# Determination of soft skills expected for professionals in the urban food system industry

by

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# Abstract

The importance of soft skills in professional and life success is not a new concept but there is a growing awareness of these non-cognitive skills as part of the higher education experience, including in agriculture. In 2011 researchers identified seven soft skills needed for successful employment in agriculture, natural resources, and related careers and suggested they should be considered in curriculum revitalization. Currently, many universities successfully teach agriculture students technical skills and theoretical knowledge. However, to be successful, there is a clear and urgent need for agricultural professionals to develop soft skills. The goal of the Urban Food Systems graduate program at Kansas State University is to prepare students for positions such as director/program managers in not-for-profit organizations, city governments or extension programs in urban districts facilitating community gardens, urban farming, farmers markets, or farm-to-school programs. Thus, incorporating soft-skill development within this graduate program is critical. The objective of this study was to determine what soft skills are more important for professionals in the urban food systems industry (public, private, and nonprofit). A national survey was distributed to a variety of national list serves (e.g. Comfood, North America Food System Network). Seven soft skills were examined: experiences, team skills, communication skills, leadership skills, decision making/problem-solving skills, self-management skills, and professionalism skills; and each soft skill was described through seven descriptive characteristics. For example, *effective written communication* and *communicate pleasantly and professionally* are two of the seven descriptive characteristics listed within communication skills. Respondents were asked to rank these descriptive characteristics from most important to least important. Respondents were also asked to rank the seven major soft skill categories from most important to least important. Nonparametric analysis (Friedman Test) and Principal Component Analysis (PCA) were used to determine differences among and within the seven groups using the statistical software XLSTAT ($P < 0.05$, n=73). Most of the respondents were from not-for-profit organizations (49%) or extension (18%) and were involved in the hiring process (67%). Overall, communication skills and team skills were ranked most important and professionalism skills was ranked least important. However, there were differences between those in extension and not-for-profits and those that are involved in hiring and those that are not. Additionally, for most of the soft skills, there were also ranking differences across the seven experiences overall, as well as by

where the respondents worked and if they were involved in the hiring process. Results also showed a strong correlation between extension and communication skills, while non-profit organizations presented a correlation with experiences and self-management skills. Although teamwork skills and communication skills were considered the most important soft skills, graduate students may need to obtain all of them, focusing on the ones that are priorities depending on their interest and their desire working area whether in extension, a non-profit or another type of business. Although these results cannot be extrapolated to other fields since the circumstances are specifically related to the urban food system field, they serve as starting point for further research in this area.

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# Acknowledgements

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# Dedication

To the best woman in the entire world, the one that carried me for nine months and took care of me until the last day of her life, just before starting the journey of this Masters. The woman that taught me not only good principles and values but the most important thing of all, the meaning of true love. This is for her and for God that is now taking care of her and always guides my steps.

This is also dedicated to my lovely wife because everything started with her dream, which I borrowed and it took me right here, and it changed my life. Also, for giving me the opportunity to become a dad not once but two times during this time. To be my personal statistician, for giving me her support when I most needed it and her love all the time.

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# Chapter 1 - Introduction

Crawford, et al. (2011)identified seven soft skills needed for successful employment in agriculture, natural resources, and related careers and suggested they should be considered in curriculum revitalization. This project addressed this recommendation through innovative curricula development and instructional delivery systems and expanding student career opportunities through the Urban Food System specialization offered through Kansas State Universities Horticulture M.S. program.

In 2014, the core faculty of the Urban Food System specialization at Kansas State University (including Shoemaker, Pliakoni, and Rivard) reviewed all program components, resulting in curriculum changes, including the addition of new classes and changes in learning outcomes of existing classes. These changes foster the development of many of the soft skills identified by Crawford, et al. (2011), furthering the uniqueness of this M.S. program beyond the traditional research training focus of most agriculture graduate programs. Through successful completion of this project, the groundwork for a new model of M.S. degree-level education in the agricultural sciences that responds to the unique education and training requirements for careers in urban agriculture will have been implemented.

To have a better understanding of these skills, it is important to mention that soft skills are referred to as interpersonal and intrapersonal skills. Manoharan (2008) defined soft skills as life skills, which are the skills needed for successful living. They have psychological, sociological, and interpersonal components. These skills are related to decision making, communicating effectively, self-management, and leadership. According to the World Health Organization (1994), life skills are defined as "the abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life." Manoharan (2008) mentioned that to get a job a person must know how to write an application and resume, how to face the interview and how to satisfy the required job skills. Then, to keep a job, the person must also need a number of social skills such as getting along with peers, dealing with supervisors and other authorities and providing timely, responsible, and consistent work performance. Hence, these skills are transcendental when a graduate moves into employment.

Interactions with stakeholders have identified a clear and urgent need for agricultural professionals that can utilize soft skills to achieve the goals of a growing local food system. For example, states such as Kansas, Iowa, North Carolina, and others have appointed extension faculty and/or other agricultural educators to develop policy recommendations that can facilitate a successful transition towards local food systems. However, traditional research-based graduate education typically does not provide the breadth of experience needed to traverse the landscape of state or policy. Similarly, extension educators, as well as non-profit directors, typically serve as a hub for communication and coordination across numerous and diverse stakeholders. This requires a unique skill set that is often overlooked during traditional graduate education.

The goal of this project was to what soft skills are more important for professionals in the urban food systems industry (public, private, and nonprofit). A national online survey directed to urban food system employers, targeting non-profits, farmers and extension educators, was completed to determine what soft skills employers expect in hiring. Building on what Crawford et al. (2011) learned, this research focused on a subset of the employers they surveyed, those in the urban food industry, asking the same question, "What soft skills are employers looking for in new graduates?"

# Chapter 2 - Literature review

## Addressing soft skills in higher education

Human capacity development is enhanced through education at many levels, including primary, secondary, technical and vocational, and higher education. Given the growing complexity of contemporary contexts, higher education is an increasingly more critical piece of human capacity development. Higher education enhances people's abilities to make informed decisions, produce technology, adopt and adapt technology, sustain livelihoods, cope with shocks, be healthier, be responsible citizens, and be more effective stewards of natural resources (Public Land-Grant Universities).

Today education has a central role in the effort to deal with the economic, social, and environmental challenges of our complex society. Council (2012) asserts that to achieve our full potential as adults, young people need to develop a variety of skills and knowledge through their education to face those challenges. Although knowledge and hard skills are critical for professional success, there are other less tangible skills that should be included in the equation. In that sense, Robles (2012) pointed out that technical (or hard) skills were, in the past, according to employers in the area of business, the only skills necessary for career employment, while now, even if they are still needed, they are not the only important ones. Additionally, he pointed out that variables such as personality (a soft skill) were often seen as unrelated to workforce outcomes, this idea encouraged companies to focus hiring selection criteria on cognitive abilities and technical skills, giving less or null importance to soft skills (Robles, 2012). However, Robles stated that this has changed in today's workplace. According to Robles, technical skills are not enough to keep individuals employed when organizations are seeking to accomplish more with fewer resources, this is when soft skills become more relevant. Reinforcing this idea, Shekhawat and Bakilapadavu (2017) indicated that many technical professionals are not able to meet all the requirements of their job simply because of the lack of soft skills.

While soft skills are not a new concept, it has been getting more prominence since the 1990's when the field of psychology began to explore personality models. Since then, the awareness and importance of non-cognitive skills have increased (Kyllonen, 2013). Kyllonen (2013), based on the economists Samuel Bowles, Herbert Gintis, and Melissa Osborne, said that cognitive skills accounted for only 20 percent of the educational-attainment effects on labor-

market outcomes, which implies that formal education develops both non-cognitive and cognitive skills that are also both related with failure or success at the workplace. In other words, Kyllonen (2013) states that individuals acquire non-cognitive skills in the process of learning cognitive skills.

To have a better understanding of these skills, it is important to define soft and hard skills. Robles (2012) said that hard skills are the technical expertise and knowledge needed for a job while soft skills are interpersonal qualities, also known as people skills, and personal attributes that one possesses. Going more in detail, Shekhawat and Bakilapadavu (2017) defined soft skills as the skills which complement hard skills, i.e., one's academic proficiency. They also mentioned other definitions like the one by Whitmore & Fry (1974) that soft skills are important job-related skills that involve little or no interaction with machines and whose application on the job is quite generalized. And the definition by Schulz (2008) who defined soft skills as the complement of hard skills that have an important role in shaping an individual's perspective. Bruno (2010) defined soft skills as behaviors that must be internalized as a natural aspect of a person's repertoire of social skills and character attributes. Manoharan (2008) defined soft skills as life skills, which are the skills needed for successful living. They have psychological, sociological, and interpersonal components. These skills are related to decision making, communicating effectively, self-management, and leadership. According to the World Health Organization (1994), life skills are defined as "the abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life." Manoharan (2008) mentioned that to get a job a person must know how to write an application and resume, and how to face the interview and satisfy the required job skills. Then, to keep a job, the person must also need a number of social skills such as getting along with peers, dealing with supervisors and other authorities and providing timely, responsible, and consistent work performance. Hence, these skills are transcendental when a graduate moves into employment.

It is possible to infer from these definitions, that hard skills work better when they are joined by soft skills. This is important, especially at the graduate level, since the requirements and expectations from the academy, along with those from the industry about individuals as professionals, increases. Thus the expectation is to hire a professional with a full set of skills, in other words, someone that possess not only the technical skills but also the soft skills to insure the success of both the employer and the employee.

The Campus Recruitment Report by Smith & Lam (2013), which is a survey report made by the Canadian Association of Career Educators and Employers (CACEE), found that communication skills (verbal), teamwork skills (works well with others), analytical skills, strong work ethic, and problem-solving skills were the skills that employers in that country valued most in applicants. The conclusion was that the most preferable profile of a candidate corresponds to a hard-working team player who solves problems through analysis and communication. This conclusion, according to them, is due to the true nature of entry-level roles within larger organizations. They mentioned that a new graduate is hired to join a team, to solve their own problems, and to work hard. They are not usually taking part to engage in strategy or to take the company in a new direction (Smith & Lam, 2013).

On the other side, universities across the globe, according to Andrews and Higson (2008), want to produce highly skilled graduates who are able to respond to the ever-changing and complex needs of the contemporary workplace. In the same study Andrews and Higson remark about the quality of the graduate labor market and the ability of graduates to meet the needs of employers. They also mentioned the serious concerns expressed in the European market about the noticeable gap between the skills and capabilities of graduates versus the requirements and demands of the work environment in our actual globalized society. They concluded that beyond this gap, the graduate skills, in this case for a European Business School education, are not necessarily matching employer perspectives.

Universities intend to, or at least they should try to, respond to industry needs and adapt to their changes over time. In this line, Shekhawat and Bakilapadavu (2017) pointed out that soft skills are now being considered by educational institutions in order to meet the demands of hiring companies. However, teaching and learning soft skills are not an easy task for both professors and students, although Council (2012) suggested that there is enough evidence to consider that cognitive, intrapersonal, and interpersonal skills can be properly taught and learned in ways that individuals can utilize them in their workplace.

Bruno (2010) believes that in order to learn soft skills, students require opportunities to experience and practice them. The idea he proposed is that each skill (e.g. teamwork, problem-solving, leadership) will become a part of the individual once it gets assimilated and integrated during the learning process until the individual feels comfortable with the new set of skills. The author states three common methods for creating opportunities for experiential learning of soft

skills. First, interactive teaching, in which instructors facilitate exercises that give students opportunities for experience, practice, reinforcement, and reflection. The author described the method as "a system of spiraling teachable moments that progresses to increasingly more difficult soft-skill tasks reinforces the learning while building the repertoire of skills". However, he emphasizes the need of skilled instructors and a well-designed curriculum otherwise this method may not succeed. Still, this method is arguably the best when lacking real workplace experience. In this sense, the second method for teaching soft skills attempts to fill this gap by using coaching in a workplace setting to get a real experience. This method includes on-the-job training work experience, internships, and work-study programs as examples. These experiences are meant to teach not only soft skills but also technical skills in the workplace given the participant a more realistic experience. Nevertheless, Bruno (2010) notes that it is not easy to find employers that can provide both opportunities and a qualified coach that will prioritize learning over workplace productivity. The last method mentioned in his paper is one in which it is necessary to alter aspects of the classroom setting to simulate the workplace. This approach, the author affirms, provides an authentic context to be exposed to soft skills with less cost and effort than the second method while also giving teachers control over the day to day agenda. Bruno indicates that classroom training is a usual setting for teaching soft skills throughout the U.S. Department of Labor's vast employment and training system, as well as for teaching at a high school level throughout the nation's school systems. He concluded by asserting that this approach for teaching soft skills can be universally applied to have maximum impact on soft-skill deficits among youth students.

Some places, like Birla Institute of Technology and Science (BITS) in India, have tried to teach soft skills as part of their goals at the undergraduate level, however, there is not much information about the same effort at the graduate level. Shekhawat and Bakilapadavu (2017) explained that at BITS, the entire education system is conducive for students to develop their soft skills. They mentioned that the students are encouraged to make their own decisions and decide their time table according to their interests. As in many other academic places the core courses are required for all students, although they have an extensive list of electives to choose from. Students choose elective courses on the basis of their interest and the handout in which the instructional objectives are made clear. They use the example of Business Communication, which is an elective course that students can take if they feel the need for improvement in interpersonal skills. They also explained that in the classroom, interactive teaching methodology is used where in the

instructional objectives are made clear in the very beginning of the course. Regarding the teaching of soft skills, the course comprises communication including professional presentations, group discussions, interviews, and conversations as a part of oral communication. Not only this, written communication skills of the students are also given importance. Components such as report writing, letter writing, etc. are included in the course. Summarizing, the methodology to teach soft skills at BITS encompasses 4 general key components: interactive sessions, professional presentations, report writing, and teamwork. Interactive sessions are referred to as having the students getting engaged in class and make them feel involved by interacting and actively participating rather than simply listening to a lecture. They affirm that students learn more when they are encouraged to participate and interact in opposite to the traditional lecturing in which a professor imparts a set of information in a passive way, which means that the students are just asked to pay attention, to take notes, and memorize that information. The idea, in general, is to invite students to reason and to think more deeply. In the case of professional presentations, students are given the opportunity to present on any chosen topic. After each presentation students will receive the respective feedback from their professor, so they can make corrections and improve their performance. Regarding report writing and teamwork, students are organized in groups with a specific topic. After giving them the guidelines, they have to work as a team to collect data in the form of personal interviews, telephone interviews, among others. Then they have to prepare an analytical report on the chosen topic and present recommendations as part of it. At the end students are tested base on the contribution and knowledge earned by each of the group participants. The last component is the group discussion. This component is included in some classes such as business communication. The goal is that students will improve not only the interpersonal skills, but also the decision making, teamwork, time management, taking initiative, and leadership qualities. The parameters tested are originality of the ideas shown, in-depth analysis, analytical ability, and reasoning ability. In addition, convincing arguments, power of persuasion, and the ability to take initiative are also tested in regard to their leadership ability. In these sessions, students are encouraged to actively participate and discuss a variety of topics related to the class (business communication class as an example) while being tested using the parameters cited before. The authors also mentioned, that in addition to this, their fluency in expression, teamwork and nonverbal behavior also get enhanced.

Therefore, it is notable of the increase in the awareness about the importance of soft skills as part of university education, and the effort of some educational institutes on teaching them, especially in technical four-year programs. However, there is not much information at the graduate level, and even less or null in agronomy-related areas. Nonetheless, Sprecker & Rudd (1998) support the view that because the food, agriculture, and natural resources field is dynamic, it is important to review curriculum needs in order to meet the demands of evolving technical information, technology, changing demographics, dwindling resources, and the occupational requirements of this discipline. Besides, the authors added that competencies needed, in this case, by an agricultural communicator have changed beside technology and job requirements, which can be seen as an indication that curriculum needs to be examined to make it applicable to students and their future employers.

As can be inferred from the literature, most teaching and learning of soft skills is focused at the undergraduate level. This makes sense for the traditional 18-22-year-old undergraduate student who is actively developing the skills for a successful future career as well as non-traditional students that may need to learn new soft skills relevant to the profession they want to enter. At the graduate level, students should be given opportunities to build on their soft skills, and further develop those they have been using to help them grow and adapt in our dynamic professional world. This is certainly true for agriculture professionals working in the challenging and rapidly changing global food system.

**Urban Agriculture: Past, present, and future**

The world is facing a variety of great challenges; from environmental issues where climate change is a central topic, to more social ones where food security plays a transcendental role in an overpopulated world with a tendency of increasing even more in the coming decades. Wiskerke (2015) mentioned 2009 as the year when an important milestone occurred, the world became more urban than rural. According to the United Nations World Population Prospects (2019), the world's population numbered nearly 7.7 billion in 2019 and is projected to reach about 8.5 billion in 2030. They also estimate that the population will keep increasing such that by 2050 the estimated population will reach 9.7, and 10.9 billion in 2100. Also, the United Nations Department of Economic and Social Affairs (2016), indicates that in 2016 an estimated 54.5 percent of the world's population lived in urban settings. By 2030, urban areas are projected to house 60 percent of people

globally and one in every three people will live in cities with at least half a million inhabitants (United Nations Department of Economic and Social Affairs, 2016). All these facts together can be expected to generate poverty and increase food insecurity. In addition, Wheeler and von Braun (2013) indicated that the stability of whole food systems may be at risk under climate change due to the short-term variability in supply. These are problems we are facing today, and we will have to deal with them in the future as well, especially professionals related to agronomy/food fields since global agriculture is under pressure. In this scenario, it is worth mentioning that urban agriculture is playing and will play an important role.

Agriculture is often seen as an activity relegated to rural areas due to the perception of this being a nuisance and a source of health and environmental risks, often leading to restrictive policies when it is practiced in cities (United Nations Department of Economic and Social Affairs Population Division, 2016). However, in modern planning, according to the United Nations, urban agriculture receives policy attention due to the potential to contribute to mitigating social, economic, as well as environmental issues, and accepting that prohibiting urban agriculture is not the most effective way to reduce the associated risks. Instead, it is necessary to find effective ways to practice urban agriculture in order to facilitate the opportunities and overcome the constraints facing it, and thus to support the development of sustainable and safe urban agriculture. (United Nations Department of Economic and Social Affairs Population Division, 2016).

Urban agriculture is a movement that has been increasingly growing in recent years. But, even if the term urban agriculture is relatively new, the activity is not. Urban agriculture has been practiced for at least a thousand years according to Rissman (2015). There is not a single definition of urban agriculture, however there is an often-used definition from Mougeot (2000), which describes urban agriculture as "the growing, processing, and distribution of food and nonfood plant and tree crops and the raising of livestock, directly for the urban market, both within and on the fringe of an urban area".

Rissman (2015) mentioned that there is evidence that Maya civilization farmed crops inside cities, as well as Romans growing herb gardens in their villas. Another example from 1500 to 1900s is of urban farmers in Paris using a French-intensive style to grow vegetables in small, raised garden boxes. Also, during World War I (1914-1918) and World War II (1939-1945) in the United States, urban agriculture played an important role by helping with the lack of food sources (Rissman, 2015). During World War I, President Woodrow Wilson encouraged Americans to grow

Liberty Gardens. In a similar way, during World War II, a national Victory Garden Program was instituted to bring agriculture within the cities. Both were promoted as a way to increase food security and patriotism in the U.S. (Mok et al., 2014). Also, during the Great Depression of the 1930s, "Relief Gardens" appeared, according to Bassett (1981), as a supportive institution with the goal to maintain the physical and mental health of people unemployed by providing food security as well as giving them work.

After the wars, national efforts to promote food growing by all changed, as it was no longer needed for the nation's food security. In the late 1960s and early 1970s environmental awareness, social discrepancy against consumerism, and economic challenges related to industrialization like inflation and unemployment resulted in an increased interest in community and backyard gardens (Mok et al., 2014). In more recent years there is an increased sense of concern in the way the industrial agricultural system operates and the methods used for food production (Mok et al., 2014). Urban agriculture that integrates the idea of growing your own food as well as buying locally, as Mok et al. (2014) claim, has become integrated into an ideological movement of environmentally and socially sustainable choices, community networks, reconnections with nature, and social change in North America.

Urban agriculture is perceived as a tool for community resilience and food security due to its significant contribution to food supplies, but the benefits do not end there. As listed by Mok et al. (2014), urban agriculture also positively contributes to the environment, society, and economics by reducing food transportation distance, carbon sequestration, potentially reduced urban heat island effect, improved physical and mental health, improved aesthetics, community building, employment opportunities, improved local land prices, shortened supply chains and, thus, reduced price differentials between producers and consumers, provision of habitat for wildlife, and waste recycling. However, there are also challenges to overcome the complexity of our food systems before getting the full potential of urban agriculture.

Although urban agriculture as described above has its complexity, it is part of a more complex system, the urban food system. As defined by Hughes & Jones (2011) "an urban food system includes all the elements relating to the production, processing, distribution, preparation, consumption and waste disposal involved in the provision and consumption of food for urban populations. This includes all the inputs into these activities, as well as the broader outputs, like social, economic, health and environmental outcomes. This 'food systems' approach recognizes

that both rural and urban areas are connected in a larger system characterized by dynamic flows of information, finances, resources, and people. Urban food systems are therefore very diverse and include a variety of complex interactions and relationships". It can be seen from this definition that urban food systems include more elements than urban agriculture, therefore there are more challenges and opportunities for professionals in the urban food systems field.

In their report Baker & Alverson (2013) summarized urban food systems challenges in 6 points:

- Poverty alleviation:

Local urban poverty and nutrition insecurity is a challenge. Poverty is a reality in many cities around the world due to different reasons. Any change such as the increase in food prices for example, in the food chain will often negatively impacts people living in poverty. This is a challenge that does not exclude any city, regardless of geographic location.

- Physical challenges & climate change:

One of the main challenges of this era is climate change. Flooding and drought are increasing in frequency and intensity, and both have the power to significantly affect our food systems (Baker & Alverson, 2013). These events in addition to pressures such as population growth and urbanization demand a more holistic view to address this challenge which includes aspects such as landscape planning, water, wastewater, and waste management.

Gaspard, Watson, & Lebreton (2016) confirms Baker & Alverson report by explaining that climate change will add pressures from different angles to food systems while potentiating at the same time the existing ones. They claim that to address the existing and new challenges the food system may have to transform the food system in urban areas. Gaspard, Watson, & Lebreton (2016) also pointed out that to make a transformation there is a need for decision-makers that recognize that "urban food systems are major contributors to climate change, urban food systems are highly vulnerable to climate change, and that action is needed now to ensure urban populations can access sufficient, sustainably-produced, affordable, safe and nutritious food in a changing climate". Gaspard, Watson, & Lebreton (2016) also affirm that due to the increase in population and the urbanization of this population, the factors of how people eat in urban areas and what they eat will have a great impact on food systems, making cities drivers of change.

- The unknowns:

There is a need for data and information that allow decision-makers to convert research into workable policies and specific actions. Research is needed that allows us to understand the vulnerabilities of food systems, as well as get a clear idea of the production capacity in urban areas with the inclusion of the economic and social components of both local production and consumption.

- Lack of guidelines:

According to Baker & Alverson (2013), there is a lot to do in terms of legal frameworks and assessments for food systems. Urban agriculture has barriers like land space linked to the rise in land prices. They also listed the benefits of urban agriculture in which we can find:

  - Greening spaces and parks
  - Permeable green surfaces that contribute to flood mitigation
  - Reduction of heat island-effect
  - Provide community-building and other social amenities

However, it was mentioned that in some places, building codes and regulations may need altering to incorporate food systems.

- Considering everyone:

The authors recognized an ideal scenario in which businesses, academics, government officials, and different consumers are taken into consideration on the food system and its market structure, also in the way risks and benefits are distributed in a sustainable and just manner.

- Global trade and agriculture:

Last, this 2013 report makes clear the fact that actors in city region food systems are connected to global trading systems. The report also expanded this affirmation by saying that there are connections between cities and countries based on these systems. Therefore, there is a need to consider the local growers as well as the end-use consumers, including in the equation the other key aspects like production and consumption, and waste and replenishment.

The same report also listed what they interpret are actions that cities can take to address these challenges. The first one is communication, training, education, and workshops, in different sectors. They recommend cities to team up with other actors (NGOs and international organizations where available). Also, to make resource centers or hubs with mentoring schemes. The report explained this point taking the London case as an example, where the “experts” such as planners, designers, architects were working pro bono.

Creativity and involving youth and elders is another point. They pointed out the importance of educating school children in gardens and healthy eating. Then, go to farmers directly and enlist them to run training programs adapted to the needs of young students. In the same line, considering elderly care and intergenerational vocational training to teach, but also learn from, traditional gardening practices and knowledge.

Last, the report stressed that food practitioners involved in the food value chain, which include producers, processors, and transporters, can be seen as first responders in disaster situations and can be incorporated in programs for preparedness and training.

The second action plan is regarding the incorporation of startups and city region food systems in attractive cities. They argue there are growing popularity and interest in gardens and local food in many cities. Also, food and healthy lifestyles make cities attractive places which can be used to gain popular support. Last at this point is that community participation and support is needed to ensure longevity and to promote job creation.

The third action plan is titled: "See where food systems innovations are already taking place and combine" (Baker & Alverson, 2013). This section encourages to find out what retailers and businesses are doing and what local researchers are looking into in the city. Then, link gardeners with entrepreneurs seeking to have multifunctional usages of urban farms in order to make them competitive. Examples used in the report are solar harvesting, social initiatives, and food supply, among others. Another point is to provoke win-win situations by the clever use of spaces and ecosystem services. Last, promote the use of green spaces on roofs as a way to help to address climate change adaptation and mitigation while at the same time increasing viability and resilience of city region food supply.

It is possible to infer from all the challenges and the requirements the actual industry has, that there is a need for researchers and professionals knowledgeable about urban agriculture and the associated local food systems. Careers are developing in this new area, known by several names such as urban agriculture, urban horticulture, and urban food systems. Now more than ever, a group of leaders that integrate technical skills as well as soft skills are needed in the agricultural community to help successfully facilitate a revolution in the way we think about food.

Thus, the goal of this project is to determine the needs of the industry, including both public, private, and non-profit sectors.

# Chapter 3 - Determination of Soft Skills Expected for Professionals in the Urban Food System Industry

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## Abstract

The importance of soft skills in professional and life success is not a new concept but there is growing awareness of these non-cognitive skills as part of the higher education experience, including in agriculture. The main objective of this study was to determine what soft skills are more important for professionals in the urban food systems industry (public, private, and nonprofit). The results showed that most of the respondents were from not-for-profit organizations (49%) or extension (18%) and were involved in the hiring process (67%). Overall, communication skills and team skills were ranked most important and professionalism skills were ranked least important. “Effective oral communication” and “listen effectively” were the most important descriptors for communication skills. There were no differences across the descriptors for teamwork skills. Additionally, there were ranking differences across the seven descriptors for most of the soft skills, as well as by where the respondents worked and if they were involved in the hiring process, by gender and age. Results also showed a strong correlation between extension and communication skills, while non-profit organizations presented a correlation with experiences and self-management skills. These results provide a starting point for the implementation of the soft skills expected for professionals entering the urban food systems industry at a higher education level.

# Introduction

In an era in which we are facing issues such as climate change, urbanization, rapidly increasing population, social inequality, food insecurity, the rise of food prices, among others, the need to pay more attention to our urban food systems is more critical than ever before. Urban food systems (UFS) can help to face these challenges and to build more resilient cities by positively impacting land use, water, energy, goods, capital and employment, called by AbouZiyan et al. (2017) the six vital food system flows. However, due to its complexity addressing UFS challenges is not a simple task. UFS, as defined by Smit (2016), includes all the elements relating to the production, processing, distribution, preparation, consumption and waste disposal involved in the provision and consumption of food for urban populations. This includes all the inputs into these activities, as well as the broader outputs, like social, economic, health and environmental outcomes. This 'food systems' approach, according to this author, recognizes that both rural and urban areas are connected in a larger system characterized by dynamic flows of information, finances, resources and people. Similarly, Kasper, et al (2017) approach looked at UFS from three different dimensions, ecological interactions (energy, water, waste, other resources, pollution), social interactions (people, information, innovation, practices, ideas) and economic interactions (material, commodities capital, production, goods).

Due to this complexity it is difficult to focus and prioritize the effort needed to have our UFS contributing positively to all these challenges. However, Kasper, et al (2017) identified several specific points to have more efficient and sustainable UFS. According to Dubbeling (2013), there is a need to increase attention for city-regional or UFS plans that place food higher on the urban agenda. Also, Kasper, et al (2017) mentioned that there is a need for more technical assistance and training, in addition to the development of policies that allow planning and designing city food systems in an integral strategy, considering urban and peri-urban areas, food, accessibility, resource recovery, land use, and agriculture in the need to produce more with less resources in a sustainable way. UFS are therefore very diverse and include a variety of complex interactions and relationships which makes evident the need of new and more capable professionals that can deal with the challenges and opportunities of this new UFS environment and success in these endeavors.

In this new scenario, what are the training needs for UFS professionals? These professionals require the expected technical skills, but also a set of soft skills that allow them to work in a multidisciplinary environment and the complexity of the UFS.

Soft skills, also known as social skills or life skills, has always been a consideration in performance by students or workers. For example, communication is a soft skill practiced in almost every environment. However, this does not necessarily mean that all students or workers are good at soft skills or that they have been a requirement to get a job, at least not with the same relevance as hard skills. Nonetheless, there is an increasing interest from the industry in having professionals that have a well-developed soft skill set in addition to the hard skills set already expected when getting a job. Although the industry is asking for those soft skills in professionals, the literature reviewed showed, that even if there are some efforts to formally include soft skills in undergraduate curricula, there is little information about what educational institutions are doing to incorporate them at the graduate level.

Soft skills are referred to as interpersonal and intra-personal skills. Manoharan (2008) defined soft skills as life skills, which are the skills needed for successful living. They have psychological, sociological, and interpersonal components. According to the World Health Organization (1994, p. 5), life skills are defined as "the abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life." Manoharan (2008) explained that to get a job a person must know how to write an application and resume, and how to face the interview and satisfy the required job skills. Then, to keep a job, the person must also need a number of social skills such as getting along with peers, dealing with supervisors and other authorities and providing timely, responsible, and consistent work performance. Hence, these skills are critical when a graduate moves into employment.

As mentioned before, literature shows a need for professionals with both technical and soft skills that are capable to face the challenges and be able to identify the opportunities of our complex UFS. In order to develop this type of professionals, universities are called to take the first step. Thus, the primary aim of this study was to determine what soft skills are most important for professionals in the UFS industry (public, private, and nonprofit). The specific objectives were:

- Gather basic information about professionals currently working in the UFS industry.
- Assess the soft skill needs of the UFS industry.
- Assess the soft skill needs of targeted sectors of the UFS industry.

To accomplish these objectives, an online survey was distributed across the U.S. to collect the required data. The results of this study could be used for graduate program curriculum revitalization with the idea to adapt it to the reality graduate students face when they get hired in this area of expertise.

## Methods

To cover the objectives of this study, an online survey was distributed across the U.S. targeted to non-profits, urban farmers, and extension educators working in this field. Respondents were asked to rank the importance of soft skills, previously identified by Crawford et al. (2011) specifically for professionals working in urban food systems. Respondents were also asked to rank the importance of descriptors for each soft skill. Analysis was conducted to identify differences across the soft skills, across the descriptors, and within the targeted groups.

### Survey

Crawford et al. (2011) identified seven soft skills needed for successful employment in agriculture, natural resources, and related careers and suggested they should be considered in curriculum revitalization. Following their advice, this survey was built on the framework defined by Crawford et al. (2011), but with the difference that this research was focused on the UFS industry. These seven soft skills and descriptors were kept without any modification from the study made by Crawford et al. (2011), since it was previously validated in their work, and as they mentioned: "all of the skills are considered valuable and each of the descriptive phrases within the clusters represent positive characteristics" (Crawford et al., 2011, p. 2), which was adequate for the purpose of this project. However, before having the online survey ready, a pilot survey was tested with 18 self-selected attendees of an UFS Symposium in June 2016. This resulted in changes in the number of questions, format, aspects, and the addition of questions in the "demographics" section, as well

as the “final questions” section for the online version used for this study which was created after this step was completed.

Once the online survey was ready to be distributed, a sample of enterprises across the U.S. that employ UFS professionals was targeted. To reach the targeted population (farmers, non-profit organizations, and extension), the survey was delivered by e-mail using Qualtrics XM software to the available public listserv as well as on-line resources. [Comfood] listserv (with 5833 subscribers), [Urbanag] listserv (with 637 subscribers), [Comfoodjobs] listserv (with 11087 subscribers), ATTRA newsletter, North American Food Systems Network (NAFSN), the 2018 Urban Food System Symposium website, Kansas State University Horticulture Facebook page were the listservs and on-line resources utilized. Individual emails (approximately 200 split it into the 3 targeted groups) and chain-referral sampling were also used. In order to get as many responses as we could, the survey was active 8 months (from January 20, 2018 to October 18, 2018). In this time range, the survey was periodically sent to the listservs, given enough time between emails so participant would not feel overwhelmed, and until no more responses were obtained from those sources. However, even with all those attempts the effort put into getting a better number of responses, the final sample size was 73. This study was deemed exempt by the Committee on Research Involving Human Subjects/Institutional Review Board for Kansas State University.

The survey had three open-ended questions, eleven single choice questions, one multiple-choice question, and eight Likert-scale questions ranking importance from 1 being the most important, to 7 being the least important. Written responses to open-ended questions are showed in Appendix A. The survey contained 3 sections: demographics, soft skills ranking, and final questions. Demographics included questions such as organization type, location, market, education level, ethnicity, gender, age, among others.

The soft skills ranking section consisted of seven soft skills (experiences, teamwork skills, communication skills, leadership skills, decision making and problem-solving skills, self-management skills, professionalism skills) and then each soft skill included seven descriptive characteristics. The soft skills (grey boxes) and descriptive characteristics are shown in Table 1.

### Data analysis

The unit of analysis were the institutions that can potentially employ UFS professionals and the unit of observation were the employers who participated in the project. Data was downloaded from Qualtrics and entered into Microsoft Excel and analyzed using XLStats (Addinsoft Inc., version 2019.2.1) ($p \leq 0.05$) to perform a Friedman test (due to the non-parametric nature of the study) and a Principal Component Analysis (PCA) (Lawless & Heymann, 1998). Friedman test was used to identify differences from all the respondents across all the soft skills, and also to look at differences across the descriptors for each soft skill at a posthoc group level (Objectives 1 and 2), while PCA allowed identifying correlations within the seven soft skills, the descriptive characteristics and the targeted groups (Objective 3).

The three targeted groups were farmers with 6% of the responses, non-profit organizations with 49% of the responses, and extension educators with 18% of the total responses. Twenty-seven percent of the respondents could not be classified into one of the targeted groups and were labeled "other". This group consisted of respondents from educational institutions, governmental institutions, public and private consulting firms, a retail garden center, health department, and a higher education institution.

Of the 73 participants, only 4 were urban farmers (or they worked for or owned a garden). Therefore, even though they were part of the total responses when performing Friedman tests, once the data was divided into posthoc groups (farmers/garden, non-profit organization, extension educators, male, female, and so on) farmer respondents were excluded due to the small sample size.

## Results and Discussion

Objective 1 of this study aimed to gather basic information about UFS professional. Based on the demographics analyzed we learned that participants were predominately white (79%), highly educated (75% with a Master's, Ph.D. or professional degree), and female (75%). The average age of respondents was 43, with about half (51%) above 40 years of age. Sixty-seven percent of the respondents were involved in hiring, 70% indicated there was a position in their place of

employment for someone with a Master's degree, and 81% indicated they looked for these soft skills when hiring. Most of the respondents were located (82%) and had markets (67%) in urban, peri-urban, or both sites. While responses were received from across the U.S. they were weighted to the east coast (Appendix A.4).

From these results there are some interesting conclusions to point out. While growing food in cities is a part of the history of the development of cities, the UFS of today are a new development as are the professionals involved in this new industry. Respondents in our survey suggest that urban food systems professionals are predominantly female. This is supported by the growing number of females entering farming and 75% of workers and volunteers that work in the non-profit sector (Hrabik, 2015). Respondents of our survey also indicate the UFS industry is in need of professionals with Master's degrees. This suggests acknowledgment of the complexity of working in the UFS. This need for professionals with a Master's degree, along with a high percentage (70%) of respondents that indicated having a position in their place of employment and a majority looking for soft skills when hiring (81%), provide a scenario of opportunities for new graduates entering this flourishing industry.

Objective 2 of this study aimed to assess the soft skill needs of the UFS industry. For a better understanding of the results of this objective, all tables have colors with different meanings. Anything with color represents a significant result ($p \leq 0.05$), green boxes represent soft skills or descriptors that were ranked as most important, while yellow boxes represent soft skills or descriptors that were ranked as least important. Tables show differences among soft skills or descriptors for each category (total, non-profit, extension, other, yes, no, male, female, under 40, over 40) for each posthoc group (all respondents, type of business, involved in hiring, gender, age). In other words, the differences are presented by row rather than by column.

Overall, results from all respondents showed that communication skills and teamwork skills were significantly different than the other soft skills and ranked most important, being the soft skills the respondents valued the most, and professionalism skills were significantly different than all other soft skills and was ranked least important (Table 2). However, when looking at mean rank scores, although we obtained the most and the least important soft skills, on a scale of 1-7, mean scores

across all soft skills ranged from 3.4 (most important) to 4.8 (least important). Thus, all scores were on the scale from somewhat important to somewhat least important (Table 2). This tells us that even if communication skills and teamwork skills can be considered as a must have for professionals in the UFS sector, the other soft skills are also valuable for this industry.

Also, respondents identified one or two descriptive characteristics as most important and least important across all seven soft skills. In this section, all but teamwork skills have significant differences in ranking (Table 3). For further analysis, the demographics were used to define posthoc groups. These posthoc groups were the type of business (extension, non-profit organizations, and others), if the participant was involved or not in the hiring process, gender (male or female), and age (over or under 40 years old). Respondents working for non-profits and extension, those not involved in hiring, those under 40, and males and females ranked all soft skills similarly (Table 4). Only respondents over 40, those involved in hiring, and those not in our targeted audience (other) ranked the soft skills differently.

A more in-depth analysis of the soft skills that were ranked differently showed differences in the descriptors of those soft skills. For communication skills (Table 5), responses were different by the type of business, if the participant was involved in the hiring process, gender, and age. Similar to all respondents, most posthoc groups ranked the descriptive characteristic “communicate appropriately and professionally using social media” as least important and “listen effectively” as most important (Table 5). Interestingly, the PCA for communication skills (Fig. 3) shows a strong relationship between non-profit organizations and the descriptor “communicate appropriately and professionally using social media” which was ranked the least important descriptor for communication skills. This is a good example that different sectors value soft skills and descriptors differently. In the case of teamwork skills (Table 6) there were also significant differences by the type of business and gender.

There were significant differences in the responses for all the posthoc groups for the descriptors for leadership skills (Table 7). The same situation happened for leadership skills (Table 7), self-management skills (Table 8), experiences (Table 9), and professionalism skills (Table 11). On the other hand, teamwork skills only present significant differences by the type of business and gender

(Table 6), while decision making/problem-solving skills show significant differences only by gender and age (Table 10).

Similar to when we looked at soft skills, the posthoc group results showed some clear tendencies towards the most important and least important descriptor for each soft skill, with the rest falling into the range of somewhat important to somewhat least important. Also similar, this does not mean that the descriptors in between are not important. Therefore, graduate students may need to learn and practice all the soft skills to assure having the soft skills set needed by this industry. Additionally, priorities may not be the same for all students as they were not the same for all the posthoc groups in this study. Thus, these results give us a good idea of the needs of the UFS industry.

Objective 3 of this study aimed to assess the soft skill needs of targeted sectors of the UFS industry. In order to accomplish this objective Principal Component Analysis (PCA) test was performed. When looking at the targeted groups, the soft skills PCA (Fig. 1) show a strong relationship between extension and communication skills, which make sense when thinking about the nature of the job. A person working in the extension sector, according to the USDA, emphasize in taking knowledge gained through research and education and bringing it directly to the people to create positive changes. It is clear to see then how communication skills play a fundamental role in this sector. If we want to be more specific about communication and extension, when looking at communication skills PCA (Fig. 3), it is possible to see a correlation between extension and the descriptors “communicate pleasantly and professionally” and “effective oral communication”.
Non-profit organizations (Fig. 1.) has a strong relationship with self-management skills, a little less but still important relationship with “experiences” and a tendency toward leadership skills and professionalism skills. In the case of the “other” there is not a clear relationship nor tendency.
When looking at the teamwork skills PCA, this shows a strong relationship between extension and the descriptor “work with multiples approaches” and a tendency toward “positive and encouraging attitude”. Non-profit organizations show a tendency over “punctual and meets deadlines”. On the other hand “other’ does not show a strong relationship with any of the descriptors, but it is kind of in between of “aware and sensitive to diversity” and “productive as a team member” and “maintain accountability to the team” which may all have some influence toward this sector. Lastly, the PCA

for communication (Fig. 3.) indicate a correlation between “other” and “deal effectively with ambiguity”, and a little bit less with “accept and apply critique and direction in the workplace”. Non-profit shows some tendency over “maintain appropriate décor and demeanor” and “select appropriate mentor and acceptance of advice”.

Therefore, PCA’s are telling us that some sectors (nonprofit-organizations, extension, or “other”) may need more of a specific soft skill or descriptor characteristic than the others. Looking at the PCA about team skills (Fig. 2.), it is possible to see that if a student is interested in working as an extension educator for example, “work with multiple approaches” is a desirable characteristics to have in order to succeed in this kind of job.

One aspect that is worth mentioning is that the three targeted groups are located in all three figures in different quadrants, showing the different priorities each sector has regarding the soft skills, or descriptive characteristics of each group. Similar to the results from the Friedman tests, focusing on the characteristics that are strongly correlated with each of the sectors does not mean the graduate student will not need the other skills, but it gives a useful guide to new professionals in the urban food system industry.

## Summary

Results showed that different groups (type of business, involved in hiring, gender, age) prioritize soft skills differently. Therefore, ensuring that students have the opportunity to develop all the soft skills is important to insure they are prepared for the variety of opportunities in the UFS industry. These results give a path to follow in the effort to understand the needs of the UFS industry regarding soft skills both as a whole and by sectors. This study gives a starting point for improvement and for new studies that can build on this topic, which is sometimes underestimated. For students, knowing their interest earlier in their career development can maximize their ability to learn a specific soft skill by focusing on the priorities of their chosen sector whether it is extension, a non-profit organization or other type of business.

**Implications for Future Research**

As we present these results, we recognize the limitations due to the small sample size. Further details of soliciting responses, the fact it is a new industry, and given there is no one organization of professionals in the UFS industry, the process of collecting data through the online survey was complicated. To overcome these obstacles we identified listservs that we thought would have the targeted groups we wanted. In in our solicitation email we were asking for UFS professionals, perhaps people that work in this area do not identify themselves as part of the UFS industry. Although we recognize these limitations, given the newness of this industry we believe it is worth presenting this information.

This study would be benefited by a large sample size. To improve the sample size for future studies there is a need to find a way to motivate respondents to participate in the survey. Another option is to open the survey to a broader targeted audience, for example, instead of targeting urban farmers targeting farmers in general. However, this may bring other consequences.

According to the literature reviewed and the results it is possible to affirm that the UFS industry is looking for soft skills in professionals when hiring. Also, this study gave us an idea of which soft skills they are looking for. Since we have these two facts, the next questions for future research could be 1) How should they be incorporated into a curriculum, and 2) How should these soft skills be evaluated?

Table 1. Soft Skills and Their Respective Descriptive Characteristics

| COMMUNICATION SKILLS | TEAMWORK SKILLS |
|---|---|
| Listen effectively | Productive as a team member |
| Communicate accurately and concisely | Positive and encouraging attitude |
| Effective oral communication | Punctual and meets deadlines |
| Communicate pleasantly and professionally | Maintains accountability to the team |
| Effective written communication | Work with multiple approaches |
| Ask good questions | Aware and sensitive to diversity |
| Communicate appropriately and professionally using social media | Share ideas to multiple audiences |
| **DECISION MAKING / PROBLEM SOLVING SKILLS** | **SELF-MANAGEMENT SKILLS** |
| Identify and analyze problems | Efficient and effective work habits |
| Take effective and appropriate action | Self-starting |
| Realize the effect of decisions | Well-developed ethic, integrity and sense of loyalty |
| Creative and innovative solutions | Sense of urgency to address and complete tasks |
| Transfer knowledge from one situation to another | Work well under pressure |
| Engage in life-long learning | Adapt and apply appropriate technology |
| Think abstractly about problems | Dedication to continued professional development |
| **EXPERIENCES** | **LEADERSHIP SKILLS** |
| Related work or internship experiences | See the “big picture” and think strategically |
| Teamwork experiences | Recognize when to lead and when to follow |
| Leadership experiences | Respect and acknowledge contributions from others |
| Project management experiences | Recognize and deal constructively with conflict |
| Cross disciplinary experiences | Build professional relationship |
| Community engagement experiences | Motivate and lead others |
| International experiences | Recognize change is needed and lead the change effort |
| **PROFESSIONALISM SKILLS** | |
| Effective relationships with customers, businesses and the public | |
| Accept and apply critique and direction in the workplace | |
| Trustworthy with sensitive information | |
| Understand role and realistic career expectations | |
| Deal effectively with ambiguity | |
| Maintain appropriate decor and demeanor | |

| | |
|---|---|
| Select appropriate mentor and acceptance of advice | |

Table 1. Mean Ranking of Importance of Soft Skills for all Respondents of a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

| Soft Skills | Professionalism Skills | Experiences (preparing students for work) | Leadership Skills | Self-Management Skills | Decision Making/ Problem Solving Skills | Communication Skills | Team Skills |
|---|---|---|---|---|---|---|---|
| **Mean rank[z]** | 4.8* | 4.4 | 3.9 | 3.9 | 3.8 | 3.6* | 3.4* |

Ranked most important  Ranked least important

[z]Mean rank: from scale of 1 (most important) to 7 (least important)

* $P \leq 0.05$ Friedman test (N=73)

Table 2. Soft Skill Descriptive Characteristics that were Ranked Significantly Different for all Respondents of a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

| Soft Skill | Descriptive characteristics (mean ranking[z]) | | | |
|---|---|---|---|---|
| | Ranked Least Important[y] | | Ranked Most Important[y] | |
| **Professionalism Skills** | Maintain appropriate decor and demeanor (4.7) | Select appropriate mentor and acceptance of advice (4.5) | Effective relationships with customers, businesses and the public (3.2) | |
| **Decision Making/Problem Solving Skills** | Think abstractly about problems (4.2) | | Identify and analyze problems (3.8) | |
| **Experiences** | International experiences (4.9) | | Community engagement experiences (3.6) | Teamwork experiences (3.7) |
| **Communication Skills** | Communicate appropriately and professionally using social media (4.9) | | Effective oral communication (3.7) | Listen effectively (3.4) |
| **Teamwork Skills** | There were not significant differences between descriptors | | | |
| **Leadership Skills** | Recognize change is needed and lead the change effort (5.1) | | See the "big picture" and think strategically (3.1) | |
| **Self-Management Skills** | Dedication to continued professional development (4.8) | Sense of urgency to address and complete tasks (4.7) | Self-starting (3.2) | Well-developed ethic, integrity and sense of loyalty (3.3) |

Ranked most important  Ranked least important

[z]Mean rank: from scale of 1 (most important) to 7 (least important)

[y]* $P \leq 0.05$ Friedman test (N=73)

Table 3. Mean Ranking[z] of Soft Skills by Posthoc Groups from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

| Posthoc Groups | Professionalism Skills | Experiences (preparing students for work) | Decision/ Making Problem Solving Skills | Leadership Skills | Self-Management Skills | Communication Skills | Team Skills |
|---|---|---|---|---|---|---|---|
| Total[y] | 4.8* | 4.4 | 3.8 | 4.0 | 4.0 | 3.6* | 3.4* |
| Non-profit | 4.7 | 4.3 | 4.1 | 3.8 | 3.8 | 3.9 | 3.6 |
| Extension | 4.8 | 4.5 | 3.7 | 4.1 | 4.0 | 2.9 | 4.0 |
| Other[x] | 5.0* | 4.6 | 3.3 | 4.2 | 4.5 | 3.8 | 2.6* |
| Involved in hiring | 4.8* | 4.5 | 3.8 | 4.2 | 3.7 | 3.5 | 3.4* |
| Not involved in hiring | 4.8 | 4.3 | 3.9 | 3.5 | 4.4 | 3.9 | 3.4 |
| Male | 5.2 | 4.9 | 4.3 | 3.3 | 4.1 | 3.3 | 3.0 |
| Female | 4.7 | 4.3 | 3.7 | 4.1 | 3.9 | 3.8 | 3.5 |
| 40 and under | 4.7 | 4.0 | 4.1 | 4.1 | 3.9 | 3.9 | 3.3 |
| Over 40 | 4.9 | 5.0* | 3.5 | 3.9 | 4.0 | 3.3* | 3.4 |

Ranked most important  Ranked least important

[z]Mean rank: from scale of 1 (most important) to 7 (least important)

[y]Total = all respondents

[x]Other = respondents from educational institutions, governmental institutions, public and private consulting firms, a retail garden center, health department, and a higher education institution

* $P \leq 0.05$ Friedman test. Total (N=73), non-profit (N=36), extension (N=13), Other (N=20), involve in hiring (N=49), not involved in hiring (N=24), male (N=18), female (N=55), under 40 (N=35), over 40 (N=38)

Table 4. Mean Ranking[z] of Posthoc Groups for the Descriptive Characteristics for Communication Skills from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

| Posthoc groups | Descriptive characteristics for Communication Skills | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Communicate appropriately and professionally using social media** | **Effective written communication** | **Communicate accurately and concisely** | **Communicate pleasantly and professionally** | **Ask good questions** | **Effective oral communication** | **Listen effectively** |
| Total[y] | 4.9* | 4.0 | 4.1 | 4.0 | 3.9 | 3.7* | 3.4* |
| Non-profit | 4.8 | 3.9 | 4.4 | 4.9 | 3.3 | 3.6 | 3.1 |
| Extension | 5.7* | 4.5 | 4.2 | 2.9* | 4.1 | 2.9* | 3.7 |
| Other[x] | 5.6* | 4.1 | 4.1 | 4.4 | 3.5* | 3.8 | 2.6* |
| Involved in hiring | 4.8* | 4.0 | 4.3 | 4.1 | 3.5* | 3.7 | 3.5* |
| Not involved in hiring | 5.0* | 4.0 | 3.8 | 3.7 | 4.6 | 3.8 | 3.1* |
| Male | 5.3 | 3.5 | 4.4 | 3.3 | 4.5 | 3.6 | 3.4 |
| Female | 4.8* | 4.2 | 4.1 | 4.2 | 3.7 | 3.8 | 3.3* |
| 40 and under | 4.6 | 4.1 | 4.1 | 3.9 | 4.0 | 4.1 | 3.3 |
| Over 40 | 5.3* | 4.1 | 4.2 | 4.0 | 3.8* | 3.3* | 3.3* |

Ranked most important  Ranked least important

[z]Mean rank: from scale of 1 (most important) to 7 (least important)

[y]Total = all respondents

[x]Other = respondents from educational institutions, governmental institutions, public and private consulting firms, a retail garden center, health department, and a higher education institution

* $P \leq 0.05$ Friedman test. Total (N=73), non-profit (N=36), extension (N=13), Other (N=20), involve in hiring (N=49), not involved in hiring (N=24), male (N=18), female (N=55), under 40 (N=35), over 40 (N=38)

Table 5. Mean Ranking[z] of Posthoc Groups for the Descriptive Characteristics for Team Skills from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

| Posthoc groups | Descriptive characteristics for Teamwork Skills | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Maintains accountability to the team** | **Work with multiple approaches** | **Aware and sensitive to diversity** | **Positive and encouraging attitude** | **Productive as a team member** | **Share ideas to multiple audiences** | **Punctual and meets deadlines** |
| Total[y] | 3.8 | 3.6 | 4.2 | 3.8 | 3.9 | 4.2 | 4.6 |
| Non-profit | 4.3 | 3.5 | 4.2 | 3.8 | 4.0 | 3.9 | 4.3 |
| Extension | 3.2 | 3.1 | 4.3 | 3.5 | 3.9 | 5.2 | 4.8 |
| Other[x] | 3.0* | 3.5 | 4.2 | 4.0 | 3.8 | 4.1 | 5.3* |
| Involved in hiring | 3.7 | 3.6 | 3.8 | 3.9 | 4.2 | 4.1 | 4.8 |
| Not involved in hiring | 3.8 | 3.5 | 5.0 | 3.7 | 3.4 | 4.5 | 4.2 |
| Male | 3.8 | 4.2 | 3.6 | 3.6 | 3.8 | 4.4 | 4.6 |
| Female | 3.8 | 3.3* | 4.4 | 3.9 | 4.0 | 4.1 | 4.6* |
| 40 and under | 3.8 | 3.6 | 4.1 | 4.0 | 3.9 | 4.1 | 4.5 |
| Over 40 | 3.7 | 3.5 | 4.2 | 3.7 | 3.9 | 4.3 | 4.7 |

Ranked most important  Ranked least important

[z]Mean rank: from scale of 1 (most important) to 7 (least important)

[y]Total = all respondents

[x]Other = respondents from educational institutions, governmental institutions, public and private consulting firms, a retail garden center, health department, and a higher education institution

* $P \leq 0.05$ Friedman test. Total (N=73), non-profit (N=36), extension (N=13), Other (N=20), involve in hiring (N=49), not involved in hiring (N=24), male (N=18), female (N=55), under 40 (N=35), over 40 (N=38)

Table 6. Mean Ranking[z] of Posthoc Groups for the Descriptive Characteristics for Leadership Skills from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

| Posthoc groups | Descriptive characteristics for Leadership Skills | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Recognize change is needed and lead the change effort** | **Build professional relationships** | **Recognize and deal constructively with conflict** | **Respect and acknowledge contributions from others** | **Motivate and lead others** | **Recognize when to lead and when to follow** | **See the "big picture" and think strategically** |
| Total[y] | 5.1* | 3.8 | 4.5 | 3.9 | 3.9 | 3.7 | 3.1* |
| Non-profit | 5.1* | 3.7 | 4.4 | 4.2 | 3.9 | 3.4* | 3.3* |
| Extension | 5.7 | 3.4 | 4.9 | 3.7 | 3.7 | 3.2 | 3.4 |
| Other[x] | 4.9* | 4.6* | 4.3 | 3.2 | 4.3 | 4.5 | 2.2* |
| Involved in hiring | 4.7* | 3.9 | 4.4 | 3.8 | 4.3 | 3.7 | 3.2* |
| Not involved in hiring | 5.8* | 3.7* | 4.7 | 4.0 | 3.2* | 3.7* | 3.0* |
| Male | 4.9 | 3.6 | 5.1 | 4.3 | 3.6 | 3.7 | 2.8 |
| Female | 5.1* | 3.9 | 4.3 | 3.7 | 4.0 | 3.7 | 3.2 |
| 40 and under | 5.2* | 3.7 | 4.3 | 3.9 | 4.1 | 3.9 | 2.8* |
| Over 40 | 5.1* | 4.0 | 4.6 | 3.8 | 3.8 | 3.5 | 3.4 |

Ranked most important  Ranked least important

[z]Mean rank: from scale of 1 (most important) to 7 (least important)

[y]Total = all respondents

[x]Other = respondents from educational institutions, governmental institutions, public and private consulting firms, a retail garden center, health department, and a higher education institution

* $P \leq 0.05$ Friedman test. Total (N=73), non-profit (N=36), extension (N=13), Other (N=20), involve in hiring (N=49), not involved in hiring (N=24), male (N=18), female (N=55), under 40 (N=35), over 40 (N=38)

Table 7: Mean Ranking[z] of Posthoc Groups for the Descriptive Characteristics for Self-Management Skills from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

| Posthoc groups | Descriptive characteristics for Self-Management Skills | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Dedication to continued professional development** | **Sense of urgency to address and complete tasks** | **Adapt and apply appropriate technology** | **Work well under pressure** | **Well-developed ethic, integrity and sense of loyalty** | **Efficient and effective work habits** | **Self-starting** |
| Total[y] | 4.8* | 4.72* | 4.3 | 4.3 | 3.3* | 3.4* | 3.2* |
| Non-profit | 4.5 | 4.5 | 4.4 | 4.1 | 3.6 | 3.3 | 3.6 |
| Extension | 4.8 | 5.3 | 4.2 | 4.5 | 2.6 | 3.6 | 3.0 |
| Other[x] | 5.4* | 5.1 | 4.2 | 4.7 | 2.9 | 3.0 | 2.7* |
| Involved in hiring | 4.9* | 4.7 | 4.2 | 4.1 | 3.5 | 3.6 | 3.0* |
| Not involved in hiring | 4.6 | 4.8 | 4.6 | 4.7 | 2.9 | 2.9 | 3.7 |
| Male | 5.4* | 4.5 | 4.9 | 3.9 | 3.5 | 3.1 | 2.7* |
| Female | 4.7 | 4.8* | 4.2 | 4.4 | 3.2* | 3.4 | 3.4* |
| 40 and under | 4.8* | 4.7* | 4.1 | 4.8* | 3.0* | 2.9* | 3.6 |
| Over 40 | 4.9* | 4.8* | 4.7* | 3.7 | 3.5 | 3.7 | 2.7* |

Ranked most important  Ranked least important

[z]Mean rank: from scale of 1 (most important) to 7 (least important)

[y]Total = all respondents

[x]Other = respondents from educational institutions, governmental institutions, public and private consulting firms, a retail garden center, health department, and a higher education institution

* $P \leq 0.05$ Friedman test. Total (N=73), non-profit (N=36), extension (N=13), Other (N=20), involve in hiring (N=49), not involved in hiring (N=24), male (N=18), female (N=55), under 40 (N=35), over 40 (N=38)

Table 8. Mean Ranking[z] of Posthoc Groups for the Descriptive Characteristics for Experiences Skills from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

| | Descriptive characteristics for Experiences Skills | | | | | | |
|---|---|---|---|---|---|---|---|
| **Posthoc groups** | **International experiences** | **Related work or internship experiences** | **Cross disciplinary experiences** | **Leadership experiences** | **Project management experiences** | **Teamwork experiences** | **Community engagement experiences** |
| Total[y] | 4.9* | 4.2 | 3.9 | 3.9 | 3.8 | 3.7* | 3.6* |
| Non-profit | 4.1 | 4.4 | 3.8 | 4.0 | 4.1 | 3.7 | 3.9 |
| Extension | 6.1* | 3.7 | 3.9 | 3.5* | 3.5* | 4.2 | 3.2* |
| Other[x] | 5.6* | 4.3 | 4.1 | 4.0 | 3.4* | 3.2* | 3.3* |
| Involved in hiring | 4.7 | 4.3 | 3.8 | 4.0 | 3.7 | 3.8 | 3.7 |
| Not involved in hiring | 5.3* | 4.1 | 4.0 | 3.6 | 4.0 | 3.5 | 3.4* |
| Male | 5.4 | 3.9 | 4.3 | 3.6 | 3.5 | 3.9 | 3.4 |
| Female | 4.7 | 4.3 | 3.7 | 4.0 | 4.0 | 3.6 | 3.7 |
| 40 and under | 4.4 | 4.5 | 3.9 | 3.9 | 3.9 | 3.6 | 3.9 |
| Over 40 | 5.5* | 4.0 | 3.9 | 3.9 | 3.8 | 3.7 | 3.3 |

Ranked most important  Ranked least important

[z]Mean rank: from scale of 1 (most important) to 7 (least important)

[y]Total = all respondents

[x]Other = respondents from educational institutions, governmental institutions, public and private consulting firms, a retail garden center, health department, and a higher education institution

* $P \leq 0.05$ Friedman test. Total (N=73), non-profit (N=36), extension (N=13), Other (N=20), involve in hiring (N=49), not involved in hiring (N=24), male (N=18), female (N=55), under 40 (N=35), over 40 (N=38)

Table 9. Mean Ranking[z] of Posthoc Groups for the Descriptive Characteristics for Decision Making/Problem Solving skills from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

| | **Descriptive characteristics for Decision Making/Problem Solving Skills** | | | | | | |
|---|---|---|---|---|---|---|---|
| **Posthoc groups** | **Think abstractly about problems** | **Creative and innovative solutions** | **Engage in lifelong learning** | **Transfer knowledge from one situation to another** | **Identify and analyze problems** | **Take effective and appropriate action** | **Realize the effect of decisions** |
| Total[y] | 4.1* | 3.4 | 3.8 | 4.8 | 3.8* | 4.1 | 3.9 |
| Non-profits | 4.6 | 4.2 | 4.2 | 3.9 | 3.4 | 3.9 | 3.8 |
| Extension | 5.0 | 4.6 | 4.1 | 4.1 | 3.9 | 3.3 | 3.0 |
| Other[x] | 5.4 | 3.0 | 4.0 | 4.8 | 3.8 | 4.4 | 2.6 |
| Involved in hiring | 5.2 | 3.9 | 3.9 | 4.4 | 3.5 | 3.7 | 3.4 |
| Not involved in hiring | 6.0 | 4.0 | 5.4 | 4.4 | 3.8 | 2.0 | 2.4 |
| Male | 5.2 | 4.4 | 5.2 | 5.2 | 2.6 | 2.2 | 3.2 |
| Female | 5.4* | 3.8 | 4.0 | 4.2 | 3.7 | 3.7 | 3.3* |
| 40 and under | 4.2 | 3.7 | 4.2 | 4.0 | 3.3 | 4.3 | 4.3 |
| Over 40 | 5.4* | 4.0 | 4.1 | 4.3 | 3.6* | 3.4* | 3.2* |

Ranked most important  Ranked least important

[z]Mean rank: from scale of 1 (most important) to 7 (least important)

[y]Total = all respondents

[x]Other = respondents from educational institutions, governmental institutions, public and private consulting firms, a retail garden center, health department, and a higher education institution

* P ≤ 0.05 Friedman test. Total (N=73), non-profit (N=36), extension (N=13), Other (N=20), involve in hiring (N=49), not involved in hiring (N=24), male (N=18), female (N=55), under 40 (N=35), over 40 (N=38)

Table 10. Mean Ranking[z] of Posthoc Groups for the Descriptive Characteristics for Professionalism Skills from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

| | Descriptive characteristics for Professionalism Skills | | | | | | |
|---|---|---|---|---|---|---|---|
| **Posthoc groups** | **Maintain appropriate decor and demeanor** | **Select appropriate mentor and acceptance of advice** | **Understand role in the workplace and realistic career expectations** | **Trustworthy with sensitive information** | **Accept and apply critique and direction in the workplace** | **Deal effectively with ambiguity** | **Effective relationships with customers, businesses and the public** |
| Total[y] | 4.8* | 4.5* | 3.8 | 4.1 | 3.9 | 3.7 | 3.2* |
| Non-profit | 4.2 | 4.1 | 3.7 | 4.5 | 4.0 | 3.9 | 3.6 |
| Extension | 4.8 | 5.5* | 3.7 | 3.1 | 4.6 | 4.2 | 2.1* |
| Other[x] | 5.9* | 4.6 | 3.8 | 3.9 | 3.2* | 3.2* | 3.2* |
| Involved with hiring | 4.6* | 4.3 | 4.1 | 4.2 | 3.8 | 3.8 | 3.1* |
| Not involved with hiring | 5.1 | 4.9 | 3.2 | 3.8 | 4.3 | 3.6 | 3.3 |
| Male | 5.0* | 4.6 | 4.9* | 4.0 | 4.1 | 3.0 | 2.4* |
| Female | 4.7* | 4.5 | 3.5 | 4.1 | 3.9 | 3.9 | 3.4* |
| Under 40 (including 40) | 5.0 | 4.4 | 3.7 | 4.2 | 3.6 | 3.8 | 3.4 |
| Over 40 | 4.7* | 4.8* | 3.9 | 4.0 | 4.2 | 3.7 | 2.8* |

Ranked most important  Ranked least important

[z]Mean rank: from scale of 1 (most important) to 7 (least important)

[y]Total = all respondents

[x]Other = respondents from educational institutions, governmental institutions, public and private consulting firms, a retail garden center, health department, and a higher education institution

* $P \leq 0.05$ Friedman test. Total (N=73), non-profit (N=36), extension (N=13), Other (N=20), involve in hiring (N=49), not involved in hiring (N=24), male (N=18), female (N=55), under 40 (N=35), over 40 (N=38)

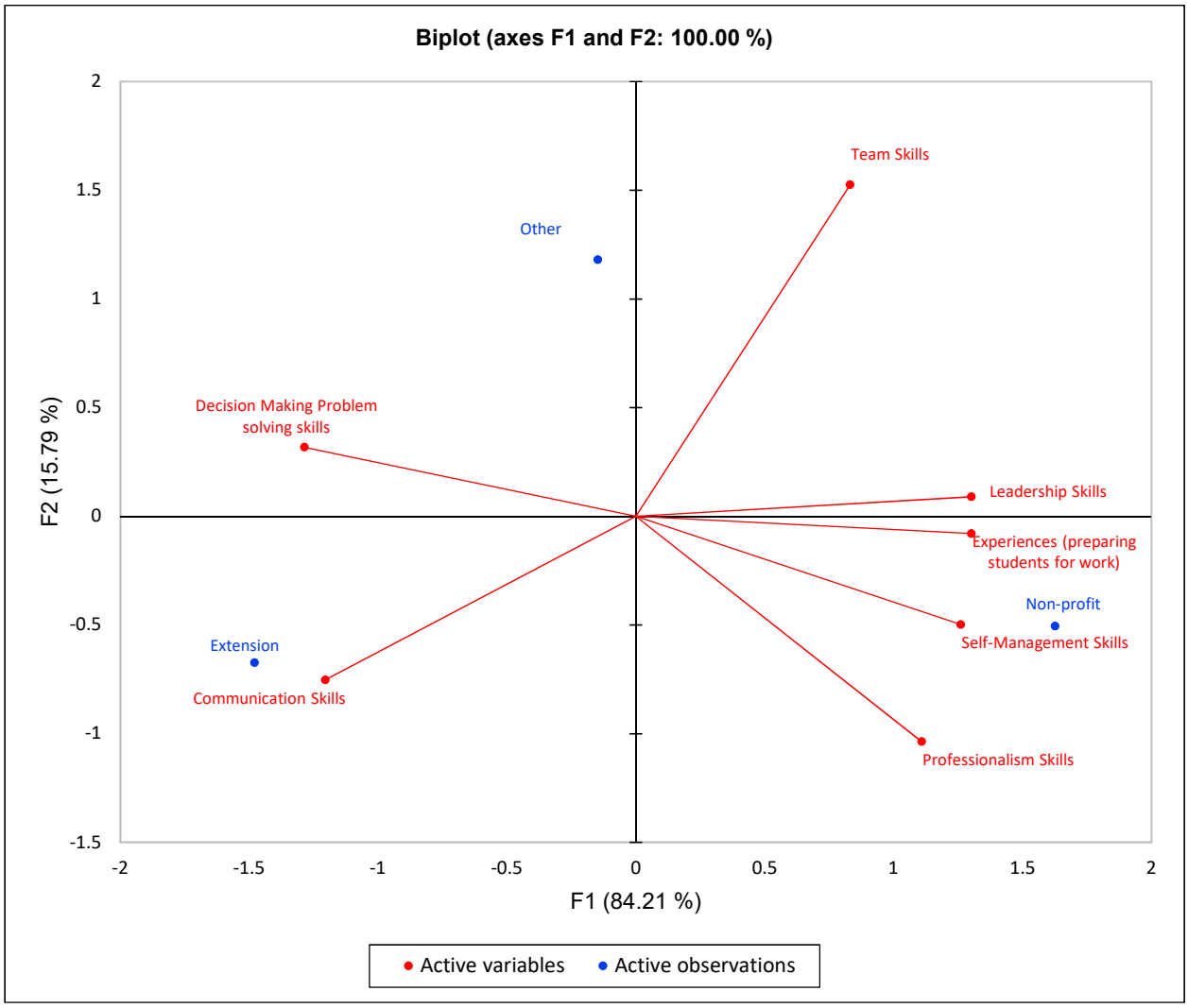


Figure 1. Principal Component Analysis (PCA) Test Results for Soft Skills and Targeted Groups from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

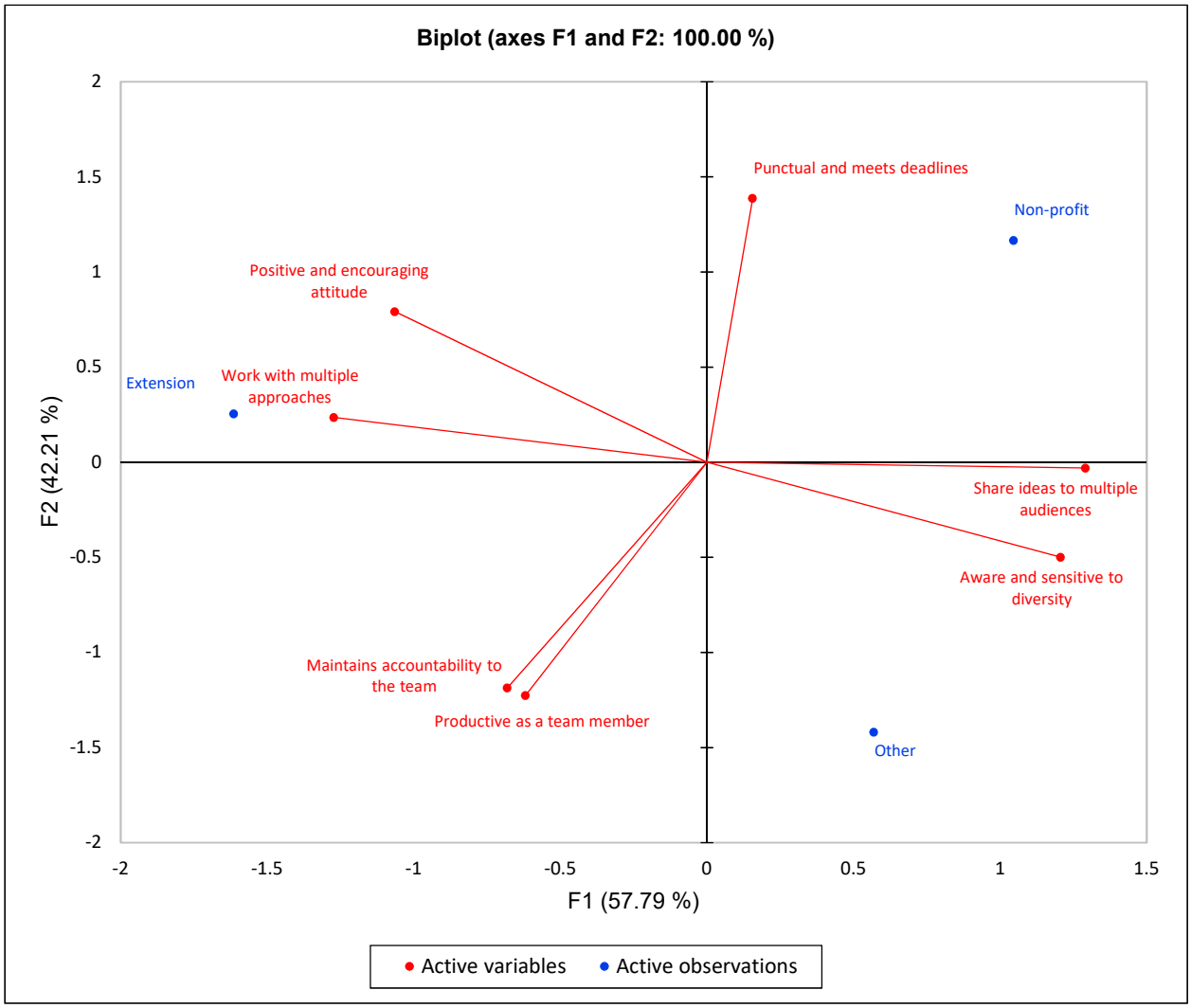


Figure 2. Principal Component Analysis (PCA) Test Results for Teamwork Skills and Targeted Groups from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

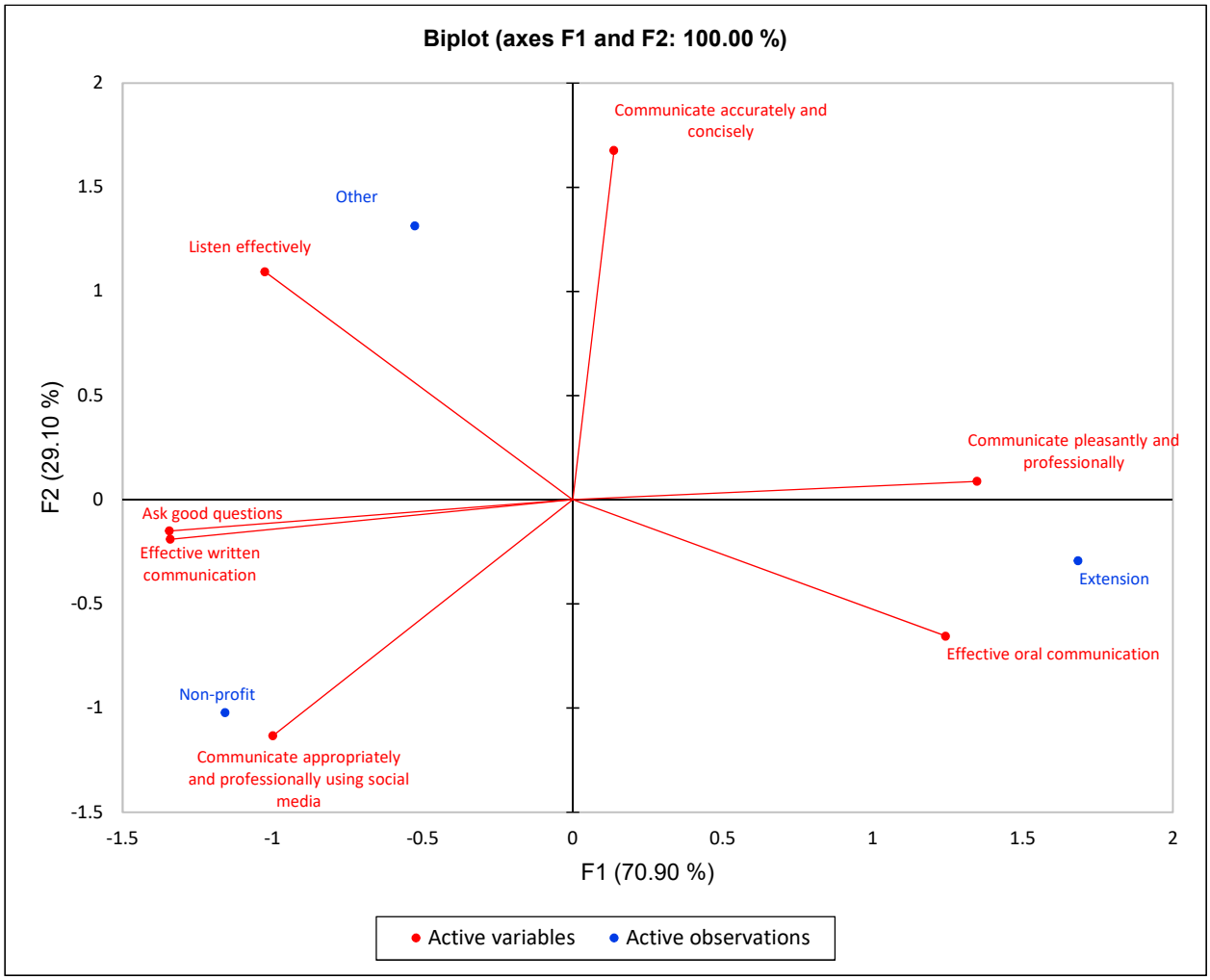


Figure 3. Principal Component Analysis (PCA) Test Results for Communication Skills and Targeted Groups from a Survey Targeted to Non-Profits, Farmers, and Extension Professionals Working in Urban Food Systems

# Chapter 4 - Conclusion

Food security and climate change along with an increasing population are the main factors pressuring the food system in general. This opens opportunities for urban food systems to become a blow-off valve to this pressure and a key player in the near future regarding feeding the increasing world population in a more sustainable way. Urban food systems professionals need not only technical skills but also soft skills that allow them to lead the transformation needed in our food system to face these challenges.

One of the only places we can obtain the soft skills set the industry is asking for, in a formal way, is during our academic life. This is the reason the Urban Food System program at Kansas State University was interested in gaining a better understanding of soft skills to insure graduates of this program have the skills to be successful professionals for the industry with a focus on non-profit organizations, extension, farmers, and other players in the area.

The results from the survey showed that communication skills and teamwork skills are the most important soft skills, and professionalism skills were considered least important. However, this does not mean the other soft skills are not important, it just means the industry indicated these two were critical. Results also showed that the most important soft skills varied by industry types, with different soft skills for the non-profit sector, extension sector, or others.

Regarding teamwork skills, Hughes & Jones (2011) report that they are needed by the majority if not all organizations today. They also postulate that developing teamwork skills should be included in higher education to prepare students for success in their endeavors, which coincides with the results of this study. Teamwork and communication repeatedly appear in the literature as two of the most wanted skills, at least in college graduates according to Hughes & Jones (2011). Hughes & Jones (2011) mentioned a survey conducted by Hart Research Associates on behalf of the Association of American Colleges and Universities (AACU) in 2009. In this survey, 71% of the 302 employers surveyed felt that colleges needed to increase their focus on teamwork skills, and 89% also felt the same for the ability to effectively communicate orally and in writing. Also, in a 2008 Conference Board report, mentioned in the same paper, effective

teamwork and collaboration were rated second in importance, just behind oral communication skills when talking about job success. In Crawford et al. (2011) study, communication skills was rank as most important from the seven soft skills evaluated. Hughes & Jones (2011) also conducted an institutional survey at the U.S. Air Force Academy in which again teamwork was considered as very important from the respondents. In addition, also mentioned by these authors, is from the LEAP National Leadership Council report, which came up with 11 essential learning outcomes for a 21st-century college education in which "written and oral communication" as well as "teamwork" were listed. Last, according to a survey of 900 executives, 92% of executives say soft skills are as important as or more important than technical skills and 89% struggle to find candidates with appropriate soft skills (Davidson, 2016). Therefore, the evidence supports the importance of soft skills and therefore the importance to incorporate them in higher education curriculum. This presents two questions: 1) How should they be incorporated into the curriculum and 2) How should they be evaluated?

Let's consider teamwork skills. When thinking informally about teamwork skills, the thoughts are often related to the results produced by the team and not the individual members of the team. Thus, can it be said that the individuals in a team with good results are good team players? We just need to check the evaluations that students give to their teammates to realize that sometimes there is at least one of the students that work more than the others, or vice versa, at least one that works less. So, the answer would be, not necessarily. Hughes & Jones (2011) state that teamwork is not the same as team success and defined teamwork as a set of skills that individuals use to foster the success of groups or teams. Following their definition, it is probably better to evaluate this soft skill individually. Similarly, communication skills, since it already seems like individual ability.

Assessing soft skills is as important as incorporating them into the curriculum since evaluation is a good way to realize how much the students are progressing in terms of the acquisition of soft skills. According to Miller (2001), it is possible to predict levels of individual performance by measuring task knowledge and task-related skills and abilities. This affirmation is supported by Schmidt, E. Hunter (1981, 1982) that found out in their meta-analysis a significant correlation between individual levels of knowledge, skills, and abilities (KSAs) and

performance evaluations. Hughes and Jones (2011) mentioned three methods for teamwork assessment: "Writing Teamwork Tests (WTT)", "Comprehensive Assessment of Team Member Effectiveness (CATME)", and "Valid Assessment of Learning in Undergraduate Education (VALUE)". Stevens & Campion (1994) developed a multi-choice, paper and pencil selection test for staffing work teams WTT method called teamwork test. This test is focused on teamwork knowledge which is evaluated by asking participants questions base on situations related to teamwork experiences. CATME was developed by Loughry, Ohland, and Moore in 2007 (Hughes & Jones, 2011). It consists of 87 items distributed into five factors: Contributing to the teamwork, interacting with teammates, keeping the team on track, expecting quality, and having relevant knowledge, skills, and abilities (Hughes & Jones, 2011). In this case rather than asking situational questions like in WTT, CATME asks students to chose a teammate of a past teamwork project and evaluate this teammate using the survey. VALUE is a scoring tool developed by The Association of American Colleges and Universities (AACU) (Hughes & Jones, 2011). AACU has a teamwork rubric that evaluates the performance of fives standards; contributes to team meetings, facilitates the contribution of team members, individual contributions outside of team meetings, foster constructive team climate, and respond to conflict (Hughes & Jones, 2011). Also, according to Hughes & Jones (2011), this method could be easily adapted to serve as guide for students enrolled in a specific course. The authors propose that this method if adapted could be used by students to evaluate other students, or by professors to evaluate individual students.

These are some methods that can be used to assess teamwork skills although higher education programs may need to define the methodology that best suits their desired outcomes. Crawford et al. (2011) study may also provide parameters to evaluate these soft skills. Since every soft skill has their own descriptors, these descriptors can be used as a rubric scale to give the students a score to each one at the beginning and at the end of a course designed to have soft skills as an outcome.

Overall, the results of this study give us a starting point for the future plans of renewing the Urban Food System curriculum at Kansas State University but also can serve as a guide for any other academic entity that wants to incorporate soft skills as part of their curriculum. To our

knowledge this is the first report that looks at soft skills related with urban food systems at a graduate level. Nonetheless, it is worth mentioning that the results exposed in this work cannot be extrapolated to other fields since the circumstances are specifically related to the urban food system field. Also, more research needs to be done to better understand the always changing and evolving nature of this area of study and the fact that the sample size was insufficient to get conclusions beyond the ones presented in this text.

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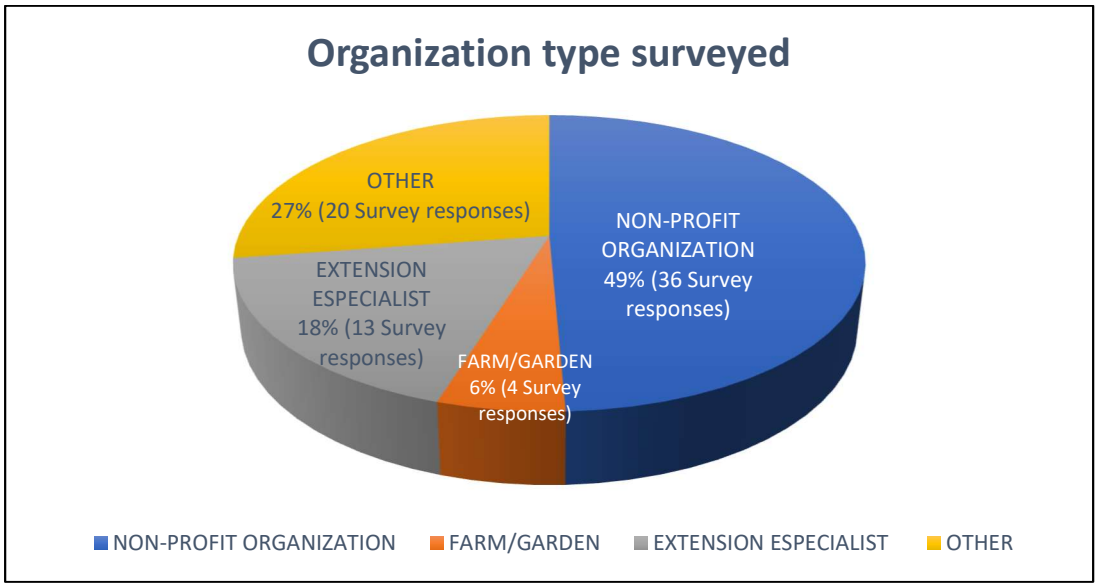
# Appendix A - Demographics

## 1. Number of responses by targeted group

| NON-PROFIT ORGANIZATION | FARM/GARDEN | EXTENSION PROFESSIONAL | OTHER |
|---|---|---|---|
| 36 | 4 | 13 | 20 |

## 2. Percentages and number of responses for each targeted group.



## 3. Map of the respondent's distribution and location.


## 4. Percentages and number of respondents by ethnicity

| **Participants Ethnicity Distribution** | Participants | Percentage |
|---|---|---|
| WHITE | 58 | 79 |
| HISPANIC/LATINO | 4 | 5 |
| BLACK/AFRICAN AMERICAN | 2 | 3 |
| NATIVE AMERICAN/AMERICAN INDIAN | 1 | 1 |
| ASIAN/PACIFIC ISLANDER | 3 | 4 |
| OTHER | 5 | 7 |

## 5. Percentages and number of respondents by level of education

| **Participants Education Distribution** | Participants | Percentage |
|---|---|---|
| Less than high school degree | 0 | 0 |
| High school graduate degree or equivalent (e.g GED) | 0 | 0 |
| Some college credit, no degree | 4 | 5 |
| Associate's degree | 4 | 5 |
| Master's degree | 38 | 52 |
| Professional degree | 6 | 8 |
| Doctorate degree | 11 | 15 |
| Other, please specify | 10 | 14 |

## 6. Percentages and number of respondents by gender

| **Participants gender distribution** | | |
|---|---|---|
| Male | 18 | 25 |
| Female | 55 | 75 |

## 7. Percentages and number of respondents whether the participant is part of the hiring process or not

| **Involve in Hiring Process** | | |
|---|---|---|
| Yes | 49 | 67 |
| No | 24 | 33 |

## 8. Percentages and number of respondents by age

| **Age** | | |
|---|---|---|
| Under 40 | 35 | 48 |
| Over 40 | 37 | 51 |
| No response | 1 | 1 |
| Average | Age | 43 |

## 9. Percentages and number of respondents whether there is a potential position for Urban Food Systems professionals or not

| **Is there a position in your Business/Institution** | | |
|---|---|---|
| Yes | 51 | 70 |
| No | 21 | 29 |
| No answer | 1 | 1 |

## 10. Percentages and number of respondents depending on their location

| **Business/Institution Location** | | |
|---|---|---|
| URBAN | 47 | 64 |
| PERIURBAN | 16 | 22 |
| RURAL | 6 | 8 |
| URBAN & PERIURBAN | 1 | 1 |
| ALL | 3 | 4 |

## 11. Percentages and number of respondents by business/institution market location

| **Business/Institution Market** | | |
|---|---|---|
| URBAN | 34 | 47 |
| PERIURBAN | 11 | 15 |
| RURAL | 1 | 1 |
| URBAN & PERIURBAN | 4 | 5 |
| ALL | 23 | 32 |

## 12. Percentages and number of respondents whether the participant is looking for soft skills for professionals they hire

| **Do you look for these soft skills in the people hired at your business/institution?** | | |
|---|---|---|
| Yes | 59 | 81 |
| No | 2 | 3 |
| No response | 12 | 16 |

## 3. Percentages and number of respondents by responsibility in teaching soft skills

| **Select the option that best represents who you feel is responsible for providing training in the soft skills.** | | |
|---|---|---|
| University | 7 | 10 |
| Share responsibility equally | 50 | 68 |
| Employer responsibility | 4 | 5 |
| No response | 12 | 16 |

## 4. Percentages and number of respondents to find out the source used to access the survey

| **How did you find about this survey?** | | |
|---|---|---|
| Comfood listserve | 9 | 12 |
| Urbanag listserve | 2 | 3 |
| ATTRA newsletter | 0 | 0 |
| North American Food Systems Network (NAFSN) | 4 | 5 |
| From a third person | 7 | 10 |
| Urban Food Systems Symposium website | 4 | 5 |
| Other | 10 | 14 |
| No response | 37 | 51 |

## 5. Percentages and number of respondents that allow or not to provide further information

| **Can we contact you for future information?** | | |
|---|---|---|
| Yes | 33 | 45 |
| No | 27 | 37 |
| No response | 13 | 18 |

# Appendix B - Survey

Note: When exporting the survey from Qualtrics to Word, some formatting customizations changed. To see the original version, please follow the link bellow: https://qsharing.az1.qualtrics.com/jfe/preview/SV_cXPxIcvCdSzUQUB?Q_SurveyVersionID=current&Q_CHL=preview


## *What skills are needed for professionals in the urban food system industry?*

Hello,

You are receiving this because you have been identified as someone working in the field of urban food systems. Through our Urban Food Systems program at Kansas State University we strive to provide quality experiential learning opportunities, meaningful research projects, and broad exposure to the urban food system industry. Thus, to ensure that our students are obtaining all the skills needed to be a professional in the urban food system industry we are asking for your help by completing a survey. The objective of the survey is to determine what soft skills are more important for professionals in the urban food systems industry (public, private, and nonprofit). We are seeking to answer the question: What soft skills are employers looking for in new graduates?

The survey will take about 10 minutes to complete. All of your responses will be completely confidential. We will not share your name or other information. They will only be used for research purposes.

This survey is voluntary, and you can stop the survey at any time.

Principal Investigators: Kenny Artavia-Rojas, M.S. Student, Department of Horticulture and Natural Resources. You can contact him at kennyar@ksu.edu or (785)317-4276. Dr. Candice Shoemaker, Professor and Department Head, Department of Horticulture and Natural Resources. You can contact her at cshoemak@ksu.edu or (785)532-6170.

The project has been approved by the Kansas State University Institutional Review Board – Human Subjects. Chair: Dr. Rick Scheidt, 203 Fairchild, KSU, Manhattan, KS 66506, (785)532-3224.

We appreciate the valuable information you will provide us.

Q2 **About you:**

We would like to learn a little bit about you to help us understand your perspective on core soft skills for an Urban Food Systems professional position.

**What is the name of your business/institution?** (Optional. We will not share this information with anyone. We are asking for research purposes only)

_____

Q3 **Please provide the zip code where your institution/business/company is located.**

_____

Q4 **The organization you represent is best described as a:**

- ○ Farm/Garden (1)
- ○ Non-profit organization (2)
- ○ Extension (3)
- ○ Other (please specify) (4) _____

Q5 **How would you describe where your business/company/institution is located:**

- ☐ Urban (1)
- ☐ Peri-urban (Defined by OECD as an area which is neither entirely urban nor purely rural; it is at most the partly urbanized rural area) (2)
- ☐ Rural (3)

Q6 **How would you describe the location of the market(s) you serve:** (select all that apply)

- ☐ Urban (1)
- ☐ Peri-urban (Defined by OECD as an area which is neither entirely urban nor purely rural; it is at most the partly urbanized rural area) (2)
- ☐ Rural (3)

Q7 **Are you involved in the hiring process for your business/institution?**

- ○ Yes (1)
- ○ No (2)

Q8 **What is your gender?**

- ○ Male (1)
- ○ Female (2)

Q9 **What is your age?**

_____

Q10 **Ethnicity origin (or Race):** (select all that apply)

- [ ] White (1)
- [ ] Hispanic or Latino (2)
- [ ] Black or African American (3)
- [ ] Native American or American Indian (4)
- [ ] Asian or Pacific Islander (5)
- [ ] Other (6)

Q11 **Education: What is the highest degree or level of school you have completed?** *If currently enrolled, highest degree received.*

- ○ Less than high school degree (1)
- ○ High school graduate degree or equivalent (e.g GED) (2)
- ○ Some college credit, no degree (3)
- ○ Associate's degree (5)
- ○ Master's degree (7)
- ○ Professional degree (8)
- ○ Doctorate degree (9)
- ○ Other, please specify (6) _____

Q12

A professional in Urban Food Systems is prepared for positions such as director/program manager in not-for-profit organizations, city governments, or extension programs in urban districts facilitating community gardens, urban farming, farmers markets, or farm-to-school programs.

**Is there a position in your business/institution for someone with a Master's degree in Urban**

**Food Systems?** (Optional. We will not share this information with anyone. We are asking for research purposes only)

- ○ Yes. what type of position(s) are they? (1)

  _____

- ○ No (2)

Q13 **Experiences** Rank the following experiences from most important (1) to least important (7) for an Urban Food Systems professional position. Remember, there should be only one mark per statement and column.

_____ International experiences (1)
_____ Teamwork experiences (2)
_____ Cross disciplinary experiences (3)
_____ Community engagement experiences (4)
_____ Leadership experiences (5)
_____ Related work or internship experiences (6)
_____ Project Management experiences (7)

Q14 **Team Skills** Rank the following experiences from most important (1) to least important (7) for an Urban Food Systems professional position. Remember, there should be only one mark per statement and column.

_____ Punctual and meet deadlines (1)

_____ Productive as team member (2)

_____ Maintains accountability to the team (3)

_____ Work with multiple approaches (4)

_____ Positive and encouraging attitude (5)

_____ Share ideas to multiple audiences (6)

_____ Aware and sensitive to diversity (7)

Q15 **Communications Skills** Rank the following experiences from most important (1) to least important (7) for an Urban Food Systems professional position. Remember, there should be only one mark per statement and column.

_____ Effective written communication (1)

_____ Communicate pleasantly and professionally (2)

_____ Communicate accurately and concisely (3)

_____ Communicate appropriately and professionally using social media (4)

_____ Effective oral communication (5)

_____ Listen effectively (6)

_____ Ask good questions (7)

Q16 **Leadership Skills** Rank the following experiences from most important (1) to least important (7) for an Urban Food Systems professional position. Remember, there should be only one mark per statement and column.

_____ Motivate and lead others (1)

_____ Recognize when to lead and when to follow (2)

_____ See the "big picture" and think strategically (3)

_____ Respect and acknowledge contributions from others (4)

_____ Recognize change is needed and lead the change effort (5)

_____ Recognize and deal constructively with conflict (6)

_____ Build professional relationships (7)

Q17 **Decision Making - Problem Solving Skills** Rank the following experiences from most important (1) to least important (7) for an Urban Food Systems professional position. Remember, there should be only one mark per statement and column.

_____ Take effective and appropriate action (1)

_____ Engage in lifelong learning (2)

_____ Transfer knowledge from one situation to another (3)

_____ Realize the effect of decisions (4)

_____ Think abstractly about problems (5)

_____ Creative and innovative solutions (6)

_____ Identify and analyze problems (7)

Q18 Self-Management Skills Rank the following experiences from most important (1) to least important (7) for an Urban Food Systems professional position. Remember, there should be only one mark per statement and column.

_____ Efficient and effective work habits (1)

_____ Adapt and apply appropriate technology (2)

_____ Self-starting (3)

_____ Dedication to continued professional development (4)

_____ Work well under pressure (5)

_____ Sense of urgency to address and complete tasks (6)

_____ Well-developed ethic, integrity and sense of loyalty (7)

Q19 **Professionalism Skills** Rank the following experiences from most important (1) to least important (7) for an Urban Food Systems professional position. Remember, there should be only one mark per statement and column.

_____ Understand role in the workplace and realistic career expectations (1)

_____ Deal effectively with ambiguity (2)

_____ Select appropriate mentor and acceptance of advice (3)

_____ Maintain appropriate decor and demeanor (4)

_____ Effective relationships with customers, businesses and the public (5)

_____ Accept and apply critique and direction in the work place (6)

_____ Trustworthy with sensitive information (7)

Q20 **Core Skill Sets** Rank the following experiences from most important (1) to least important (7) for an Urban Food Systems professional position. Remember, there should be only one mark per statement and column.

_____ Team Skills (1)
_____ Leadership Skills (2)
_____ Communication Skills (3)
_____ Professionalism Skills (4)
_____ Decision Making/Problem Solving Skills (5)
_____ Self-Management Skills (6)
_____ Experiences (preparing students for work) (7)

Q21 **And finally, the last few questions.** Do you look for these soft skills in the people hired at your business/institution?

- ○ Yes (1)
- ○ No (2)

Q22 Select the option that best represents who you feel is responsible for providing training in the soft skills.

- ○ University (1)
- ○ Share responsibility equally (2)
- ○ Employer responsibility (3)

Q30 How did you find about this survey?

- ○ Comfood listserve (1)
- ○ Urbanag listserve (2)
- ○ ATTRA newsletter (3)
- ○ North American Food Systems Network (NAFSN) (4)
- ○ From a third person (5)
- ○ Urban Food Systems Symposium website (6)
- ○ Other (7) _____

Q23 Can we contact you for future information?

- ○ No (1)
- ○ Yes, please provide your contact information (2)

_____

Q24 **Thank you for taking the time to participate in this study!**

End of Block: Default Question Block

# Appendix C - PCA's

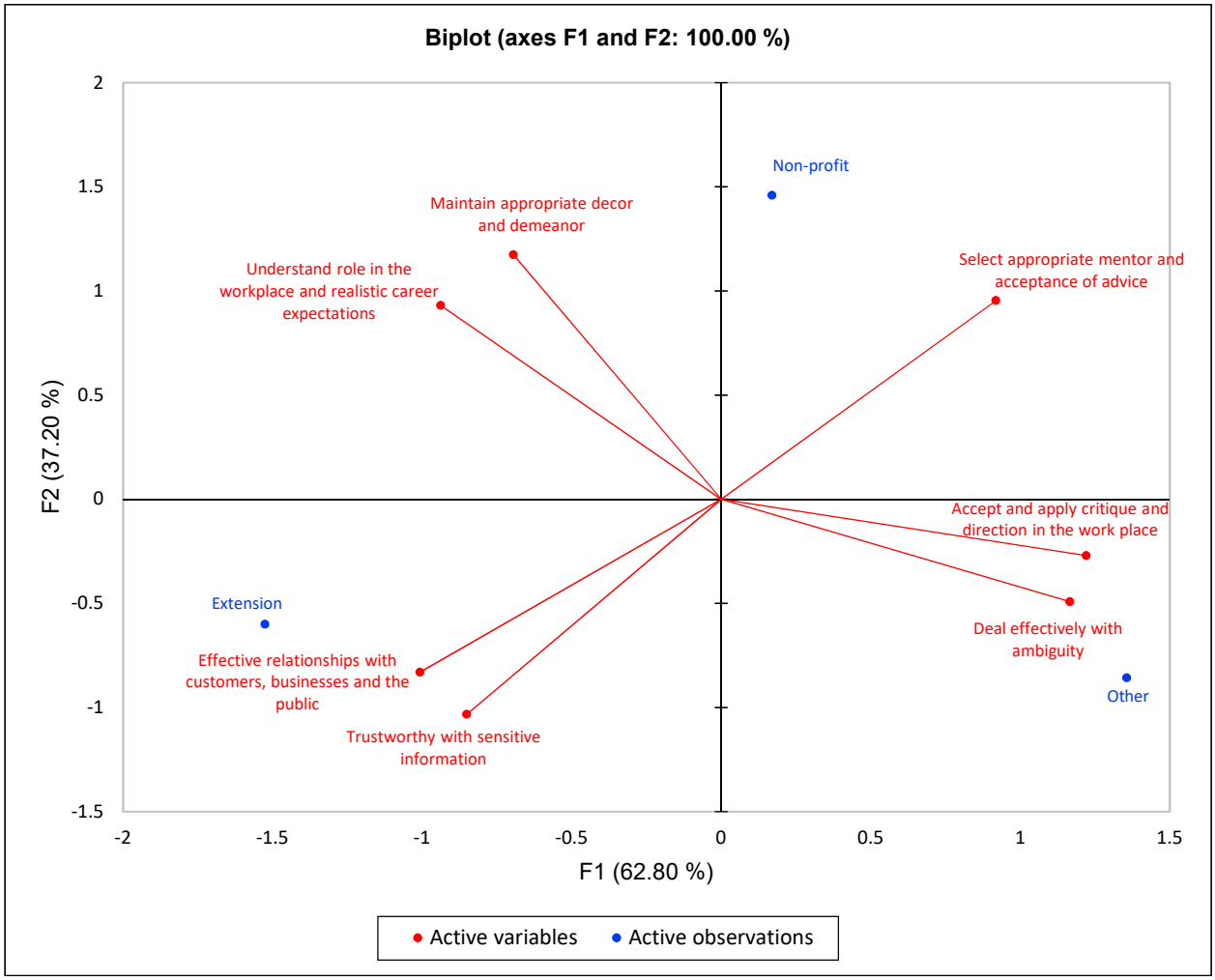



**Figure 4: Principal Component Analysis (PCA) test results: Professionalism Skills - Targeted groups**

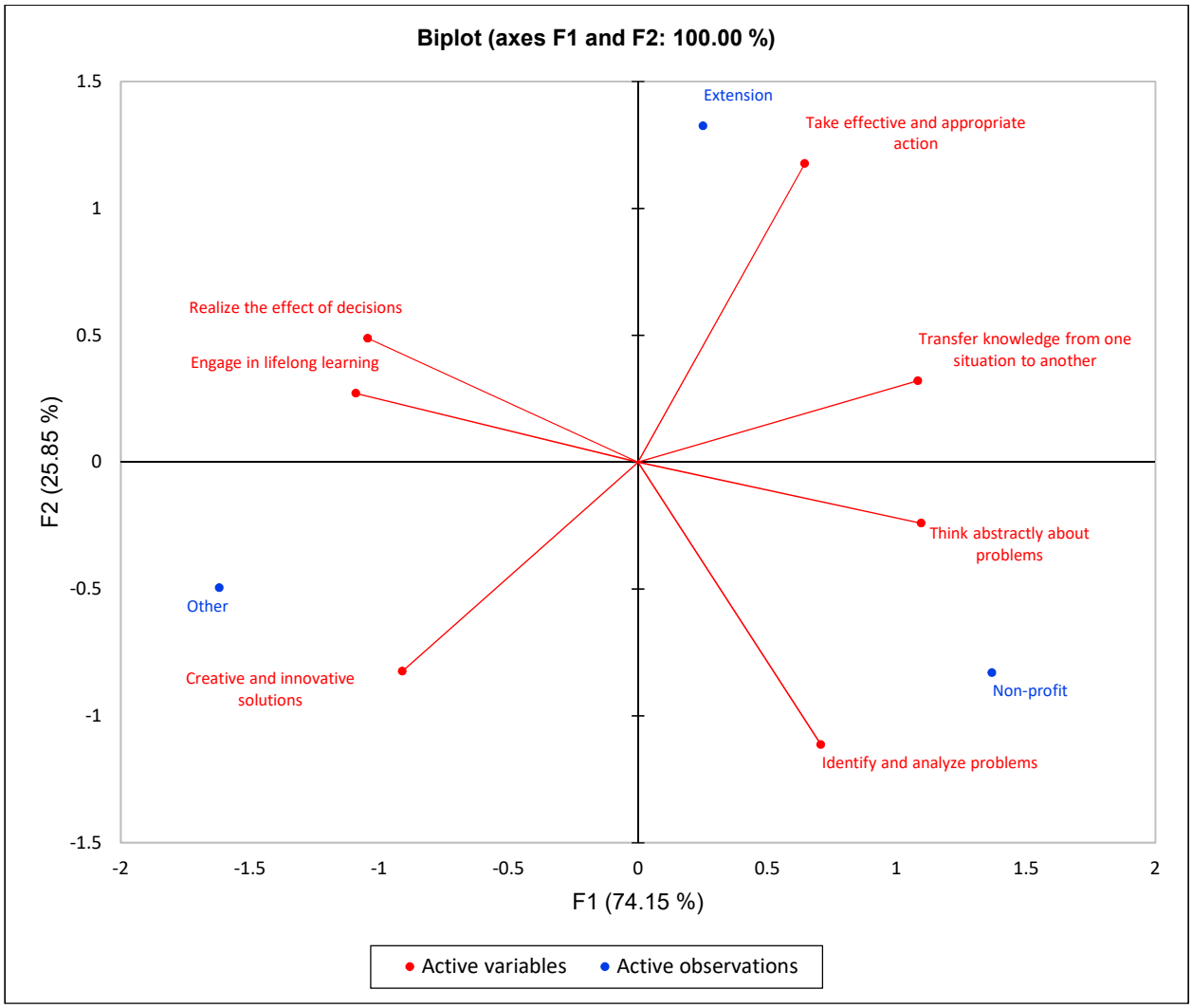



**Figure 5: Principal Component Analysis (PCA) test results: Decision Making/Problem Solving Skills**

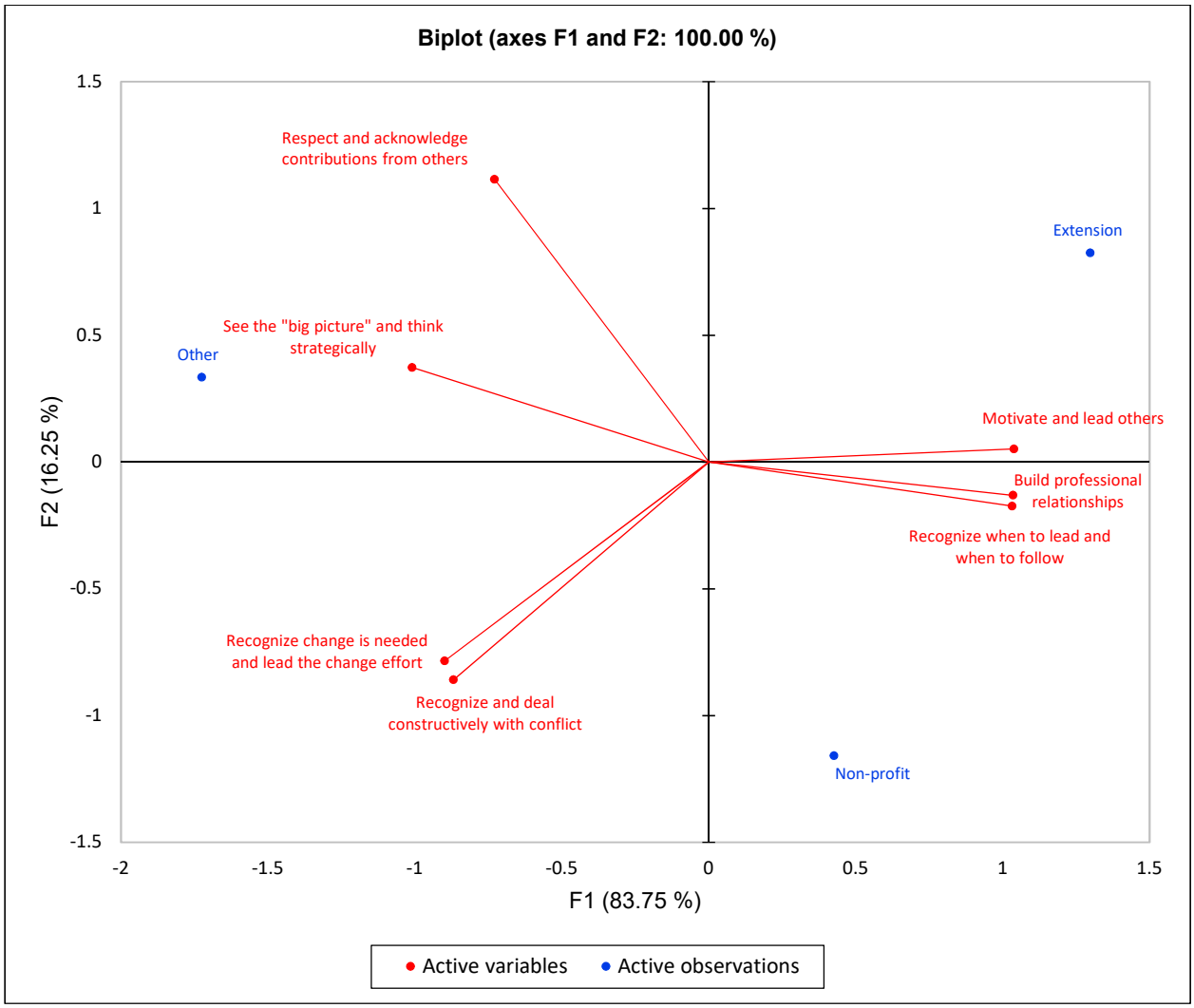



**Figure 6: Principal Component Analysis (PCA) test results: Leadership Skills**