

**Virginia Polytechnic Institute and State University**

**A Survey for Shady Spring High School to Determine the  
Importance of Workplace Readiness in Floriculture and  
Horticulture Classes**

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**December 12, 2022**

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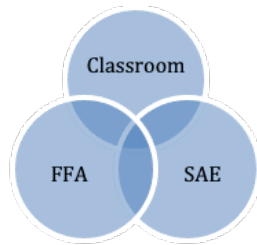
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## **INTRODUCTION & PURPOSE STATEMENT**

Horticulture is “the science and art of growing fruits, vegetables, flowers, or ornamental plants” (Merriam Webster, 2022), and provides several services to both humans and animals such as nutrients, recreation, medication, and/or joy. According to the USDA website, horticulture in the U.S. is a 13.8-billion-dollar industry. In West Virginia, the horticulture industry is valued at around 25 million dollars (*USDA/NASS QuickStats Ad-Hoc Query Tool*, 2019). In recent years, tourism has become a major industry within West Virginia, and as such other agriculture industries will begin to flourish. One such industry could be the floral industry due to weddings, and schools across the state could/should start to assist students in obtaining jobs within the floral industry to balance out future job shortages within West Virginia. Like all areas of agriculture, there is a labor shortage within the horticulture industry (The HC Company, 2021), and agriculture education classes could potentially help decrease that shortage. Agriculture education provides a variety of pathways for students to study, with one of the pathways being horticulture.

Agriculture education is an area within Career and Technical Education (CTE) that follows the three-circle model. This model includes classroom and laboratory instruction, supervised agriculture experience (work-based learning), and FFA (CTE student organization) (FFA, 2022).

In West Virginia, the plant system pathway consists of the following specialization classes: horticulture, floriculture, fruit, and vegetable production, greenhouse production and management, and turf and landscape systems (*Secondary Guidance Document*,



2021). Shady Spring High School (SSHS) has one of two agriculture education programs within Raleigh County, West Virginia. The agriculture program at SSHS is a two-teacher program that provides instruction to around one hundred students. SSHS students are offered horticulture and floriculture within the plant systems pathway. The agriculture program also participates in the simulated workplace environment (West Virginia Department of Education, 2022b).

A simulated workplace environment is a concept that is found in West Virginia schools and the state requires students to be exposed to it within CTE programs. A simulated workplace “assists schools in implementing workplace environmental protocols that align with WV workforce requirements, including random drug testing, professionalism, attendance, and safety” (West Virginia Department of Education, 2022b). The SSHS agriculture department operates as one large industry, where floriculture makes flower arrangements in a classroom that is set up as a floral shop and horticulture runs the greenhouse in the spring.

The program follows the West Virginia state education standards and other requirements that the state recommends in CTE classes (West Virginia Department of Education, 2021a, 2021b, 2022b). CTE classes focus on workplace standards. The simulated workplace environment is intended to simulate an actual business workplace environment, allow students to learn how they fit within the work environment and provide them with skills they will need to be successful employees (West Virginia

Department of Education, 2022b). In West Virginia, the simulated workplace objective is to provide a foundation for industry skills and opportunities for state and national certification; this includes job application and interview skills, safety using 6S (a checklist system that helps keep employees organized and in a safe environment), developing company policies and procedures, and assigning job roles (West Virginia Department of Education, 2022b). At SSHS, the agriculture department uses the documents provided by the state to guide the simulated workplace portion of classes; these documents include policy manuals, posters, operational manuals, applications, and interview questions (West Virginia Department of Education, 2022a), but these documents do not specifically apply to the horticulture industry. The floriculture and horticulture standards are similarly broad in their descriptions; examples include “arrange live, dried, or artificial flowers or foliage” (West Virginia Department of Education, 2021b) or “plant identification and classification” (West Virginia Department of Education, 2021a). All of the examples given are broad in nature and allow the teacher to choose what they believe is the way in which the instruction should be composed. The broad nature of the horticulture and floriculture standards causes the question to be asked, what exactly does the industry expect from new hire employees within the horticulture industry? For the SSHS agriculture program, what specifically are the needs within the greenhouse and florist businesses within the area of southeastern West Virginia?

This survey project aims to determine which skills local employers, owners, and businesses of southeastern West Virginia who identify as part of the horticulture industry find important for new hires to be able to complete upon hire. This includes

workplace readiness skills: collaboration, critical thinking, adaptability, and/or productivity (Finegold & Notabartolo, 2010); and industry skills such as wiring a flower, transplanting plants, plant names, and/or making a corsage (West Virginia Department of Education, 2021a, 2021b)

## PROJECT OBJECTIVES

1. How do the current state standards of workplace readiness and horticulture meet employers' needs in southern WV for entry-level employees?
2. What modifications or changes are needed to meet the needs of the employers for new hires in southeastern WV within the horticulture industry?
3. What knowledge and skills do employers in the horticulture industry of southeastern WV want entry-level workers to have upon hire?

## LITERATURE REVIEW

The plant science pathway within high school agriculture education offers a variety of learning experiences for students. Topics of concern appear to be workplace readiness skills, industry requirements, and the current curriculum or standards taught.

Workplace readiness relates to skills that are believed to be needed for employment. There are many different skills related to workplace readiness but the most common skills are believed to be analytic skills, interpersonal skills, the ability to execute, information processing, capacity for change/learning (Finegold & Notabartolo, 2010), and leadership skills (Easterly et al., 2017). Finegold and Notabartolo point out that not all employability skills are beneficial for all businesses or jobs but that specific job training is more successful in the labor market. Regarding the agriculture and

natural resource positions, soft skills and holistic approaches to communication are valued more than other approaches (Easterly et al., 2017). Other readiness skills that might be viewed as important include graphic design, photography, videography, and technical design skills, however due to the importance of critical thinking and teamwork rather than finite competencies these skills might be overlooked (Easterly et al., 2017).

A big portion of the student's learning career and employability skills falls upon the teachers, and in “many cases it is up to the initiative of the individual teacher to decide how much instructional time is devoted to career and employability skills” (Zinser, 2003, p. 403) . In West Virginia, the curriculum for simulated workplace guides teachers in presenting certain soft skills that will “provide each student with an understanding and knowledge of how science, technology, engineering and mathematics (STEM), along with ethics, workplace processes, and behavior are integral skills to successful employment” (West Virginia Department of Education, 2022c). The simulated workplace environment standards include creating a policy manual, operations manual, job application, and safety procedures (West Virginia Department of Education, 2022a). Still, there is no literature or research that has been found examining the effects of simulated workplace standards used in West Virginia (LaVorgna, 2020). Neighboring states, such as Virginia, asked actual employers in the state to identify which workplace readiness skills their employees needed to obtain upon hiring. These skills were broken into three main categories: personal qualities and abilities, interpersonal skills, and professional competencies (Crespin, 2019). Employers in Virginia seek personal skills that are creativity, critical thinking, initiative, integrity, and work ethic; and interpersonal skills such as conflict resolution, listening and speaking,

respect for diversity, teamwork, and customer service orientation (Crespin, 2019). In professional competencies, employers wanted to see employees have big-picture thinking, career and life management skills, efficiency and productivity, information literacy, security, and technology, adaptability, professionalism, workplace safety, job-specific tools, reading, writing, and mathematical skills (Crespin, 2019). The teaching of workplace readiness skills can be completed within both a classroom setting and workplace settings and that collaboration between businesses and schools is the most beneficial for success in the job market (Finegold & Notabartolo, 2010)

There are few published studies on actual horticulture program models in the US that were relevant to this study, therefore literature from New Zealand was utilized. In New Zealand, the horticulture industry trains employees on the job and is assisted by the New Zealand Horticulture Industry Training Organization (Werff, 2009). Other notable work training programs include training juvenile youth offenders in the area of horticulture. The juvenile offender training program teaches tools, small machinery, and appropriate safety, in addition to exposing students to professional nursery and greenhouse employment opportunities (McGuinn, 1999). Using the standards and units established by the NZHITO, businesses in New Zealand set benchmarks against unit standards, and use techniques such as observation and a trainee diary (*Increasing the Impact of Industry Training Investments in the Horticulture Industry: A Model for "Best Practice" Industry Training in the Horticulture Industry in New Zealand*, n.d.). Students at Shady Spring high school currently use a similar idea by creating a floriculture journal where they learn the common names of plants. Juvenile students are provided with a lecture and then hands-on activities to support the lecture topics (McGuinn, 1999). In



both cases, mentors are provided to trainees or juveniles that provide guidance in problem-solving (*Increasing the Impact of Industry Training Investments in the Horticulture Industry: A Model for “Best Practice” Industry Training in the Horticulture Industry in New Zealand*, n.d.) and understanding in a logical manner to apply the skills to the rest of their life (McGuinn, 1999).

In West Virginia, the industry skills are not as clearly defined as they are in New Zealand or even in other states across the country. The industry skills in the US for horticulture and floriculture are outlined differently depending on the state in which a person might reside, for example, most states have an endowment and organization that supports the floriculture industry. Still, West Virginia does not currently have an organization dedicated to supporting that area of horticulture. However, looking at other states and the National FFA Organization, West Virginia can better address the industry needs of students. The National FFA Organization is a youth organization that promotes leadership, personal growth, and career success (Miller, 2022). This organization also assists teachers in providing content standards of education for agriculture teachers including the plant system pathway and workplace readiness skills.

The National Council AFNR content standards provide a core standard, indicators for that standard, and then sample measurements (The National Council for Agricultural Education, 2015a). These standards follow very closely to previous research presented and provide detailed samples for teachers. For instance, the standard “CRP.05 Consider the environmental, social and economic impacts of decisions” is broken into two different parts “Assess, identify and synthesize information and resources needed to make decisions that positively impact the workplace and

community” and “make defend and evaluate decisions at work and in the community using information about potential environmental, social and economic impacts” (The National Council for Agricultural Education, 2015a). Sample measurements are then provided to guide teachers in developing these standards and an example is to “analyze how the process of decision-making is used in workplace and community situations” (The National Council for Agricultural Education, 2015a). In the paper, *Student Perceptions of Workplace Readiness in Agriculture*, the last objective presented is to “identify methods through which students might learn and develop important workforce skills” (Hendrix & Morrison, 2018) the researchers present several suggestions from students to develop those skills which align with the FFA career skills such as group work or exposure to new or uncomfortable situations (Hendrix & Morrison, 2018).

The plant systems standards from the National Council cover all areas of plant systems, not just floriculture and horticulture. The standards follow the same format and provide details of skills related to floriculture. “Standard PS.04. Apply principles of design in plant systems to enhance an environment” provides sample measurements related to floriculture that include proper plant environment, proper use of equipment, categorize plants for purpose, and evaluation design (The National Council for Agricultural Education, 2015b). The sample measurements provided by the National Council provide better-detailed support than that of the state of West Virginia standards for floriculture which is more open-ended with the standard measurements.

In addition to looking at the National Council, standards for teachers in other states and organizations can be examined to help determine possible skills students need to learn within the floriculture class. The state of Texas has a certification program

for high school students who complete the floriculture program at their high school that is supported by the Texas State Florist Association, the certification test for levels one and two shows that students know the basic skills needed to be floral designers and that they have completed a trusted program (Texas State Florist Association, 2022). Texas is not the only state with established floral programs but is a prime example of what support from florists and other organizations can provide to students, so other states could view them as a model for possible outcomes. The American Floral Endowment, which focuses on funding the future of floriculture, conducted an industry survey to determine what was needed to better equip the workforce (“Exploring Industry Careers for Young Professionals - AFE,” 2022). The survey determined that employers are searching for new candidates with a passion for learning and occupational knowledge, in addition to being a strong cultural fit with the existing team members (“Exploring Industry Careers for Young Professionals - AFE,” 2022).

High school teachers should be able to assist in creating professionals within the horticulture industry and provide career readiness skills. To do this teachers will need to be able to identify what skills employers are looking for in a new hire whether it be career skills or industry skills. Teachers can use both the career readiness skills (The National Council for Agricultural Education, 2015a) and the plant system skills (The National Council for Agricultural Education, 2015b) from FFA to help guide their teaching. To determine which career readiness skills are most relevant to this study with horticulture businesses in southeastern West Virginia, comparing the National FFA councils career readiness skill standards (The National Council for Agricultural Education, 2015a) and the research by (Easterly et al., 2017) have aligned the most.

The data from Easterly compares workplace readiness skills within the agriculture industry (Easterly et al., 2017) and aligns with the career readiness practices set forth by National FFA (The National Council for Agricultural Education, 2015a). To determine which plant system topics are important to teach in the classroom the West Virginia horticulture and floriculture standards (West Virginia Department of Education, 2021a, 2021b) were compared with the National FFA Council's plant system standards (The National Council for Agricultural Education, 2015b) and the textbook *Principles of Floral Design* (Scace & DelPrince, 2015). The survey created for this project was used with local businesses to influence skills being taught in the classroom which are both career readiness and industry skills.

## **THEORETICAL FRAMEWORK**

### **Program Planning Theory**

Program planning theory “makes the connection between things we do in the programs and the outcomes we hope to achieve” (JMU, 2022). This theory can follow several models or examples; however, most are guided by a logic model. A logic model is a simplified picture that shows a logical relationship between the inputs, outputs, and outcomes of a project or program all while showing a connection of interdependent parts (University of Wisconsin-Extension, 2003). This study will be informed by the interactive model of program planning. In this model there is no real beginning or ending, thus the user is encouraged to use relevant parts of the model in any order and combination (Daffron & Caffarella, 2021). The interactive model contains the following: change, culture, support, context, evaluation, budgeting, marketing, negotiating, ethical staffing, political, social justice, scheduling, managing details, formatting, learning

transfer, instruction, goals & objectives, needs assessment, power, stakeholders, and global problems (Daffron & Caffarella, 2021).

This study relates to the interactive program planning model because the aims of the study are to determine relevant changes that need to be made within the horticulture and floriculture classes at Shady Spring High school. In doing so I am identifying the stakeholders who can help produce a change within the overall goals and objectives of the class both through instruction and formatting. This study is looking at what employers within the horticulture industry want their new hires to be able to do upon hiring.

## **METHODS**

The method chosen for this research is quantitative in nature and is designed to collect data on horticulture-related skills that floriculture and greenhouse managers or owners want future student workers to have upon hiring for their company. A survey method was chosen because it is the simplest method to collect data across the Southeastern region of West Virginia. Looking at a map of West Virginia, access to each county has minimal points of entry thus the idea of a survey being “economic and providing a rapid turnaround in data collection” (Creswell & Creswell, 2018) makes for an easy method of obtaining data.

### **Target Population and Recruitment**

The population for this study includes managers or owners of businesses within the horticulture industry throughout the southeastern Region of West Virginia: Greenbrier, Monroe, Mercer, Raleigh, and Summers counties. The type of businesses considered within horticulture throughout the region is greenhouse growers, nursery

growers, florist shops, and landscaping companies. However, the primary focus was on the greenhouse and florist industry due to the high school program at Shady Spring High School focusing on greenhouse management and floral design. A list of businesses and initial contact information across the region was compiled by using yellow pages, google search, and Yelp.

A final list of approximately 20 businesses (N=20) was contacted by phone, in person, or by email. However, several greenhouse businesses were closed for the season and florists were busy due to the change in season. Around the first of November contact information was obtained for each business and a short phone call and a visit to the facility were made to determine the email address of the manager and/or owner. After obtaining this information a survey was sent via email with a link along with a brief description explaining the purpose behind the survey and asking that the survey be completed as soon as possible. Four of the surveys were completed in person at the location of the store; the owners were given a brief explanation about the purpose of the survey and given a paper copy to complete.

### **Instrumentation**

The population of the study was asked survey questions that have both rated questions and open-ended questions. The rated questions are written on a one through five Likert scale; one being the least likely and five being the most likely. The Likert-scale is a five-point scale developed to measure linearly how much they agree or disagree with a statement (McLeod, 2019). These questions will determine which of the following workplace readiness skills the horticulture industry deems important: analytic skills, interpersonal skills, the ability to execute, information processing, and the

capacity to adapt (Finegold & Notabartolo, 2010). The open-ended questions are questions such as “List the skills future employees must be able to complete when applying for a job”. These questions will be used to identify specifics within the state standards of the horticulture and floriculture classes at Shady Spring High School, such as types of flower arrangements or species of plants new hires need to be aware of. In addition, the survey questions have been designed and guided by comparing the Council for FFA career readiness standards (The National Council for Agricultural Education, 2015a) to several different workplace readiness skills research papers but pulling mainly from Easterly et al. (2017) due to it relating both to agriculture education and workplace skills being adequately described. The survey can be viewed in Appendix I found at the end of the document.

Google Forms was the instrument that was used to collect data. This choice in instrumentation was chosen because Google forms have pre-formatted layouts, are user-friendly, and reliable, and collect data in a real-time format that is easy to read (Google, 2022). The paper copy of the survey can be seen in Appendix I and was input into the created google form survey by one of my students at Shady Spring High School. The paper survey and the Google form version were the exact same one is just on paper and the other is virtual.

Prior to the survey being released to southeastern West Virginia horticulture businesses the survey was pilot tested by retired agriculture teachers' businesses in West Virginia. The teachers who pilot-tested the survey were those who provide advice to many younger teachers within the state. These teachers are also experienced in teaching the plant systems pathway and helped to obtain an initial evaluation of the

consistency and improvement of the questions (Creswell & Creswell, 2018) being asked.

### **Data and Interpretation Design**

The data is primarily to determine which skills need to be taught within the horticulture and floriculture class at Shady Spring High School that would help improve the simulated workplace environment and prepare students for jobs within the industry. Open-ended questions were summarized and compared to determine the best practices, and for numerical numbers, the mean of each question would be taken to determine the best practices.

## **RESULTS**

For this study a survey was created to be presented to greenhouse and florist businesses within the area of southeastern West Virginia during the Fall of 2022. The purpose of the survey was to identify areas of importance of workplace readiness skills and industry-specific skills for local businesses within this area of the state of West Virginia to assist in guiding classroom instruction at Shady Spring High School located in Raleigh County West Virginia.

A total of 6 businesses completed the survey questionnaire about both workplace readiness and industry skills related to their industry, which can be viewed in the table below. Of the completed surveys three of them were associated with the greenhouse industry and three were associated with the floral industry. Approximately 20 businesses were contacted by phone, in person, or email regarding the survey, however, several greenhouse businesses were closed for the season and florists were busy due to the change in season.

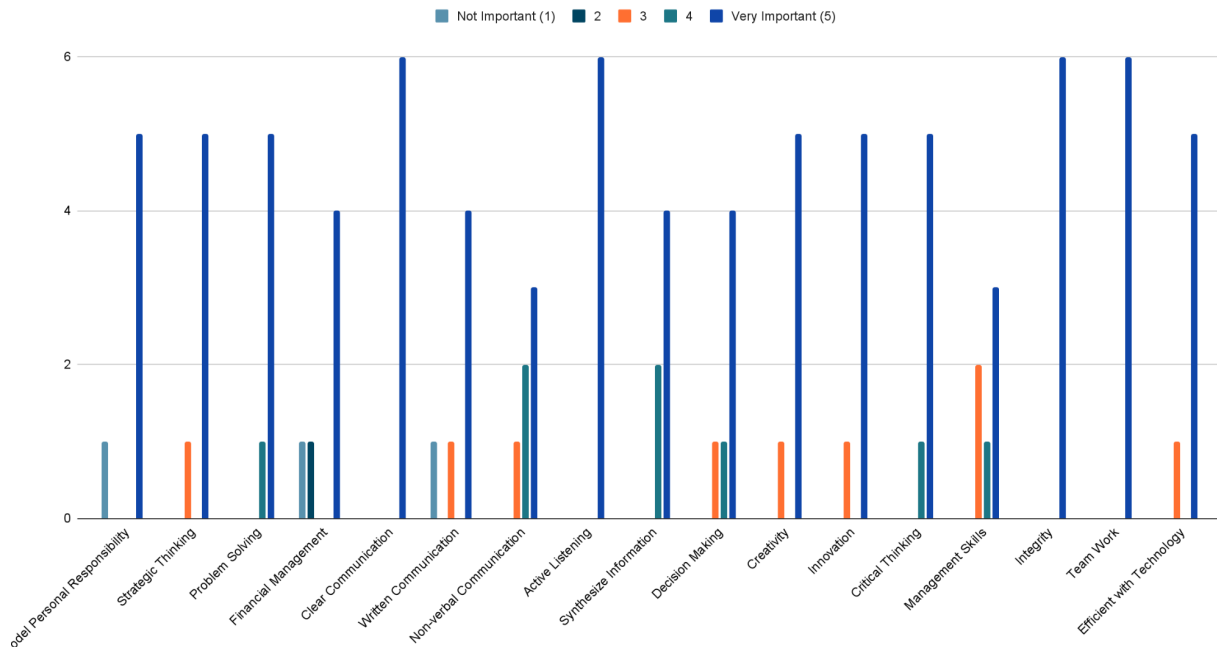


Business Type	Number Asked to Participate	Number Actually Participating
Florist Shop	10	3
Greenhouse	10	3

### **Workplace Readiness Skills**

The first part of the survey asks businesses to rank the importance of workplace readiness skills with one being not important and five being very important as it relates to their business. Individuals completing the survey agreed that the majority of workplace readiness skills are very important with the exception of modeling personal responsibility, financial management, and written communication. The participant(s) that marked the low scores for those three items were businesses where the owner managed the majority of that specific area and did not feel that related to their employees' jobs. Detailed survey results can be viewed in Figure 1 below, in this bar graph the skills asked to be evaluated are listed along the x-axis and the y-axis represents the number of businesses that completed the survey. The different colors of the bars represent how each business ranked the skills with one being not important and five being very important, and a key is located at the top of the chart labeling each ranking number. The workplace readiness skills with the highest frequency (f = 6, 100%) were clear communication, active listening, integrity, and teamwork. The workplace skills ranked as not important (f = 1, 16.7%) model personal responsibility, financial management, and written communication.

Figure 1 - Workplace Readiness Skills



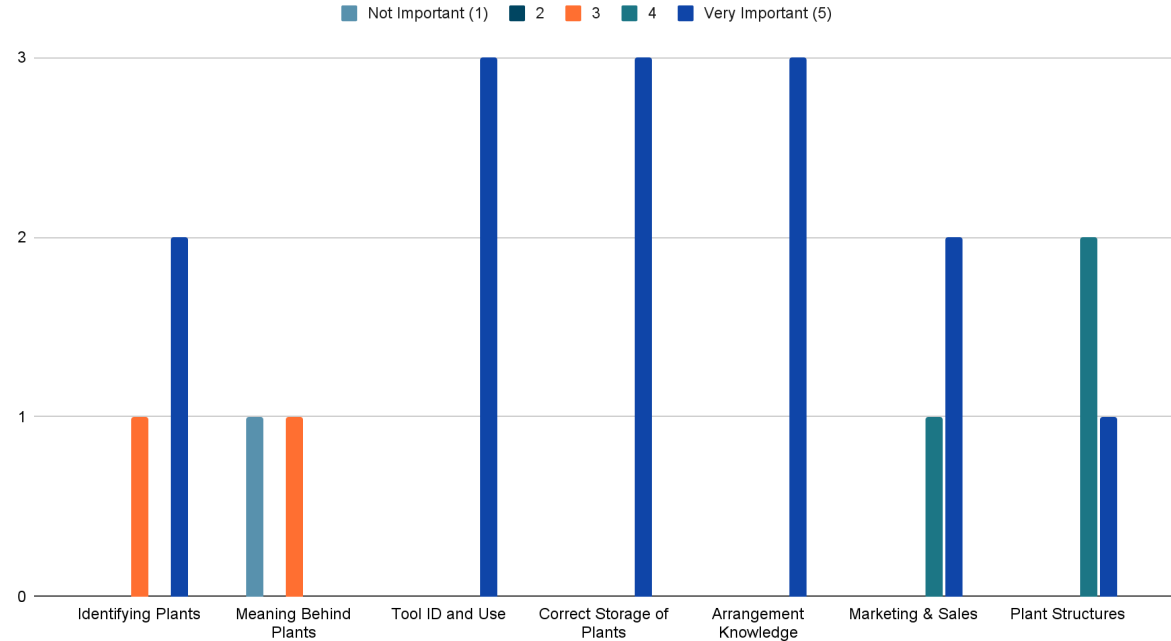
In the section dedicated to workplace readiness skills, an open-ended question was asked to determine if there were skills that already established research did not identify as important and are viewed as important to that business. Only one business responded to this question and they suggested that a “willingness to learn” be added to workplace skills.

## Floriculture

After the workplace readiness skills portion of the survey businesses are directed to select which industry is relevant to their business. The first question asked within the floral industry section is to determine if businesses want employees who have experience, and the results were split 50/50. Once again businesses are asked to rank which floral knowledge skills are important with one being not important and five being very important. Of the florist businesses that responded (n = 3), the floral concepts with

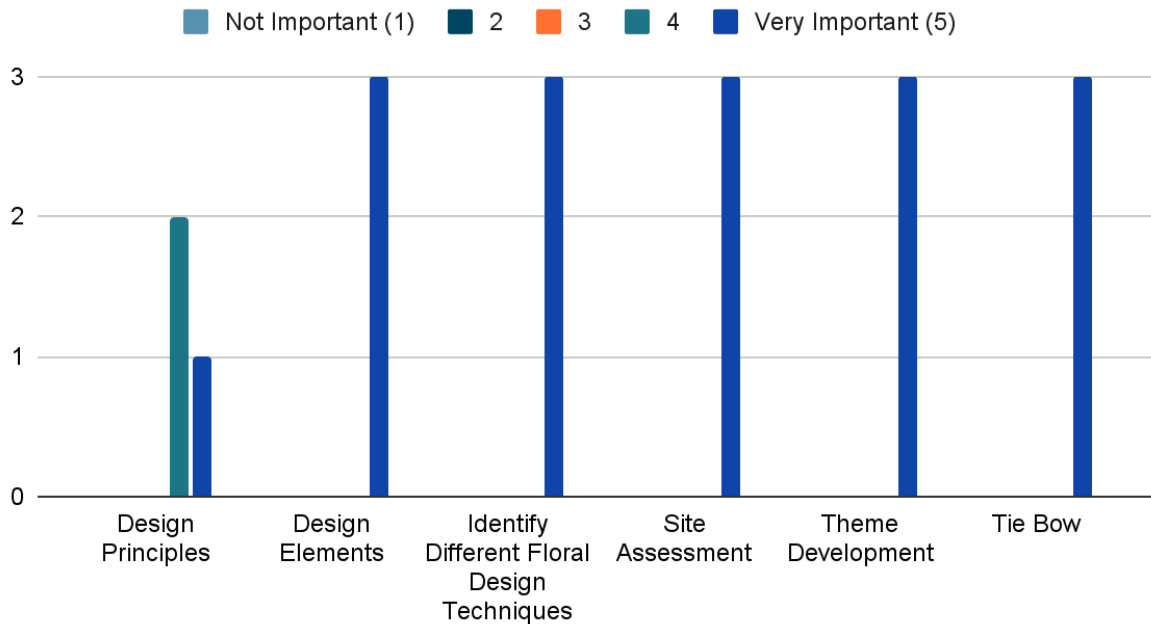
the highest frequency of very important (f = 3, 100%) were tool ID, correct storage, and arrangements. While only one business viewed the meaning behind flowers as not important (f = 1, 33%). This comparison can be seen in Figure 2 below.

Figure 2 - Floral Concepts



Of the florist businesses that responded (n = 3), the design concepts with the highest frequency of very important (f = 3, 100%) were design elements, identifying different floral techniques, site assessment, theme development, and bow tying. While the businesses' views changed for the design principles as somewhat very important (f = 2, 66%). This comparison can be seen in Figure 3 below.

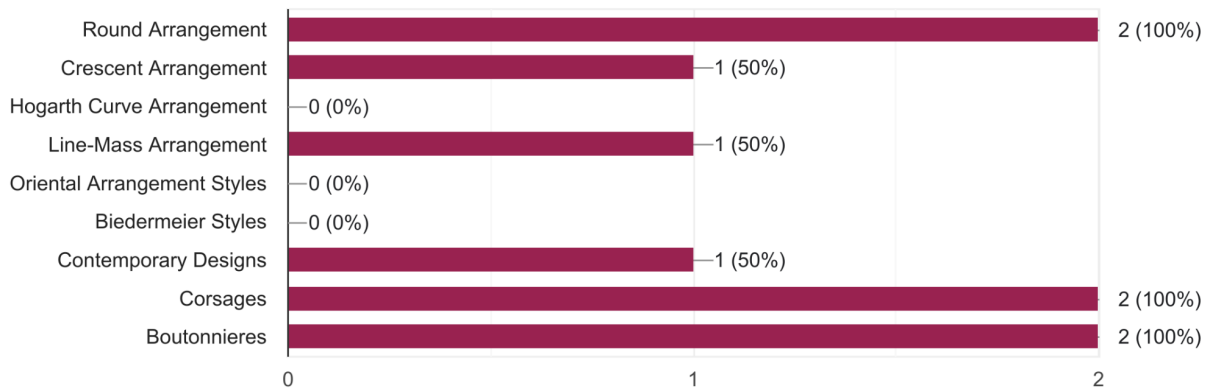
Figure 3 - Floral Design Concepts



Of the list of common floral arrangements from the *Principles of Floral Design* (Scace & DelPrince, 2015) three were not used by any of the florists that participated in the survey and those were the Hogarth curve arrangement, oriental arrangement styles, and Biedermeier styles. The three arrangements that were the most important for new hires to be able to complete were round arrangements, corsages, and boutonnieres, and were viewed as important because of the popularity of those within the survey area. This can be viewed in figure 4 below.

Figure 4 - Types of Arrangements

2 responses



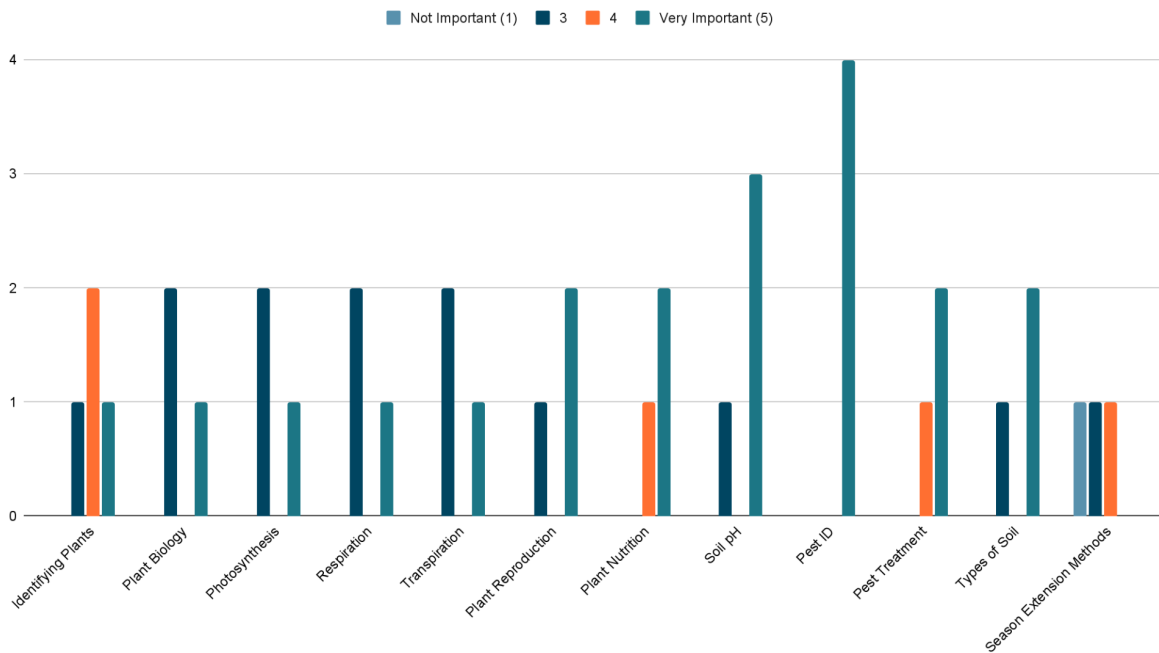
The open-ended question asked to florists was to determine if there was anything that new hires need to have an awareness of that was not mentioned. Their suggestions were as follows: FIFO (a method for keeping the product from ruining, the first older accepted product would be used before the new product), proper cleaning of floral storage such as bleaching, and keeping up with count change. One of the businesses surveyed stated that they thought all the techniques were important, however, they preferred to train new employees their way.

### Greenhouse

The greenhouse section starts off by asking questions related to plant biology; the businesses surveyed responses were either marked as being very important or as a three which would be viewed as not as important but still important which can be seen in Figure 5. These results also have an additional participant because one owner insisted upon completing both portions of the survey. The respondent was the owner of the florist shop but also spends much time in greenhouses and his responses within the greenhouse portion of the survey provide insight into what florists are looking for when

they visit a greenhouse to hand-select flowers. This respondent did not answer all of the questions related to this portion of the survey, but responses are reported here along with the greenhouse owners where available. The plant biology topics that were ranked as very important by some participants are pest ID (f = 4, 100%), soil pH (f = 3, 75%), plant nutrition (f = 2, 66%), pest treatment (f = 2, 66%), types of soil (f = 2, 66%), and plant reproduction (f = 2, 66%).

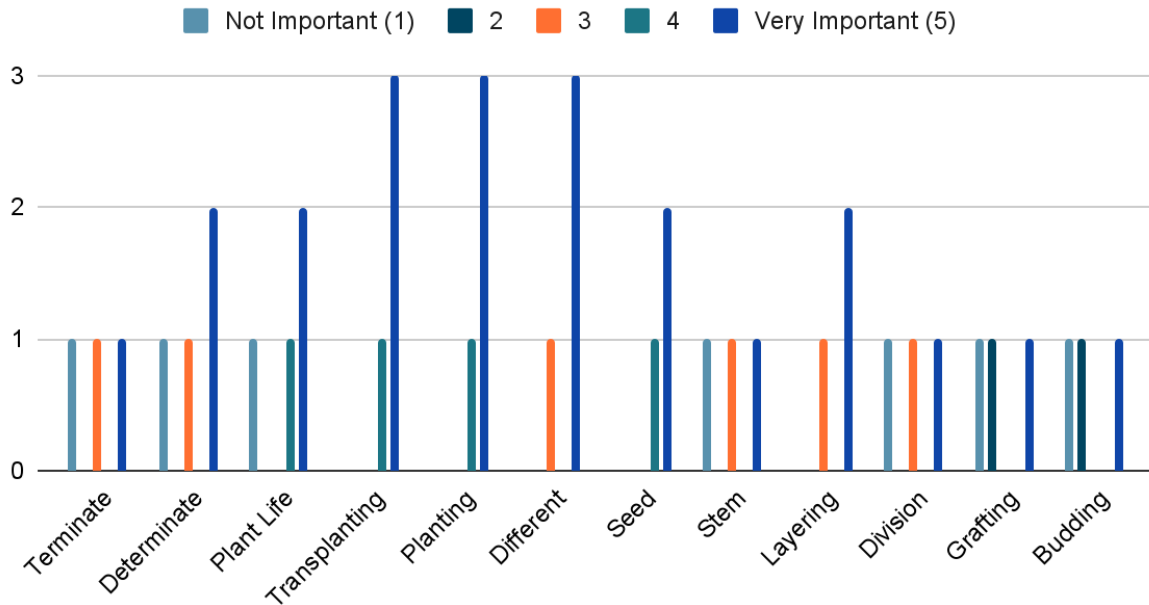
Figure 5 - Plant Biology



The question related to season extension methods had responses that varied mainly due to some greenhouses only being considered seasonal. The other questions related to possible skills that new employees would need to work directly in a greenhouse. These questions received a variety of responses ranging from not important to very important. These responses relate to the time of year the greenhouses are open and most verbally informed me that they start plants from seeds. In addition, one of the greenhouse owners grows tropical plants and native plants that are often started by

using some alternative form of propagation such as layering, division, or stem propagation. These questions can be viewed in Figure 6.

Figure 6 - Greenhouse



The greenhouse skills most commonly rated as very important (f = 3, 75%) were transplanting, planting materials, and different growing methods. The other topics ranked as very important by some businesses were determinate plants (f = 2, 50%), plant life cycles (f = 2, 50%), seed propagation (f = 2, 67%), and layering (f = 2, 67%).

## CONCLUSION

### Discussion and Recommendations for SSHS Horticulture Program

The results of the completed survey will allow the curriculum, formatting, and instruction of the two classes to be changed in the hopes that learning transfer for students will occur upon completion of the class and hiring within the greenhouse and floriculture sectors of the horticulture industry. This is supported by the interactive

model of the program planning theory which allows for there to be no real beginning or ending and encourages relevant parts of the model to be in any order or combination (Daffron & Caffarella, 2021). The results from the survey will help guide the following parts of the program planning model: formatting, learning transfer, stakeholders, and support. The answers to the survey questions will better help me format both the pace of the class and the items being taught in both the floriculture and horticulture classes. The survey has and will continue to allow me to receive support from local businesses because it has become a conversation starter and it can help show a community's needs to school administrators.

Based on the surveys collected from both floral and greenhouse businesses it can be concluded that workplace readiness skills, specifically modeling personal responsibility, strategic thinking, problem-solving, clear communication, active listening, innovation, creativity, critical thinking, integrity, teamwork, and working efficiently, are viewed as very important within both of these two areas of agriculture. The results align with the results from Easterly et al. (2017) because 90% of respondents selected problem-solving, clear communication, and decision-making as being very important along with the other mentioned skills agreeing with the 80% importance of their findings.

It can therefore be concluded that workplace skills should be taught within both the floral and horticulture class at Shady Spring High School. Certain skills such as financial management skills would be primarily for students' personal gain and not necessarily benefit just the industry. Finegold and Notabartolo (2010) investigated workplace skills as being situational context and that not all skills are created equally, and that they might occur simultaneously depending on the situational context (Finegold



& Notabartolo, 2010). Which would explain how different businesses respond with lower-importance skills such as management skills and other communication skills. The idea behind objective one was to determine if the current WV state standards relating to workplace readiness skills meet horticulture employers' needs in southern WV for entry-level employees and based on the responses from those surveyed the state standards to meet the needs of the horticulture industry of southeastern WV, which can be simulated through both the simulated workplace classroom and through other strategies (West Virginia Department of Education, 2022b).

The surveys collected from florists suggest that potential new employees having prior knowledge of floriculture concepts is very important with the ability to be able to identify plants and the meaning behind those plants as only somewhat important. This could be because a specific person is designated to order plants, which would allow the actual florists to not have to worry about which flowers they are actually using. Floral design principles and elements were viewed as important and this could be due to individuals at businesses following a specific pre-designed pattern. Other concepts such as site access and theme development were determined as very important. Something found interesting was that all businesses identified bow tying as very important, but many did not have a set method and allowed employees to have creative freedom with bow styles. However, the book *Principles of Floral Design* only displays one method of bow tying (Scace & DelPrince, 2015) and the survey results would suggest that multiple bow-tying methods should be taught at Shady Spring High School instead of just the florist bow method. The list of possible floral arrangements suggests that the Hogarth curve arrangements and oriental arrangements do not necessarily

need to be taught within the floral class because they are either not popular in the area or created very seldom, but the importance of these arrangements has more so to deal with the evolution of floral design through history (Scace & DelPrince, 2015). Students already working on correctly processing new inventory at SSHS but FIFO and better cleaning practices can be added to the floral class at SSHS.

The surveys collected from greenhouse businesses are more varying with their answers to questions related to plant science concepts. The concept questions related to plant biology, photosynthesis, respiration, and transpiration were only viewed as very important by one of the greenhouse businesses surveyed, while the other two businesses viewed them as somewhat important. Pest identification and treatment were surprisingly something that all businesses found very important, and this shows that pests are more of a problem than originally believed. Soil pH and types of soil were viewed as important factors, but other season extension methods were viewed differently by each of the businesses that participated. The questions related to different propagation methods showed that businesses prefer to start plants through seed propagation and that only one business viewed alternative propagation methods such as division, grafting, and budding as not important. The last question in this section asked if prior knowledge of pre-existing structures would be important and no businesses responded to this this more than likely was because of the knowledge of the business owner and the expectations of the business owner on their employees.

Objective three was to identify what horticulture employers in southeastern WV want entry-level workers to already know and the survey has determined that they want employees to know specific basic knowledge as it relates to plant science concepts.

However, floral businesses want entry-level hires to be able to have an overall knowledge of floral design. Objective two asked about modifications that needed to be made for supporting new hires within the horticulture industry of southeastern WV. The modifications that can be suggested based on the responses from businesses is that the teacher should focus less on plant biology and more on specific topics such as soil, pest management, tools, and specific floral techniques.

### **Conclusion and Recommendations**

My project began with the purpose of adjusting the horticulture and floriculture classes at SSHS to better align with local businesses' expectations and needs for new hire employees. The survey focused on workplace readiness skills, greenhouse industry skills, and florist industry skills. The participants were businesses that are located within the region of southeastern WV due to students possibly obtaining an industry-related job in the area. The survey was designed to narrow down skills that are broadly identified in the state teaching standards for the horticulture and floriculture classes within WV. The results of the survey suggest that I focus less on plant biology and more on pests, nutrients, and propagation techniques. However, having an understanding of plant biology will give students a better understanding of the process of plants that goes into the skills such as identifying nutrient deficiencies or what occurs during different propagation techniques. This would allow for the learning transfer of workplace readiness skills and industry skills into the job field which occurs in the program planning model (Daffron & Caffarella, 2021) and support the three-circle model that agriculture education represents. The three-circle model takes the information taught in the classroom/laboratory setting and allows students the opportunity to use the

skill learned in both an (SAE) work environment or through FFA events (Miller, 2022). Also, the greenhouse portion of the survey focused heavily on broad questions and if I were to redo this portion of the survey I would narrow down the questions. This survey also has allowed me to develop students' floral skills by focusing less on specific principles and more on designing as it relates to themes and techniques.

This project had several limitations, the first being that the data for this project was very limited and I believe I would have had more business participation had the survey been sent out during a different time of the year, such as in the early spring or summer. Doing this would have provided businesses with more time to complete the survey and there would have been more greenhouse business participants because more businesses would have been open. A change that I would make to the survey as it relates to the greenhouse portion is to add topics relating to greenhouse equipment identification, and by asking a few questions related to the business origin and educational background. This would be more to provide insight into the ranking responses and why the survey suggests teaching less about the biology of plants. The limitations of the floral side of the survey are also related to participation. If the survey would have been released during the summer or if winter events would have been taken into consideration more florists would have participated. However, one thing I found interesting about the florist portion of the survey was that florists do not have a preference on whether or not the experience of new hire employees have prior experience due to the results being split 50/50 with the responses. This could also be a limitation because the available workforce is limited and the business knows they will need to teach the skills to new employees.

From this project, future researchers should look into the ways of teaching specific workplace readiness skills. As a teacher, I know that students get exposed to different skills through exposure, but it would be more effective to identify ways that work for teaching different workplace skills specifically those that are considered lacking in high school. Also, this survey was very useful in starting conversations with business owners (stakeholders) within the hiring area of SSHS and could be used by other teachers to begin building relationships with their local industries.

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