

An Assessment of Beverage Management Programs in U.S. Hospitality Schools

Carol Ann C Garcia, Jean L Hertzman, Keith H Mandabach*

School of Hotel, Restaurant and Tourism, Management New Mexico State University, USA

ABSTRACT

The purpose of this study was to assess the characteristics and importance of beverage management programs within U.S. hospitality schools based on a content analysis of program websites and the attitudes of educators. The study also aimed to identify possible gaps in programs based on the linkages of offerings, attitudes of educators, and barriers to beverage education. Fifty-two U.S. hospitality schools were evaluated and educators from them were surveyed. The majority of programs offer beverage electives, but not majors or minors. The results showed no significant differences in the mean importance of beverage education characteristics among educators based on job title and years of experience. Faculty members considered incorporating industry standards into the curriculum and professional certifications more important than administrators. Overall, the few differences in attitudes among groups of educators imply that faculty and administrators generally have common goals and acknowledge similar barriers to beverage education.

Keywords: Beverage management; Education; Evaluation

INTRODUCTION

Undergraduate colleges with hospitality schools in the United States offer a variety of programs or courses to help students gain the knowledge and skills necessary to begin a career in the service industry. Although hotel, restaurant, or tourism jobs do not always require a degree or certification, a hospitality bachelor degree may set apart those candidates who are knowledgeable in the industry from those who are merely experienced, as well as establish a path towards management rather than entry-level jobs. Required courses in hospitality schools typically include management, marketing, restaurant and hotel operations, accounting, law, and sometimes internship or professional certification opportunities. Specialized beverage education and management programs are comprised of courses such as food and beverage history and culture, tasting and evaluation, bar management, wine, beer, and spirits production, and operation fundamentals.

Interest in beverage education programs within hospitality schools may be attributed to alcoholic beverage industry growth and the increasing demand for experienced workers. According to the U.S. Census Bureau, total sales in the Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers category (NAICS 4248) were over \$148.8 billion in 2017. In 2017, roughly \$20 billion in bar and tavern sales alone were forecasted by the National Restaurant Association (NRA) [1-4]. One of the latest beverage industry trends

is the increase in microbreweries, gastro pubs, taprooms, wine bars, and craft cocktail lounges across America. The number of breweries alone increased fivefold from 2010-2016 [5].

Both established and developing beverage businesses seek skilled and experienced workers. The latest records from the Bureau of Labor Statistics (2018) show over 12 million employees working in the foodservice and beverage establishment segment. Over 131,200 people were employed in wineries, breweries, and distilleries in 2016 [5]. Food and beverage industry careers include various levels of service, production, management, and administrative roles in restaurants and bars, hotels, private clubs, wineries, breweries, and distilleries. The industry statistics represent the demand for workers in these fields and career opportunities for students enrolled in hospitality education programs. Although it is not directly known what amount or type of beverage education is ideal for these careers, industry needs reflect that beverage education is necessary.

Hospitality schools offering beverage management programs typically require students to take entry-level theory courses, as well as hands-on experiential learning classes. These experiential courses range from food and beverage fundamentals and operations to community involved dinners and event organization and execution. These courses provide the experience necessary for a student to work confidently in a service position post-graduation.

Correspondence to: Keith H Mandabach, School of Hotel, Restaurant and Tourism Management New Mexico State University, USA, Tel: + 5756448073; E-mail: kmandaba@nmsu.edu

Received: March 16, 2020, **Accepted:** April 06, 2020, **Published:** April 13, 2020

Citation: Garcia, CAC, Hertzman JL, Mandabach KH (2020) An Assessment of Beverage Management Programs in U.S. Hospitality Schools. *J Tourism Hospit* 9:428. doi: 10.35248/2167-0269.20.9.428.

Copyright: © Garcia, CAC, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

At this time little is known about the scope of specific beverage education programs offered through hospitality undergraduate schools in the U.S., or if these programs are extensive enough to provide the knowledge and skills necessary for various beverage industry jobs.

To address this gap, this study assessed undergraduate beverage management programs and the perceptions of hospitality educators regarding the characteristics and value of these programs in hospitality schools across the United States. Specific objectives guiding this exploratory study were:

- Describe current undergraduate beverage management programs including the following characteristics: degree plan, courses offered, teaching methods, facilities, and related certifications.
- Describe and compare the attitudes of educators regarding the perceived importance of beverage education programs.
- Identify possible gaps in current programs based on the current offerings, attitudes of educators, and barriers to beverage education.

LITERATURE REVIEW

The background of food and beverage in hospitality schools

The first four-year undergraduate hospitality and tourism education program in the United States was established at Cornell University in the 1920s, and was soon followed Michigan State, Purdue, and Washington State. Until the mid-1960s, however, hospitality and tourism was rarely its own curriculum and more often part of other education fields such as geography, trade, and vocational business [6]. Around the 1970s, specialized hospitality education gained in popularity, and since then the number of these programs has more than quadrupled [7]. Factors such as student demand, the progression of higher education institutions, and a global tourism-driven market have all impacted the development of current hospitality education programs across the United States [6].

Food, beverage, and restaurant practices could be considered a separate educational field. For example, the Culinary Institute of America (CIA), originally established in 1946, has continuously developed its campuses and food and beverage programs [8]. The Greystone campus opened in Napa Valley in the late 1990s with a food and wine pairing focus (CIA, 2018). However, most undergraduate schools in the U.S. did not adopt specific food, beverage, and restaurant programs. Rather, food and beverage (F&B) was placed within the hospitality management curriculum.

In a review of change in F&B management, Riley stresses the concept of specialization. When a specialized field sees development, the skill base required alters with it [9]. This is the case with modern F&B management in that its original skills in cuisine have been divided and paired with management concepts such as marketing and productivity. For this reason, including F&B in hospitality and tourism educational programs provides students with a well-rounded education, allowing them to be immersed in a variety of hospitality and service related environments.

A common goal of hospitality schools has been to provide students with the diverse skills, knowledge, and resources that the industry

requires to become a successful service-driven professional. Since the 1980s, higher education administrators have aimed to differentiate their programs in a market-driven environment, ultimately resulting in the development and diversification of hospitality programs, manifested by the globalization and cultural mix generally represented in hospitality education [10]. While the business and management aspects of these programs are highly strategic and fundamentally approached, F&B education can be characterized by a more vocational and operationally based approach [11]. Consequently, many hospitality schools have adjusted their facilities and academic programs to model a more experiential style of learning.

Current undergraduate hospitality schools may include beverage management in their curriculum in a variety of ways. For example, some offer beverage management or related programs as a specific major, minor, or both while others provide beverage related certificates or concentrations. These programs could be comprised of various levels of wine, beer, or spirit production, analysis, or management. The remainder of the schools may offer a series of beverage related electives.

Connecting beverage education with professional certification

One method which educators may use to enhance beverage education is to combine available certifications with classroom curriculum. Certificates are defined as the proof of competency where holding a certificate presents a symbol and evidence that the holder is aware of completing specific work and tasks and owns certain knowledge and skills by passing the certificates [12].

A study by Moreo, Green, and O'Halloran conducted a value assessment of certification in hospitality undergraduate programs [13]. The results suggested that hospitality, events, and food and beverage curriculum benefitted, if only slightly, from providing opportunities for students to obtain industry certifications. Although the study concluded that hospitality employers commonly seek industry experience over education or certification, the same employers also agreed that "in general, certifications of any kind in industry professionals show a commitment to continuing education and are therefore valuable" [13].

In addition to being useful within the industry, certifications may provide hospitality programs with opportunities to connect the classroom with the workforce. Deale and Schoffstall found that hospitality education can benefit from aligning curriculum and other academic materials [such as certification] with industry standards in order to ensure student success and future employability [14]. Their study also showed that "students may need the push and support of their professors to help them understand the value of certifications and be motivated to earn them in addition to fulfilling their other class requirements" (p. 114). Liu investigated the role of hospitality certificates in the relationship between training and education [15]. The study showed the advantages of certificates in achieving individual competency as well as concluded that the acquisition of certificates signifies the possession of specific knowledge and skills.

Many states require certification before employees or students are legally allowed to serve or prepare alcoholic beverages in a restaurant, bar, hotel, or even academic setting. Schools may vary the standard curriculum to reflect local laws and practices. As of January 2016,

16 states required mandatory alcohol server certification, 24 had voluntary certification (or a mixture of mandatory and voluntary practices), and 11 had no laws for alcoholic beverage server certification [16]. Therefore, some hospitality programs require students to become alcohol certified in order to serve alcoholic beverages in class or to the community during student-run events. The two most common certification courses are ServSafe Alcohol and Learn2Serve [17,18]. These courses are brief, may be done online, and include content such as responsible service, health implications, codes and regulations, and basic wine, beer, and spirits knowledge.

Multiple certifications are available to professionals and students seeking to further their education in wine, beer, or spirits. Most of the programs offer study guides, workbooks, online courses, face-to-face courses, workshops, seminars, and mock-exams to aid in preparation for the exams. Careers using these certifications include but are not limited to distributors, managers, restaurant sommeliers, beverage directors, wine analysts, wine marketers, bartenders, mixologists, wine makers, beer makers, distillers, and beverage educators.

The Court of Master Sommeliers, International Sommelier Guild, Institute of Masters of Wine, and Wine and Spirit Education Trust, and the Society of Wine Educators are the top wine education associations [19-22]. The Court of Master Sommeliers (CMS) offers cumulative levels of certification including introductory, certified, advanced, and master. The International Sommelier Guild (ISG) offers level one and two certifications as well as a diploma. The Wine and Spirit Education Trust (WSET) includes level one, two, three, four, and diploma. To become a Master of Wine through The Institute of Masters of Wine (IMW) one must complete the WSET level four, obtain recommendation from other Masters of Wine, and write a dissertation. ally, the Society of Wine Educators (SWE) offers both Certified Specialist of Wine and Certified Wine Educator qualifications.

The SWE, IWSG, and WSET also offer several levels of spirits certification which provide knowledge of alcoholic spirit types, bartending and mixology, and distillation and production processes. The Cicerone Beer Certification Program offers various levels of certification including Certified Beer Server, Certified Cicerone, Advanced Cicerone, and Master Cicerone [23].

Competencies in hospitality and beverage education

Competency models have been implemented as a tool to identify, categorize, and describe competencies that might be significant to perform a specific job within the industry effectively [7]. Yang, Partlow, Anand, and Shukla examined the traits preferred by hospitality employers by international region [24]. Those in the U.S. named communication, financial management, safety and security, customer service, community relations, interpersonal skills, professional appearance, ethics, and global perspective as some of the competencies required for the hospitality industry. The study also ranked competency domains, and the participants named administrative, conceptual, interpersonal, technical, and leadership skills as the top qualities necessary for a hospitality career. Millar et al., ranked important skill-based competencies in the hospitality industry. Common traits here also included guest service, problem solving skills, hygiene and safety, conceptual thinking, and leadership qualities among others.

Specific competencies for F&B are not commonly addressed due to the general nature of hospitality management competency sets, and specific competencies for beverage management are even scarcer [7]. However, competencies for F&B may be adopted from industry standards and employer expectations. Robinson et al. stated that along with academic considerations, curricula should be shaped by government and industry concerns for future labor shortages and the demand for skilled workers in F&B and hospitality occupations in a broader sense [10]. Wang, Ayres, and Huton found that better communication between tourism educators and tourism industry professionals may be needed to ensure industry reflective educational practices [25].

Teaching methods and learning environments in beverage education

The method of teaching could also be influential in providing effective education for hospitality students. Because of the multi-faceted nature of the hospitality industry, students are expected to study a variety of topics through a variety of teaching methods [26]. Examples include lectures, production lab and hands-on courses, student-run bars or restaurants, sensory evaluation labs, and internship-based courses. Experiential learning can be defined as a cycle of experimentation, experience, observation and conceptualization in an academic setting [27]. Wood stresses that hospitality management programs and their graduates gain credibility in the industry if the student has spent some time in experiential restaurant, kitchen, or other lab environments because “hospitality managers require knowledge of the industry’s core products and useful knowledge of what they will one day control” (p. 7) [28].

Robinson et al. break down the delivery of F&B education into three categories: in-house operations, outsourcing, and in-house classroom. In-house operations involve the creation and maintenance of expensive facilities such as production and sensory evaluation labs [10]. Outsourcing refers to contracting F&B services to an external provider, such as student required internships. In-house classroom refers to the traditional management and theoretical lecture approach. This article stresses that all three components of hospitality F&B curriculum are important in ensuring a variety of teaching methods and learning environments necessary for student success.

Possible gaps/barriers in current beverage education programs

Little research has been performed on the characteristics and proficiencies of current beverage management programs in the United States. Beverage education is often bundled together under the broad topic of F&B. This type of curriculum typically focuses on restaurant management with an emphasis on culinary or service practices. Hospitality students may only be receiving basic beverage fundamental knowledge that could be taught through industry experience alone.

Another probable explanation for the gap in current beverage education within hospitality schools is lack of funding or resources. Hospitality education differs from education in other undergraduate disciplines due to the more hands-on and service oriented nature of hotel, restaurant, and tourism industry jobs, as well as more

community involvement through student-run events [26]. Having facilities such as student operated on-campus restaurants, kitchens, or event centers is pertinent to the practical experience aspect of hospitality students' education, however this may be costly. "As programs are pressured to cut costs and streamline their operations, less attention is devoted to sector-specific aspects of the curriculum, such as [beverage] related practical modules" [10]. The study by Wood also presumes that universities rarely see the investment in hands-on kitchens, restaurants, or other food and beverage facilities as equivalent to funding for laboratories used in natural sciences. Other possible barriers to beverage education could be the lack of knowledgeable or qualified faculty, government restrictions, or lack of student demand [28].

METHODOLOGY

Research design

The research performed follows mixed methods design using both content analysis and a descriptive survey. Mixed methods is a research approach that combines quantitative and qualitative methods into one study in order to provide a broader perspective, using multiple approaches available in order to come to a better understanding [29,30]. Since the study was exploratory, multiple perspectives were desired to increase the validity of the data.

The first part of the research was a content analysis of four-year undergraduate hospitality programs in universities across the United States. The researcher analyzed hospitality school websites to develop a list of beverage program information that could be compared to the characteristics provided in the survey results. The results were verified by a hospitality education expert. The second stage of the research involved a survey to determine the attitudes and perceptions of hospitality school educators about the importance of beverage education included in hospitality curriculum.

Sample

For both the content analysis and survey, a convenience sample was taken by selecting 52 universities offering bachelor degrees in hospitality and tourism. The researcher started with a list of premium CHRIE members (Council on Hotel, Restaurant, and Institutional Education) from their Hospitality & Tourism Educators website [31]. Not every school was used from this list and others were added based on researcher knowledge of their beverage programs. The list did not include associate degree programs or viticulture, wine production, or brewing programs housed in agriculture colleges. For each school, on average one administrator of the hospitality program and two faculty member educators were selected to be surveyed. The faculty members are responsible for teaching beverage courses at their institution, but it is unknown whether any of the administrators teach beverage courses. This resulted in the survey link being emailed to 130 individuals.

Survey design

The researcher found no previous study specifically related to beverage education, and therefore, no validated survey instrument exists. The researcher designed the survey based on questions from the literature and roundtable discussions with beverage educators. The first roundtable regarding current beverage education programs

and perceptions of the programs was held at the West Federation CHRIE (Council on Hotel, Restaurant, and Institutional Education) conference in San Diego in February 2017. The same topics were discussed again at the ICHRIE conference in Baltimore in July 2017 [31].

Section 1 of the survey includes "check all that apply" questions relating to the respondent's academic beverage program within their hospitality school. This section includes questions relating to beverage program as a major/minor/certificate, teaching methods and learning facilities such as lecture, lab, and student run restaurants, specific curriculum topics, and other general inquiries about specific beverage education courses offered.

Section 2 asks respondents to answer questions about industry certifications offered to or required of students. Section two includes inquiries on student requirements such as age (21+) and alcohol server certification. This section also includes questions about the offerings or requirements of other more advanced certifications such as Court of Master Sommeliers, WSET, CSW, CSS, and Cicerone certification [19,23].

Section 3 lists a variety of items for the respondent to rate the importance of on a 7-point Likert-type scale from 1- very unimportant to 7-very important). This section is broken into two sub sections with similar questions asked first regarding all students in undergraduate hospitality programs, and again regarding specific beverage management programs and students. Questions in this section include the importance of offering or requiring beverage education, offering or requiring industry certification, and providing various teaching methods and learning environments.

Section 4 includes various barriers to beverage education and the respondent was asked to check all that apply, and then rank the top three barriers by significance to their program. The 2017 ICHRIE conference sparked the addition of barrier related questions. Section 5 is comprised of open-ended questions designed to encourage more in depth and personalized responses. These questions were geared to assess attitudes about the future of hospitality beverage education programs and industry related certifications. Finally, Section 6 contains demographic questions designed to understand the academic role, and industry, beverage, and teaching experience of the respondent.

A panel of experts, including hospitality educators, and industry professionals familiar with related programs and/or survey design was used to determine the validity of the survey. The survey was sent to the panel for review to ensure that questions were without bias, easy to comprehend, easy to complete in a timely manner, not repetitive, and represented the research objectives adequately. Panel experts tested for content, face, criterion, and construct validity. Following the expert review, the study design, survey, and recruiting materials were approved by the university Institutional Review Board, ensuring compliance with all aspects of responsible conduct of human subjects research.

Data collection

The data was collected through an online survey to the selected educators. The researcher emailed a cover letter notifying the selected respondents that they have been carefully chosen to take part in the study due to their status as a hospitality educator,

explaining the relevance of the study, directions regarding participation and voluntary compliance procedures, and a link to the Qualtrics online questionnaire. A reminder requesting completion of the online survey was sent via email a week following the first email.

Data analysis

Content analysis of beverage management program characteristics: A convenience sample was selected of 52 hospitality bachelor degree programs in the United States. The program websites were analyzed to examine the beverage education offerings. Results showed the majority of these hospitality colleges only offered electives in beverage management, wine, or courses relating to alcoholic beverage fundamentals. Five of the schools studied offered specific beverage related majors, and eight schools offered minors and/or certificates associated with beverage management.

The only hospitality schools investigated for this study which offer specific beverage directed majors are Johnson and Wales University (Denver and Providence), Metropolitan State University, Texas Tech University, Washington State University, and Florida International University. Johnson and Wales offers both a Beverage Industry Operations and Retail Management Major and a Restaurant, Food, and Beverage Management Major, including courses in alcohol distribution and beverage operations management. Florida International University offers a Beverage Management Major in which students can take courses teaching brewing science and wine technology, merchandizing, and marketing. Metropolitan State University Denver (MSUD) offers majors in Brewery Operations and Craft Brewing/Pub Operations [32]. Texas Tech University has a newly implemented Wine Business Track Major through the Wine Marketing Research Institute [33-35].

Most of the colleges with specific beverage majors also offer minors with similar content but fewer requirements. MSUD is one example, offering a minor in Brewing Science as well as a certificate. It also has a minor in Beverage Management for those students wanting to gain a general overview of the industry and beverage fundamentals. University of Houston has a similar minor in Beverage Management and Marketing. University of Delaware offers a beverage management minor. Florida International University is the only school studied to offer both a Beverage Management major and minor, and Washington State is the only school studied to offer a Wine Business Management major, minor, and certificate. Other schools offering certificates are Cornell University's Food and Beverage Management Certificate Program, Boston University's Certificate Program in Wine Studies, and Auburn University's Brewing Science Certificate. Culinary Institute of America has an Advanced Wine, Beverage and Hospitality concentration [8]. Table 1 provides a list of universities with specific beverage major, minor, and certificate programs.

The majority of the universities studied offer beverage education only through a series of electives including curricula in introductory beverage appreciation, fundamentals, operations, culture, tasting, and management. Some schools have a specific learning environment or center for beverage education. For example, Oklahoma State University recently developed its Wayne Hirst Center for Beverage Education, where students can study beverage related subjects through a series of electives and New Mexico State University has the Bobby Lee Lawrence Academy of Wine.

Survey analysis

The first step of the survey analysis was to evaluate the data for completion and sufficiency. Out of the 130 individuals in the sample that were sent the survey, 53 responded. Out of the 53 responses, 38 had complete, usable answers (n=38). The responses that were eliminated were those with less than 50% completion, or respondents that began the survey but chose to exit soon after.

Out of the 38 respondents, 21 classified themselves as program directors/coordinators or deans. Those who answered "other" named a more specific job title but also fall into this category. Seventeen classified themselves as faculty members (adjunct faculty, non-tenure track faculty, or tenure track/tenured professor). Concerning the highest level of education completed, 25 had a Ph.D or doctoral degree, 10 had a master degree, and 3 had a bachelor degree. Average years of hospitality experience was 21.49, beverage industry experience was 10.57, and hospitality teaching experience was 13.04.

Respondents were also asked to list any professional beverage industry certifications they currently hold. Fifteen listed at least one certification. Some respondents chose to only list their top certification (for example: listed Wine and Spirit Education Trust (WSET) level 3 instead of listing WSET level 1, WSET level 2, WSET level 3). The most common wine certifications were various levels of Court of Master Sommeliers (7 respondents) and WSET (5 respondents). Three respondents are Certified Cicerones while two are Certified Specialist of Spirits [19,21].

Characteristics of programs

For the various types of beverage programs offered by each respondent's school, 10 (26.32%) stated that their school had specific beverage related majors. While only five out of the 52 schools studied in the content analysis showed having beverage related majors, it is likely that some of these schools had multiple respondents. Schools with specific beverage related minors showed the same frequency. Thirteen respondents stated that their school had beverage related concentrations (34.21%), and 12 stated that their school had beverage related certificates (31.58%). Thirty-four out of the 38 respondents confirmed that their school offered beverage related course offerings or electives (89.47%).

The next question asked about instruction type within beverage education. Thirty-six had beverage related lecture instruction (94.74%), 32 respondents had sensory evaluation or tasting courses (84.21%), and 22 respondents had service or experiential courses (57.89%). Only 12 out of 38 respondents stated that their school offered hands-on beverage production courses (31.58%). Twenty respondents work for schools that offer online beverage instruction as an alternate instruction type (52.63%).

Types of facilities available to students in beverage education programs were evaluated next and are listed in Table 2. The majority listed regular classroom as a beverage devoted facility (86.84%), while 19 (50%) have a devoted beverage tasting classroom. Specific bar areas, sensory evaluation labs, wine cellars, and bartending or mixology labs were much less common. Five respondents listed "other" facilities including brewing labs, production labs, testing facilities, packaging facilities, and equipment/dry storage facilities.

Over half of the respondents confirmed including all of the topics listed, except for distillation, within their beverage courses. Other topics mentioned include food and wine pairing, sales, and marketing. Table 3 shows these results.

Nearly 65% of the hospitality schools of respondents require students to the legal drinking age of 21 or older to enroll in beverage courses. It can be assumed that the other 35% of schools that do not require students to be over 21 either do not allow consuming or tasting alcoholic beverages during class or get special permission to serve it for educational purposes.

Results were mixed concerning whether students obtain state regulated alcoholic beverage server certification. Four answered yes, required for all students (10.53%), four answered yes, but required for beverage majors/minors only (10.53%) while four answered yes, but only for students enrolled in courses involving the service or pouring of alcoholic beverages (10.53%). Twenty-five (65.79%) stated that they do not require their students to obtain state regulated alcohol server certification.

Table 4 shows whether hospitality programs require or offer the most common types of beverage industry certifications for wine, beer, and spirits.

Out of the eight certifications listed, only one respondent for each of the Certified Specialist of Wine (CSW), Cicerone level 1, and Cicerone level 2 stated it is required of students. Three respondents stated that students are required to take the Court of Master

Sommeliers (CMS) level 1 exam, but are not necessarily required to pass [19]. One respondent stated that students are required to take the WSET level 1 exam, but are not necessarily required to pass. These results indicate that the majority of the schools of respondents do not require professional industry certification of students. This confirms that professional industry certification is not a top priority in hospitality schools today.

Importance evaluation

In this section, a 7-point Likert scale was used to rate respondents' attitudes regarding certain program characteristics of beverage education. Table 5 shows the results for offerings for all hospitality students and Table 6 shows them for requirements for beverage majors/minors alone.

The mean importance for the characteristics presented for all hospitality students ranged from 4.32 to 5.76. The results indicate that on average, respondents thought that each of the characteristics presented had importance of no lower than "neutral" and no higher than "important." The three highest rated characteristics for educators' perceived importance of beverage education for all hospitality students were incorporating industry standards into creating/maintaining the beverage curriculum (mean importance=5.76), offering tasting/sensory evaluation courses in the beverage curriculum (5.66), and offering beverage education within the hospitality curriculum (5.58). The two lowest rated characteristics for this section were promoting hands-on experience by offering student-run beverage service/tasting events

Table 1: Four-year hospitality degree program beverage major, minor, and certificate offerings.

University	Beverage Program	Website
Auburn University, Nutrition, Dietetics, and Hospitality Management	Brewing Science Certificate	http://humsci.auburn.edu/hrmt/
Boston University, School of Hospitality Administration	Certificate Program in Wine Studies	http://www.bu.edu/hospitality/
Cornell University, School of Hotel Administration	Food And Beverage Management Certificate	https://sha.cornell.edu
Culinary Institute of America	Advanced Wine, Beverage, and Hospitality Concentration	https://www.ciachef.edu/cia-new-york-hospitality-management-bachelors-degree-program/
Florida International University, Chaplin School of Hospitality and Tourism Management	Beverage Management Major and Minor	http://hospitality.fiu.edu
Johnson and Wales Denver, College of Hospitality Management	Beverage Industry Operations and Retail Management and Restaurant, Food, and Beverage Management Major	https://academics.jwu.edu/school-of-hospitality/
Johnson and Wales Providence, College of Hospitality	Restaurant, Food, and Beverage Management major	https://www.jwu.edu/campuses/providence/colleges/college-of-hospitality-management.html
Metropolitan State University, School of Hospitality, Tourism, and Events	Beverage Management Minor or Certificate, Brewery/Craft Brewing and Pub Operations Major, Brewing Science Minor or Certificate	https://msudenver.edu/hospitality
Texas Tech University, School of Hospitality and Retail Management	Wine Business Track Major, Wine Marketing Research Institute	http://www.depts.ttu.edu/hs/hrm/RHIM/index.php
University of Delaware, Hotel, Restaurant, and Institutional Management	Beverage Management minor	http://www.udel.edu/apply/undergraduate-admissions/major-finder/hotel-restaurant-and-institutional-management/
University of Houston, Conrad N. Hilton College of Hotel and Restaurant Management	Beverage Management and Marketing Minor	http://www.uh.edu/hilton-college/
Washington State University, School of Hospitality Business Management	Wine Business Management Major and Minor Wine Business Management Certificate	https://business.wsu.edu/departments/hospitality/

to the public (4.32) and offering students flexibility in choosing courses based on personal interest (4.82).

The mean importance for the characteristics presented specifically for beverage students ranged from 4.35 to 5.84. Interestingly,

Table 2: Types of facilities devoted to beverage education (n=38).

Facility Type	Frequency	%
Regular classroom	33	86.84
Devoted beverage tasting classroom	19	50.00
Sensory evaluation lab	10	26.32
Bartending/mixology lab	3	7.89
Bar area within a restaurant/food service lab	14	36.84
Wine cellar	10	26.32
Other	5	13.16

Note: Percentages do not equal 100% due to multiple responses allowed.

Table 3: Topics included in beverage curriculum (n=38).

Facility Type	Frequency	%
Regular classroom	33	86.84
Devoted beverage tasting classroom	19	50.00
Sensory evaluation lab	10	26.32
Bartending/mixology lab	3	7.89
Bar area within a restaurant/food service lab	14	36.84
Wine cellar	10	26.32
Other	5	13.16

Note: Percentages do not equal 100% due to multiple responses allowed.

Table 4: Requirement for student industry certification listed by certification.

Certification	Certification Required		Exam Required		Optional		Not offered		Total (n)
	F	%	F	%	F	%	F	%	
Court of Master Sommeliers Level 1	0	0.00	3	7.89	5	13.16	30	78.95	38
Court of Master Sommeliers Level 2	0	0.00	0	0.00	4	10.53	34	89.47	38
Wine and Spirit Education Trust (WSET) Level 1	0	0.00	1	2.70	4	10.81	32	86.49	37
Wine and Spirit Education Trust (WSET) Level 2	0	0.00	0	0.00	3	7.89	35	92.11	38
Certified Specialist of Wine (CSW, Society of Wine Educators)	1	2.70	0	0.00	2	5.41	34	91.89	37
Certified Specialist of Spirits (CSS, Society of Wine Educators)	0	0.00	0	0.00	2	5.56	34	94.44	36
Cicerone Beer Certification Level 1	1	2.70	0	0.00	4	10.81	32	86.49	37
Cicerone Beer Certification Level 2	1	2.86	0	0.00	0	0.00	34	97.14	35

Table 5: Educators' average perceived importance of beverage education for ALL hospitality students.

Program Characteristic	n	Mean Importance
Incorporating industry standards into creating/maintaining the beverage curriculum	38	5.76
Offering tasting/sensory evaluation courses in the beverage curriculum	38	5.66
Offering beverage education within the hospitality curriculum	38	5.58
Offering lab/hands-on courses in the beverage curriculum	38	5.47
Requiring at least one beverage related course for all students	38	4.95
Keeping beverage education general for all students in order to encourage a wider range of topics	38	4.89
Offering students flexibility in choosing courses based on personal interest (i.e. beer, wine, or spirits)	38	4.82
Promoting hands-on experience by offering student-run beverage service/tasting events to the public	38	4.32

Note: 1=very unimportant, 2=unimportant, 3=somewhat unimportant, 4=neutral, 5=somewhat important, 6=important, 7=very important

attitudes were only slightly higher on the mean importance scale for beverage students. The highest rated characteristics for educators' perceived importance of beverage education specifically for beverage students were requiring tasting/sensory evaluation courses in the beverage curriculum (5.84), requiring lab/hands-on courses in the beverage curriculum (5.54), and promoting hands-on experience by offering beverage related internship opportunities (5.54). The two lowest rated characteristics for this section were offering specific beverage related majors (4.35) and requiring professional industry certification attainment (4.38).

Comparison of attitudes

Eight two-tailed t-tests were performed to compare the attitudes of different segments of respondents. The first two tests compared the reported attitudes of faculty members versus administrators regarding beverage education characteristics for all hospitality students and specifically for beverage students and programs. The other six tests compared the reported attitudes of educators based on beverage industry experience, hospitality industry experience, and hospitality teaching experience. Only three out of the eight tests showed any significance. The cutoff for considering a test significant was $p < .05$.

Table 7 includes the results from an independent samples t-test comparing the attitudes of respondents with more beverage industry experience versus respondents with less beverage industry experience regarding beverage education characteristics for all hospitality students. The cutoff that split respondents was 10 years, or the average years of beverage experience of all respondents. The only area that showed significance was requiring at least one

beverage related course for all students ($p=.029$). In this area, respondents with more beverage industry experience had answers of importance slightly higher on the Likert scale than their less experienced counterparts.

T-tests were also performed comparing respondents by years of hospitality experience and years of hospitality teaching experience. The cutoff for more experienced respondents versus less experienced respondents was the average years of experience for both areas. There were no significant differences in answers of

respondents with more hospitality experience versus less hospitality experience, or in answers of respondents with more hospitality teaching experience versus less hospitality teaching experience.

Table 8 includes the results from an independent samples t-test comparing the attitudes of faculty members versus the attitudes of administrators regarding beverage education for all hospitality students. The only area that showed significance in this t-test was the importance of incorporating industry standards into creating/maintaining the beverage curriculum ($p=.013$).

Table 6: Educators' average perceived importance of beverage education SPECIFICALLY FOR BEVERAGE students.

Program Characteristic	n	Mean Importance
Requiring tasting/sensory evaluation courses in the beverage curriculum	37	5.84
Requiring lab/hands-on courses in the beverage curriculum	37	5.54
Promoting hands-on experience by offering beverage related internship opportunities	37	5.54
Offering students flexibility in choosing courses based on personal interest (i.e. beer, wine, or spirits)	37	5.19
Offering specific beverage related minors or concentrations	37	4.95
Offering professional industry certification attainment	37	4.89
Promoting hands-on experience by offering student-run beverage service/tasting events to the public	35	4.71
Requiring professional industry certification attainment	37	4.38
Offering specific beverage related majors	37	4.35

Note: 1=very unimportant, 2=unimportant, 3=somewhat unimportant, 4=neutral, 5=somewhat important, 6=important, 7=very important

Table 7: Independent samples t-test for equality of means regarding beverage industry experience of respondent with scenarios presented for ALL hospitality students.

Program Characteristic	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Offering beverage education within the hospitality curriculum	0.38	0.483	0.544
Requiring at least one beverage related course for all students	0.029*	1.261	0.554
Keeping beverage education general for all students in order to encourage a wider range of topics	0.83	-0.117	0.54
Offering students flexibility in choosing courses based on personal interest (i.e. beer, wine, or spirits)	0.801	0.139	0.546
Offering lab/hands-on courses in the beverage curriculum	0.73	-0.161	0.463
Offering tasting/sensory evaluation courses in the beverage curriculum	0.831	-0.089	0.414
Promoting hands-on experience by offering student-run beverage service/tasting events to the public	0.629	-0.283	0.582
Incorporating industry standards into creating/maintaining the beverage curriculum	0.861	-0.078	0.443

Note: Equal variances confirmed using Levene's test.

* indicates significant p-value.

Table 8: Independent samples t-test for equality of means regarding faculty versus admin title with scenarios presented for ALL hospitality students.

Program Characteristic	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Offering beverage education within the hospitality curriculum	0.545	0.336	0.55
Requiring at least one beverage related course for all students	0.292	0.627	0.586
Keeping beverage education general for all students in order to encourage a wider range of topics	0.878	0.084	0.542
Offering students flexibility in choosing courses based on personal interest (i.e. beer, wine, or spirits)	0.454	-0.412	0.544
Offering lab/hands-on courses in the beverage curriculum	0.99	-0.006	0.466
Offering tasting/sensory evaluation courses in the beverage curriculum	0.329	0.406	0.411
Promoting hands-on experience by offering student-run beverage service/tasting events to the public	0.163	0.812	0.57
Incorporating industry standards into creating/maintaining the beverage curriculum	0.013*	1.067	0.408

Note: Equal variances confirmed using Levene's test.

* indicates significant p-value.

Table 9 includes the results from an independent samples t-test comparing the attitudes of faculty members versus the attitudes of administrators regarding beverage education specifically for beverage management programs and students. The only area that showed significance in this t-test was the importance of offering, not requiring, professional industry certification attainment ($p=.034$). Faculty members rated offering professional industry certification attainment at a higher importance than administrative members did.

Respondents were asked to select all that apply when presented with a list of common barriers to beverage education. Six barriers were experienced by over 25% of the respondents: no dedicated facilities as a barrier (44.74%), university restrictions on alcohol service (34.21%), lack of funds for products and supplies for tasting and/or service courses (28.95%), government restrictions on alcohol service (28.95%), and lack of sufficient number of faculty (23.68%). However, another ten respondents (26.32%) said they had not experienced any barriers. Four respondents selected other, and their answers included: barriers to achieving approved curriculum, government restrictions on alcohol production, barriers to raising funds, and barriers do to being business school oriented. Results confirm that hospitality schools are indeed experiencing frequent and various barriers when it comes to beverage education programs.

Analysis of open-ended questions

Respondents were asked three open-ended questions designed to better understand their opinions on current and future beverage programs. The researcher performed content analysis on these responses. Comments were first grouped into broad categories, and then consolidated into four or five common themes.

The first question asked respondents to discuss their overall perceptions about the importance of providing opportunities for students to obtain industry certifications. After consolidating the responses, four common themes were found:

1. Offering student certification opportunities is a good idea, and allows for the furthering and expanding of knowledge, experience, and credentials. (Frequency: 9)

2. Offering student certification opportunities provides a competitive advantage in career attainment reflecting industry demand. (Frequency: 7)
3. It is important to find the proper balance between teaching an academic course and teaching via industry certification. (Frequency: 4)
4. Requiring or offering certification could place students under a financial strain while employers are often willing to pay. (Frequency: 3)

The second question asked respondents to discuss what current hospitality programs are lacking in their beverage curriculums today. After consolidating the responses, four common themes were found:

1. Current programs are not advanced enough regarding variety of courses, variety of teaching methods and learning environments, and opportunity for certification. (Frequency: 15)
2. Current programs are lacking facilities and/or materials required to execute adequate beverage courses. (Frequency: 3)
3. Current programs have little to no opportunity for innovation due to lack of demand/interest/awareness or restrictive state and federal laws. (Frequency: 4)
4. Current programs are lacking in number of faculty or knowledgeable/experienced faculty to teach beverage courses. (Frequency: 2)

The final open-ended question asked respondents what the most important trends for beverage education should be over the next 5-10 years. This question produced the most responses out of the three. Respondents seemed optimistic about the future of beverage education. After consolidating the responses, five common themes were found:

1. Specialization, innovation, and advancement of programs, courses, facilities, and hands-on learning environments such as sensory evaluation and production. (Frequency: 10)
2. Maintaining a local and craft-oriented focus including craft products and techniques, production destination field trips, and sustainability and climate change curriculum. (Frequency: 7)

Table 9: Independent samples t-test for equality of means regarding faculty versus admin title with scenarios presented SPECIFICALLY FOR BEVERAGE students.

Program Characteristic	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Offering specific beverage related majors	0.38	0.592	0.667
Offering specific beverage related minors or concentrations	0.246	0.756	0.641
Offering students flexibility in choosing courses based on personal interest (i.e. beer, wine, or spirits)	0.839	0.107	0.525
Requiring lab/hands-on courses in the beverage curriculum	0.775	0.149	0.517
Requiring tasting/sensory evaluation courses in the beverage curriculum	0.316	0.506	0.498
Promoting hands-on experience by offering student-run beverage service/tasting events to the public	0.057	1.317	0.668
Offering professional industry certification attainment	0.034*	1.292	0.584
Requiring professional industry certification attainment	0.307	0.655	0.632
Promoting hands-on experience by offering beverage related internship opportunities	0.281	0.589	0.538

Note: Equal variances confirmed using Levene's test.

* indicates significant p-value.

3. Maintaining the diversification of programs and curriculum fundamentals. (Frequency: 5)
4. Maintaining a vocational focus while working closely with industry professionals and continuing research on the industry. (Frequency: 3)
5. An increase in student demand/interest/awareness and the approachability of programs. (Frequency: 2)

DISCUSSION AND CONCLUSION

Characteristics of programs

The content analysis performed on the undergraduate hospitality school websites revealed that many lack beverage management programs. Only five out of the 52 schools studied had specific beverage related majors, and eight had minors or certificate programs. The rest appeared to have only a series of electives related to beverage management. The content analysis results contrast with the survey data in this area. Ten out of the 38 respondents claimed that their school offered specific beverage related majors, and 10 offered minors and certificates. These differences could mean that the information from program websites was misinterpreted, some programs have since been updated, or multiple educators from the same school completed the survey.

In any case, the hospitality schools without beverage programs outnumber the schools with them. This is indication of a lack of extensive beverage education opportunities for many hospitality students throughout the U.S. The results compliment studies by Riley and Deale, O'Halloran, Jacques, & Garger in that current hospitality curriculum can be rather broad, including food and beverage concepts among the vast other hospitality sectors rather than separating the programs [9,26].

Production lab and hands-on courses do not appear to be available in many schools based on the survey data. This goes hand in hand with the lack of dedicated beverage facilities also apparent from the survey data. Many respondents are from schools that do not have hands-on production courses, as opposed to lecture, service, sensory evaluation, and online courses that are present in over half of the schools. Only 31.58% of respondents reported offering beverage production courses. The majority of the respondents (over 74%) are from schools with no dedicated sensory evaluation lab, bartending/mixology lab, or wine cellar. Foodservice labs (some with bar areas), beverage tasting classrooms, and regular lecture classrooms are more evident in most schools. This indicates that classroom space for beverage education is not a problem, but dedicated labs for hands-on activities are scarcer. In fact, almost half of respondents listed "lack of dedicated facilities" as an experienced barrier to beverage education. These results confirmed the concerns of Robinson, Kralj, Brenner, Lee, and Wood that sector specific non-natural sciences such as beverage management often have a deficiency in dedicated facilities which could be due to pressure to cut departmental costs [10,28].

Although many hospitality schools do not offer specific beverage management programs or have dedicated facilities for them, it appears that beverage principles are still being included in the curriculum. When presented with a list of 14 beverage related topics, the majority of respondents confirmed teaching them. The

most common topics taught were wine, beer, and spirits styles, beverage operations, wine and beer production, sensory evaluation, and non-alcoholic beverages. This could imply that most of the programs studied are entry-level and fundamentally approached. Beverage distribution and marketing, mixology, viticulture, and distillation were less often taught, implying that these topics could be closer to an intermediate level. It is encouraging that beverage principles and fundamentals are being included in most hospitality curriculums regardless of barriers the schools are facing in providing them. For example, even though dedicated facilities and production labs are scarce, wine and beer production is one of the highest ranked topics taught in the beverage programs.

Importance and comparison of attitudes

Most characteristics of beverage education for both groups (hospitality students as a whole and beverage major students) were rated at least somewhat important on average. The highest rated beverage education characteristics for all students were offering beverage education within hospitality curriculum, offering tasting and sensory evaluation options, and incorporating industry standards into creating/maintaining the curriculum. The highest rated characteristics for beverage majors and minors indicated that educators thought that it was somewhat important to require sensory evaluation courses and lab/hands-on courses and offer beverage related internship opportunities.

The comparison of attitudes performed with the eight t-tests showed extremely little significance. It was anticipated that educators with more beverage industry experience and who teach the beverage courses might have a higher overall mean importance than the administrators for some characteristics. The results did not indicate much diversity among groups.

Only three t-tests showed any significance on one characteristic of beverage education each. Among them was requiring at least one beverage related course for all hospitality students, which respondents with more beverage industry experience rated slightly higher than their less experienced counterparts. The second was incorporating industry standards into creating/maintaining the beverage curriculum, which faculty members considered slightly higher in importance than the answers of administrative members regarding all hospitality students. The third was the importance of offering professional industry certification attainment. Faculty members rated offering professional industry certification attainment at a higher importance than administrators.

Certification

Although many respondents felt that the opportunity for professional certification within curriculum was important, very few schools had the option in place for students. Respondents were asked to specify whether their program required, offered, or did not offer the most common wine, beer, and spirits certifications. Offering beverage students the opportunity for professional industry certification attainment scored a 4.89 mean importance, leaning towards somewhat important. Respondents may believe that providing certification opportunities is important but were not able to provide it in their beverage programs. Many respondents confirmed their positive view of certification opportunity in the answers of the open-ended questions. In fact, 16 respondents had

optimistic attitudes of student certification opportunity in the open-ended remarks, claiming that offering student certification opportunities allows for the furthering and expanding of knowledge, experience, and credentials, and that offering student certification opportunities provides a competitive advantage in career attainment reflecting industry demand.

The literature included studies by Liu, Deale and Schoffstall [14,15]. These provided evidence that certification could be an excellent tool in preparing students to have an advantage in the industry. However, it is tricky and crucial to find the balance between academics and certification within the curriculum. This is reflected in that some schools offer student certification as an option but very few require it. Professional certification may benefit a candidate's credentials, but determining the extent of including certification within undergraduate hospitality curriculum remains a challenge.

Other barriers and gaps

Lack of dedicated facilities was the number one barrier to beverage education experienced by educators. Other top barriers included university restrictions on alcohol service, lack of funds for products and supplies for tasting and service courses, government restrictions on alcohol service, and lack of sufficient number of faculty. The open-ended answers of respondents reiterate these barriers, as most respondents claimed that current programs are not advanced enough regarding variety of courses, variety of teaching methods and learning environments, facilities necessary, faculty necessary, and opportunity for certification. Because respondents identified that many of the characteristics of beverage education presented were at least somewhat important, the fact that the programs are currently lacking in these areas indicates significant gaps in the implementation of beverage management programs.

University and government restrictions on alcohol service are likely some of the more difficult barriers to control or change. The faculty necessary for successful beverage programs is limited both in number and in experience or efficiency in teaching the courses. Funding for supplies and facilities may be tight but generally can be acquired over time through university support, fundraising, and raising awareness of the beverage programs. In many of the schools studied, little emphasis is placed on beverage management within the grand scheme of hospitality management. The first step in improving or expanding beverage programs is to bring awareness to the need for attention to these departments. Changes or updates to curriculum content, courses offered, and opportunity for certification should be handled accordingly after careful analysis of the proficiency of individual beverage education programs.

LIMITATIONS AND FUTURE RESEARCH

The exploratory survey research performed is descriptive and intended to form comparisons, but not to infer causal relationships. The study is limited due to the use of a convenience sample based on attainable information and respondents. The study's focus is on beverage education within bachelor degree hospitality programs and does not include possible beverage programs within other departments or associates or graduate degree programs. The study could be conducted with a much larger sample size of bachelor degree programs as well as could include educators from associate

or master degree programs, or beverage educators from departments other than hospitality such as agriculture or chemistry.

A similar study could assess the attitudes of employers rather than educators about which program characteristics and student credentials and certifications are more valuable in the industry. The attitudes of students could also be assessed for a different perspective of perceived importance of curriculum.

The final open-ended question asked educators what they believed to be the most important trends for beverage education in the next 5-10 years. Common themes were specialization, innovation, advancement of programs, advancement of facilities, a craft or local oriented focus, sustainability, diversification, maintenance of fundamentals, a vocational focus, and increase in demand and awareness. Considering that the current industry is experiencing trends such as the development of micro and craft breweries and sustainability, these are excellent goals for beverage education. In an attempt to close the gaps and improve barriers, specialization and diversification of programs, advancement of facilities, and maintaining a vocational focus are also great next steps for the educators and administrators of these beverage programs.

Regardless of the study limitations, the results provide an indication of the extent of many current hospitality programs, how they are operating, and the barriers that they continue to experience. Educators, employers, students, and even certification agencies may benefit from these results in knowing where the beverage programs stand and where they are potentially headed. As a subset of the broader area of hospitality management, beverage education will continue as an integral part of food and beverage education for future undergraduates.

FUNDING

The Agricultural Experiment Station at New Mexico State University provided partial funding for this project.

REFERENCES

1. <https://www.census.gov/wholesale/index.html>
2. Distilled Council of the United States. Economic contribution of the alcohol beverage industry. 2013.
3. <http://www.bls.gov/iag/tgs/iag722.htm#workforce>
4. National Restaurant Association. 2017 Restaurant Industry Outlook. 2017.
5. Bureau of Labor Statistics. Spotlight on statistics: Industry on tap: Breweries. 2017.
6. Airey D, Dredge D, Gross MJ. Tourism, hospitality, and events education in an age of change. *The Routledge Handbook of Tourism and Hospitality Education*. 2015;3-14.
7. Millar M, Mao Z, Moreo P. Hospitality & tourism educators vs. the industry: A competency assessment. *Journal of Hospitality & Tourism Education*. 2010;22(2):38-50.
8. Culinary Institute of America. *Our story: A history of excellence, professional advancement, and innovation*. 2018.
9. Riley M. Food and beverage management: A review of change. *Int J Contemp Hosp Manag*. 2005;17(1):88-93.
10. Robinson RN, Kralj A, Brenner ML, Lee AH. Reflective practice

- in food and beverage education. *Journal of Hospitality & Tourism Education*. 2014;26(4):166-177.
11. Robinson RN, Breakey NM, Craig-Smith SJ. Food for thought: Investigating food and beverage curricular in Australian hospitality degree programs. *Journal of Hospitality & Tourism Education*. 2010;22(1):32-42.
 12. Wiley C. Reexamining professional certification in human resource management. *Hum Resour Manag*. 1995 ;34(2):269-289.
 13. Moreo A, Green A, O'Halloran R. What Certifications are important in the hospitality industry? *Journal of Human Resources in Hospitality and Tourism*. 2010;17(1):121-135.
 14. Deale CS, Schoffstall D. Hospitality and tourism education and industry certifications. *Journal of Hospitality & Tourism Education*. 2015;27(3):112-129.
 15. Liu HH. The role of hospitality certificates in the relationship between training and education and competency. *The Anthropologist*. 2013;16(3):505-511.
 16. Serve Safe Training. Alcohol seller server training state requirements. 2016.
 17. <https://www.servsafe.com>
 18. <http://www.learn2serve.com>
 19. <https://www.mastersommeliers.org/about>
 20. <https://www.mastersofwine.org>
 21. <https://www.wsetglobal.com>
 22. <http://www.societyofwineeducators.org>
 23. <https://www.cicerone.org>
 24. Yang LT, Partlow CG, Anand J, Shukla V. Assessing the competencies needed by hospitality management graduates in India. *Journal of Hospitality & Tourism Education*. 2014;26(4):153-165.
 25. Wang J, Ayres H, Huyton J. Is tourism education meeting the needs of the tourism industry? An Australian case study. *Journal of Hospitality & Tourism Education*. 2010;22(1):8-14.
 26. Deale C, O'Halloran R, Jacques P, Garger J. An examination of current hospitality and tourism teaching methods. *Journal of Hospitality & Tourism Education*. 2010;22(2):20-29.
 27. Edenheim J, Ueda D. Effective use of simulations in hospitality management education—a case study. *Journal of Hospitality, Leisure, Sport and Tourism Education*. 2007;6(1):18-28..
 28. Wood RC. The future of food and beverage management research. *J Hosp Manage Tourism*. 2007;14(1):6-16.
 29. https://cirt.gcu.edu/research/developmentresources/research_ready/descriptive/overview
 30. https://cirt.gcu.edu/research/developmentresources/research_ready/mixed_methods/overview
 31. <https://www.chrie.org/i4a/pages/index.cfm?pageid=3443>
 32. <https://msudenver.edu>
 33. Pew Research Center. Content analysis.
 34. <http://www.parkstreet.com/alcoholic-beverage-market-overview/>
 35. <http://www.internationalwineguild.com>