

3-15-2021

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Recommended Citation

Cameron, E. C., Mulvaney, C. R., Harlow, E., Silvasy, T., Duncan, L., Janney, H., Corbett, H., Hunter, M., Marek, A., & Bailey, M. (2021). Planting Seeds of Victory: Creating Shared Meaning while Gardening amidst a Pandemic. *Journal of International Agricultural and Extension Education*, 28(2), 14-23. DOI: <https://doi.org/10.5191/jiaee.2021.28202>

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Abstract

The Victory2020 Garden Community Program was established by faculty members within the University of Florida (UF), Institute of Food and Agricultural Sciences (IFAS) in Marion and Columbia County Extension offices. In response to COVID-19, the purpose of the program was to provide online-mediated programs that could be completed at the desired pace of the participants, while promoting a self-reliant, science-based approach to learning about home food production through gardening. Due to food insecurity rates in both Marion (14.4%) and Columbia (15.2%) counties ranking above the statewide average in Florida, an immediate need to provide educational resources on becoming self-sufficient in growing one's own food became increasingly important due to nationwide supply-chain shortages (Feeding America, 2020). 2,548 participants representing 43 states and six countries were provided access to eight learning modules hosted by Canvas, an online tool through UF. Participants were provided a package of free seeds, including corn, squash, cucumber, and cowpea to plant their Victory2020 Garden. A purposeful online community was established by extension agents in Marion and Columbia counties to facilitate quality discussion and growth, culminating in over 225,000 total impressions. The findings of the program revealed that 88% of gardening households began eating more fruits and vegetables while 73% are embracing new food safety techniques in both the garden and kitchen. Primary investigators and co-pi's recommend an implementation of a program timeline to benefit the participants through diverse, online learning options. Continued programming addressing mental health, nutrition, and gardening is recommended across extension programs nationally

Keywords

Extension education;pandemic; Victory Garden; holistic wellness;social connection

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doi: 10.5191/jiaee.2021.28202

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The Victory2020 Garden Community Program was established by faculty members within the University of Florida (UF), Institute of Food and Agricultural Sciences (IFAS) in Marion and Columbia County Extension offices. In response to COVID-19, the purpose of the program was to provide online-mediated programs that could be completed at the desired pace of the participants, while promoting a self-reliant, science-based approach to learning about home food production through gardening. Due to food insecurity rates in both Marion (14.4%) and Columbia (15.2%) counties ranking above the statewide average in Florida, an immediate need to provide educational resources on becoming self-sufficient in growing one's own food became increasingly important due to nationwide supply-chain shortages (Feeding America, 2020). 2,548 participants representing 43 states and six countries were provided access to eight learning modules hosted by Canvas, an online tool through UF. Participants were provided a package of free seeds, including corn, squash, cucumber, and cowpea to plant their Victory2020 Garden. A purposeful online community was established by extension agents in Marion and Columbia counties to facilitate quality discussion and growth, culminating in over 225,000 total impressions. The findings of the program revealed that 88% of gardening households began eating more fruits and vegetables while 73% are embracing new food safety techniques in both the garden and kitchen. Primary investigators and co-pi's recommend an implementation of a program timeline to benefit the participants through diverse, online learning options. Continued programming addressing mental health, nutrition, and gardening is recommended across extension programs nationally.

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Introduction

On January 30th, 2020 the World Health Organization declared a Public Health Emergency of International Concern, the WHO's highest level of alarm, due to the outbreak of the novel coronavirus, known as SARS-CoV-2, in Wuhan, China (World Health Organization, 2020a). Ten days earlier, the first confirmed case of the novel coronavirus was reported in the United States in a 35-year-old male who had returned from visiting Wuhan, China (Holshue et al., 2020). The World Health Organization declared the COVID-19 outbreak as a pandemic, a worldwide spread of a new disease, on March 11, 2020 (World Health Organization, 2020; World Health Organization, 2020b). Shortly after, the United States declared a public health emergency by suspending entry to certain foreign nationals and issuing Federal quarantines for individuals evacuating from specific nations (Trump, 2020). Individual states quickly started declaring states of emergency and taking precautions to keep residents safe as did Florida on April 3rd, 2020 when the state entered into a safer at home order until April 30th, 2020 allowing only essential employees to report to work (Executive Order 20-91, 2020). However, this was not the first time our world has faced a pandemic (Qiu et al., 2016).

Social distancing is one of the most important strategies for decreasing spread of the virus (Venkatesh & Edirappuli, 2020). However, connection is a human instinct and when people are forced to distance themselves from each other, feelings of loneliness can occur (Baumeister & Leary, 1995). Additionally, social isolation can produce stress which can lead to detrimental consequences on cardiovascular, immune, and mental health (Haslam et al., 2018; Hawkey & Cacioppo, 2010). Social scientists in China found a higher rate of

depression, anxiety, and a combination of the two during the COVID-19 outbreak (Gao et al., 2020), which aligned with public health concerns amidst previous public health emergencies or crises such as Earthquakes (Xie et al., 2014), Ebola (Ji et al., 2017), and SARS (Mak et al., 2009) implying governments need to pay more attention to the holistic health of individuals during emergencies.

Furthermore, the Cooperative Extension System addresses needs and provides solutions to current issues facing citizens at a local level by acting as liaisons of information between research and the public (Borron et al., 2019; Holt et al., 2019). This purpose coincides with authors such as (Davis et al., 2018) who suggest that the ethos of extension is to provide relevant solutions to current and ongoing situations or phenomenon's (Cartwright et al., 2002). Historically, extension agents are on the front line of current events around the world and strive to serve the public as communication liaisons delivering science-based information to improve the lives of the public (Holt et al., 2019). Strauss & Howe (1997) express that during times of nationwide crisis, such as the Great Depression or World War II, the scope of what Cooperative Extension's outreach to local communities consisted of was defined.

During World War I, the United States was burdened with feeding soldiers fighting overseas and the National War Garden Commission was organized encouraging Americans to do their part for the war by planting, harvesting, and storing their own vegetables (Pack, 1919). Clubs organized by the Extension Service involved more than 15,000 children and were responsible that "gardens sprang up everywhere as if by magic – in the backyards, by the railroad tracks, in the cotton patches and in the new ground"

(Kilgore, 1917, p. 9). By 1918, 1,500,000 children responded to the call of President Woodrow Wilson that gardening should become an integral part of schooling and joined the U.S. School Garden Army (Francis, 1919). Extension Agents were needed to teach gardening and between 1917 and 1918, the number of agents in the U.S. went from 2,200 to 6,000 with the USDA requesting their time be spent instructing gardens (Hayden-Smith, 2006; Francis, 1919).

In situations of crisis, extension agents that typically operate in programmatic silos, are called to find the greatest solutions that exist between the silos of their individual programs (Cartwright et al., 2002). In early 2020, when Extension Agents in Florida saw the same sort of needs: people beginning to homestead and families and individuals in isolation at their homes, they decided to serve the population through something that had previously worked in our nation while “providing rapid response in regard to disasters and emergencies” (USDA-NIFA, 2018, para. 6). Food will win the war was a phrase commonly spoken amidst the first World War in 1914 and the Spanish Flu in 1918, in an effort to help the public understand the role food played in either winning a war or fighting a pandemic (Schaub, 1914; Richard, 1918). As an effort to help with food insecurities and holistic wellbeing during the COVID-19 Pandemic, extension Agents developed the Victory2020 Garden Community to endure the pandemic.

Conceptual Framework

The use of social constructivism as the theoretical framework allowed for an environment of co-creation of meaning and understanding to be established. The Victory2020 Garden Community was guided by social constructivism in order to best determine the various factors that

shaped participants views of gardening amidst a global pandemic (Kim, 2001). In order to transcend social and cultural influence, co-creation of meaning was examined through diverse learning platforms hosted by UF and IFAS.

Furthermore, social constructivism supports the understanding of competencies and related social behaviors that are created through experiences and interactions in an online setting (Fevre et al., 1999). As Stetsenko and Ariecitch (1997) note, “taking an active stance in co-constructing,” leads to methods of guided formation that through discourse, can provide a developed self and more enhanced views of the world. Therefore, examining the social structures and virtual, cultural systems that are constructed as a result of being placed in new situations across different time periods needed examination in connection to how new knowledge is constructed (Linell, 1998). Understanding how behaviors of our participants in virtual programming lead to new forms of knowledge and the empowerment of beneficiaries were necessary features in the success of the program.

Through inserting qualitative themes within our purpose and objectives, we were able to pursue what Carl Moustakas refers to as the “thing as a whole.” By using social constructivism as the guiding framework, the ability to describe, perceive, and imagine were common thread’s in observing the experience of participants involved in the Victory2020 Garden Community (Moustakas, 1994). Therefore, observing forms of shared meaning, acknowledging the self-perceived value of the program from each participant were essential to the basis of the program design and evaluation.

Purpose & Objectives

With the onset of COVID-19 both in the United States and worldwide, it was evident that families desired to utilize home gardens to become more self-reliant, like Victory Garden efforts seen during World War II. The difference being many individuals had little to no gardening experience. Extension plays an active role in community education; the onset of a pandemic created an environment where garden knowledge would be utilized immediately. The research objectives for the Victory2020 Garden program were to:

- (a) increase participants knowledge of gardening and home food production techniques;
- (b) build social connections and cultivate an online community; and
- (c) improve participants well-being in their daily lives.

Methods

A working group of twelve University of Florida extension agents was formed to deliver education and online experiences for the Victory2020 Garden Community. As the COVID-19 pandemic restricted traditional program delivery, the program was executed in two phases.

Phase 1: Pre-Assessment and Access to Online Learning Tools

Phase one consisted of the creation of a pre-assessment using a Qualtrics survey to establish an understanding of the gardening and food production competencies of the Victory2020 Garden Community participants. Questions were aligned to capture demographic data while being open ended and qualitative in nature. In an effort to remain unbiased and open to all interested in participating, the working group of extension agents did not place any constraints or limitations on the selection of or number of participants. The study is

limited in the collection of data from the pre-assessment that was a preliminary requirement for participants to complete. However, from the pre-assessment, we observed that 1,624 participants had never seriously gardened prior to signing up for the online program. Using the newfound knowledge to guide our efforts, phase one additionally provided participants with access to an eight module, tech-mediated learning platform hosted by Canvas, an educational classroom that uses informal and formal learning at the participants' respective pace. Lastly, 2,548 participants were sent free vegetable seeds to plant their Victory2020 Garden. The vegetable seeds mailed to each registered participant included corn, cowpeas, cucumber and squash and were sent directly to participants home after registration in the program.

Phase 2: Social Media and Tech-Mediated Learning

The second phase sought to capture the public perception and shared meaning being created through an online community of over 1,400 registered Victory2020 Garden participants via access to a private Facebook group. Zoom webinars and YouTube videos were produced and shared within the Facebook group to compliment the informal learning for participants. Social media supports the capturing of unfiltered information in an unprompted manner, allowing responses to posts, shared items, and helpful resources to reveal the varying levels of self-perceived value the Victory2020 Garden Community provided (Connolly et al., 2016). Phase two included a Qualtrics survey that was assessed retrospectively to evaluate knowledge gain, community connection, and well-being of the participants. A five-point Likert scale ranging from strongly agree to strongly disagree was used to accurately inform knowledge gain and behavior change that

aligns with the efforts made in programmatic design, further establishing validity and comparable reliability (Gay et al., 2015). Furthermore, the use of a mixed methods post-assessment enabled the team of researchers to review significance in areas of feedback from the participants. The program design also included the use of evaluating open ended questions to collect qualitative comments from respondents, while comparing the quantity of produce grown. The team of twelve extension agents participated as nonparticipants or observers, watching and recording points of data from a distance (Creswell & Poth, 2016). Findings were analyzed by qualitatively coding responses from participants and categorizing our findings into themes (Creswell & Poth, 2016). Generating themes enabled the researchers to assess qualitative input while relying on standard deviation of quantitative questions to formulate the results below.

Results

Victory2020 Garden survey respondents (n=285) reported an increase of gardening knowledge (88%), they reported their household eating more fruits and vegetables (73%) and are using food safety techniques in the garden and kitchen (82%). For 1,624 participants, this was their first 'serious experience' with gardening and growing food at home. The seeds provided to participants helped them establish the confidence to start their home gardens. The 22 online educational Zoom webinars, eight Canvas modules and private Facebook group provided participants with the knowledge to get their garden started. As one respondent noted, "This program gave me the confidence to try starting a garden and growing food." While some gardens struggled to produce, others reported harvesting pounds of vegetables. Over 40 vegetable and fruit crops were recorded as

grown to harvest on our survey with a total of more than 3,000 pounds of food grown from respondents. Participants also indicated they shared the knowledge with an average of 34 people, which included their family, neighbors, and social media sites. The total reach of people impacted by the program is estimated at 225,000. This includes the number of people per household and number of people they shared the information with. With 98% of participants indicating an interest in gardening in the future, the impacts of the Victory2020 Garden Community will be long-lasting.

Results showed the Victory2020 Garden Community private Facebook group was the most frequently used online platform to make new connections and expand existing social networks. Study participants also emphasized how much they enjoyed connection with the Facebook group. One respondent noted, *"I loved hearing the experiences of other gardeners. I have truly felt like I have a new community."* The Facebook group reached over 50,000 in a six-month period and had over 4,000 engagements monthly. Participants shared photos, gardening advice, and sent each other seeds with the oversight of extension agents ensuring the correct information was given. According to the study participants, they had positive impacts on social, emotional and overall well-being. Participants reported their mental health improved (76%), their physical activity level improved (80%), saved money on fresh fruits and vegetables (57%), and reduced their stress level during COVID (79%).

Conclusions

With this international intergenerational program, extension agent efforts reached over 225,000 individuals and families to create community and experiences that covered a range of subjects including gardening, well-being, food safety, history, and careers. Using non-traditional educational methods allowed participants a chance to learn from each other and have a space they felt comfortable asking questions. There are even more undocumented results such as spontaneous seed shares with other Facebook page members and increased awareness of the science-based resources and expertise of the University of Florida extension program. This cross-programmatic collaboration allowed agents to provide a holistic program that enhanced participants physical, mental and social well-being. Participants utilized the Victory2020 Garden Community to find a sense of belonging during the isolation of the pandemic, learn home food production and keep some peace of mind.

Recommendations

Lack of definitive controls for COVID-19 implies that the current state of crisis and specialized protocols will continue beyond the foreseeable future. Due to financial instability in the world, this type of program can help meet the needs of those with food insecurities. Advance implementation timeline for a more proactive program that benefits the participants by possibly increasing yields and agents by allowing diversification of program administration. Furthermore, increased evaluation parameters to establish a mixed-methods approach enhancing the rigor and credibility of the program is needed for international and domestic audiences (Lamm & Lamm, 2018). Continued programming addressing mental health, financial health, nutrition, and

gardening is recommended across extension nationally.

Implications

As the world experiences an ongoing battle to fight global food insecurity, there is an overwhelming need for programs, such as the Victory2020 Garden Community to assist food banks, farmers, and extension efforts across the world in equipping and informing the general public on topics ranging from food education, food safety, and becoming self-sufficient in growing one's own food during times of crises (Carroll et al., 2020). Many projections show that anywhere from 90-150 million households will fall into poverty due to COVID-19 related restrictions, with many of those households spending over 70% of their income on food related costs (Laborde et al., 2020). To further address the issue of food insecurity, specific actions need to be taken to prevent and prepare for times of crisis at the local level by investing in the time and resources made available for municipalities in order to communicate with the public on the importance of food education (Paslakis et al., 2020). Further proving the efficacy of community-based programming, such as the feedback received from participants in the Victory2020 Garden Community who reported an overall level of reduced stress, increased consumption of vegetables, gained knowledge and experience growing food leading to greater food security, reported better health (sense of wellness), and potential for life-long benefits of a healthy life (Van Den Berg & Custers, 2010).

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