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Abstract

Women in developing countries, especially in Sub Saharan Africa (SSA), play a critical role in ensuring food security and sovereignty for their families and nations. Unfortunately, in spite of this, their significance in the agricultural sector is seldom fully appreciated. Further, very few women in SSA are professionally trained agriculturists (Beintema & Di Marcantonio, 2009; Kanté, Edwards, & Blackwell, 2013), which has likely contributed to their low productivity per hectare in the agricultural sector compared to their male counterparts (O'Sullivan, Rao, Banerjee, Gulati, & Vinez, 2014). This study investigated the experiences of young, aspiring female agriculturists from Uganda who were members of Young Farmers' Clubs (YFC) at high school to understand better how their club experiences may have impacted their career choices. Findings indicate the participants' YFC activities, especially supervised agripreneurship projects (SAPs) and field trips, had transformative impacts on their choosing to study agriculture. However, gender stereotypes associated with females pursuing agricultural careers were still prevalent and discouraged them from becoming professional agriculturists. More research should be conducted about the impact of subjective norms (Ajzen, 1991) on females preparing to pursue careers in agriculture

Keywords

careers, female agriculturists, Sub-Saharan Africa, Young Farmers' Clubs

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**Increasing Female Enrollment for Agricultural Programs of Study in Sub-Saharan Africa:
What Motivates Women to Pursue Careers in Agriculture?**

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Abstract

Women in developing countries, especially in Sub Saharan Africa (SSA), play a critical role in ensuring food security and sovereignty for their families and nations. Unfortunately, in spite of this, their significance in the agricultural sector is seldom fully appreciated. Further, very few women in SSA are professionally trained agriculturists (Beintema & Di Marcantonio, 2009; Kanté, Edwards, & Blackwell, 2013), which has likely contributed to their low productivity per hectare in the agricultural sector compared to their male counterparts (O'Sullivan, Rao, Banerjee, Gulati, & Vinez, 2014). This study investigated the experiences of young, aspiring female agriculturists from Uganda who were members of Young Farmers' Clubs (YFC) at high school to understand better how their club experiences may have impacted their career choices. Findings indicate the participants' YFC activities, especially supervised agriprenueurship projects (SAPs) and field trips, had transformative impacts on their choosing to study agriculture. However, gender stereotypes associated with females pursuing agricultural careers were still prevalent and discouraged them from becoming professional agriculturists. More research should be conducted about the impact of subjective norms (Ajzen, 1991) on females preparing to pursue careers in agriculture.

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Introduction and Background

Some reports indicate females in Africa constitute 60% to 80% of the agricultural labor force (Beintema & Di Marcantonio, 2009; Ben-Ari, 2014) and contribute nearly 80% of the overall food production (Ajambo & Synnevåg 2011; Ben-Ari, 2014). These estimates, however, are disputed by other sources, especially in regard to Sub-Saharan Africa (SSA) for which reports indicate females constitute approximately 45% to 50% of the agricultural labor force (Food and Agriculture Organization [FAO], 2011; Mehra & Rojas, 2008; O'Sullivan, Rao, Banerjee, Gulati, & Vinez, 2014; Palacios-Lopez, Christiaensen, & Kilic, 2015; The World Bank, 2016). This discrepancy notwithstanding, the output per hectare of females is lower compared to their male counterparts (O'Sullivan et al., 2014).

Further, researchers (Beintema, 2006; Kruijssen, 2009) have reported low enrollment of females studying agriculture at the post-secondary level. For example, Kruijssen (2009) indicated only one-fourth of the students enrolled in agriculturally related courses at the post-secondary level in SSA were female. In regard to agricultural researchers, Beintema (2006) posited only 20% of the scientists in most agricultural research organizations in developing countries were women. The low enrollment coupled with a high attrition rate (Beintema, 2006) has resulted in a shortage of female professional agriculturists in SSA (Beintema & Di Marcantonio, 2009; Kanté, Edwards, & Blackwell, 2013).

According to Kathleen Lay, “[i]nvesting in women’s economic empowerment is a high-yield investment, with multiplier effects on productivity, efficiency and inclusive growth for the [African] continent” (as cited in Ben-Ari, 2014, p. 25). Lay further contended: “The African farmer is primarily a woman farmer.

And she is a good farmer who can feed her family and her continent if she is given the tools and the opportunities to do so” (as cited in Ben-Ari, 2014, p. 25). To that aim, empowering females to pursue agricultural careers in SSA could be an efficient and effective way to improve food security and family livelihoods because women are more likely to expend resources on their families than men (FAO, 2014).

Moreover, “[e]very woman in agriculture that a young girl meets in her formative years, whether she is a farm manager, extensionist, or science teacher, is a *model for the future profession that she will choose* [emphasis in original]” (The World Bank, 2009, p. 262). Efforts to encourage girls to enroll in science-based subjects at the elementary and high school levels, such as agriculture, may go a long way to ensuring more females pursue science-based programs of study, including courses related to food production, during their tertiary education (The World Bank, 2009). Such an approach is likely to increase the number of professional female agriculturists, which may ultimately increase food security and economic empowerment in communities leading to improved livelihoods (Ashby et al., 2009). However, [i]f the professional women in agriculture are not visible in newspapers, on radio . . . and in research organizations and extension offices, it is doubtful that women primary and secondary school students will become inspired to prepare for careers in agriculture, let alone in agricultural research and extension. (The World Bank, 2009, p. 272)

In a study describing the intent of Young Farmers’ Club (YFC) members to pursue careers related to agriculture at the post-secondary level, Mukembo, Edwards, Ramsey, and Henneberry (2015) reported

the female participants in their study were *less likely* and *more undecided* than their male counterparts about pursuing careers related to agriculture. Further, Mukembo (2013) recommended follow up studies be conducted with female students who were members of YFCs and pursued careers related to agriculture to understand better how club experiences may have impacted their career choices.

Purpose of the Study

This study's purpose was to explore and derive meaning from the shared experiences of females who were members of YFCs at secondary schools in Uganda, and learn how they were influenced to pursue career preparation in agriculture at the post-secondary level. Two overarching questions guided this study: (a) What were the participants' experiences as members of YFCs? (b) How did the participants' experiences as members of YFCs influence their decisions to pursue career preparation in agriculture?

Theoretical Lens

This study was framed initially by two theoretical lenses: The theory of planned behavior (Ajzen, 1991) and human capital theory (Hartog & Van den Brick, 2007; Hornbeck & Salamon, 1991; McFadyen, 2006). A third theory, feminist epistemology (Anderson, 1995; Baber, 1994; Ring, 1987), emerged during the course of analyzing and interpreting the study's data (Guba, 1981; Lester, 1999). According to Guba (1981), "[a]dherents of the *naturalistic paradigm* [emphasis added] prefer to have the theory emerge from the data themselves" (p. 78). Integration of the three theories provided a basis for interpreting the study's results.

Regarding the theory of planned behavior (Ajzen, 1987, 1991), if an individual has a positive attitude about a

behavior and society approves, congruence exists with perceived control over such, and, therefore, it is possible to predict with some certainty a person's proclivity for the behavior. Further, Ajzen (1991) posited "perceived behavioral control, together with behavioral intention can be used to predict behavioral achievement" (p. 184).

Moreover, individuals and society as a whole can build their human capital by investing in education – formal and informal – which, in turn, brings about returns to individuals, communities, and nations (Hornbeck & Salamon, 1991; Mukembo, Edwards, Ramsey, & Henneberry, 2014; Nafukho, Hairston, & Brooks, 2004; Schultz, 1972, 1981).

Feminist epistemology, as posited by Anderson (1995), Baber (1994), and Ring (1987), is concerned with how gender impacts an individual's acquisition, understanding, and utilization of knowledge in real-world settings from a *feminist perspective*. Feminist epistemology focuses on how "socially constructed conceptions and norms of gender and gender-specific interests and experiences [impact] the production [or acquisition] of knowledge" (Anderson, 1995, p. 54). Traditionally, women have been marginalized as the weaker sex and portrayed as less competent than males through stereotypes and the distribution of labor along gender-based lines (Anderson, 1995; Baber, 1994; Kelsey, 2006). Males dominate in "the 'intellectual' fields of politics, science, and religion while women have been assigned the primary responsibility for many day-to-day tasks necessary for physical survival" (Baber, 1994, p. 5).

Methodology and Participant Recruitment

The researchers obtained permission from Oklahoma State University's Institutional Review Board to conduct

research with human subjects. A phenomenological approach (Creswell, 2013; Groenewald, 2004; Guba, 1981; Moustakas, 1994) was followed in this study. Phenomenology is a flexible approach to qualitative inquiry and accords investigators opportunities to probe emerging themes that may arise during the course of a research study (Holroyd, 2001). This inquiry was grounded on Tracy's (2010) procedural guidelines for a high quality and ethical study, including "(a) worthy topic, (b) rich rigor, (c) sincerity, (d) credibility, (e) resonance, (f) significant contribution, (g) ethics, and (h) meaningful coherence" (p. 839). Maintaining high ethical considerations is a critical component of qualitative research to ensure participants' privacy and protection (Creswell, 2013; Orb, Eisenhauer, & Wynaden, 2000; Yin, 2011).

The study's participants were purposively selected using snowball sampling (Creswell, 2013; Patton, 1990) and recruited through the online social networking service, Facebook. The lead researcher knew and contacted one of the individuals who recommended other potential participants; they also referred their peers, i.e., a snowball approach. As a result, invitation messages were sent to the Facebook inboxes of 13 potential participants; all were Ugandans. Ten replied and indicated their willingness to participate in the study; they also provided their electronic mail addresses. The individuals who agreed to participate in the study were requested to provide their Skype names for the purpose of conducting online video interviews. Seven participants provided their Skype names and were interviewed. Polkinghorne (1989) and Creswell (2013) indicated that when exploring people's *lived experiences*, it is ideal to interview five to 25 persons who experienced the phenomenon.

Data Collection, Analysis, and Interpretation

The participants agreed to be video recorded during the interviews. The interviews were done via Skype and recorded simultaneously using Evaer^R software in March of 2014. Online video interviews have become an effective way to gather quality data in social science research, especially if face-to-face interviews are not feasible due to logistical constraints (Bertrand & Bourdeau, 2010; Deakin & Wakefield, 2014). Deakin and Wakefield (2014) stated: "Video calling provides the researcher with an opportunity to not just talk to the respondent but to see them in real time" (p. 4). Further, "the only differentiation between Skype interviewees and face-to-face interviewees [is] geographical proximity" (Deakin & Wakefield, 2014, p. 607).

We used a semi-structured interview protocol with two overarching questions (Creswell, 2013; Groenewald, 2004; Lincoln & Guba, 1985; Yin, 2011) to guide the interviews. The participants were also asked probing questions to gain clear insight and rich descriptions of their experiences (Creswell, 2013; Yin, 2011) as members of YFCs until no new information emerged, i.e., *data saturation* was reached (Groenewald, 2004). Each interview lasted from 45 to 60 minutes. Rich rigor was achieved by encouraging the participants to reflect on and share life changing moments about their experiences in YFCs (Ary, Jacobs, Razavieh, & Sorenson, 2006; Merriam, 2009; Tracy, 2010). In addition, the two lead researchers kept notes or *memos* during the interviews (Groenewald, 2008). Groenewald (2004) stated *memos* may include "field notes recording what the researcher hears, sees, experiences and thinks in the course of collecting and reflecting on the [research] process" (p. 13).

The data were transcribed verbatim by the researchers and member checking was done by sending each participant her transcript to verify it for accuracy and make clarifications, as needed (Richards & Schwartz, 2002; Tracy, 2010; Yin, 2011). Member checking helps to ensure the credibility and trustworthiness of the data (Groenewald, 2004; Harper & Cole, 2012; Lincoln & Guba, 1985). The participants' identities were replaced in the transcription process with pseudonyms to protect their anonymity.

We used the qualitative data analysis software program ATLAS/ti to organize and categorize the transcriptions into codes. "A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (Saldaña, 2016, p. 4). Equal weight was given to the participants' responses, i.e., *horizontalization* of data occurred (Merriam, 2009; Moustakas, 1994) and such were later reduced to significant statements. Negotiations between the lead researchers were ongoing throughout the coding process to reach an understanding and interpretation of the data, which provided *multivocality* (Tracy, 2010). The codes were categorized as to *what* participants experienced in YFCs and *how* they experienced it (Creswell, 2013; Moustakas, 1994; Polkinghorne, 1989) and grouped to determine themes based on the researchers' judgments (Moustakas, 1994; Ryan & Bernard, 2003). The coding yielded eight themes from which the study's *essence* was distilled, i.e., a "common or universal condition or quality without which a thing would not be what it is" (Husserl, 1989, p. 43).

Personal bias may have been a limitation of the study because one of the lead researchers was a patron (advisor) to YFCs and also a former high school

agriculture teacher in Uganda. To minimize this limitation, he *bracketed* his personal opinions or preconceived ideas to maintain sincerity, honesty, and objectivity (Creswell, 2013; Merriam, 2009; Moustakas, 1994; Tracy, 2010). Tracy (2010) posited "sincerity as an end goal can be achieved through self-reflexivity, vulnerability, honesty, transparency, and data auditing" (p. 841). The lead investigators collaborated with other researchers who had no prior experience with the phenomenon, which helped to further minimize personal biases that could have impacted the study's findings. Moreover, reflective journals were kept by the lead investigators throughout the research process (Guba, 1981; Tracy, 2010). Triangulation was achieved by examining secondary sources of data, such as literature and photographs about participants' activities, which helped enhance the validity and credibility of the study's findings (Merriam, 2009).

Phenomenology allows researchers to draw meaning and understanding of a phenomenon as experienced by the participants (Creswell, 2013; Merriam, 2009; Polkinghorne, 1989; Van Manen, 1990), and ultimately distill its *unique essence* (Creswell, 2013; Merriam, 2009; Moustakas, 1994). Even though caution should be taken when generalizing the study's results beyond its participants, readers are advised to make personal judgments on how the study's findings may be transferable to other populations who experienced a similar phenomenon (Lincoln & Guba, 1985; Tracy, 2010). Transferability "is achieved when readers feel as though the story of the research overlaps with their own situation and they intuitively transfer the research to their own action" (Tracy, 2010, p. 845). Provision of a detailed description of the study's participants enhances a reader's ability to understand who provided the data and how transferable the findings

may be to similar groups (De Lay & Swan, 2014).

Description of the Study's Participants

The seven participants who provided data for this study were former members of YFCs during their high school education in Uganda. They had either studied or were studying agriculture at various tertiary institutions in Uganda or elsewhere in SSA. The participants' ages ranged from 21 to 25 years. Two participants had graduated with a bachelor's degree in an agriculturally related field and the other five were pursuing such degrees.

Participant #1 (Laura): Laura was a second year student (sophomore) pursuing a bachelor of science degree in environmental science. She was 22 years old and had been the project manager of her YFC while in high school. The environmental science cohort at her university had 40 males and 25 females. *Participant #2 (Vicky):* Vicky was a first year student (freshman) pursuing a bachelor of science degree in agriculture. She was 21 years old and had been an active member of her YFC. Her agricultural cohort at the university included seven females and 33 males. *Participant #3 (Jennie):* Jennie was second year student (sophomore) pursuing a bachelor's degree in veterinary medicine. She was 22 years old and had been the chairperson of her YFC in high school. Her veterinary cohort included 13 females and 43 males. *Participant #4 (Fiona):* Fiona was 25 years old and had graduated with a bachelor's degree in food processing and technology. She was the chairperson of her YFC in high school. Fiona was working for a honey processing company. Fiona's university graduation class included 30 females and 70 males. *Participant #5 (Alma):* Alma was a second year (sophomore) pursuing a bachelor of science degree in agriculture at a university in Uganda. She was 23 years old and served as treasurer of her YFC during high school.

Her university cohort included 15 females and 40 males. *Participant #6 (Marie):* Marie was working as an extension agent in Uganda. She graduated with a bachelor's degree in agricultural land use and management from a university in Uganda. During high school, Marie was a farm prefect as well as an active member of her YFC. Marie's university cohort included 17 females and 18 males. At her workplace, only two females worked alongside 20 males. *Participant #7 (Riana):* At 24 years of age, Riana was pursuing a bachelor's degree in agriculture and majoring in crop science. In her university cohort, Riana was the only female who studied with three males. She was an active member of the YFC at her high school.

Findings

Theme #1: Experiential learning, related career awareness, guidance, and exploration

All participants indicated experiencing *hands-on, minds-on* learning activities in real-world settings through the supervised agripreneurship projects (SAPs) implemented by their YFCs. This reinforced their understanding of agricultural concepts and related careers. They were trained to operate farm machinery such as driving tractors and also had hands-on learning experiences on how to conduct routine livestock management practices at their school farms, e.g., dehorning, castration, vaccination, and drenching. Further, the participants grew maize, plantains, tomatoes, green peppers, carrots, and planted trees on the land provided by their schools. They also reared poultry and supplied eggs as well as meat to the school cafeteria. This enabled them to earn income from the projects and opened their minds to view SAPs as businesses. "We got a good yield of maize which we supplied to the school kitchen [cafeteria] which was good. I

could not imagine a class of 10 girls supplying maize to the whole school,” said Laura. Marie added: “We grew maize, carrots, tomatoes and all those were incorporated in the school feeding program . . . If we could sell our produce to the school, it was a sign that you could grow [crops] and you have [a] market.”

A majority of the participants indicated that initially, because of parental influence, they were mostly interested in pursuing careers related to human medicine. However, participation in their clubs’ SAPs had a positive and transformative impact regarding their views on agricultural careers. The SAPs enabled them to become aware of and to explore agricultural careers in real-world environments. Moreover, some of the agriculturists with whom they interacted during their field visits to agricultural research stations and trade fairs, exchanged with as guest speakers, or were family members and role models inspired them to pursue agricultural careers. For example, Jennie explained:

The activity which had an influence on my career choice was animal husbandry and that is why I took up the career [veterinary medicine], but of course I [initially] wanted human medicine but then I saw practically how people in animal husbandry do stuff not only in class work . . . but [also] in the field.

Marie added: “When that professional from Makerere University came and talked to us . . . he is one of the persons who encouraged me to take up agriculture.” Laura indicated her grandfather was a great role model: “My grandfather was an agricultural officer and he kept telling me about the opportunities that agriculture offers.” Further, Riana stated: “When they were providing career guidance, I literally thought I was going to be a medical student so I only looked out for guidance in the medical field.” However,

through field trips and interacting with other role models in agriculture, Riana changed her mind and opted to pursue an agricultural career.

Theme #2: Tangible benefits associated with YFC activities and SAPs

Participants indicated they received and experienced a number of tangible benefits from their club activities. These benefits included earning money from the sale of products, consuming their harvests, and being able to make proper nutritional choices. For example, Marie attested: “We sold the maize to the school which was eaten by the students, implying that there was [a] market and then money at hand.” This was also confirmed by Alma, Fiona, and Jennie. Moreover, the money earned from selling their harvests was shared with other club members. Jennie added: “We sold the harvest . . . and gave profits to every active member.”

The participants acknowledged one of the most enjoyable club activities was feasting on their harvests after a hectic planting season. Vicky said: “We used to enjoy eating maize during the harvesting period.” This experience was echoed by others. Jennie affirmed: “The positive experience was eating what we harvested.” Further, they became aware of nutritional components of the various foods they grew, which helped them make better eating choices. Vicky shared: “I learnt more about the types of foods I should be eating to keep my life and body health through our club activities.” Jennie acknowledged that through her YFC’s activities she became aware that to live a healthy and productive life, a person had to make the right food choices to grow and to eat. She said: “When you fall sick and they take you to the hospital, before they give you medicine, they first consider your diet.”

Theme #3: Acquisition of leadership, agripreneurship, and other life skills

Six of the seven participants indicated they acquired life skills such as leadership, proper planning, budgeting, agripreneurship skills, time management, networking, accountability, teamwork, patience, persistence, and perseverance by participating in their YFCs. Alma reported: “I was a treasurer [of my YFC] and it actually helped me to get good leadership skills.” And Fiona explained: “As a chairperson of YFC, I really learnt how to be a good leader It really felt nice when we would do things together and they came out good.” Jennie added: “I learned a lot of things through the club, sometimes we would plant carrots or green pepper but they [could] be affected by weather, everything ends up being a loss but despite all this, we kept on moving.”

Laura, who was a project manager in her YFC, said: “The company I had in [my YFC] kept me moving forward . . . even in times of crisis.” She added: “I learnt to believe in myself that I can do everything but it takes time and patience.” Vicky also described her experience:

I used to have a negative attitude toward agriculture but through my participation in the Young Farmers’ Club, I learnt that I do not need to look for a job but create it myself at home Actually, when I left school, I planted millet and cassava [at home] and I gained something.

Marie attributed her good communications skills to club participation: “I campaigned and became an agriculture prefect courtesy of the [oratory] skills I acquired in [my] YFC.”

Theme #4: Inspirational and life changing moments

Participants reported a number of inspirational and life changing moments

they attributed to their experiences in YFCs and related SAP activities. Some indicated fascinating discoveries about agriculture through the clubs’ activities and how these experiences contributed to their pursuing agricultural studies at university. For example, Vicky said: “When I went for the agriculture show in Jinja, I saw new varieties of crops I even saw seeds for a banana with my eyes I had never seen [before].” And Riana described her first time to see an incubator:

I had not known about artificial incubators apart from knowing there was a hen sitting on the eggs [to incubate] but when I saw it, I was impressed and I said ‘wow this is something.’ . . . it opened my eyes that there is still business in agriculture.

Jennie revealed her love for animals started during club activities and are likely the reason she was studying veterinary medicine. She said: “I remember going to the farm to dehorn, castrate, and vaccinate; this made me love animal husbandry.” Laura added: “Tree planting in my YFC taught me to love the nature and the world around me and I think that is the reason I am doing environmental science.” Further, some participants indicated the guidance and counseling from their clubs’ patrons (advisors) was a source of inspiration. In accord, Alma said:

I remember our patron telling us to be flexible in life and keep a positive attitude Though I wanted medicine, when I was given agriculture, though I did not like it much, I really adjusted because I had seen a good future in it and I remembered most of the words he used to tell us I really adjusted positively towards the [agriculture] course[s].

Theme #5: Challenges experienced in high school

Parental expectations.

Most of the participants reported experiencing pressure from parents to pursue careers in a medical field rather than agriculture. According to Fiona, “in Uganda, when you do medicine, it’s more prestigious than agriculture . . . [and] most parents would want to see their daughters [become] doctors.” Vicky added: “When you do physics, chemistry, biology, and math, people expect you to go for medicine and surgery.” Further, Alma said: “They[, my parents,] wanted me to go for nursing but, fortunately, when I got a government [scholarship], they had no option since at least it saved them the burden of paying tuition.” And Laura stated: “My father basically wanted me to be a doctor . . . my mum encouraged me to put agriculture as my plan B.”

Negative attitudes toward agriculture.

The participants experienced a number of challenges from peers as well as from their communities while members of YFCs. According to Vicky, the comments and attitudes of her peers toward agriculture were demoralizing. Vicky also shared what she was told by one of the elders in her community: “You are wasting a lot of money and energy doing agriculture instead of coming back home . . . Are you going to school to learn how to handle a hoe or how to pull a rope?” Fiona added: “People think agriculture is about holding a hoe very early in the morning, you go dig in the field and return home in the evening.” Laura also had been discouraged from studying agriculture because of its wide scope of coverage and it would be too demanding. Further, according to Marie, some people associated agriculture with misery and human drudgery. She said: “People think that when you do agriculture, you will be [struggling] with animals.”

Theme #6: Challenges experienced at college/university and the workplace

Some participants indicated various challenges they faced at their schools and workplaces, especially from male peers. For example, they reported discrimination and isolation from their male classmates when forming discussion groups. According to Vicky,

[w]hen forming discussion groups, it is hard for guys to put you in their discussion groups. They always say you ladies you also form your own discussion group since you are among the superior ladies who managed to come here.

Laura added: “Basically, boys tend to think they are the smartest in class but then I believe, and I know, that a woman is smarter . . .”

In the case of Marie, working in extension, the cultural norms associated with a woman riding a motorcycle, and wearing trousers in public, were a big challenge. She said:

. . . my parents told me not to put on trousers and to ride a motorcycle in the community. When you put on the trousers the community perceives you negatively. . . . I have failed to express myself when addressing a community [if dressed in trousers]. So I have to move with a skirt and change before I can address a crowd which I find very challenging.

Further, two participants indicated disappointment in their mentors for not *walking the talk*. For example, Vicky shared: “They tell us to be practical but you find an agricultural officer without a farm.” Jennie recalled one incident at the university where they were conducting some animal operations but the instructor was scared of handling the cow. She described the incident:

The guy [teacher] was telling us to sit on the head [of the cow] to keep it restrained on the ground when he was 40 meters [away] from the animal. . . . We ended up not performing the operation we were supposed to do because everybody was scared of the animal.

Theme #7: Application of knowledge and skills for self-employment and improved livelihoods

The participants indicated continuing to apply what they learned through their YFC experiences. Several explained they would use the acquired knowledge and skills to implement various agricultural projects for self-sustenance and community improvement after graduating from higher education. Vicky stated: "I plan to set up an agro-based shop to sell equipment. . . . I would also like to set up a non-profit organization to improve animal breeds in villages." Jennie looked "forward to opening up several projects like piggery and poultry," and Alma planned to raise goats which she described as easy to manage and highly marketable in her area. Moreover, Fiona planned to develop a large commercial farm in her village. She said: "I plan to set up a large scale agriculture operation, planting trees and [rearing] animals." Finally, Laura planned on returning to her home village and develop her parents' idle land.

Theme #8: Recommendations on how to increase female enrollment in agricultural programs of study and encourage their pursuit of related careers

Participants proposed three initiatives to increase the enrollment of female students in agricultural programs of study and encourage more women to pursue agriculture as a career path.

Facilitating student-owned SAPs and related recognition opportunities.

A majority of participants indicated that providing SAPs to be owned and managed by students would incentivize more females to take agriculture courses in high school which may influence them to pursue careers in agriculture. Jennie offered: "I think introducing projects [and] giving profits to every member would act as an incentive." And Vicky added: "Set up projects whereby the girls can actively participate, for example, planting [crops] and rearing [livestock], where they can also benefit. . . ." To that aim, Alma added: "Encouraging students to get involved in agriculture projects like YFCs builds a background for them to learn more about agriculture and its benefits." Further, according to Jennie, "giving them certificates for their participation would encourage others." The participants' sentiments are supported by various occupational-minded groups, such as the International Labor Organization (2014), and by other researchers. For example, Montpellier (2014), Mukembo et al. (2014, 2015), and Mukembo and Edwards (2015) urged the promotion of agripreneurship in schools through projects as a way to motivate young people to pursue careers in agriculture, including agribusiness opportunities.

Field trips.

Taking students on field trips provides opportunities for networking and exposure to various career opportunities in agriculture. According to Riana, "when we visited different places of poultry it really changed my perception about agriculture and it is something I cannot forget." In support, Laura said: "You get to go to many places like agricultural shows and eventually you start loving agriculture." And Fiona contended: "Taking them to research institutes . . . where they can learn more

about agriculture” is one way to expose and motivate females to pursue careers in agriculture. The participants’ perspectives are supported by Mukembo (2013) who recommended using field trips to arouse students’ interests in agriculture.

Female role models.

Career guidance about the opportunities in agriculture, especially from female role models, would act as an inspiration for girls. Marie explained:

Visit mainly girl’s schools and inform them how agriculture has progressed. . . . We need women to advocate . . . that’s what I am doing now with the primary schools and high schools, we are trying to show children how agriculture can transform their lives.

Laura also suggested the need to reach out to girls and make them aware of the career opportunities available in the agriculture sector. She said: “You reach out to the young children like high school, the ones in senior one and senior two, you tell them about agriculture, the opportunities agriculture has, what agriculture is all about.” Such an approach may be helpful in creating favorable attitudes toward agriculture at an early age (Mukembo et al., 2014, 2015). The idea of having female role models to inspire young women to pursue agricultural careers was also emphasized by the World Bank’s (2009) report *Gender in Agriculture*.

Conclusions

The power of real-world experiences to create agricultural career awareness among young females and foment their drive to overcome obstacles to pursue such careers formed the study’s essence. Although agriculture was not the first career option for most of the participants, the experiences and meanings they derived from

various YFC activities, especially SAPs and field trips, gave them a different outlook on agriculture as a potential career path. The participants realized agriculture was a viable venture for self-employment and livelihood improvement. They also became more aware of agricultural careers outside the farm.

Further, negative societal perceptions about agriculture as a career choice were still prevalent and remained a barrier to female enrollment in agricultural programs of study in SSA. Parental expectations and perceptions of agriculture as a low wage, low return endeavor continues to negatively affect students’ considering agricultural studies and career preparation. The participants’ parents preferred they follow career paths in human medicine because such was perceived as more prestigious and rewarding.

The subjective norms (Ajzen, 1987, 1991; Ajzen & Madden, 1986) were unfavorable toward females and hindered their ability to perform job duties involved in agricultural careers (Anderson, 1995). If individuals perceive their society, parents, mentors, and peers approve of their engagement in a behavior, they are more likely to actualize that behavior (Ajzen, 1987, 1991). Females are a minority in almost all the professions related to agriculture in SSA (Beintema & Di Marcantonio, 2009; Kanté et al., 2013), which puts them at a disadvantage. Stereotypes and prejudices remained prevalent to the extent some participants were segregated during learning experiences at school and faced gender-based barriers at their workplaces.

Recommendations

Though not generalizable, these recommendations may hold transferability to similar settings. Developing student-owned projects by which students apply learning from class in real-world contexts provides

hands-on, minds-on learning experiences (Dewey, 1951), which may improve personal self-efficacy and influence career choice (Bandura, 1986; Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Mukembo, 2013; Tang, Pan, & Newmeyer, 2008). Dewey (1951) also posited involvement in interesting experiences increases the learner's curiosity for further inquiry. Students developing and managing SAPs are likely to acquire increased interests in agriculture and become more curious about related careers and livelihoods.

Early career awareness about the diverse opportunities available in agriculture may go a long way in helping to increase female participation (Mukembo et al., 2014). Sastre and Mullet (1992) posited adolescents begin to become aware of their career aspirations and interests as early as 14 years of age. Moreover, Super (1992) reported students in secondary schools are at the *exploration stage* where they start to make tentative choices about careers, including related skills development. Female students' interactions with same-sex role models and peers can also influence their career aspirations (Kracke, 2002; The World Bank, 2009).

Field trips to agricultural research organizations, trade fairs, and universities should be incorporated into students' YFC activities to provide opportunities to interact and network with professionals and peers who share similar interests (Mukembo et al., 2014, 2015). The development of social networks among youth and adults with similar career aspirations is one way females may become more attracted to careers in the agriculture sector (Kruijssen, 2009).

A need exists to promote awareness of the challenges females are likely to encounter in the agriculture sector, including giving special attention to potential solutions when providing them career guidance in

high school. The challenges addressed may include increasing their access to resources such as land, overcoming discrimination at school or at work as advanced by male peers and supervisors, and mitigating prevailing cultural norms promulgated by community members. Promoting such awareness would better prepare female students to make properly informed decisions about how to address challenges encountered as they pursue agricultural interests and careers. This may help reduce the high attrition rate among females who pursue such careers and yield better returns on the investments made in building human capital for the agriculture sector (Hornbeck & Salamon, 1991; Mukembo et al., 2014; Nafukho et al., 2004; Schultz, 1972, 1981).

Gender-based stereotypes associated with females pursuing careers in agriculture (Anderson, 1995; Kelsey, 2006), i.e., a sector traditionally dominated by males, are still prevalent and discourage females from becoming professional agriculturists. Therefore, more research should be conducted about the impact of subjective norms (Ajzen, 1991) on females pursuing careers in agriculture, especially in SSA. These investigations may involve a mixed methods research approach to triangulate and understand better the interplay of gender, agricultural careers, and socio-cultural norms. More research also should be done with females in other settings who experienced a similar phenomenon to compare their views to this study's findings. Such could be useful in the formulation of future policy and practice.

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