

# Developing educational and career pathway frameworks in the floristry industry

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## Abstract

The floristry industry has been facing challenges due to a lack of awareness of potential career opportunities, an aging workforce, and intensifying competition between retail florist shops and other shopping channels. These challenges have led to a significant decline in the employment of floral designers. Education, which facilitates the transfer of knowledge and skills to younger generations, is crucial to ensure the continued success of the profession. The objective of this research was to integrate all educational and career pathways into a structured system to serve as a training roadmap for attracting young talent into the workforce and for designers to gain certifications to foster their professional development. An exhaustive environmental scan was conducted regarding the educational and career pathways in the floristry industry. Based on an analysis of the information collected, major educational and career pathway components in the floristry industry in the United States were identified and summarized. Diagrams with the interconnections of all educational and career pathway components for floral designers were created, and education programs of major pathway components were characterized according to key differentiating factors. The framework and findings of this research could facilitate the discussion for developing strategies to reverse the downward trends of employment.

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## Introduction

Horticulture academic programs in the United States have been experiencing declining undergraduate enrollment in recent years<sup>[1–10]</sup>. The identity of horticulture, as a discipline, is eroding due to consolidation and mergers of departments across the country<sup>[11]</sup>. This downward trend has led to a shortage of well-trained professionals for industry, academia, NGOs, and government, with a gap between graduates and job vacancies in many areas of horticulture<sup>[12]</sup>. Limited awareness of the field of horticulture and available career opportunities is believed to be the major reason<sup>[7,9]</sup>. Based on an online survey conducted by the American Society for Horticultural Sciences (ASHS), the majority of respondents felt that low enrollment in horticulture programs is due to a general lack of awareness of the field of horticulture by students<sup>[13,14]</sup>. The industry did not promote itself enough to the broader community, parents, students, and career counselors. There is a need to educate the public and potential students about the value of horticulture and potential career opportunities<sup>[7]</sup>. Some feel that a large-scale promotional campaign is essential to close the awareness gap<sup>[15]</sup>.

The floriculture industry is a sector within the broader horticulture industry that has also been facing this issue and experiencing a shortage of well-trained applicants for new employee hiring<sup>[16]</sup>. As reported by the US Bureau of Labor Statistics (BLS), employment for floral designers is projected to decrease 21% during 2021–2031<sup>[17]</sup>. The declining employment results from industry practitioners transferring to other occupational fields, or exiting the labor force, due to aging or retirement. According to the US Department of Agriculture (2017), only 8% of

industry operators are younger than 35 years, with an average age of 57.5<sup>[18]</sup>. Transferring knowledge and skills to a younger generation to ensure sustained growth of the industry is imperative, as the aging population is close to retirement<sup>[18]</sup>.

Another reason associated with the decline in the employment of floral designers specifically is the decrease in the number of florist shops caused by the growth in the grocery store and supermarket floral departments<sup>[17]</sup>. Three decades ago, consumers purchased flowers mainly from flower shops. Currently, multiple shopping channels are available for floral consumption, including grocery stores, supermarkets, and online shopping sites. Grocery stores and other merchandisers offer floral arrangements and loose cut flowers. These channels have made it cost-effective and convenient for consumers to purchase flowers and other floral products<sup>[17]</sup>. Consumers do not necessarily choose to make a special trip to local flower shops though the aesthetic value of floral products at flower shops may be higher than through other shopping channels. In addition, some consumers elect to self-educate *via* online tutorials and or do-it-yourself videos (DIY) and design their own arrangements. Social media has made it possible for new types of florists (referred to as contract florists or studio florists) to find customers without having to operate brick-and-mortar stores, which also reduces the demand for brick-and-mortar flower shops. Therefore, floral retailers must hone design skills and develop marketing strategies to better satisfy consumer expectations, enhance competitiveness, and remain profitable<sup>[19]</sup>.

Education is important, supplemented by experience in the floristry industry. Post-harvest science, marketing, communications, current and emerging technologies theory cannot be

easily and accurately taught and learned while working in a small business by existing staff and management. In the US, although most entry-level floral design-related positions require a high school diploma or the equivalent, post secondary training programs are recommended for those who wish to enhance marketability and formally learn how to run a floral business or pursue higher career goals in the floristry industry<sup>[17]</sup>. Education and training programs in floral design are available from private floral design schools such as the American Institute Floral Designers (AIFD) Education Partner schools. However, training may also be received from State Florists Associations, vocational schools, community colleges, and some four-year universities. Academic degrees or professional credentials are typically required to become a professional floral designer<sup>[17]</sup>. Although diverse training programs are available for continuing education in floral designs, to date, no structured system is available to adequately describe the educational and career pathways in the floristry industry in the US.

Educating potential students regarding the educational and career pathways in horticulture is an effective strategy to counteract the declining trends mentioned earlier<sup>[4]</sup>. Educational and career pathways integrate programs that aim toward developing students' academic and employability skills and preparing them for high-demand jobs by providing them with necessary and continuous education and training<sup>[20]</sup>. For individuals who set career goals to become professional floral designers, a well-designed career pathway system could assist them in identifying niches in the field and the routes they could take for their professional development, and thus build competencies to prepare for a long-term career. As for employers, a comprehensive educational and career pathway system could provide them with means for high-quality recruitment and training of new employees, upskilling current employees, improving retention, and reducing turnover. For the industry as a whole, educational and career pathways help maintain sustained growth of the industry, ensuring its vitality, and increasing the country's international competitiveness<sup>[21]</sup>.

A talented, creative, and motivated workforce differentiates high-performing firms from others in the highly competitive floral marketplace. In light of the aforementioned emerging issues in the floristry industry, there is a compelling need to integrate all educational and career pathways into a structured system to serve as a roadmap for the general public who are interested in entering the profession, and for designers to gain certifications to foster their professional development. The objectives of this study were to identify such educational and career pathways in the floristry industry in the US and develop detailed diagrams illustrating the interconnections of all the pathways in the floristry industry.

This study is Part 1 in a series of studies developing and evaluating educational and occupational frameworks in the floristry industry. In future studies, we will report on education, economic, and staff qualification statistics.

## Materials and methods

Knowing that the information available regarding career pathways was limited, an intensive environmental scanning exercise was conducted to search literature, websites, and educational materials on educational and career pathways in

the floristry industry. Six educational and career pathway components were identified:

- High school certification program providers
- State Florists Association education providers
- American Institute of Floral Designers (AIFD) Education Partners
  - Higher education programs offering various degrees, including Associate of Arts (AA), Associate of Science (AS) and Associate of Applied Science (AAS); bachelor's degrees including Bachelor of Arts (BA) and Bachelor of Science (BS); Master of Science (MS); and doctoral degrees.
  - Certified Floral Designer (CFD) designation program
  - American Institute of Floral Designers (AIFD) designation program

Information on education and training programs provided by each major educational and career pathway component was collected and summarized. These programs included high school certificate programs, State Florists Association certified florist programs such as certified florist, professional certified florist, and certified master florist programs, American Institute of Floral Designers (AIFD) Education Partner short-term certification programs, community college certificate programs, community college Associate of Arts (AA), Associate of Science (AS), or Associate of Applied Science (AAS) programs, university Bachelor of Science (BS) or Bachelor of Arts (BA) programs, university Master of Science (MS) programs, university doctoral degree programs, Certified Floral Designer (CFD) programs, and American Institute of Floral Designers (AIFD) programs. The 1–2-year education programs at community colleges are in floral-related areas or horticulture, while 4-year programs and above at a university are mainly in horticulture or plant science.

Education programs within each pathway component were identified along with the primary knowledge and skills required to gain a certificate or degree to reach the corresponding level. A total of 46 State Florists Associations were examined, among which 15 State Florists Associations are currently providing certified florist programs (Tables 1 & 2). The high school floral certification program provided by Texas State Florists Association was examined in detail because of its reputation in the industry, including the curriculum, usage of written and hands-on tests, and other requirements.

AIFD Education Partner schools are floral design schools that provide short-term classes and certification programs for all levels of designers. All 38 current AIFD Education Partner schools listed on the AIFD official website were investigated in this study<sup>[22]</sup>.

The American Institute of Floral Designers (AIFD) is the floristry industry's leading non-profit organization recognizing the highest standard of professional floral design and designer. The mission of AIFD is 'to advance the art of professional floral design through education, service, and leadership, and to recognize the achievement of excellence in this art form'<sup>[23]</sup>. Certified Floral Design (CFD) and accredited membership of the American Institute of Floral Designers (AIFD) are internationally recognized credentials issued by AIFD. Required knowledge, skills, tests, and various pathways to obtain these two credentials were investigated.

The duration, curriculum, knowledge, skills, and credit hours required for certification programs in floral design or relevant subjects at community colleges were examined based on those listed in the resource entitled 'Careers in Floriculture: Catalog of

**Table 1.** The 46 State Florists Associations examined in the study identify floristry education and training programs in the floristry industry with the purpose of developing the educational and career pathways framework.

State Florists Association Education Providers	
Alabama State Florists Association	Missouri State Florists Association
Alaska State Florists Association	Montana State Florists Association
Arizona State Florists Association	Nebraska State Florists Association
Arkansas State Florists Association	Nevada State Florists Association
California State Florists Association	New Hampshire State Florists Association
Connecticut Florists Associations	New Jersey State Florists Association
Florists Association of the Rockies	New Mexico State Florists Association
Florida State Florists Association	New York Florist Associations
Georgia State Florists Association	North Carolina State Florists Association
Hawaii Florist Associations	North Dakota State Florists Association
Idaho State Florists Association	Ohio Florists Association
Illinois State Florists Association	Oklahoma State Florists Association
Indiana State Florists Association	Rhode Island Retail Florists Association
Iowa Florists' Association	South Carolina Florists Association
Kansas Florists Associations	South Dakota Florists Association
Kentucky Florist Associations	Tennessee State Florists Association
Louisiana State Florists Association	Texas State Florist Association
Maine State Florist & Growers Association	Utah Professional Florists Association
Maryland Florist Associations	Vermont Florist Associations
Massachusetts Florist Associations	Virginia State Florists Association
Michigan Florist Association	Washington Florists Associations
Minnesota State Florist Association	West Virginia Florist Association
Mississippi State Florists Association	Wisconsin and Upper Michigan Florists Association

Schools by Society of American Florists<sup>[24]</sup>. Fifty-six 1-to-2-year programs and 42 4-year higher education degree programs (AA, AS, AAS, BA, BS, MS, doctoral degrees) in Floral Design, Floriculture, and Horticulture at universities were investigated regarding the duration of their programs, required credit hours, and curriculum requirements for the degrees. For horticulture or floriculture programs, the percentages of floral design-related classes were recorded, and the average percentage of floral design classes provided in each program was calculated.

## Results

Based on the information collected and synthesized, a diagram showcasing all major educational and career pathway components and the interconnections between them was created. Four educational and career pathway diagrams were created (Fig. 1).

### High school certificate programs

The Texas State Florists Association (TSFA) provides a high school certificate program<sup>[25,26]</sup> and is being used as a detailed case study example of high school certifications available. This program aims at preparing young floral designers to accommodate the needs of retail florists. There are two levels of certification in this program. Requirements for level 1 certification include completing a year-long curriculum approved by the Texas Education Agency, as well as passing a written exam and a hands-on design test, which includes two floral designs in a timed setting<sup>[25]</sup>.

Requirements for level 2 certification include developing a design portfolio with assigned designs, two volunteer experiences, or sharing floral skills at the following venues:

- At a level 1 test site
- Community event sharing flowers
- Regional design shows
- Hands-on floral workshops

- A test with a floral design teacher to confirm the ability to make a triangle design

- Additional events approved by TSFA

Additionally, students need to pass a hands-on design test, which includes three design pieces. Upon completion of this program, students are well-prepared for an entry-level position in the industry<sup>[26]</sup>.

Private companies utilizing educational institutions as credentialing agents are other alternatives for high school certification opportunities (W. McKinley, 2020, personal communication, 2 September).

### State Florists Association education programs

Currently, 15 State Florists Associations provide certified florist programs. Among these, 13 are AIFD-approved State Florists Association Education Providers, which may also qualify students to earn AIFD's CFD credential upon completion of certified florist programs (American Institute of Floral Designers, 2020). The most common certification programs at these associations are certified florist programs and master florist programs. Master florist programs are advanced level programs and require higher level qualifications and experiences to achieve. Requirements for obtaining certification include taking online and/or hands-on classes, attending hands-on workshops, passing written exams, and hands-on design tests. Some programs require an academic degree, industry experience, or a certain number of years of floral design experience (Table 2).

### AIFD Education Partner floral design schools

Approved AIFD Education Partners provide a wide range of floral design classes and programs for career development in both in-person and online format, helping prepare students from beginners to professionals for successful careers in the floristry industry. Classes/programs are often categorized by the different reasons for taking classes (e.g., interest/hobby vs professional/certification). Professional or certification programs are further classified by various levels (basic, intermediate,

**Table 2.** Current certified florist programs provided by 15 State Florists Associations for the professional development of florists in the study of examining education programs for developing the educational and career pathways framework.

State	Credential program	Requirements
Arizona	Arizona Master Florist (AzMF)	<ul style="list-style-type: none"> <li>• Complete 12 classes (Principles of Design; Care &amp; Handling of Foliage &amp; Flowering Plants; Customer Relations; Delivery; Merchandising; Employee Relations; Advertising &amp; Promotions; Daily Business Procedures; Basic Design Techniques; Wedding Techniques; Funeral Techniques; Care &amp; Handling of Cut Flowers &amp; Foliage)</li> <li>• Pass Final Exam</li> </ul>
Arkansas	Arkansas Master Florist (AMF)	<ul style="list-style-type: none"> <li>• Complete classes and pass exams (Principles and Elements of Design; Care and Handling of Fresh Cuts and Plants; Flowers to wear; Management; Marketing; Advertising and Promotion; Management: Merchandising; Management: Customer Relations, Employee Relations; Hands-on Wedding Bouquets; Hands-on "Celebration of Life" with an Emphasis on Sympathy; Management: Delivery; History of Design Styles: Everyday)</li> <li>• Written and Hands-on tests (Flowers to wear; Wedding Bouquets; Everyday, Sympathy, Copy)</li> </ul>
California	California Certified Florist (CCF)	<ul style="list-style-type: none"> <li>• Written Exam (Flower ID; Flower and Plant Care and Handling; Floral Design [Design Elements and Principles; Color and Light in Floral Design; Floral Design Concepts and Styles; Considering the Container; Techniques and Mechanics])</li> <li>• Hands-on Design Test (Flowers to Wear; Sympathy Arrangement: Standing Spray; Hand-tied Bouquet: Wedding Design; Designer's Choice; Duplication Design)</li> </ul>
Florida	Florida Professional Certified Florists (FPCF) Florida State Master Designer (FSMD)	<ul style="list-style-type: none"> <li>• No info on how to achieve FPCF on the official website</li> <li>• No info on how to achieve FSMD on the official website</li> </ul>
Georgia	Georgia Master Florist (GMF)	<ul style="list-style-type: none"> <li>• Complete and pass nine online classes (Principles of Design; Concepts of the Care and Handling of Foliage and Flowering Plants; Care and Handling of Cut Flowers and Foliage; Customer Relations; Delivery Made Simple; The Art of Effective Visual Merchandising; Employee Relations; Advertising and Promotion; Daily Business Procedures)</li> <li>• Complete and pass a hands-on class and exam</li> <li>• Complete and pass a design evaluation session</li> </ul>
Illinois	Illinois Certified Professional Florist (ICPF) Illinois Certified Designer (ICD)	<ul style="list-style-type: none"> <li>• Nine online classes (Concepts of the Care &amp; Handling of Foliage and Flowering Plants; Care &amp; Handling of Cut Flowers and Foliage; Customer Relations; Flower Shop Delivery Concepts; The Art of Effective Visual Merchandising; Advertising and Promotion; Employee)</li> <li>• Complete the appropriate floral design education programs through ISFA, including ICPF and the Continuing Education Bootcamps</li> </ul>
Kentucky	Kentucky Master Florist (KMF)	<ul style="list-style-type: none"> <li>• No info found on how to achieve KMF</li> </ul>
Louisiana	Certified Florist (CF)	<ul style="list-style-type: none"> <li>• No info found on how to achieve CF on the official website</li> </ul>
Maine	Professional Certified Florist (PCF) Maine Master Floral Design Program (MMFD)	<ul style="list-style-type: none"> <li>• Take 12 classes and pass an exam: Design Classes (Elements of Design; Basic Principles of Design; Care &amp; Handling of Cut Flowers &amp; Foliage; Care &amp; Handling of Flowering Plants; Wedding Design; Sympathy Design)</li> <li>• Management Classes (Customer Relations; Employee Relations; Delivery; Merchandising; Promotion; Basic Business Procedures)</li> <li>• Take the certification test</li> <li>• Good standing of Maine State Florists and Growers Association (MSFGA) or an employee of a member shop in good standing</li> <li>AND</li> <li>• Have passed MSFGA's Professional Certified Florist (PCF) program within 5 years of exposure to floral design.</li> <li>OR</li> <li>• A comparable or advanced course of study such as AIFD, a college degree in retail floriculture or equivalent and 3 years of exposure to floral design.</li> <li>OR</li> <li>• 5 years full-time design experience. (Students must be able to show proof of design experience). All eligibility for enrollment will be up to the MSFGA Education Chairman and Instructor.</li> </ul>
Michigan	Certified Florist (CF)	<ul style="list-style-type: none"> <li>• Written test + Hands-on test</li> </ul>
North Carolina	North Carolina Certified Professional Florist (NCCPF)	<ul style="list-style-type: none"> <li>• Nine online classes on shop operation (Flower Shop Delivery Concepts; Care and Handling of Cut Flowers and Foliage; Advertising, Promotions, Marketing, and Public Relations; The Art of Effective Visual Merchandising; The Principles of Design; Employee Relations; Customer Relations; Concepts of Care and Handling of Foliage and Flowering Plants; Daily business procedures)</li> <li>• Three hands-on classes (Current Design and Techniques; Sympathy Design and Techniques; Wedding Design and Techniques)</li> <li>• Final exam</li> </ul>
Rockies	Certified Professional Florist (CPF)	<ul style="list-style-type: none"> <li>• No info found regarding how to achieve CPF on the official website</li> </ul>
South Dakota	South Dakota Certified Florist Program (SDCF)	<ul style="list-style-type: none"> <li>• Written and practical application test</li> </ul>

(to be continued)

Table 2. (continued)

State	Credential program	Requirements
Texas	Texas Master Certified Florist (TMF)	<ul style="list-style-type: none"> <li>• Texas State Florists' Association (TSFA) Education Application (Wedding Bouquet; Standing Easel Spray; Wired and Taped Corsage; Vase Arrangement; Basket Arrangement; Asymmetrical Arrangement)</li> <li>• Qualifying Exam (Symmetrical Triangle; Asymmetrical Triangle; Oblong Design; Round Design; Corsage)</li> <li>• Seven online courses (Floral Business Procedures and Policies; Care and Handling of Foliage and Flowering Plants; Care of Cut Flowers &amp; Foliage; Floral Sales, Profitability; Flower Shop Delivery Concepts; The Art of Effective Visual Merchandising; Advertising and Marketing)</li> <li>• Three hands-on courses (Celebration of Life, Sympathy Design; Wedding Design Styles &amp; Techniques; The Elements &amp; Principles of Floral Design)</li> <li>• TMF Final Exam</li> </ul>
	Texas Master Florist Advanced (TMFA)	<ul style="list-style-type: none"> <li>• Attend courses in four of 12 TSFA-approved topics</li> <li>• Attend four TSFA Convention-approved hands-on workshops</li> <li>• Earn one credit per class</li> <li>• You have 4 years to obtain eight total required credits</li> </ul>
	Professional Certified Florist (PCF)	<ul style="list-style-type: none"> <li>• Complete TSFA Education Application</li> <li>• Seven online courses (same as TMF's courses)</li> <li>• Three hands-on courses (same as TMF's courses)</li> <li>• PCF Final exam</li> </ul>
Wisconsin and Upper Michigan	Certified Florist (CF)	<ul style="list-style-type: none"> <li>• Nine online Classes</li> <li>• Three hands-on classes</li> <li>• Final Exam (Written + Hands-on)</li> </ul>

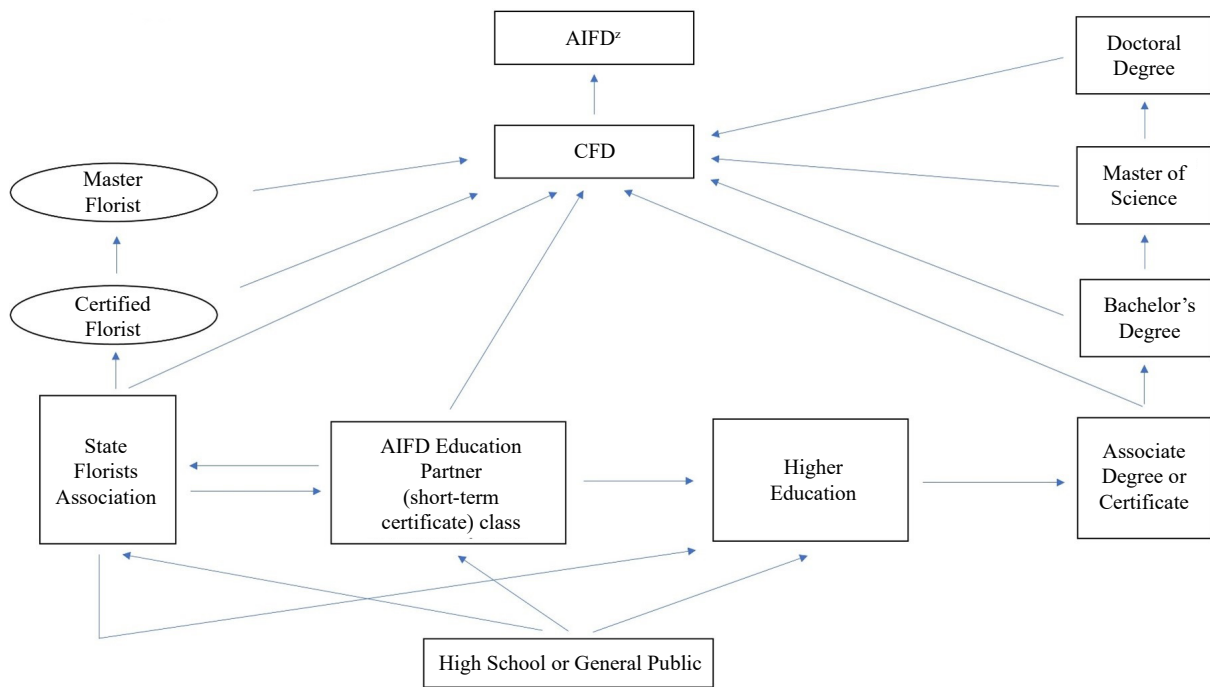


Fig. 1 Overview of educational and career pathways for floral designers. Entry-level positions require a high school diploma or equivalent. Postsecondary training/education programs are provided by State Florists Associations, AIFD Education Partners, and higher education institutions. CFD could be achieved by completing the appropriate educational programs provided by an AIFD Education Partner, approved State Florists Association, SAIJD Chapter, or during any stage of higher education. AIFD can only be obtained by achieving the required scores in the PFDE. A person from the general public follows the same pathways as those who start after high school. <sup>2</sup>AIFD does not restrict applicants to those only with a CFD credential. This framework is intended to show certifications and education levels.

advanced, capstone), types of specialty classes (e.g., wedding design, sympathy design, holiday design, corporate design, floral jewelry design), CFD and AIFD preparation classes, international design styles (e.g., Asian, European), and other courses which do not fit into any of the above categories.

AIFD Education Partner schools may provide both interest/hobby classes for floral design amateurs and profes-

sional or certification classes targeting those who are interested in pursuing a career in the floristry industry. Interest classes include, but are not limited to, daily life floral design, holiday design workshop, lifestyle aesthetics, basic botany, bouquet class, European design.

AIFD Education Partner schools provide various levels of floral design training and education programs, including basic



(fundamental), intermediate, and advanced floral design programs. Some also have 'capstone' programs that serve as the highest-level program. The duration of each level program is from 8 h to 160 h. Upon completion of classes, schools may award students a Certificate of Completion, Continuing Education Certificate, or Basic/Intermediate/Advanced/Capstone Floral Design Certificate bearing the names of the corresponding schools. Some schools require passing written and hands-on exams to be awarded the certificate. Classes within these programs include, but are not limited to: floral supplies, tools and containers; care and handling of fresh flowers; elements, and principles of floral design, flower, and foliage ID; design for various occasions such as everyday design, holiday design, church design, wedding design, and sympathy tributes; various design styles including geometric design, pavé design, parallel design, vegetative design, Asian inspired (including Ikebana) design and European design; design techniques and mechanics; wedding consultation; floral jewelry; retail flower shop operation and management; floral sculpture; permanent botanical design; and large-scale floral installation. Some programs also include field trips to wholesale flower markets, fresh flower wholesalers, and/or hard goods wholesalers.

Specialty classes could be further classified by occasions, techniques, and others. Floral design classes for various special occasions include, but are not limited to, sympathy, wedding, party and event, wedding and event consultation, body and fashion floral designs, hotel lobby and corporate designs, holiday designs, and large-scale floral installation. Floral design techniques classes include but are not limited to contemporary techniques, wiring techniques, and creative foliage manipulation. Other courses include color theory and application, floral photography, and professional floral sketching.

AIFD Education Partner schools provide preparation classes for internationally recognized designations CFD and AIFD. The test for getting inducted into AIFD is named 'Professional Floral Design Evaluation (PFDE)'. These preparation classes are taught by the accredited members of AIFD and mainly focus on design elements and principles, applications (mechanics and techniques), design styles, floral jewelry, and design for special occasions such as, wedding and sympathy, based on the book 'The AIFD Guide to Floral Design (terms, techniques, and tradition)'. Partner schools may provide both mandatory core classes and elective classes. Partner school PFDE classes may be called differently, such as AIFD Primer. Some AIFD Education Partner schools also provide PFDE mock exams targeting those who wish to participate in the upcoming PFDE test. These mock exams follow the same guidelines as PFDE, which is held once a year at the national AIFD symposium in the US. Students are given five design categories, including wedding, sympathy, flower to wear, arrangement, and designer's choice, to complete within a 4 h time limit.

Some AIFD Education Partner schools outside the US provide international floral design professional/certification programs such as Dutch Floral Arranger (DFA), Advanced DFA, and Ikebana.

Other classes provided by AIFD Education Partner schools include fresh flower care and handling, Flower ID, merchandising for retail flower shops, floral marketing, sales and service, dried and preserved flowers, permanent flowers, hand-tied bouquet class, industry terminology, tools of the trade, customer care, floral business management, career in the floristry industry, etc.

## Higher education programs

The duration of Floral Design Certificate of Achievement (CA) programs at a community college or university ranges from one to two years, with credit hours varying from 12 to 50. Various classes are provided in these programs. Two-year programs that have floral design courses could lead to an Associate of Arts (AA), Associate of Science (AS), or Associate of Applied Science (AAS) degree in Floral Design (or related such as Floral Management, etc.), or a degree in Horticulture if floral design classes only make a small portion of the curriculum in the program. An associate degree program in a floral design-related area prepares students for working in the floristry industry. Courses offered in these programs are similar to those available in the one or two-year certificate programs. The credit hours of these programs range from 18 to 66. For an associate degree in Horticulture or Plant Science, the percentage of floral design classes in these programs takes up 5%–30%.

Colleges or universities have three- or four-year BA or BS degree programs with a floral design (related) concentration or offer undergraduate-level floral design classes in the Department of Horticulture (or Crop Science, Plant Science, Agriculture and Natural Recourses). One to seven floral design-related courses are offered in these programs, most of which are two or three credit hours each. Within these degree programs, universities such as Texas A&M University in College Station and Kansas State University provide graduate students the opportunity of researching floral design-related areas for their thesis or dissertation. Mississippi State University offers a minor in Floral Management for graduate students who seek training in this field to complement their graduate degree in Plant and Soil Sciences.

## Certified Floral Designer (CFD)

Three methods are available to become an internationally recognized Certified Floral Designer (CFD). The first method is to attend and complete the appropriate floral design education programs (courses and hands-on evaluation deeming the participants' design work worthy of the CFD designation) at an approved State Florists Association, AIFD Education Partner school, or Student American Institute of Floral Designers (SAIFD) Chapter. Information on these individuals will be submitted to AIFD headquarters, who, in turn, will send an invitation to the individuals to take the PFDE online test. Those who receive 80% or above on the test will be awarded the CFD designation<sup>[27]</sup>.

The second method is to participate in the same PFDE as those obtaining the AIFD designation. The test is held once a year, including both an online test and a hands-on design evaluation held at the national symposium<sup>[28]</sup>.

The third method is to participate and earn an average score of 7.0 for all designs with no design lower than 6.5 in the SAIFD Student Competition at the symposium. Students who meet the minimum requirement can be recommended for CFD to AIFD. For any of the three options completed, candidates will be awarded the CFD designation<sup>[27]</sup>.

## American Institute of Floral Designers (AIFD)

There is only one way to become an Accredited Member of AIFD: participate in the PFDE and achieve scores at the level required to receive an invitation for membership<sup>[28]</sup>.

## Discussion

Limited awareness of the field and potential career opportunities has impacted many areas of horticulture, science, art, business, and technology, and there is a compelling need for educated, well-trained students<sup>[7,9]</sup>. This research provides a touchstone of information that will enrich and enhance educational opportunities for anyone interested in entering the profession of floral design and improve the professionalism of current floral designers. This valuable information could assist floristry industry participants to better cope with the challenges facing the industry, including a declining employment pool, an aging workforce, and the intensifying competition between florist shops and other retail channels.

Education is a key success factor in the floristry industry. In the US, though not strictly required, postsecondary training programs are recommended for those who want to develop a long-term career in the floristry industry. According to the Bureau of Labor Statistics<sup>[17]</sup>, those with formal education in floral design will have better career prospects. Additionally, based on the feedback received from the accredited members of AIFD that were asked to evaluate the framework developed in this study, other forms of hands-on training including internship, competition, on-the-job/bench training along with apprenticeship with master designers from around the globe should be equally valued (Wu, X., W.J. McKinley and C.R. Hall, unpublished).

The development process relies on academic and industry collaborations. The development of the educational and career pathways framework is based on identifying, researching, and synthesizing educational and training programs provided by all pathway component entities in the US, which are key stakeholders in academia and industry. Following the development of the framework, the next step of the research study was to evaluate the practicality of the framework and the likelihood of using the framework by industry and academic professionals. This framework is tailored to fit the floristry industry in the US, and it can assist individuals who are: 1) looking for a career; 2) interested in floral design in general, and/or hoping to develop their career in the floristry industry; 3) floral designers who set career goals to become a professional floral designer. The educational and career pathways framework also helps ensure the vitality of the floristry industry by attracting new talented youth and adults to enter the industry.

The researchers acknowledge that the information on the education programs provided by major pathway component institutions presented in this study is based on data collected during the research period. As the availability of education programs may be subject to change over time based on the specific situation and needs of corresponding institutions, updating the current framework over time will help to keep it abreast of the development of the industry. Future work could also analyze the messaging in marketing campaigns to determine which ones best promote the diffusion and adoption of the established educational and career pathways framework.

Across the nation, industry, academia, governments, and NGOs have been exploring ways to promote horticulture academic programs and reverse the downward trend.

## Conclusions

This research study serves as strong support for promoting these efforts made by higher education institutions<sup>[2,3,8,9,16]</sup>, the

American Society for Horticultural Sciences, and Longwood Gardens<sup>[14]</sup>, the American Floral Endowment<sup>[29]</sup>, and the Seed Your Future national initiative ([www.seedyourfuture.org](http://www.seedyourfuture.org)). With national and international cooperation and coalitions, it is hoped that we will be able to keep beautifying our world with the talents of floral designers in the future<sup>[4]</sup>.

## Conflict of interest

The authors declare that they have no conflict of interest.

## Dates

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