and a voice over is enough, is being ignorant to that fact. Sixty percent of the population are visual learners, thirty percent are audible learners (Calvacante, 2014). So, incorporating hands on demonstration at a distance is key to engage our learner. Students that took part in the virtual demonstrations reported that they found they learned more and felt more engaged in the class during those demonstrations. They also stated they were more likely to replicate the demonstration at home.

Reaching those who are more kinesthetic learners poses a bigger challenge. Calvacante, 2014 lists a few methods for instructing these learners. She states that using task simulation or role-playing is a good way to engage these students, as well as incorporating physical activity into the virtual classroom in some way (Calvacante, 2014). Speaking with colleagues we agreed that these activities are important for our students.

Overall, we are all faced with very uncertain times. The important thing to take away from this all is that we are all in the same situation. It is time that we all look to our peers, our colleagues, and our leadership, university and governmental, for guidance and ideas for moving forward safely. Keeping in mind that our students are our number one priority. Students, parents, educators, and employers are all facing the same challenges and it crucial to keep everyone in mind when we are working to get back to a sense of normalcy. We hear our leadership say, we need to adapt to the new normal, and it is very true. This is pushing us into a future that is incorporating more online modalities and online forms of instruction. The question is, will it be a welcomed change or a change that is faced with extreme pushback from all fronts? As someone who welcomes change, I am willing to run with this and help my colleagues along the way.

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Customizing Culinary Education Amidst Covid-19

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Abstract

The Covid-19 pandemic brought this small island's education system to a screeching halt as island-wide curfews were announced days after the first case was detected. This had a significant impact on the delivery of culinary education at a university on a small Caribbean island that offered an accredited four-year culinary management degree. As administrators and faculty scrambled to continue theoretical lesson delivery via formal and informal virtual media, it became apparent that the practical components of the curriculum were being neglected.

The institution adopted a hybrid approach to delivering culinary education. Online remote theory classes limited the campus population but face-to-face culinary labs were strategically scheduled. Solutions were designed to address capacity and cost issues resulting from physical distancing. Additional protocols were developed by the faculty and a robust student support system was used address student issues as the new academic year approached.

Key words: culinary education, culinary management, online delivery, student support, Learning Management System.

Jamaica's Initial Covid-19 Response

The government's announcement on March 12, 2020 regarding the first case of Covid-19 brought this small island's education system to a screeching halt. This had a significant impact on the delivery of culinary education island-wide including the only university on a small Caribbean island that offered an accredited four-year culinary management degree. Despite having an online educational platform, approximately 80% of the course content was being delivered face-to-face given the tactile nature of the discipline. As administrators and faculty scrambled to continue theoretical lesson delivery via formal and informal virtual media, it became apparent that the practical components of the curriculum were being neglected.

The vast majority of institutions highlighted issues switching over to delivering theory classes online. These included poor or no internet connectivity for the instructors and students, devices with limited capabilities, inexperience with manipulating online sessions and transposing lesson materials to online-friendly resources. All these complexities were further exasperated by student and faculty anxiety about the capabilities of the online platform to deliver the various types of program content. Even though generic online resources were used to communicate some practical components, it did not allow for the simulation and evaluation of students'

competencies. The institution's tuition structure included the provision of ingredients and use of equipment during lab sessions and since the country was under curfew, it became impossible to setup a distribution system for the students to execute practical sessions at home.

The Way Forward

The use of online classes, though still being refined continued for the summer semester as a means of limiting physical interaction for theory-based courses or the theoretical components of culinary courses. Like other institutions preparing for the new academic year, various strategies are now being implemented to mitigate the issues encountered during the initial switch over to online classes. The institution's Learning Management System was upgraded, faculty trained to use various software applications, students' resources and sensitization sessions developed for students were critical approaches to a successful transition. However, the need for hands-on practical sessions still was not satisfied.

During the month of June, local authorities gave the green light to resume face-to-face classes once local safety protocols (Ministry of Tourism) are observed. The university, like many institutions agreed on a hybrid approach to delivering culinary education that facilitated virtual theory classes and face-to face lab classes. Certainly the gathering of persons in a confined space increases the risk of transmission and hence the faculty believed it a prudent first step to design and implement a culinary lab protocol to govern the operation of culinary practical sessions and supporting operations. The protocol document was developed in compliance with the local government regulations, international standards and industry best practices.

Because of physical distancing, the respective kitchen capacities had to be reduced by half from an average of 12 to 6 students, resulting in twice the number of the original class sessions within the same cohort. The increased number of classes caused scheduling demands for kitchen space, greater faculty workload leading to overtime and the escalating cost of operating the kitchen for longer periods. To further compound the issue is anxiety surrounding the unpredictable number of new admittances or returning students (based on financial capacity) whose tuition directly supports the high cost of operating kitchens. Unlike many local institutions that require students to bring their own ingredients to class, the cost of ingredients are calculated in the tuition and hence supplied by the department. Interim strategies used to reduce the cost of operating included; a change in hiring policy, scheduling Adjunct Instructors only when the Full Time Instructors have excessive hours, reducing the number of menu items or products prepared, and greater inclusion of demonstration videos to reduce class time.

Temperature checks are done at the gates upon entrance to the campus as protocol dictates. However, there was a safety risk concern of mask wearing in a hot kitchen since most kitchens on this small island are not climate controlled and outdoor temperatures average 95°F. Additionally, it proved challenging to present to a student audience while wearing a mask. A compromise was struck to allow for intermittent break periods during practical classes so that students and instructors could go outside briefly and remove their masks.

The ease of transmitting Covid-19 required more robust sanitation standards. Some culinary courses include the preparation and service of food and beverage to the public. This therefore demanded a higher level of precautionary practices to protect both students and visitors. The institution's sanitation contractor was engaged to evaluate and retrofit all the culinary facilities with detergents, sanitizers and disinfectants so that proper cleaning and sanitizing can be practiced. Training for both faculty and students about handling chemicals, interacting with visitors, use and disposal of Personal Protective Equipment and handling used dishware and flatware were integral components of the sanitation program.

During strategic planning, it was critical to include the student body as a key stakeholder in the discussion and planning process. If the students' well-being and ability to operate within the new framework were ignored then major challenges could arise for the new academic year, leading to high attrition or failure, possibly compromising the program. This also provides the opportunity to orient the students for the new hybrid approaches to be used and the required flexibility within the new approach to learning. The university provided administrative, financial, academic and psychological online student support systems. These initiatives have been successful in providing assistance for students to complete the academic year and should prepare them for progression in their program.

The Covid-19 pandemic though causing major disruptions to education programs, has also provided opportunities to review and improve academic delivery. The mitigation approach adopted by a university on a small Caribbean island was to actively assess the resources available to communicate between faculty and students so that lesson delivery could continue, then upgrade the current Information and Communication Technology infrastructure to manage the anticipated demand for online delivery via a Learning Management System. Being guided by strict protocol, face-to-face practical sessions resumed. For institutions to successfully progress it is important to establish student support systems for current students and applicants. Delivering culinary education whilst navigating a pandemic is challenging but offers opportunities to improve approaches for the development of the craft.

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Reflections of a Culinary Educator at a Community College During COVID

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Abstract

In this reflective opinion piece, the author, a culinary educator at a community college, shares some of the challenges he, along with colleagues and students, are facing as they relate to the delivery of culinary education during COVID times. Those challenges include integrating technology while transitioning from practical labs to online classes, access to technology and physical resources, connectivity, asynchronous learning, food security for students, emotional intelligence, and care over content.

Keywords: Educational technology, online learning, asynchronous learning, emotional intelligence, food security.

I am a Chef /Professor, teaching Culinary Arts at a community college in Toronto, Ontario. I teach both theoretical and practical classes in both one-year certificate and two-year diploma programs. I have a Master of Education degree in Curriculum Studies and am a Certified Culinary Educator (CCE). In these ever-evolving times, I am drawing on both of my backgrounds to support students, colleagues, and the community at large. It is not without challenge; I am sure that the delivery of culinary education has changed forever.

As an academic, I am trying to take practical culinary labs and adapt them to an online learning environment. In 2003, as part of a research paper, I argued that some classroom technology may not be appropriate for culinary education. I questioned whether students could truly comprehend the qualities of food without being able to touch, see, or smell the food. In 2005, I wrote a paper about this, titled *Integrating Educational Technologies into the Culinary Classroom and Instructional Kitchen* (Glass 2005). In the fifteen years since writing that paper, there has been an exponential growth in educational technology; however, the technology for online kinesthetic culinary education still is not fully developed. In 2013, Brown, Mao and Chesser compared learning outcomes for culinary education in recorded videos and live demonstrations and found some benefits of using recorded videos over live demonstration for culinary education (Brown, Mao and Chesser, 2013).

On social media, I have seen multiple conversations saying now is not the time to complicate the delivery of online education by using new platforms. This sometimes contradicts what institutes of higher education are asking educators to do. If I was to use a relevant culinary analogy, it would be that in plating we try to minimize the number of “touches” on a plate, whereas it seems that perhaps we are using far too many “clicks” for online learning. Another

thing to consider is student satisfaction with the online learning experience. Choe et al (2019) note that “some educators believe that online education diminishes the student experience, impairs the ability of students to connect with faculty, and decreases instructional quality”. Conrad and Donaldson (2012) note that students are expected to be active participants in their online learning. In my experience, I have found them to be generally passive, although there are exceptions.

Recently, I received an email from a student describing their issues with online learning. In their email they shared that they had decided to defer their semester because they were not comfortable with online education, and that the move to online education had made things more confusing to them. I expect that this will not be the last e-mail I receive where a student shares their frustrations with their online learning experience.

The switch to an exclusively online model and the introduction of new technology is also based on the assumption that students have compatible devices along with regular and secure access to internet; this is not the case. Through conversations with colleagues as well as personal experience, I know of several students at the college where I work, that access the internet at school or coffee shops because they have no access at their place of residence. With physical distancing and shelter in place orders in effect, it is not feasible for them to learn from an exclusively online experience.

Asynchronous learning is not without challenges too. Educators may not be able to provide an asynchronous learning environment in an exclusively online education model. Taft, Kesten, and El-Banna (2019) note that no one size fits all as it relates to online classes. With students all around the world, we must also consider the issue of different time zones and ensure equity in real time face to face video learning or drop-in sessions. We must also consider how to effectively grade culinary education. Students may not have access to the necessary equipment and materials to effectively replicate a dish shown to them online, and even if they do effectively replicate it and demonstrate competencies, they cannot be graded on taste. There are so many variables to be addressed, and questions that must be answered.

Now is the time to be both flexible and sympathetic with our students. We need to consider that care is more important than content in this time of crisis. This leads into another challenge: how to deal with food security issues for those culinary students who do not have income or food during these precarious times. As a Chef and educator, I believe that there is value in the posting of cooking videos, whether they be professionally done, or something as simple as an Instagram story. However, I am conflicted at this time to show what I have in my pantry, while others have nothing. We need to be socially aware and emotionally intelligent when creating and sharing videos of our own for students and the public. Videos and posts should focus on the basics, demonstrating what can be done with minimal resources. There needs to be some consideration of those who are without in these difficult times. Simply put, it is more important to show attainable staples like rice and potatoes, rather than filet mignon and tuna tataki. Personally, I will continue to post pictures of the basics, rather than luxury items, unattainable by some. I will do my best to direct those in need to the resources that are informative and supportive of their situation.

Early in my culinary career, when I did something wrong, or when something went wrong that was beyond my control, my Chef would look at me and simply say “think of it as a character builder”. I believe that when all is said and done, my students and colleagues will be much more resilient. We will be ready to face and adapt to the challenges of a new reality that society, community college culinary education, and the overall hospitality world is facing.

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Stay in Touch - Maintaining Industry Contacts

**Rebecca Heid, Associate Professor
Northampton Community College**

Abstract

The new remote learning module requires creative thinking on how to keep our students engaged with our valued industry partners.

Here are five ways to keep the interaction between industry partners and students during a remote learning structure.

1. **Using Zoom for Guest Presentations / Panels**
Create a panel presentation of industry professionals using Zoom or another platform. Design a rubric for the presentations and appoint a moderator.
2. **Virtual Internships**
Continue with your internships through a virtual internship program.
3. **Begin a mentoring Program**
Match a student with an industry professional allow for a one-on-one dialog.
4. **Individual Industry Partner Communication**
Students set up their own virtual meetings to conduct an overall industry interview or collaborate with someone in the industry on a project. Industry partners can also assist in conducting remote mock interviews for the students.
5. **Involve Alumni and Social Media**
Involve your students with this process by developing a video highlighting current students in the program. Students use their own technical device to submit a small clip that then becomes part of a larger message to your alumni and other followers.

Key Words: Partnership, Mentoring, Internships, Alumni, Zoom

As instructors in Hospitality, we understand the importance of networking with industry professionals and community members. Stay in touch, let me know if you need anything, or thank you for supporting our students, are parting words to our industry partners. Now, we are in a new environment that requires creative thinking on how to keep our students engaged with our valued industry partners.

Mid-March of 2020 came around and our entire environment changed. Students were in a state of shock as their lives changed and their classes moved to remote delivery. Some of them questioned their career choices in the industry since we were most affected by the pandemic. As instructors, we scrambled to offer the course content using an online structure to meet the program learning outcomes. Most importantly, we needed our students to stay engaged with our industry partners. We gained wonderful industry partners that have continued to support our

students year after year. Ultimately, they are key to the success of the program. We know that their input matters and impacts the students throughout their careers in Hospitality.

After we took a few weeks to convert the classroom structure to a remote style, the new task was to continue relationships with our industry partners. If we as instructors were stressed, our industry partners were beyond stressed. Some of our partners had to close their businesses, most had to change their service model, and others were forced to furlough their dedicated employees. The one thing that was clear is that we still needed each other to continue the growth of the hospitality industry.

Here are five ways to keep the interaction between industry partners and students during a remote learning structure.

1. Using Zoom for Guest Presentations / Panels

Create a panel presentation of industry professionals using Zoom or another platform. Through this, students continue to have contact with the industry. This also encourages student professionalism through proper video presentation. Design a rubric for the presentations that directs students to dress professionally, have their camera on, and their microphone on mute. Email the students the list of participants and expectations. Before the industry panel presentation begins, have your students submit a question they would like answered based on the discussion topic, appoint a moderator, and another individual to field questions that students might put in the chat box. Take attendance and also extend the video conference link to adjuncts and other staff members in the program. Stay united during this time and show solidarity through supporting the speakers.

2. Virtual Internships

Continue with your internships through a virtual internship process. You can have two sections. One section would consist of a fully remote learning experience and the other would host some hours in the field. As industry begins to open, there are some locations that have the capabilities to host an intern, but with limited hours. What might have been a 225 hour contact internship now only hosts 75-100 contact hours. Students complete the same skills as the 100% remote internship section, but some skills are completed at a physical location.

As for the 100% remote section, instead of completing physical management tasks in an internship, students start a dialog with different employees within a designated restaurant. Skill topics can include; leadership, critical thinking, success through technology, global fluency, and teamwork. If there are culinary related activities involved, look at your college budget to see if purchasing food items for the students is affordable. Keep with the college epidemic protocol and box the food items, label the box with the student name, and create a staggered designated pick up time for the students. As part of their internship, they might have to video capture themselves making an item based on the menu from their remote internship site.

Work with career services to develop key skills that are gained through internships. One resource to assist in developing the skills are the career readiness competencies from the National Association of Colleges and Employers. A second resource is the list of supervisory tasks already outlined in a course shell. A third resource is your industry partners. Reach out to your industry partners and ask them what they are capable of providing in an internship at this point in time.

3. Begin a Mentoring Program

Match a student with an industry professional. This allows the student to have a one-on-one dialog with someone in the industry that is experiencing the direct business effects of the epidemic. Outline expectations of the mentor and mentee in the beginning. Most new mentors need a starting point and then after that, it becomes an organic relationship. Topics discussed during the program might be menu building, budgeting, scheduling, and vendor relationships. This can be tied into a requirement of the virtual internship.

4. Individual Industry Partner Communication

We rely on our industry partners as much as they rely on us. We create a pipeline of employment and they provide that employment. Keep everyone involved by developing an assignment within your remote course instructing the students to create their own Zoom account. Students set up virtual meetings with an industry partner to conduct an overall industry interview or collaborate with someone in the industry on a project. Also have industry partners conduct remote mock interviews for the students. This assists in students developing networking skills, professionalism, and technology proficiency.

5. Involve Alumni and Social Media

Keep relations with your alumni through social media. Active alumni become a great basis for mentors, internship locations, and panel members. Involve your students with this process by developing a video highlighting current students in the program. Students use their own technical device to submit a small clip that then becomes part of a larger message to your alumni and other followers.

Our students highly depend on our industry partners for advice, jobs, and networking. Our industry members depend on our students as the next hospitality employees to lead the generation behind them. The hospitality industry will continue to flourish through mutual relationships. It only takes a moment to let someone know how important they are to the program and community. Take that moment and stay in touch.

Off-Premise Culinary Education for a New Generation

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Abstract

Even before the emergence of the COVID-19 virus, food delivery was the fastest growing trend in the foodservice business. According to Cowen and Company, as much as 80% of growth in the foodservice industry in the next five years will come from off-premise dining options (Thompson, 2019). The current pandemic has only accelerated the realization of this scenario. Culinary educators must respond to this changing business model by having our training restaurants reflect current realities. Student-run restaurants must reflect this pivot to enhanced delivery and take out options. This paper will examine this trend and offer practical suggestions for implementation.

Keywords: Culinary Education, Post-COVID, Off-Premise, Objective-based instruction, Technology, Generation Z

According to the National Restaurant Associations' 2020 State of the Industry Report (NRA, 2020), 75% of restaurant owners said that off-premise sales were their most significant growth opportunity, and the majority of restaurant owners plan to devote more resources to accommodate that growth. In the report, three of the ten predicted trends for the coming decade involved off-premise sales. The trends examined in this report and the realities being reported in media outlets today should be considered seriously by culinary training programs as well as foodservice operators.

Restaurant infrastructures will need to change to accommodate pivots to reduced seating capacities in times of health crises and the attendant increase in take-away and delivery. While the current pandemic spurs the trend to increased capacity for alternative dining models, research tells us that off-premise dining options are already in demand by Generation Z and Millennials. According to the NRA report, Generation Z and Millennials eat out twice as much as Baby Boomers, and Generation X and half of their dining-out dollar is spent on delivery and take-away. (NRA, 2020). Generation Z and Millennials account for 51% of the American population (Knoema, 2020) and are willing to spend their money on food made outside the home.

Today's restaurant experience was primarily shaped by the expectations and spending habits of Baby Boomers and is geared to their tastes both in terms of food and the dining room experience. Take-away has always been a small part of their experience and delivery even less so. As younger generations trend toward off-premise experiences, foodservice operators will need to modify their offerings to obtain their business.

The expectations of the Baby Boomers have also shaped culinary education. Most culinary training programs focus on white-tablecloth style foods and delivery methods. Even as food trends have become more internationally and ethnically focused, culinary programs often remain rooted in the food and service styles developed by the giants of previous centuries like Auguste Escoffier. As Michael Ruhlman wrote, culinary schools are “a world that was a kind of imitation of itself, almost to the point of parody” (Ruhlman, 2001). For culinary education to remain relevant in the 21st century, it must reflect the tastes and demands of new generations.

One of the challenges faced by foodservice operators outside the quick-service segment has been maintaining quality in the face of extended delivery times. Delivering off-premise is not just as simple as throwing food into plastic containers. Instead of a hot plate for hot food, you might have a bag for hot meals and a separate bag for cold food to ensure that these items stay that way. The basic principles we have been teaching for on-premise food production still apply, just within a different set of parameters.

Offering off-premise food options in our culinary classrooms will allow us to teach students the most critical pieces of technology on the business side of the food equation as well as new ways to maintain product quality. At our student-run restaurant, technology has been steadily incorporated into the program. Initially, we added an online reservation system. It grew from there, and incorporation of technology not only improved the instruction but is enabling an almost seamless transition into off-premise service instruction.

The online reservation system provided a great deal of information utilized to reinforce the instruction of staffing procedures, identifying trends, and responding to complaints. With the success of this program, we updated the Point of Sale System (POS) to allow for daily food-cost updates, digitized tickets, real-time ticket time averages, and product mixes, all of which can be displayed as a visual representation of service. These visual representations can be used in a multitude of ways to capture and reiterate teaching points otherwise lost during the stress of a busy lunch. An example is displaying the adjustments to the total revenue to include discounts due to mistakes compared to the previous day and the effect on food cost. Engaging the student this way takes their objective-based knowledge and connects it to a broad comprehension of the operation.

The transition to off-premise at our student-run restaurant will utilize the technology that is currently used. Both the reservation system and the POS providers instituted additional capabilities, which allow the customers to order directly. As for the dining-room, the required capacity reduction will allow for the reconfiguration of space for the necessary holding equipment, and the view of them will be blocked using temporary partitions. If demand increases for the off-premise services, these temporary partitions will likely be replaced by permanent structures, a trend likely to be instituted in many operations.

Before the pandemic, a daily course section had 15 students performing front and back of the house roles. To address issues of social distancing, student numbers will be cut to half that, and those students will be divided between those cooking in the kitchen, those staffing the take-

away station, and those performing deliveries across campus. In addition, the number of menu items available will be reduced to accommodate the lower student numbers in the kitchen. Dishes offered to the public will be chosen for their appeal to diners, the ability to transport them in a food-safe manner, and their ability to travel with a minimum of quality loss.

Utilizing technology in the culinary classroom is not only appealing to the incoming generation but beneficial to the restaurant and instruction. Our student-run restaurant has digitized almost everything it can. The pandemic presents an opportunity to upgrade the restaurant to be more reflective of what restaurants will look like in the future and not the past.

Restaurant workers must be adaptable. So too, should be their instruction. Modifying culinary programs to include off-premise service and technology into the student-run restaurants is currently a necessity for safety. Circumstances have made it imperative for long-term survival.

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How Coronavirus Pandemic Affects Food and Beverage Operations and How Culinary Educators Respond to It

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Abstract

The food and beverage (F&B) industry is devastated by the coronavirus and faces a long and painful recovery. Although employment in this industry is starting to rebound, staffing levels are not expected to return to normal soon. To survive in these unprecedented times, organizations must adopt severe tactics such as social distancing and closures to slow the spread of Covid-19. In line with these changes, schools must move one step ahead and need to predict requirements in advance to help students adapt to this new environment. Culinary educators need to modify teaching methods and curriculum. Schools must also provide educators proper equipment and training to conduct classes successfully in this changing environment.

Keywords: Culinary education, coronavirus pandemic, F&B operations

The food and beverage (F&B) industry is devastated by the coronavirus and faces a long and painful recovery. According to the Bureau of Labor Statistics, the leisure and hospitality unemployment rate reached 35% in May 2020 which is significantly higher than the industry average of 13%. In April 2020, approximately 5.5 million jobs in the bar and restaurant industry disappeared due to the Coronavirus (COVID-19) pandemic (Nrn.Com, 2020). Although employment in this industry is starting to rebound, staffing levels are not expected to return to normal soon.

The pandemic may continue for a long time period. According to a center for infectious diseases research and policy report in April 2020, this outbreak may last up to 18 to 24 months. To survive in these unprecedented times, organizations must adopt severe tactics such as social distancing and closures to slow the spread of Covid-19. Contactless tactics such as deliveries and payment systems are widely used. Besides, traditional labor-intensive operating systems must change considerably. Dine-in services are reduced and the utilization of take-out, delivery, and curbside pickup services increase. According to datassential.com's COVID 19 report published in July 2020, 89 percent of restaurants offer take-out services. The pandemic also forced F&B operators to modify their menus, creating takeout items and, shrinking their offerings to decrease complexities and costs. In March 2020, McDonald temporarily removed all-day breakfast from its U.S. menu (mcdonalds.com, 2020). Also, cloud kitchens without dine-in areas deliver food to customers using online delivery companies such as Uber Eats, Postmates, Grubhub, and DoorDash. The global cloud kitchen market was valued at \$650 million in 2018 and is expected to reach \$2.63 billion by 2026 (reportsanddata.com, 2020). This pandemic also accelerates the adoption of technology in the F&B industry such as robot cooks, servers, and baristas. Zume

Pizza delivers made-to-order pizza by using robots. Although still in the early stages of development, 3D printers can produce foods and create very complex shapes. In these situations, the taste and quality of food have increased in importance. Fancy restaurant interiors and plating cannot help sales for food take-out or delivery. Besides, menu development now requires items suitable for take-out and deliveries.

In line with these changes, schools must move one step ahead and need to predict requirements in advance to help students adapt to this new environment. Culinary educators need to modify teaching methods and curriculum. The largest change in the education sector due to this crisis is that online classes are now the main class format. During lockdowns, most of the courses shifted to online, which can be beneficial to students. The online format may deliver more details and students can rewind videos multiple times. Compared with hands-on classes, lecture courses can be relatively easy to convert to online. However, cooking demonstrations, which are the most important part of culinary education, are not easy to convert to online lessons. Not all students have the proper kitchen equipment to cook at home. Besides, educators face difficulties in providing follow-up and feedback to students. Most importantly, tasting each other's dishes is impossible. Moreover, not all culinary educators are familiar with the online classes format. Now, culinary educators must compete with numerous online cooking classes, especially numerous YouTube videos. To gain a competitive edge, schools must provide significant content that is difficult for other private online classes to deliver. For example, schools can set real-time online discussions between students and industry leaders, who can share their experiences and strategies to deal with this crisis. Schools must also provide educators proper equipment and training to conduct online classes successfully. Also, educators need to be creative to develop interactive learning tools for the online class format.

Online classes may provide an opportunity for culinary education. In this format, instructors do not need to physically visit the sites. Therefore, schools can hire instructors with a variety of occupations in different regions. Moreover, using subtitles and translators can allow foreign professionals to become an instructor. Thus, these changes not only provide students with better learning opportunities but also allow schools to reduce costs in human resources.

Also, schools must teach students the most updated food safety practices. Although COVID-19 is not a foodborne illness, social distancing and enhanced disinfection methods are necessary to secure safety. School emergency and contingency plans must be updated or developed. Furthermore, if this pandemic persists for a while or other viruses occur, then more fundamental changes may be needed such as modifications of school design. For example, most culinary schools currently have demo kitchens that are designed for students to practice cooking as a team. Eventually, the kitchen design may need modifications for individual cooking to enable social distancing.

The F&B environment is changing rapidly. Several practices that people were used to in the past are no longer allowed, and a few things that were previously not allowed are now recommended. Industry practices previously required intimate service with customers but now enforce minimal contact. At present, dine-in services are declining whereas take-out and delivery options are increasing. This change requires considerable differences in restaurant operation. Restaurant tables and servers are decreasing, and several dine-in services are being abandoned. The menus are reduced to cut food and labor costs and the use of disposable products is

increasing. Safety has become the best value. In this unprecedented situation, schools must be creative and proactive. These changes should also be reflected in the curriculum of culinary schools. In addition to connecting with the industry, ensuring that communication between students and educators is not neglected due to the increase in online education. The current situation is confusing not only for students but also for educators. Thus, schools must respond quickly to this crisis and provide clear learning guidelines for students and educators.

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Adaptability During the COVID-19 Pandemic

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Abstract

The COVID-19 pandemic forced campuses across the country to close and shift courses to an online format. Faculty in culinary arts programs were particularly challenged to keep students engaged, continue to provide their students with opportunities to learn new techniques, and support learning with meaningful feedback. Faculty rose to the occasion and adapted to the new online environment quickly and effectively. In doing so, many were forced to abandon planned professional development for the year. The good news is that although plans were in disarray professional development continued, and forced innovations brought about advancements that far surpassed anything planned. Culinary faculty need to give themselves credit for the changes they quickly adopted. To do so, faculty must document adjustments they made during the spring 2020 term. Most importantly, faculty need to distinguish between the innovations that are necessary yet temporary, and those that deserve to be implemented on a permanent basis.

Key Words: Professional development, teaching effectiveness, pandemic, stress, culinary arts, technology

The Spring 2020 semester was hard. Really hard. For me the only semester that came close to this challenge was my first one teaching over twenty years ago. I made the transition from chef to full-time instructor without background or training in education, and I was in a brand-new facility where the ranges and prep tables had not yet been delivered when the semester began. On a good day I was one page ahead of the students in the textbook. Spring 2020 was harder than that.

The COVID-19 pandemic forced campuses across the country to close and shift courses to an online format. This was a challenge for faculty in all disciplines. Due to the “hands-on” nature of career and technical education, faculty in culinary arts programs were particularly challenged to keep students engaged, continue to provide their students with opportunities to learn new techniques, and to support learning with meaningful feedback. Faculty rose to the occasion and adapted to the new online environment quickly, and considering the speed with which it was done, amazingly effectively.

As a result of these necessary changes many professional development plans are now in disarray. The good news is that professional development continued and, in many cases, forced innovations brought about advancements that far surpassed anything planned. Adjustments to grade schemes, providing *mise en place* kits for curbside pickup, and developing virtual field trips are all examples of teaching effectiveness. Culinary faculty need to give themselves credit

for the changes they quickly adopted that helped keep their students learning, kept improving the craft of teaching, and kept learning institutions operational.

To be sure, the period of adjustment is not over. Every school district and higher learning institution across the country is currently forging their own path forward. Some have announced a full return to the classroom while others will be fully online this fall. Most are somewhere in between. My campus is in that middle ground. Many lab classes will be in a hybrid format where students will be divided into smaller cohorts with limited time in the lab and some portion of their coursework delivered in an online format. This aligns with a long-time goal of mine to develop video demonstrations that students can access and review at any time. It was something I never found the time to do, but now I am being forced to make time for video production.

Going forward, teaching effectiveness during the crisis will rely on more than an ability to adopt technology. Learning is greatly hampered when students do not feel safe, and these are unsafe times. Many of our students, their parents, and/or their children have lost their jobs in the economic fallout of mandated shutdowns. The economic recovery and job prospects after graduation are uncertain. Even before the pandemic, mental health issues among young people were rising dramatically. Isolation, anxiety, and uncertainty relating to COVID-19 will increase the incidence of mental health problems. We have all seen students “freeze” during an exam, unable to think and barely able to move or function due to extreme stress. Imagine that taking place on a day-to-day basis. Faculty will need to acknowledge and address the increased daily stress levels, both for their students and themselves. Providing a safe and comfortable environment and monitoring the well-being of students on a daily basis will be essential to their learning. Finding positive outlets to deal with our own stress will be essential to our professional and personal survival.

We need to engage our students on a daily basis to check on their well-being, resolve technological issues, and, yes, monitor their progress. Faculty will need to expand opportunities for both advising and informal social interaction.

The transformation to online teaching was a whirlwind. If you haven't done so already, list your accomplishments and relate each adjustment to teaching effectiveness, scholarship, advising, or service. Going into the Fall 2020 semester there was more time to improve skills and plan activities, but this will continue to be a period of adjusting to changing realities. Campuses may open and close and the protocols may change. One advantage those of us from the foodservice industry have is a culture of adaptation.

I am reminded of a wine dinner we held at the school years ago. We were plating the fish course, arrowtooth flounder. I was monitoring the plates at the end of the line and something looked off. On a hunch, I touched one of the fillets and my finger went right through it. The fish was spoiled. I immediately halted the line and called the waiters to return the few plates that had gone out. A mad scramble through the walk-in unearthed a spare case of mushrooms that were quickly sautéed and plated. The dinner continued and most of the guests were unaware that the menu had even changed. I later learned there is an enzyme in arrowtooth flounder that can cause the fish to turn to mush when cooked, and I will never serve that fish again.

We will all run into our share of “arrowtooth flounder” incidents in the coming months. To avoid repeating them keep a daily log. The log book is a way of identifying and communicating vital statistics, trends, successes, problems, and the occasional disaster. Documenting daily events provides a record of accomplishments in teaching, advising, scholarship, and service for performance review. We also need to monitor the health of our programs by reviewing admissions, retention, learning outcomes, and graduation rates and comparing them to pre-pandemic results. Finally, we need to rely on one another. I have been amazed and encouraged by the stories I have heard from culinary instructors across the country. We need to continue to share our successes and struggles! Through communication with students and peers, daily review of events, and information gathering faculty can distinguish between the innovations that are necessary yet temporary, and those that deserve to be implemented on a permanent basis.

Curbside Pickup: COVID Changing Culinary Education

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Abstract

The purpose of this study is to develop instructional strategies and techniques for integrating curbside food pickup, delivery, and the restructuring of foodservice business models to address the issues which have developed due to the worldwide viral pandemic. Eating is not just a way to sustain life; it is a social experience that involves the entire family, friends, and sometimes even the neighbors. However, the shared, social, and family-centered, dining experience changed with the global pandemic caused by COVID-19. On March 16, 2020, the City of New Orleans stopped all restaurants from allowing the shared dine-in eating experience, eventually forcing the curbside food pickup and delivery model citywide. The shared dining experience rooted in the New Orleans restaurant culture changed overnight with the enforcement of social distancing guidance set by the Center for Disease Control and Prevention and the National Restaurant Association. This change affected the foodservice industry and its employees worldwide, forcing new ideas to keep businesses viable, but some could not adjust quickly, causing them to shut down. The development and design of the curbside, takeout, and delivery dining experience is not a foodservice model taught in most culinary education programs. However, the COVID-19 global pandemic is forcing all Culinary Arts programs to shift learning to include current trends, good and bad. Using a Qualitative Research Design, interviewing national restaurants, local family-owned restaurants, and the businesses that supply them will provide the best data to modify the existing curriculum for teaching in a post-secondary Culinary Arts program. First-hand conversations will give more precious insight into planning for the future.

Keywords: Curbside Pickup, Takeout, Culinary Education, COVID-19

Background

In March 2020, the entire world changed, and it will not return to normal in the months, and some cases years, ahead. COVID-19 suspended the travel, tourism, and restaurant industry altogether; whereby, forcing them to take a new look at the way their business responds to new challenges brought on by a global pandemic (Johnson, 2020). All sectors of the hospitality, tourism, and foodservice industry are affected by the precautions the world is taking to mitigate the viral spread. As planes are grounded, and hotels are closed, restaurants, big and small, have temporally closed their doors to defeat COVID-19. Families are spending more time together, and the shared dining experience that was slowly fading away in the foodservice industry is suddenly having a resurgence (McNulty, 2020). Many governments are requiring patrons to sit 6-feet apart with social distancing guidelines established by the Center for Disease Control (CDC) and Prevention and the National Restaurant Association for these establishments to open the doors again (National Restaurant, 2020).

For restaurants to stay in business, they must adapt to the changing environment by becoming creative in the way they run to have a rebound. The curbside food pickup model offers restaurant owners the ability to keep revenue, protect employees, and keep their customers safe. Culinary Art education programs should consider teaching a curbside food pickup transition model to their students. In this article, we will highlight foodservice industry changes for Culinary Arts education programs to include a part of the curriculum. In the era of COVID-19, the culinary education curriculum must include the redesigned foodservice personal hygiene standards and ways to pivot from typical food pickup to curbside food pickup. Future chefs need to understand the importance of being adaptive and creative as a means of survival when unforeseen obstacles arise without warning.

Literature Review

As the foodservice industry looks to withstand the current challenges, it will need to reevaluate the day-to-day business operations to reopen and remain open with the continually changing guidelines established by federal, state, and local governments. In this global pandemic, restaurants are making the pivot to food takeout and curbside food pickup to keep their employees paid and doors open (Balkhi, 2020). The takeout dining experience has gained popularity as it fits the current isolation reality frustrating people worldwide, and the hospitality, tourism, and foodservice industry must adapt and become creative to persist. Some nationwide restaurants started this transitions years ago, although their doors closed for a few weeks to facilitate the changes, others took this time to adjust to the new societal norms we live in today to withstand and prevail (Kaiser, 2020).

The pivot is still fluid and will require much more than a restaurant telling customers they now offer food pickup. A curbside food pickup model links all parts within the establishment, from cleaning the restaurant, personal hygiene of all employees, the preparation and packaging of food, to marketing and advertising to maintain operations (Safety First, 2020). COVID-19 spreads by aerosolized human body fluids for human-to-human transmission and not through food (Nummer, 2020). The CDC recommends cleaning and disinfecting restaurants and foodservice operations, upgrading current air conditioning and ventilation systems, and some state and local guidelines advocate for installing plexiglass barriers to ensure patron safety (Borden, 2020). More than ever before, personal hygiene is paramount, and employees are encouraged to wash hands much more than usual, wear gloves, face masks, and have their temperature checked before starting their shift and limit interactions between one another and the public (Considerations, 2020). Before COVID-19, employees were more prone to show up to work sick or call in sick to work, and if their work schedule needed to change, there were employees available to ensure restaurant operations. Now, if the employee has a low-grade temperature or the sniffles, they must stay home. However, in the age of COVID-19, employee schedules are more difficult to maintain, and a single employee can shut down the entire restaurant if they come to work experiencing symptoms and possibly exposing other staff and customers to the virus. An all hands-on deck approach is defining the front and back-of-house. Many restaurants are cross-training employees for front and back-of-the-house operations to be able to assist where needed; chefs are delivering food to the dining room directly to the customer, and the wait staff is helping in the preparation of food items (McNulty, 2020).

Since the global awakening in response to COVID-19, marketing and advertising are now fundamental to restaurant survival. Having a sign or billboard is no longer adequate, and restaurant owners must consider social media campaigns and have an online search presence to aid in the recovery efforts (Best Practices, 2020). Restaurants have historically been an adapt-or-face extinction, but with the effects reaching all corners of the globe, the ramifications are much ominous than before. Still, the CDC guidelines from COVID-19 have forced upon all restaurants a food delivery or food takeout model to remain open. Limited customer interaction and no-contact payment methods have increasingly become business as usual, and this presents an educational opportunity for Culinary Arts education programs to expand their curriculum to include curbside food pickup to their current pedagogy.

Research Design

The focus of this research was to determine what changes the foodservice industry requires due to the global pandemic and how Culinary Arts education programs can add to their current curriculum to stay current with changing trends. The lasting changes brought about by COVID-19 will influence how culinary schools teach and structure course content going forward. As a diverse global industry, hospitality, tourism, and foodservice have an opportunity to reevaluate its current culture and become creative and adaptive to the changing world. Many restaurants found that within two weeks of closing at the outset of the global pandemic, they were in trouble financially and systematically unprepared for the immediate shift. From Prune in New York to mom and pop restaurants around the country, and foodservice establishments globally, it has become glaringly apparent that the majority of businesses are not economically stable enough to weather a forced shutdown, that can last well into next year (Hamilton, 2020). A new way of doing operation has grown out of this atrocity, and COVID-19 offers restaurants the unique opportunity to adjust their business practices and expand the culinary creativity to safeguard their existence for the future.

Adapting a curriculum means adjusting the way we, as educators, think of the hospitality, tourism, and food service industry. Using a qualitative research approach to survey restaurant, hotel, and foodservice industry leaders will offer the most robust understanding of what they are doing to sustain operations while following federal, state, and local guidelines. Through a series of open-ended research questions listed in the Appendix, we believe these leaders will explain the process they used to reopen and continue to sustain their restaurants in the age of COVID-19. We considered a quantitative methodology, but an intimate conversation would provide a more in-depth insight to highlight the shift needed to reopen and the roadblocks encountered through the transition.

Findings

A total of 12 foodservice industry leaders throughout the country took part in face-to-face interviewing or responded to the survey sent to them by email. We used thematic coding to uncover commonalities among the participants. Thematic coding is the best way to describe the responses, as it allowed for identifying, analyzing, organizing, describing, and finally reporting the data (Nowell et al., 2017). The findings of the research were not shocking considering the

ongoing economic hardships foodservice industry leaders are facing globally. Once the nationwide shutdown forced them to close their doors, they were all forced to evaluate all possibilities and find the immediate changes needed to reopen and restart their revenue. Very few were able to secure financial protection to secure the future longer than a few weeks. Most of the local restaurant owners and smaller establishments had to discard food or donate to local community kitchens. After losing hundreds of thousands of dollars, collectively, when they could reopen, they needed to replace their entire fresh-food inventory, and many not financially stable to endure this further hardship. Not only were their employees seeking state-sponsored unemployment benefits, but some restaurant owners who never thought they would never apply for unemployment are following the same path.

Besides replacing food in the kitchens, many respondents reported more economic loss when following federal, state, and local reopening safety guidelines. Although they have cleaning supplies used to support their establishments, most of them reported hiring a professional organization before reopening for initial cleaning from the prolonged closure. All of them purchased additional cleaning supplies like bleach, disposable gloves, and cases of face masks well beyond the fair-market-value to ensure an adequate inventory for all employees despite the part of the restaurant they work. A few reported having to wait several months to get the items once ordered because of availability and nationwide demands. When orders arrived, every person interviewed explained the importance of employee education before they opened for their customers. They all indicated they must check their employee's temperatures before they can start their scheduled shift, enforce a strict handwashing policy, and ensure proper cleaning that meets specific guidelines. Federal, state, and local reopening requirements insist that employees and patrons keep 6-feet for social distancing and reducing the number of customers allowed to enter at the same time. Many stated that they started to maintain health records to protect against potential litigation. They all agree that the guidelines promote social safety, but at a financial hardship that will cause economic uncertainty for the foreseeable future.

Implementation

The pattern that emerged in questioning industry leaders shows similar results across all respondents and their respective foodservice sector. At the forefront is to keep employees and customers safe. The idea that the customer is always right must become a mantra of the past, as customer and employee safety and health is now a collective issue that reaches all parts of the restaurants. Front-of-house staff must ensure all customers and employees wear a face mask upon entering. Customer and employee health and safety have always remained a concern for restaurant owners, but COVID-19 is having them reevaluate their plans and adhere to these guidelines. Future front-of-house staff and chefs must be fluent in how to deescalate a situation when customers refuse to adhere to the local, state, and federal safety standards. These situations can become teaching experiences through customer service training and supervision. Certifying bodies and professional organizations are developing training programs for schools to implement into their curriculum.

The dining room and kitchen designs are changing as the footprint gets ever more distanced. Covers will be determined by how many can safely be done as opposed to how many

we can pack in and turnover in a night. The dine-in experience will remain, but the execution will change. Kitchen staff and menus are being streamlined and made to be more efficient, as indicated by several research participants. It is an opportunity to reimagine what the business could be. Instead of just trying to get by, a restaurant can strive to be a place where we cross-train employees who can step in and feel like a valued member of the team. Menu design is now vital to running a kitchen. Making sure that ingredients can be cross-utilized, and tasks assigned to make better use of personnel will become a primary responsibility of a chef.

All participants reported they must rethink of menu items to allow fewer people in the kitchen. Prep will cross over to be more efficient, requiring fewer cooks. In some cases, cooks are delivering food to the tables to reduce contact with the plate (McNulty, 2020). A reoccurring theme is how a dish travels and what is being considered as menu items, redevelop, reimagine, repurpose. Menu items must stand to travel the distance home, be efficient with ingredient choice, and reimagining menu items as family meals. All with the result of repurposing production to make the kitchen more efficient. Food packaging must meet these needs, and the design must accommodate the new standard. In the end, every business can not only innovate but rebrand and market their delivery options.

Chefs are redesigning food and must now consider whether a sauce will travel, as well as reheat without sacrificing quality, for example. Take out, and curbside food delivery is, as of the time of writing, a sizable portion of the business model for open restaurants. This forced trend will not disappear according to those polled. As a culinary education facility, it will be necessary to implement these ideas in the current culture of thought. When teaching classic dishes, discussion on whether that dish has the package for takeout or a ready-to-eat, then reheat-and-serve items can be part of the daily lesson plan. Including packaging using ServSafe guidelines and how to convey storage and reheating instructions to customers will be part of a chefs' job duties and a teachable skill (Center for Food Safety and Applied Nutrition, 2020). A traditional hollandaise, for instance, is not a menu item a customer typically reheats at home with appetizing appeal. How could a chef reimagine this to be able to serve it not only a la carte but as take out or delivery? The front-of-house footprint will change with the expectation of the customer. A common occurrence is the actual menu being disposable or available on an app or by QR code, thus limiting exposure to any front of the house staff.

Student chefs need to be prepared to take on more than just cooking and plating responsibilities. Delivery, design, and functionality of food will be at the forefront of a chef's decision making. Culinary Arts students enroll in Culinary Arts programs to learn to create. Still, the coronavirus is stifling this creativity by encouraging them to streamline their menus, crossover ingredient selection (Cobe, 2020), and looking at how meals travel from the restaurant to the kitchen table (Pivot Strategy, 2020). It is an opportunity to teach more than just writing a menu, but how to adapt a menu to be more efficient and cost-effective.

The belief of a chef as a kitchen-only employee is shifting. This pandemic has shown that chefs are businesspeople, adapting and overcoming all obstacles using the lens of economics. Social media has showed how much influence it has in the current political climate and how it affects the situations every business owner is experiencing. Social media in

foodservice has taken its place and has had a direct impact on success. Student chefs must understand and can use this marketing strategy to their benefit. Those polled suggest knowing how to navigate the culture of social media could become necessary moving forward. From the recently published ServSafe Reopening Guidelines to the recommendations from the CDC and state and local health authorities, we as culinary educators have a responsibility to include these improved practices in our curriculum.

Discussion

As we continue to navigate the COVID-19 world of today, the hospitality, tourism, and foodservice industry needs to adapt to maintain sustainability. In doing so, Culinary Art education must evolve as well, where chefs can implement creative business practices to keep revenue flowing and employees are ensuring the health and safety of all customers, and themselves too. Sanitation in the establishment and personal hygiene among the employees is vital in the era of COVID-19. Employee health is of utmost concern, and anyone experiencing a temperature, cough, or sneeze should remain home, as they all have a direct hand in the restaurant staying open. Foodservice employees have long been trained on constant handwashing, wearing gloves, and having head coverings, but now facemasks are needed in the kitchen to ensure food safety. Restaurants must evolve their current business strategy to make sure their customers know they are open for business and will stay safe when eating there.

The dining experience is changing from the traditional sit-down meal to curbside food pickup where patrons use the phone or internet for the purchase, pay using contactless payment, and wait in the car for their order. They are streamlining menus, and employees are serving multiple roles within the restaurant. Finally, chefs must consider not how a meal travels from the kitchen to the table, but how the meal goes from the kitchen to the other side of town, where the customer lives and will enjoy their meal. Takeout packaging should be able to sustain this journey while maintaining an appealing eye presentation until it is time for the customer to eat. Pickup orders may need reheating, and if it does, the customer needs instructions to do this correctly, and the food stays safe for consume and appealing to the eye.

Before March 2020, Culinary Arts education programs typically did not expand the curriculum beyond the standard practice of sanitation and personal hygiene. However, in the months following, the hospitality, tourism, and foodservice industry suffered the most significant loss when compared to other sectors of the economy. It will take months, and in some cases years, to recover. When it does, it is incumbent on Culinary Art education programs to ensure chefs can function within the new social norms of the COVID-19 era. Unlike other industries, the hospitality, tourism, and foodservice industry are solely customer driven; therefore, customer health and safety must take centerstage for an economic resurgence to happen.

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Appendix

Research Questions

1. What considerations did you take, or will take, when thinking about the Customer Dining Experience as you begin to reopen?
2. Are you considering incorporating or have already integrated changes in the following areas? If so, what changes?
 - a. Restaurants
 - i. Ordering and Payments
 - ii. Menu, Recipe, and Ingredients
 - iii. Dining Room and Kitchen
 - iv. Take-Out, Curbside, and Delivery
 - v. Employee Health Standards
 - vi. COVID-19 Education (ServSafe)
 - b. Hotels and Resorts
 - i. Ordering
 - ii. Menu, Recipe, and Ingredients
 - iii. Dining Room and Kitchen
 - iv. In-Room Dining
 - v. Employee Health Standards
 - vi. COVID-19 Education (ServSafe)
3. What are your thoughts on Culinary Education programs adjusting curricula for students to adapt to our "New" Social Norms, and if so, what?

4. What are your thoughts on Culinary Education programs, placing more emphasis on teaching students how to write recipes and instructions for the public when using the Ready-To-Eat and Take-Home Meal Kits models? Is this a model used in your establishment?
5. What are your thoughts on Culinary Education programs teaching Chefs to be proficient in social media and navigating the virtual culture?
6. What are your thoughts on Culinary Education programs focusing more instruction on Labor and Operating Cost versus Food Cost?
7. Do you have any other comments regarding this issue?

Mental Health Concerns of Culinary and Pastry Students During the Covid-19 Pandemic

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The author declares no conflict of interest.

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Abstract

During the spring semester of 2020, colleges and universities were asked to change the way they were delivering their education. This affected all aspects of education, including culinary and pastry arts. This paper researches the mental health in regard to stress and anxiety of culinary and pastry arts students at the higher education level in relation to their spring semester education and unexpected changes brought on from Covid-19. A small body of students were asked to participate in this exploratory study, with a response rate of 43.8%. Of those that responded, 54.3% stated their mental health had gotten worse since Covid-19. 25.7% reported an increase in difficulty sleeping since Covid-19. Of the students who reported an increase in sleeping issues, 88.9% stated they had difficulty completing their assignments on time, leading to possible added stress and anxiety. 88.6% reported they worry more about their future careers in the culinary/pastry industry than ever before. This paper offers suggestions to those working within higher education and ways to recognize, acknowledge, and assist our students who may be struggling now more than ever before with an increase in mental health needs and services.

Keywords: Coronavirus; Covid-19; mental health; culinary student; pastry student; stress; anxiety

Introduction

It goes without saying that the novel coronavirus outbreak (Covid-19) drastically changed the way many businesses could run during 2020. With countries being shut down (Dunford et al., 2020), international as well as local travel stopping (Salcedo et al., 2020), quickly we saw how fast our world could change. Colleges and Universities were no different. As educators, we asked to adapt the way they were delivering classes, some with just a week to turn around their materials and make them available to students through remote means (Hess, 2020). Culinary instructors were challenged to adapt in ways never before thought of due to the nature of our hands-on learning environment. This was a challenge that culinary and pastry instructors took on with all available resources and continued to adjust along the way to help their students learn in this new and uncharted environment (Flaherty, 2020).

In addition to the challenges culinary and pastry instructors were faced with, students had perhaps even more challenges. Students were asked to adapt their learning to completely online, to find a quiet space without distractions to focus on their studies while maintaining their class standing and progress; to not fall behind on their anticipated graduation date. Having so many unanticipated changes so quickly in one's life can lead to mental health concerns brought on from those changes (Cohen, 2019). In addition to the stressors caused by the changes that occurred to their educational settings, students were faced with the very real concerns of the unknown about Covid-19 that was quickly spreading through their hometowns and possibly affecting their family, friends or other people they know. This could cause an increase in stress and anxiety for those students, as well as poor sleeping habits due to the rapid changes and additional stressors. Becker et al., (2018), has reported that changes in sleep patterns are known for affecting mental health and how sleep changes can relate to depression and anxiety.

Although there has been a significant amount of research done on student mental health during the Covid-19 pandemic (Huckins et al., 2020; Zang et al., 2020; Zhai et al., 2020), there has not been research specifically for culinary and pastry students. The purpose of this study was to determine the effects Covid-19 had on culinary and pastry student's mental health while completing their spring semester remotely.

Culinary and pastry students are used to an in-person and hands-on learning environment (Wilson, 2020). However, Covid-19 caused those students to be removed from such an environment, and then many students were asked to complete at least a portion their studies through online means, remotely. This research was approved by the IRB of Indiana University of Pennsylvania and utilized culinary and pastry students who were enrolled at Indiana University of Pennsylvania, Academy of Culinary Arts during the spring semester when Covid-19 changed everything about their college experience.

Materials and Methods

Qualtrics was used to create an anonymous questionnaire that focused on the student's individual experiences pre-Covid-19 and post-Covid-19. The questionnaire was then distributed digitally to all students who met the criteria of being enrolled in a culinary or pastry program

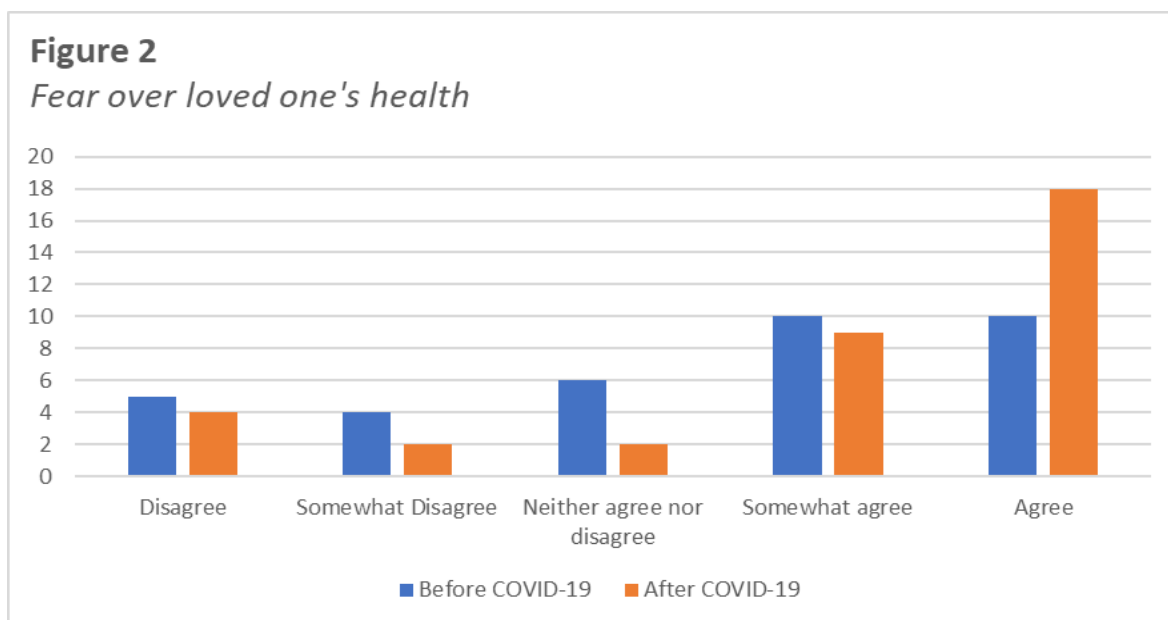
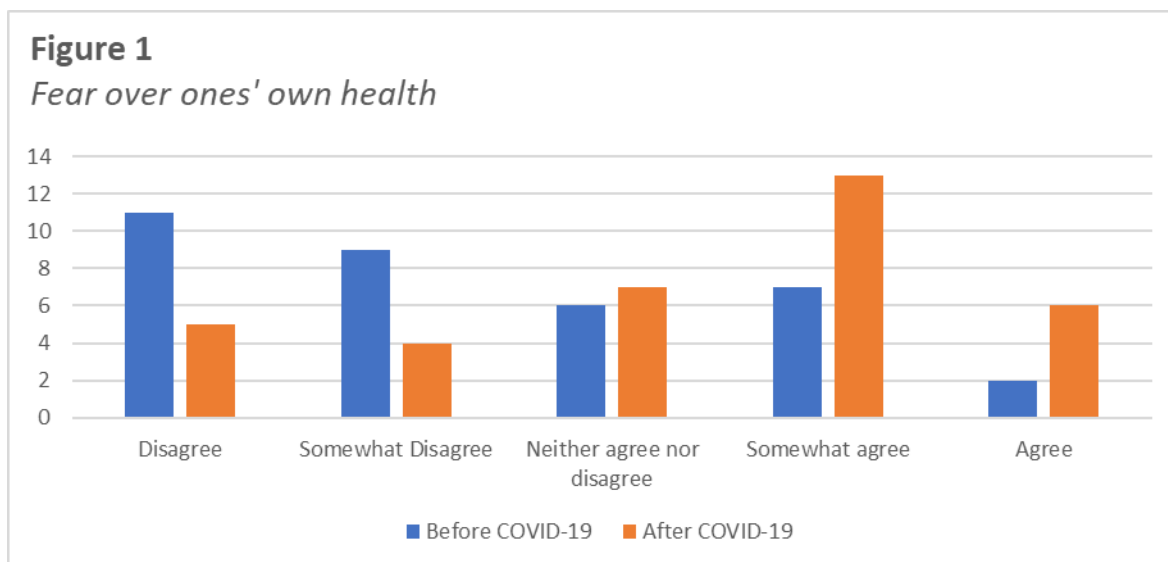
during the spring 2020 semester. Students were not required to participate and would receive no repercussions for non-participation. Beginning June 15, 2020 and the following three-week time span, the students were sent reminder e-mails to encourage participation when data was being collected.

The questionnaire was structured with six yes/no questions and 25 questions using a five-point Likert scale that was created to see the students' rate of agreement with specific statements on their mental health and well-being before and after Covid-19. The students were asked to indicate whether they *agree*, *somewhat agree*, *disagree*, *somewhat disagree*, or *neither agree nor disagree*. Some examples of the questions answered for both pre and post Covid-19 include; "I have a strong fear or worry about my own health", "I have difficulty sleeping", "I have been diagnosed with depression", "I have been diagnosed with anxiety", "I believe my mental health is under control". The complete questionnaire can be found in Appendix A.

Results

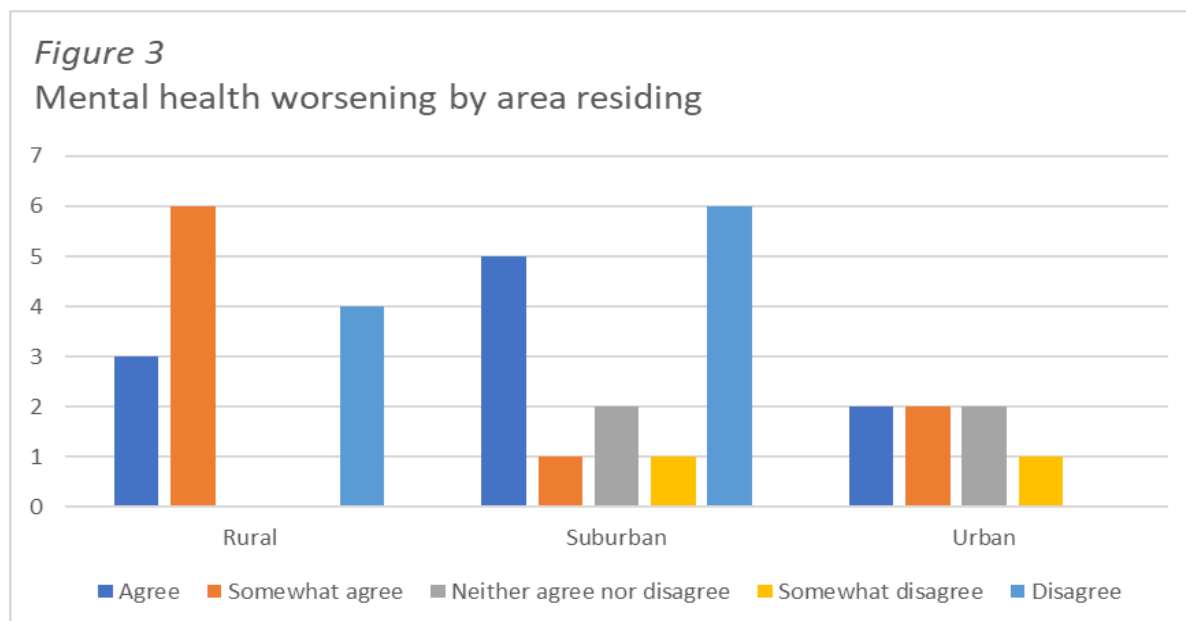
The results were returned via Qualtrics and analyzed using Excel. A total of eighty (80) students were contacted to participate in the questionnaire and thirty-five (35) responded, giving a response rate of 43.8%. After review of the responses, the researcher determined all 35 respondents could be used for further analysis. When asked to compare mental health statuses from pre-to-post Covid-19, 54.3% of students reported an increase in their mental health getting worse. Of the students that reported an increase in stress and anxiety from pre-to-post Covid-19, 60% reported they were residing in a rural area for the completion of their spring semester.

When asked about their sleeping habits, 54.3% reported that their sleep has not been as good as it was prior to Covid-19, and of the students who reported an increase in sleeping issues, 88.9% stated they felt they had difficulty completing their assignments on time. When students were asked about their mental health, only a mere two students; 5.7%, stated their mental health was excellent, whereas twenty-three; 65.7%, reported their mental health status in a negative manner, and the remainder ten were indifferent with a response of *neither agree nor disagree*. Students were asked about their fear or worries over their own health; prior to Covid-19, 25.7% reported they *agreed or somewhat agreed*. After Covid-19, 54.3% reported *agree or somewhat agree*. These comparisons can be viewed in Figure 1. When asked about their concern for the health of loved ones, 28.6% reported *agree* prior to Covid-19, whereas 51.4% reported *agree* after Covid-19, showing a significant increase in the students' degree of worry for their family/loved ones, possibly a cause for additional stress and anxiety. This data can be viewed in Figure 2.



Note. comparison of student-reported fear of loved one's health.

When asked about their future careers in the culinary/pastry industry, 88.6% of students reported that they worry now about their future careers than ever before. 60% stated they believe Covid-19 has hindered their ability to be successful in the culinary/pastry industry. 65.71% of students reported they believe Covid-19 has affected their education in a negative way that cannot be fixed. When comparing the location in which the student was residing; suburban, rural, or urban, and the student-reported mental health status getting worse, rural residing students reported the largest increase in stress and anxiety at 69.3%, and were twice as likely to experience anxiety in rural areas when compared to urban and suburban. A comparison of the student-reported mental health and location in which they were residing during the completion of their spring semester can be viewed in Figure 3.



Discussion

After viewing the percentages of student-reported data for pre-and-post Covid-19, it is apparent that the coronavirus pandemic has affected our students in a very negative way. Lund et al. (2010), reported that insufficient sleep and irregular sleeping habits [of college students] is closely related to not only their physical, but also mental health and well-being. This is clearly showcased in the data analyzed from this research, as 54.3% of the students reported that their sleep has not been as good as it was prior to Covid-19. In addition, the students who reported an increase in sleeping issues since Covid-19, 88.9% stated they felt they had difficulty completing their assignments on time. This may lead to the student feeling stressed about completing assignments on time and being concerned with their overall educational experience. Zhang et al. (2020), supports the findings of sleep issues stating that:

The Covid-19 outbreak could significantly reduce young adults' sleep quality and thereby increase their global negative emotions, especially stress and anxiety...the Covid-19 outbreak demonstrates an indirect influence on young adults' mental health, with sleep quality playing an important mediating role. (pp. 12)

There is also evidence that sleep problems are closely related to mental health issues experienced by college students including depression, anxiety, and stress as reported by Friedrich et al., (2018). This data is consistent with what has been self-reported by the students through this research.

Of the students that reported an increase in stress and anxiety from pre-to-post Covid-19, 60% reported they were residing in a rural area for completion of their spring semester. This increase in stress and anxiety could be accounted for because of poor internet connections commonly found in rural areas, making it difficult for those students to complete their semester

online from their current living arrangements. Addressing the mental health concerns of our students should be a top priority of colleges. It is evident that Covid-19 has changed the way we must educate our students while practicing proper social distancing, the use of face masks and/or face shields, enforcing the rules of social distancing throughout our classes, as well as continuing to encourage our students to learn and be passionate about their career in the hospitality and foodservice industry.

The Chronicle of Higher Education (2020) recently hosted a webinar on the strategic goal of student well-being which discussed many issues of student mental health before as well as after Covid-19. The Chronicle reported that before Covid-19, 31% of college students screened positive for anxiety and 18% screened positive for major depression. However, with the pandemic changing the levels of stress and anxiety felt from our college students, an additional survey was conducted with 2,086 college students and the results were indicating that Covid-19 had negatively affect their mental health in alarming rates. They reported 91% having stress or anxiety, 81% disappointment or sadness, 80% loneliness or isolation (2020).

Considering these very numbing statistics regarding our students' mental health, we must adapt to the new 'normal' that has become how we must educate our students for at least the foreseeable future; while also being considerate and understanding of our students. There will be more worries, fears, and anxieties than they had in the past when attending college for the first time. COVID-19 has changed our world, and as educators we must adapt and continue to offer our students the quality education they are expecting, as well as additional mental health services that may be needed.

Instructors and Administrators may now be tasked with understanding the signs and symptoms that students may show and know who to direct them to for additional mental health services. Campuses are working diligently to provide mental health services to their students, but the need has quite possibly outgrown the availability, leaving our colleges to find perhaps untraditional means to assist students.

Conclusion

This research was conducted over a short period of time to meet the deadline specific for the CAFÉ Journal of Culinary Education Best Practices Special Edition. Only one culinary/pastry program was utilized because the author had access to that class and the ability to communicate quickly with those students. Future recommendations would include observing a larger student poll to receive more statistically significant data over a range of culinary and pastry programs across the country. Although data from the beginning of the Covid-19 shutdown would have been beneficial to collect and analyze starting as early as March 16, 2020, this research project had not been approved by the IRB at that time. Therefore, a wait for data collection was necessary until the approval had been received.

It is evident with the reported data, that students have had an increase in stress and anxiety due to Covid-19 and the changes this has caused to their education. Now we as culinary educators and administrators must consider what we can offer our students when they return to

campus to complete their education. What mental health services are available on your campus, and is it adequate to provide services to our students without a 3-4 week wait period? Ensuring that your campus has adapted to accommodate the new Covid-19 restrictions on social distancing is obviously important but consider the underlying mental health concerns of our returning students and make adequate changes to offer support for those needs as well. Offering basic mental health training to the faculty and staff that will be in the most frequent contact with students is recommended. This type of training, while not replacing the counseling services of psychiatrists or psychologists that a student may need, could help defer an overload of mental health services on your campus. Sometimes a student simply needs to talk to someone about why they are feeling anxious. If an anxious feeling is coming from a misunderstood assignment, the student can easily be diverted of needing mental health services with further explanation from the faculty member. The most important part would be knowing when to recommend the student to contact the professional mental health services and direct them to the correct department on campus to find the help they need.

The recommendation of training new faculty members about the mental health services offered on campus, as well as offering updates to those faculty members who have been employed for years would be beneficial for our students who may not know where to turn and who to ask for help when needed. The Chronicle of Higher Education (2020), discussed teletherapy and the pros and cons of offering mental health services through remote means. The Chronicle (2020) listed a major concern colleges have with offering mental health services remotely. One issue is the legal aspect that colleges would have to go through to get approved to offer those services through remote means. Another issue that colleges would have to address if treating students virtually would be issues with insurance coverage as well as out-of-state residences.

Interestingly, CMS (Centers for Medicare & Medicaid Services) has made many adjustments to the restrictions on telehealth and telepsychiatry during Covid-19. Some of those changes include the waiver of HIPAA penalties for using non-HIPAA compliant videoconferencing software such as Skype and FaceTime to be used for telehealth sessions. (APA, 2020). CMS has also listed additional waivers such as licensure requirements and working with people on an out-of-state basis. Medicare and Medicaid are typically available for people age 65 or older and younger people with disabilities (DCD, 2015), with these changes being made on a regular basis to assist the mental health of those who need it, it is highly recommended that college counseling centers look into what types of services are now available to assist them in working safely with students and their mental health needs during the Covid-19 pandemic that perhaps were not acceptable forms of counseling in the past, i.e., FaceTime or Skype; that now may not only be appropriate, but also approved for use.

As we enter into the next step of our Covid-19 culinary education, please be mindful of your students' mental health and well-being, watch for signs of concern, and know who to direct your students to for additional mental health services within your specific campus. Keep in mind that this pandemic has affected everyone differently, therefore every student will be coming to campus with a unique circumstance that could affect their mental stability throughout their time

on campus. Remember to also keep your own mental health in check. You can help your students more if you yourself are in a good state of mental well-being.

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Ethical Approval Information: THIS PROJECT HAS BEEN APPROVED BY THE INDIANA UNIVERSITY OF PENNSYLVANIA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS (PHONE: 724-357-7730)

Participants' Consent for Publication: Consent was obtained from every participant before completing the questionnaire which was distributed electronically. Participants were asked to agree to the research before completing any questions. A copy of the consent letter can be found in Appendix B.

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Appendix A

Please thoughtfully consider your answers in this section in regard to things <u>BEFORE</u> Covid-19 pandemic.					
Questions 1-9	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree
I had a strong fear or worry about my own health.					
I had a strong fear or worry about the health of my loved ones.					
I had difficulty sleeping.					
I had difficulty concentrating on my studies.					
I had been diagnosed with depression.					
I had been diagnosed with anxiety.					
I had been prescribed medication to help with my depression.					
I had been prescribed medication to help with my anxiety.					
I believed my mental health was under control.					

Please thoughtfully consider your answers in this section in regard to things <u>AFTER</u> the Covid-19 pandemic.					
Questions 10-18	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree
I have a strong fear or worry about my own health.					
I have a strong fear or worry about the health of my loved ones.					
I have difficulty sleeping.					
I have difficulty concentrating on my studies.					
I have been diagnosed with depression.					
I have been diagnosed with anxiety.					
I have been prescribed medication to help with my depression.					
I have been prescribed medication to help with my anxiety.					
I believe my mental health is under control.					

Please thoughtfully consider your answers in this section in regard to things <u>AFTER</u> the Covid-19 pandemic.					
Questions 19-25	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree
My symptoms of depression have got worse.					
My symptoms of anxiety have got worse.					
My mental health has gotten worse.					
I have not been sleeping as well as I used to.					
My mental health is excellent.					
My living situation has hindered my ability to be successful in my studies through online means.					
I wonder more about my future now than before COVID-19.					

26. Of the following, how would you describe your living situation while you were completing your spring semester remotely:

- a. Living with parent(s)
- b. Living with Parent(s) and sibling(s)
- c. Living with grandparent(s), parent(s), sibling(s)
- d. Living with grandparent(s)
- e. Living with a roommate(s) or significant other
- f. Living by oneself
- g. Other, please specify:

27. Do you believe the living arrangements you were in negatively affected your ability to complete your spring semester?

- a. Yes
- b. No

28. Please select which option best describes the location at which you were staying during your remote learning.

- a. Rural
- b. Urban
- c. Suburban

29. Do you feel the location of your residence hindered the ability for you to complete your spring semester successfully?

- a. Yes
- b. No

30. Do you believe Covid-19 has affected your education in a negative way that cannot be fixed?

- a. Yes
- b. No

31. Do you believe Covid-19 has hindered your ability to be successful in the culinary/pastry industry?

- a. Yes
- b. No

32. Did you experience higher than normal levels of stress/anxiety due to the covid-19 outbreak that affected your ability to complete assignments by their due dates?

- a. Yes
- b. No

33. If you would like to be entered for the gift card give away, please select YES here. You will be redirected to a separate survey to collect your contact information. This will keep your answers anonymous and separate from your contact information.

- a. Yes
- b. No

Appendix B

Welcome to my research study!

I am interested in understanding the mental health of culinary and pastry students during the COVID-19 pandemic. For this study, you will be presented with information relevant to your personal experiences during the spring semester of online learning transition. Then, you will be asked to answer some questions about it. Your responses are completely anonymous and will not be connected to you in any way.

The study should take you around 10 minutes to complete. Your participation in this research is voluntary. If you wish to withdraw while taking the survey, simply close your browser. Only completed questionnaires will be used for research purposes. Once surveys are completed, I have no way of connecting the data to you, therefore it cannot be withdrawn once submitted. The Principal Investigator does not believe you will experience any risks or discomforts while participating in this questionnaire. After completion of the research questions, you can choose to provide your contact information to be entered into a randomized drawing to receive one of two Sheetz gift cards as a thank you for your participation. This is a separate link and will maintain your anonymity of your answers provided. The Principal Investigator of this study can be contacted at Melinda.mcisaac@iup.edu with any questions you may have.

To participate in this study, you must have been enrolled in the IUP Academy of Culinary Arts Baking or Culinary program during the spring 2020 semester and be over 18 years of age.

By clicking the button below, you acknowledge:

Your participation in the study is voluntary. You are 18 years of age. You are aware that you may choose to terminate your participation at any time for any reason.

If you feel as though you need further assistance or wish to discuss any mental health concerns, please view the IUP Counseling Center's website at: <https://www.iup.edu/counselingcenter/> or call the center 724-357-2621. In case of an emergency: please dial 911.

THIS PROJECT HAS BEEN APPROVED BY THE INDIANA UNIVERSITY OF PENNSYLVANIA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS (PHONE 724-357-7730).

Culinarians Role in Seafood Preparation Post COVID-19

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Abstract

Prior to the COVID-19 outbreak, restaurants and food service establishments accounted for nearly two thirds of seafood expenditures in the U.S. With such establishments closed for dine-in service and many consumers quarantined, their patrons are exploring new culinary endeavors and cooking more seafood at home. With the drastic changes to the supply chain, producers are pivoting to connect directly with consumers and retail markets. Fears of new COVID-19 outbreaks will limit consumer spending at food service establishments for some time.

Increasing familiarity with seafood preparation will alter consumer expectations and demands. This will require a culinary workforce that is knowledgeable and comfortable working with a variety of seafood products and ready to answer consumer questions about the safety, nutrition, and sustainability of seafood. Although there are hundreds of seafood species fished and farmed in many ways, most culinary schools do not offer seafood specific training. A greater emphasis on seafood can help students develop marketable skills and stay current on consumer trends and culinary needs. Luring seafood diners back to food service, will require that chefs focus on a wider range of species, more exciting preparations, and enhanced plating techniques.

In a potentially slow to recover culinary marketplace, educators can help future chefs explore alternative opportunities in the seafood industry. As Americans return to work, they will be looking for easy to prepare meal kits, take-away dishes, and other time savers. A basic seafood curriculum is presented as well as free resources to help build a comprehensive seafood program. New skills that can prepare students for post-COVID-19 careers in food service are highlighted and a set of activities is presented to help students better prepare for the challenges of a post-COVID-19 culinary landscape.

Key Words: seafood, aquaculture, fisheries, safety, sustainability, nutrition, curriculum

Background

In March of 2020, the coronavirus was officially declared a pandemic (Chappell, 2020; WHO, 2020). Shortly after, states across the country began closing food service establishments (including restaurants and corporate dining facilities), canceling large events, and halting tourism (White et al., 2020). Prior to the pandemic, food service establishments accounted for nearly two thirds of seafood expenditures in the U.S. (Love et al., 2020). These economic disruptions have forced seafood producers to restructure their standard business models and connect more directly with consumers and retail markets (FAO, 2020b).

The loss in international trade because of border closings coupled with changes in tariff policies caused drastic changes in the seafood supply chain. Prior to the pandemic, it was estimated that between 85 and 90% of the seafood consumed in the U.S. was imported, with the major U.S. suppliers shown in Image 1. Approximately 50% of those imports, especially shrimp, salmon and tilapia, were aquacultured or farm-raised (Lowther et al., 2020; NOAA Fishwatch, 2019). Included in those numbers are products that were farmed or fished in the U.S., sent overseas for processing, and then reimported back to the U.S. (NOAA Fishwatch, 2019). These global shifts have not only limited the availability of imported products but have also limited the ability of U.S. companies to provide a processed product. This situation has been exacerbated by labor shortages and processing plant closures (FAO, 2020b; Smith et al., 2020)

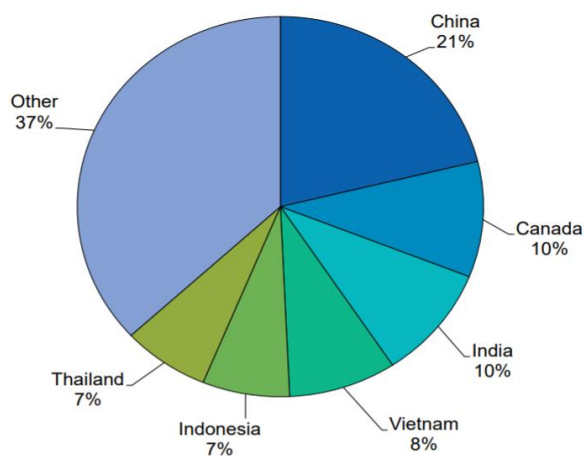


Image 1: Major US suppliers of imported edible fishery products by volume in 2018. Source: Fisheries of the United States 2018 (Lowther et al., 2020).

The Food and Agriculture Organization predicts that the supply chain will not reopen anytime soon and that commercial demand and prices for seafood will remain depressed. Capture fisheries are expected to decline and shortfalls must be filled with domestic products including farm-raised products (FAO, 2020b). Consumption will be determined by availability, and reliance on traditional species, the majority of which are imported, will decrease.

In the past, consumers expressed concerns about their ability to purchase good quality seafood and prepare it well. They often viewed seafood as a treat when dining out. With restaurants closed for dine-in service, many consumers are taking the opportunity to explore new culinary endeavors. Trends in retail sales are suggesting that consumers are preparing more seafood at home, being more adventurous with their seafood selections, trying ambitious and interesting preparations, and sharing their newly discovered culinary skills with others on social media (Blank, 2020; Fisher, 2020; Mohny, 2020; Wells, 2020).

With the pandemic disrupting both foreign trade and supply chains (FAO, 2020b; Kearns, 2020; Smith, 2020), locally harvested and farmed seafood products are gaining market-share (Holmyard, 2020). These shifts could alter consumer demand away from the more traditional commercial species. Familiarity with less commercialized species is continuing to grow as harvesters and fish farmers reach out to the consumer directly (Modlin, 2020). This may alter consumer expectations of restaurant meals as their palates become more diverse and sophisticated. The pandemic has also raised health concerns and many consumers are expressing a growing preference for a healthy diet.

With limited supplies and the rising price of other center of the plate proteins (Mukewar, 2020; Taylor, 2020; Wiener-Bronner, 2020), seafood is becoming more price competitive as a menu item. These changes will alter the trends in seafood consumption that will likely extend beyond the pandemic and warrant a culinary workforce that is knowledgeable and comfortable working with a variety of different seafood products, species, and preparations.

Seafood is a confusing commodity with hundreds of species harvested and farmed in a myriad of ways. Although seafood plays a major role on many restaurant menus, over 85% of the seafood consumed in the U.S. is confined to the top ten species and preparations are simple (Table 1; NFI, 2020).

While incorporation of lesser known species is gaining traction on restaurant menus (Postelsia, 2019), the disruptions in supply and access to protein foods may fast track such practices. Most Americans consume only about 16 pounds of seafood each year (Lowther et al., 2020). That translates to far below the USDA recommendation of a minimum of 2 seafood meals per week to maintain good health. Exploring new species and searching for healthy sustainable alternatives are growing trends. In addition, expanding the American palate to highlight more diverse seafood consumption is key to ensuring sustainability of our seafood resources (CBS News, 2019). Keeping on top of these trends will be critical to ensuring resilience in the food service industry as consumption patterns continue to change.

To entice customers back, food service operations will need to be more creative, offering interesting new to market species, more adventurous and attractive preparations, and developing plating techniques that can lead to more social media sharing. Social media sharing is a great way to advertise restaurants and showcase chef's skills at no cost. Consumer photos have even been shown to shape consumption patterns by enhancing the consumer experience and making the food more enjoyable (Coary & Poor, 2016).

Table 1: U.S. Per Capita Seafood Consumption Top Ten Species 2018

Species	Pounds
Shrimp	4.6
Salmon	2.55
Canned Tuna	2.10
Tilapia	1.11
Alaska Pollock	0.77
Pangasius	0.63
Cod	0.62
Catfish	0.56
Crab	0.52
Clams	0.32
<i>Total Top Ten</i>	13.78
<i>Total Consumption</i>	16.10

New species and preparations are generally introduced at the restaurant level. A good way to do this is by offering them as appetizers and daily specials or bringing a free sample for the table to share. Many consumers are wary to try something new as their main course out of fear of disliking it, but ordering an appetizer allows for more experimentation with less risk, especially if it can be shared with a group. This was the case with calamari. Years ago, calamari was reserved for Italian cuisine and usually included in a pasta sauce. Now fried calamari is a staple on restaurant menus across the U.S. Seaweed production is growing in coastal areas, especially in the Northeastern U.S. (Hathaway, 2019a) and seaweed salads don't have to be reserved for sushi restaurants (Hathaway, 2019b). Seaweed or sea vegetables can be a good addition to a variety of dishes including stir fries, stews, and sauces (Zuckerbrot, 2015). To accommodate changing needs and demand, suppliers are expanding their inventories to include a wider variety of species (Personal Communication, 2020).

U.S. aquaculture, or the production of marine and freshwater organisms under controlled conditions, is adding to the list of species available to food service. Steelhead, hybrid striped bass, branzino, barramundi, redbfish, catfish, and oysters are growing in popularity. Not only are these products produced domestically under strict federal, state, and local regulatory guidance (AFS, 2020; Carter & Goldstein, 2019; Porter & Kihslinger, 2015), farm-raised products, are consistent in supply, quality and price. This simplifies menu planning and cost projections.

Even before COVID-19, food delivery options were on the upswing, especially among Millennials, and now that trend has taken off (Fantom, 2020; Littman, 2019). But how much of that delivery market is fast food? Is there still a market for upscale preparations? Ghost kitchens, also known as cloud kitchens, delivery kitchens, dark kitchens, or virtual kitchens have sprung up everywhere. These operate on several different models (Barkham et al., 2019). It may be a restaurant that still operates its traditional kitchen with no front of the house staff. It may consist of satellites that serve product from a central location much like a commissary. This allows a restaurant to expand its delivery range. As the earning power of the millennial generation increases, chefs and restaurateurs need to be prepared for a return to in-house dining, while continuing to offer expanded take-out and delivery options.

Studies have shown that lack of knowledge and comfort with seafood products was a serious limitation to in home use (White, 2019). Thus, with shifting patterns it may be time for chefs to hone their ability to create easy to use/follow recipes and meal prep kits that can be marketed to wary consumers for home preparation. Not only will this be crucial for expanding the market for high value nutritious protein like seafood but will afford chefs the opportunity to engage consumers and market themselves. This could be crucial to jumpstarting a career in culinary outreach and education or laying the groundwork for a strong consumer base should a new chef be presented an opportunity to open or operate their own kitchen.

Unfortunately, most culinary training programs do not offer a specialized seafood course. Not only are such courses important in learning how to select and prepare seafood, but they can assist in providing answers to consumer questions about sustainability, food safety, and nutrition. A basic outline one might consider for an introductory seafood course is depicted in Image 2 along with potential textbooks that can help expand on the suggested topics and more (Ainsworth, 2009; Diversified Business Communications & Peterson, 2009; Uner Barry, 2016). Culinary educators can help prepare their students for a rapidly changing culinary world by creating curricula that challenge students to think about shelf-life, different preparations, and how they might hold up to take-away and delivery. Educators can also prepare students to address changing trends through curricula on meal kits, prepared take-away foods offered, recipe development, and delivery of cooking classes.

Heavier reliance on take-away has highlighted some of the pitfalls to delivering seafood meals. Chefs find themselves having to consider - does the product travel well? What is the delivery range? Can the food be prepared ahead? Does the cost appeal to at-home diners? Some chefs are addressing these pitfalls by adjusting recipes to reduce overall cost, focusing on cold preparations like seafood salads, adding soups and dips to the to-go menu, and subbing fried sides like French fries with house made potato chips (Glazer, 2020). Chefs are also experimenting with new innovative packaging and creation of engaging and interactive online tools to enhance the at-home dining experience, which can add value to the take-away meals (Glazer, 2020). Organizations like the Alaska Seafood Marketing Institute, are working to provide resources to address these topics as well (Heimbigner, 2020), but there is more work to be done. Culinary educators could play a pivotal role in exploring these options and fostering a well-trained workforce for the post-COVID-19 food service landscape through innovative

culinary curricula. The first step in creating these curricula will be creating an understanding of the health benefits, safety, and sustainability of U.S. seafood.

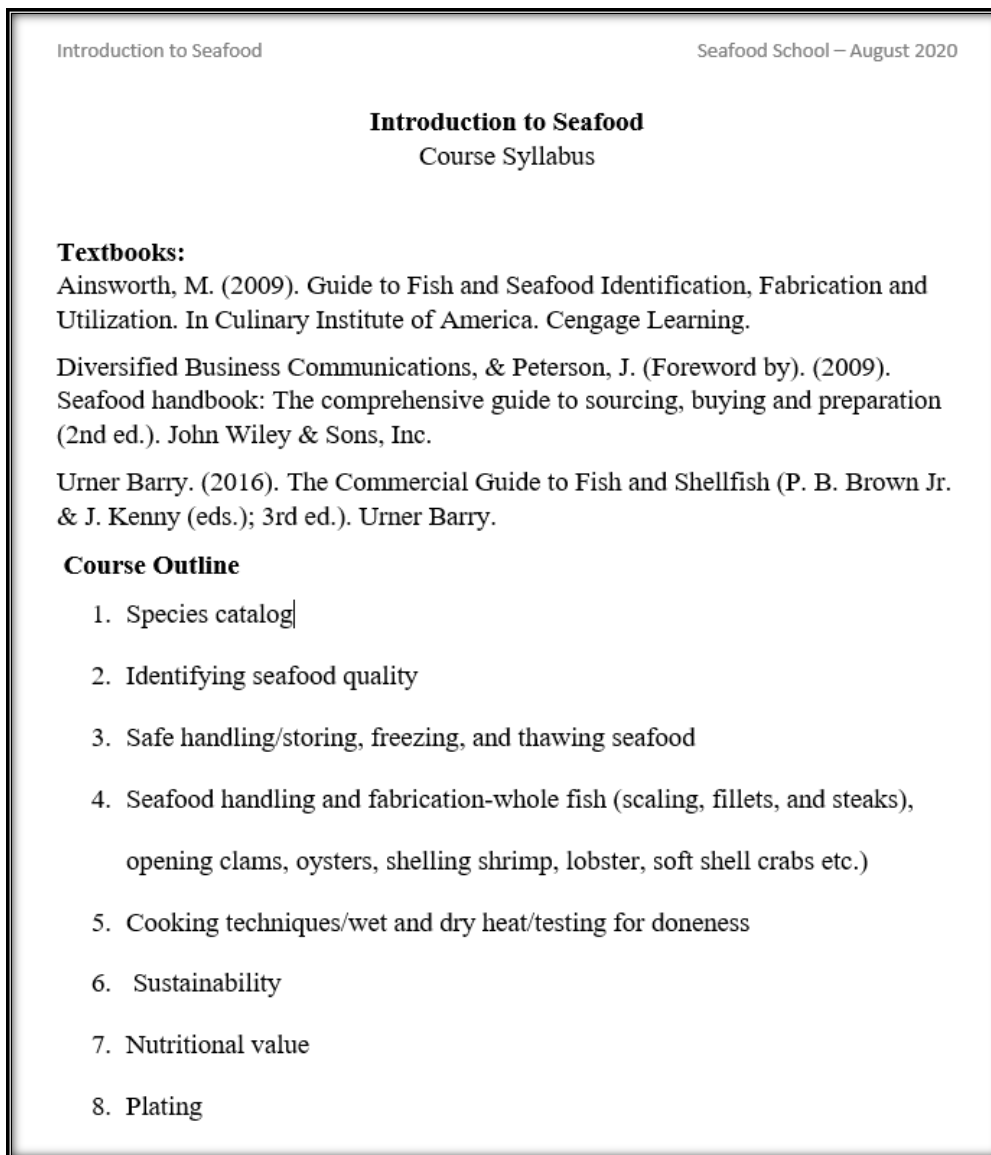


Image 2: A draft outline with potential textbook resources for a basic seafood curriculum.

Seafood and Health

Institutional food service programs especially those in hospitals, nursing homes, and corporate dining facilities are increasingly concerned about the health of their diners. The United States Department of Agriculture (USDA) updates their Dietary Guidelines for Americans publication every 5 years to reflect current science and understanding of health and nutrition (U.S. Department of Health and Human Services & U.S. Department of Agriculture, 2015). The 2015-2020 edition of this publication recommends a minimum of two seafood meals per week to maintain good health. Similar recommendations have been made by the American Heart Association, the American Cancer Society, and the American Diabetes Association.

Fish and shellfish provide high quality, easily digestible protein and are a good source of important vitamins and minerals. Most seafoods are more nutrient dense than beef, pork and chicken (Hallström et al., 2019). Fish is a natural source of B-complex vitamins, selenium, vitamin D [which is often lacking in Americans (Parva et al., 2018)], and vitamin A. Seafood is the best source of unique polyunsaturated fats called Omega-3 fatty acids (DHA and EPA) (Hosomi et al., 2012). All fish and shellfish contain Omega-3 fatty acids, but generally fattier fish contain more Omega-3s than leaner fish. Consumption of seafood has been shown to decrease risk of cardiovascular disease and type 2 diabetes (Hosomi et al., 2012) and significantly improve child development and overall health in pregnant women and children (Bernstein et al., 2019; Hibbeln et al., 2007). In summary, a healthy diet complete with diverse seafood dishes can promote a healthy heart, brain, eyes, and muscles.

The way seafood is prepared can have significant impacts on the overall nutritive value of the meal. Deep fried and drenched in saturated fats like butter are often the most common preparations, which negate the low calorie count inherent in seafood products. Chefs looking to provide healthy flavorful options for their seafood diners must be familiar with the many other ways you can add flavor while limiting the use of salt, carbohydrates, and saturated fats. Add flavor with herbs and spices rather than butter and cream sauces. Seafood blends well with a variety of fruits and vegetables and that can add to a well-balanced, healthy meal. This is especially important for restaurants required to include calorie content on their menus (FDA, 2019).

Seafood Safety

In the United States, the Food and Drug Administration (FDA) mandates that all seafood processors implement Seafood HACCP (Hazard Analysis Critical Control Point) programs, which are preventative food safety plans that target common hazards associated with the specific seafoods they produce and the processes they use (FDA, 2020c). Since its implementation in 1997, new rules by the FDA authorized by the Food Safety Modernization Act have added additional regulations for the processing, handling, and transportation of human food that affect how seafood is handled (FDA, 2020a).

Sustainability

In the U.S. environmental sustainability is monitored and maintained through strict regulatory oversight and management. The National Oceanic and Atmospheric Administration (NOAA) Fisheries Service in conjunction with the Regional Fishery Management Councils carefully regulate wild harvest to ensure that U.S. fishery resources are sustainable and available for future generations (NOAA Fisheries, 2018). Because the demand for seafood continues to grow, aquaculture, which is also regulated to ensure operations are managed sustainably (FAO, 2020a), has grown to bridge the widening gap between wild supply and consumer demand. In addition, the Department of Labor's Occupational Safety and Health Administration (OSHA) sets and enforces regulations for worker welfare and compensation to ensure socially sustainable U.S. operations (OSHA, 2020). Focusing efforts to source domestically farmed and fished products, especially local to you, allows chefs to develop relationships and a stronger understanding of sustainable production. Sourcing locally will also increase the sustainability of the seafood by reducing the distance the product travels (food miles), since seafood is often imported from distant sources, the carbon footprint can be substantial and is often overlooked when assessing the sustainability of a product (Madin & Macreadie, 2015).

Seafood Education: Meeting the Challenges of the Future

There is a lot to learn about seafood. To help train chefs for the future, culinary schools should consider adding a specific seafood course to the curriculum and professional chef associations should include continuing education offerings. Table 2 highlights additional resources that can help in developing a seafood education program. Listed below are some new skillsets that could help culinary professionals build a career post-COVID-19.

- **High quality take-away and delivery** preparations, of a variety of seafood species, will be crucial to securing a market for high value seafood products for wary consumers concerned with eating out. Table 3 provides a sample curriculum that incorporates activities to prepare students for developing high quality seafood take-away.
- **Recipe writing and creation** will be a crucial avenue for engaging consumers over the next year or more. Ensuring students have the skills to write easy to follow recipes that inspire home cooks can help students build connections with consumers. In addition, considering the current health concerns arising due to the pandemic, chefs can increase trust in consumers by demonstrating their dedication and understanding of food safety by incorporating food safety tips throughout their recipes. The Partnership for Food Safety Education has developed resources to assist in safe recipe development (PFSE, 2019).
- **Effective pandemic safety protocols** to protect patrons and employees will increase the likelihood that patrons will return to food service establishments sooner. Agencies and culinary organizations across the country have published resources outlining the best practices for opening and operating safely during a pandemic (FDA, 2020b; NRA, 2020) that students should be familiar with.

- **Meal prep kits** are growing in popularity, but creation of easy to use quality kits requires experience. It will be important to understand the shelf-life and stability of products and the various organoleptic properties of food that could be affected by transport, packaging and the limitations of cooking at home. This warrants a more scientific understanding of foods. Culinary students with interest in building meal prep kits would benefit greatly from more training in food science. If relationships don't already exist, connecting with local university food science programs could provide insights into how to effectively incorporate this into culinary curricula (IFT, 2020). Table 3 provides additional ideas for a curriculum that could help students hone their skills around the creation of meal kits and afford them the experience necessary to build accessible and high-quality kits.
- **Storytelling and Marketing** is a great way of building relationships. Making connections with producers and sharing their story along with yours can be a great way to help consumers understand seafood and make connections between you and the local food community. These connections and stories can build trust with consumers and develop a loyal following that could be beneficial for future culinary pursuits (GFS Contributor, 2020).

In developing new curricula and exploring more engaging ways to educate students, culinary educators might consider reaching out to local seafood producers (fishermen and farmers) (Ciaramella, 2020). Inviting producers to visit the classroom or planning field trips to their docks/facilities can help to build connections and enhance students understanding of seafood sources and how it is harvested/farmed. Educators can work with the producers to get their products in the classroom. When engaging producers, it will be important to highlight the potential benefits to them, which could even encourage donations or product discounts for preparation and testing. The main benefits to highlight might be the development of dishes that complement their product(s), which can be shared. Producers can use the recipes and photos of the dishes created to help market their products. In addition, these interactions could lead a student to a career with a food service purveyor or seafood wholesaler who could be crucial to assisting and educating other food service professionals in accessing high-quality sustainable seafood products.

Table 2: List of free resources on U.S. Aquaculture and Seafood

Topic	Resource
Aquaculture	The National Aquaculture Association
	Culinarians Guide to Aquaculture
	Today's Farmed Fish
Education	CAFÉ Lesson Plan on U.S. Farm Raised Seafood
	Alaska Seafood Marketing Institute: Training and Education
	Seafood Products Teacher Resource Guide
	Seafood Products: Food Service Program Guide
	Sea Grant Extension Professionals
Fisheries	NOAA Fish Watch: U.S. Seafood Facts
Stories	NOAA Fisheries Video Gallery
	NOAA Voices: Oral History Archives
Nutrition	The Seafood Nutrition Partnership
	Seafoodhealthfacts.org
	USDA Health and Human Services Dietary Guidelines for Americans
Safety	USDA Food Safety for Delivery of Groceries and Prepared Meals
	U.S. Food and Drug Administration (FDA): Seafood
	Safe Recipe Style Guide
	U.S. FDA: Best Practices for Retail Food Stores, Restaurants, and Food Pick-up/Delivery Services During the COVID-19 Pandemic
	U.S. FDA: Guide to Acceptable Market Names for Seafood
	U.S. FDA: Fresh and Frozen Seafood, Selecting and Serving it Safely
Impacts of COVID-19	Open Table: State of the Restaurant Industry
	USDA: Food Expenditure Series

Table 3: Example Post COVID-19 seafood curriculum/activities highlighting take-away/delivery and meal kit creation.

	Title	Description
1	Learning Objectives	<ol style="list-style-type: none"> 1. Gain a better understanding of different seafood preparations. 2. Learn more about non-traditional seafood species 3. Acquire information necessary to answer diner questions about seafood sustainability, safety, and health benefits. 4. Identify best preparations for seafood take-away and best practices for meal-kit creation. 5. Understand how to test and evaluate different take-away/delivery preparations and user-friendly meal prep kits.
2	Introduction to seafood	Review seafood nutrition, safety, and sustainability including regulatory aspects. A basic introduction is provided in this article along with references to expand on topics as needed.
3	Handling and Preparing	Cover basic handling and processing techniques for major seafood categories: round fish, flatfish, large species, crustacean shellfish, molluscan shellfish etc.
4	Seafood take-away activity	<ol style="list-style-type: none"> 1. Separate students into groups and have them think about the different types of seafood and what preparations might stand up well to take-away/delivery. 2. Challenge students to test their ideas and prepare seafood meals packed for take-away/delivery. 3. Mimic take-away/delivery conditions then taste the products and evaluate each on appearance, flavor, and texture. Consider measuring product temperature and explore the effect on all these categories with different packaging types. To get an accurate picture be sure to repeat this multiple times and with different take-away/delivery conditions.
5	Seafood meal-kit activity	<ol style="list-style-type: none"> 1. Separate students into groups and challenge them to develop an easy to follow recipe with safety tips that consumers could prepare in their own home. 2. Have students' portion and build meal-kits to complement the recipe developed. 3. Groups should trade meal kits and work through the provided recipe to create the meal as described using the ingredients provided. Throughout this process students should constructively evaluate all aspects of the meal kit including, clarity and accuracy of recipe, ease of use, packaging, and flavor of the final dish.
6	Presentation and Review	Students can then present their findings and experience with both activities. Sharing different methods and what worked and didn't will be an important component of broadening students understanding of different methods for take-away, delivery and meal kit development and those preparations and features that are most effective and least effective.

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