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AGRICULTURAL WORKFORCE DEVELOPMENT: APPLYING THEORY OF PLANNED BEHAVIOR TO TRAIN AGRO-ENTREPRENEURS

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ABSTRACT

This qualitative study aimed to examine the impact of a mushroom cultivation training initiative in a small community in central Ghana on participants' inclination to be agro-entrepreneurs after the training. This training was designed to mitigate multiple issues in the Ghanaian community, including air pollution from burning sawdust at a local sawmill, children's malnutrition, and a high unemployment rate. Local community members participated in the training sessions to gain expertise and proficiency in establishing mushroom farms, thus fostering a natural formation of a community of practice for the exchange of knowledge and skills. A total of 150 individuals from the local community underwent the mushroom cultivation training. We observed participants in training, and 15 selected participants subsequently participated in semi-structured interviews. The Theory of Planned Behavior (TPB) was adopted as a conceptual framework to discover participants' initial motivations to participate in the training, their experience during the training, and their intention to start mushroom farming following the training. Through the process of constant comparative analysis, this study explored the relationship between participants' behavioral intent to become agro-entrepreneurs and various influencing factors, such as their initial motivation, knowledge and skills development, sense of control, external supports, anticipated future challenges, and community of practice. The findings reveal that membership in a community of practice was the strongest influence on their entrepreneurial intent. Within the community of practice, they collectively identified challenges which led to increased doubts about their abilities and a tendency to avoid the uncertainties of becoming agro-entrepreneurs. As a contribution to the implementation of the TPB, this study shed light on the importance of a community of practice as a place to develop subjective norms. It is a collaborative learning space as well as a place where participants cogenerate shared emotions and collective opinions and make collective decisions.

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INTRODUCTION

The United Nations introduced the concept of sustainable development in 1992 to promote human rights and environmental issues. Sustainable

development aims to use the resources in a way that do not exhaust or devastate them permanently (UN Division for Sustainable Development, 1992). Continuous efforts have been made to practice sustainable development in

various developing countries. To properly integrate sustainable development goals, it is essential to understand the complexity of sustainable development concepts and empower others to be capable of addressing current issues of sustainable development. Scholars have categorized sustainable development goals into environmental, economic, and social dimensions (Barbier, 1987, Schroeder et al., 2019). Lozano (2018) proposed a new model of sustainable development that advanced the three nested concentric circles of environment, economy, and society rather than three exclusively independent circles. The environmental pillar of sustainability is the largest circle, the social pillar is a minor part, and the economic pillar is the smallest within the social domain. The concentric circle model depicts the three dimensions of sustainability as mutually connected systems, with the economy as a constructed subset of society and community. More recently, Purvis et al. (2019) posited a new reciprocal relationship, where each of the three dimensions has an equal proportion and intersects with the others generating a middle ground that results in sustainable development. He emphasised that the three fundamental frameworks should be interconnected and function holistically to maintain a balanced equilibrium in achieving global sustainable development goals. In applying this framework, agriculture plays a vital role for developing countries in economic growth, environmental development, and sustainable livelihoods, such as an increased employment and solutions for malnutrition and hunger (Nhemachena et al., 2020).

This critical role of agricultural development inspired new agribusiness styles, such as agro-entrepreneurship. Agro-entrepreneurship involves farmers developing creative ways to commercialise agricultural products and participate in the agro-industry to generate profits (Jaffee and Morton, 1994). Mulder and Kupper (2006) claimed that agro-entrepreneurial activities boosted the economic development of countries and communities where agricultural products are central to the economy. Ntale et al. (2015) introduced agro-entrepreneurship readiness, which comprises several elements, including personal characteristics, entrepreneurship environment, and education.

Recently, Che et al. (2022) investigated the process of developing agro-entrepreneurs through the lens of the theory of planned behavior, which holds that

participants' attitudes about agro-entrepreneurship play a significant role in their agro-entrepreneurial intentions. In contrast, subjective norms and agro-entrepreneurial knowledge appeared insignificant to participants' intentions. They reported that policies, educational programs, and strategies, such as financial support, online business platforms, start-up incubation, and incentives, have been identified as very helpful in promoting agro-entrepreneurship. Additionally, agro-entrepreneur networks provide participants provide participants opportunities to explore new businesses to explore new businesses in the agricultural sector, such as gaining access to information and resources that enhance their interest in agribusiness.

Previous studies show that agricultural education and training are essential in enhancing the local community and developing agro-entrepreneurs, as agricultural education imparts agricultural knowledge, skill, and attitudes on community members (Njura, 2020). Agricultural education has focused on increasing farmers' expertise to meet the rapidly changing demands of stakeholders to provide and develop a relevant knowledge base and a variety of skills (Haruna et al., 2019).

Theoretical Framework: Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) (Ajzen, 1991) posits that an individual's intention to engage in a behavior is influenced by three key factors: attitudes toward the behavior, subjective norms, and perceived behavioral control (see Figure 1). These three factors interact with each other and influence behavioral intention, where the intention is considered a mediating predictor of performing the behavior. Interestingly, unlike individuals' attitudes and subjective norms, perceived behavioral control may directly influence behavior. That means that behavioral intention and perceived behavioral control influence behavior directly without any additional mediators.

In detail, an individual's attitude toward the behavior represents how positively or negatively they view that specific behavior. This evaluation is shaped by the individual's beliefs about the likely outcomes of the behavior and the value they place on those outcomes. Essentially, it reflects the person's overall assessment of whether performing the behavior is good or bad, beneficial or harmful, pleasurable or unpleasurable.

The subjective norm, on the other hand, is a social influence that reflects the perceived social pressure from others to either engage in or avoid the behavior. These norms are shaped by the expectations and behaviors of influential members of the community, such as mentors, peers, and leaders. For example, in a professional setting like a medical community, if senior doctors consistently emphasize the importance of continuous education and staying updated with the latest research, younger doctors and medical students are likely to feel pressured to engage in these behaviors.

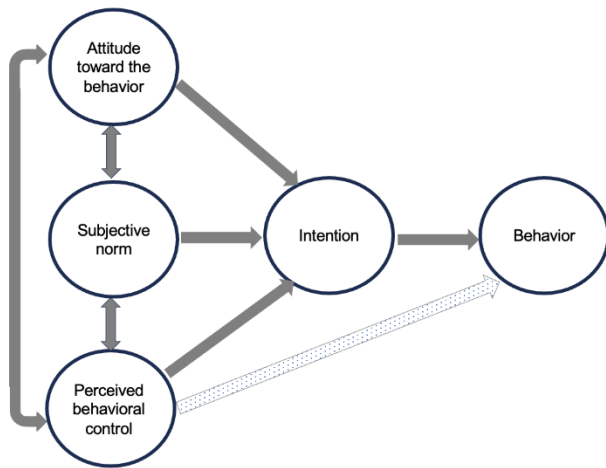


Figure 1. Theory of planned behavior model (Ajzen, 1991).

Perceived behavioral control refers to an individual's perception of how easy or difficult it is to execute the behavior in question. Perceived behavioral control is a key component in the theory of planned behavior, integrating aspects of both self-efficacy and controllability. Self-efficacy, as defined by Bandura's social cognitive theory (1986), pertains to an individual's belief in their capability to perform the necessary actions to handle future situations. It includes confidence in one's ability to take action and maintain persistence despite challenges. Controllability, on the other hand, refers to the degree to which individuals believe that the performance of the behavior is within their control. This involves the perception of internal and external factors that may facilitate or obstruct the behavior's execution. For instance, a student may feel capable of studying for an exam (self-efficacy) but might perceive that their busy schedule or family responsibilities (external factors) are beyond their control and could hinder their ability to study

(controllability). Ajzen (1991) posited that the impact of possible relevant background variables, such as personal characteristics and relevant experience, should be examined to enhance the prediction of human intentions. This theory has been widely implemented in various disciplinary fields to explain an individual's motivation and associated behaviors in a specific situation.

Agribusiness Development and the Theory of Planned Behavior

In terms of agribusiness development context, several studies have applied TPB framework. Tesfaye et al. (2012) identified that farmers' education levels positively affect all the TPB factors and intention to participate in tree planting activities. Based on research on TPB, agricultural educators implemented the concept of service learning into their instruction to help students achieve more actionable outcomes. The study demonstrates how the theory of planned behavior provides insights into the practice of service learning in agricultural education. Roberts et al. (2019) highlighted the significant relationship between agricultural education and overall content knowledge that influence attitudes toward agricultural intent and behavior. In addition, Wang et al. (2019) combined the TPB framework with the protection motivation theory by adding the threat appraisal (perceived vulnerability, perceived severity of the farmers) and coping appraisal (response cost, response efficacy) to measure the environmental behavior of the farmers.

Using TPB, Bagheri et al. (2019) found that acquiring relevant knowledge was the most critical variable influencing all TPB constructs for farmers' behavioral intention to use pesticides. Further, Bagheri et al. (2021) reported that farmers' behavioral intention to learn safety information was positively influenced by subjective norms and perceived behavioral control among the TPB constructs. However, Despotović et al. (2019) reported that farmers' environmental knowledge and education level do not significantly impact their intention to adopt integrated pest management practices. Recently, Doran et al. (2020) investigated the factors associated with farmers' intention of nutrient management practices. They found that perceived behavioral control had the most positive influence on farmer intention, and their educational background also positively influenced their intention to adopt nutrient

management best practices. In addition, Xue et al. (2021) studied farm households to measure farmers' perceptions of agricultural mulch film pollution based on TPB. The authors found that farmers' attitudes, subjective norms, and perceived behavioral control were all associated with farmers' perceptions. However, farmers believed that agricultural mulch films could pollute the environment, yet they did not change their behavior. This indicates the importance of education to change farmers' perceptions to promote sustainable agricultural development. Previous studies also informed that agricultural development education plays a critical role for community development, broadly defined as any activity intended to primarily or partially prepare farmers for improved performance. Eran (2012) introduced professional development experiences as future-oriented activities in which participants gain discipline-specific knowledge or skills that might influence their performance. Finally, the impact of the level of knowledge of skills on participants' intention aligned with Zamani-Miandashti (2013), who investigated participants' intention to use the internet and found a strong correlation between their intentions and their technological knowledge.

In sum, in the context of agricultural education, implementing TPB for sustainable community development requires understanding various topic areas and aligning with long-term sustainability goals. However, few investigations have examined the perspectives of local community members in an African context through the lens of theory of planned behavior. Further, while respecting the cultural context, it is necessary to investigate relationships among behavioral intention and initial interests, domain-specific knowledge and skills, and the role of a community of practice in creating a subjective norm. Considering the proliferation of agricultural training, it is necessary to have a better understanding of what is happening during and after the training, particularly regarding the role of the community of practice and its impact on the intention of a particular behavior.

Current Study

This study examined the intentions of farmers to start their own farming ventures following mushroom training. The training program was specifically tailored for a community in central Ghana to tackle three pressing challenges: air pollution, malnutrition, and

unemployment. First, the residents faced air pollution resulting from the ongoing burning of sawdust by a local sawmill. Participants in the training sought to explore more sustainable methods for managing this environmental issue, aiming to recycle sawdust waste instead of incinerating it. Second, the community experienced malnutrition during the winter months due to their inability to grow crops or forage for vegetables in the wild. Finally, the rural community was grappling with high unemployment rates.

To tackle the three issues, oyster mushroom farming training was implemented for the community. This type of farming utilizes substantial amounts of sawdust, which can help reduce air pollution caused by burning practices. Additionally, oyster mushrooms can enhance local diets year-round, as they are rich in fiber, protein, and various vitamins and minerals (Atikpo et al., 2018), making them a valuable nutritional resource regardless of seasonal changes. Moreover, cultivating oyster mushrooms can create self-employment opportunities, offering the community a sustainable means of income while also addressing their nutritional needs.

During the training, three local mushroom experts actively engaged with participants to impart essential knowledge and skills related to mushroom farming. The curriculum covered everything from preparing the mushroom substrate using sawdust to packaging the mushrooms post-harvest. This comprehensive training program was conducted over three months, providing participants with the opportunity to learn collaboratively and practice their skills as a group. Through the lens of the theory of planned behavior framework, this study examines the impact of a mushroom cultivation training initiative in a small community on participants' inclinations to become agro-entrepreneurs after the training. Local community members participated in the training sessions to gain expertise and proficiency in establishing mushroom farms, thus fostering a natural formation of a community of practice for the exchange of knowledge and skills. To discern the factors of the training and its impact on participants' intentions to become agro-entrepreneurs, we utilized the theory of planned behavior as a conceptual framework. Through qualitative data collection, we identified participants' initial reasons for joining the training, their encounters throughout the training process, and their plans to be agro-entrepreneurs after the training. We want to uncover the

relationship between participants' behavioral intent to be agro-entrepreneurs and various influencing factors, including their initial motivation and their knowledge and skills development, sense of control including external supports, and anticipated future challenges and challenges and disadvantages within the community of practice. The results of this study will highlight the importance of membership in a community of practice. As a contribution to the theory of planned behavior, this study sheds light on the function of a community of practice as a place to develop subjective norms.

METHODOLOGY

Semi-structured interviews were conducted to understand participants' experiences and intentions to become agro-entrepreneurs after the training. To analyze interview data, constant comparative data collection and analysis were used (Corbin and Strauss, 1990), which was intended to build a model reflective of the initial TPB factors.

Setting and Participants

A total of 150 local community members participated in mushroom farming training. The participants' age range was 18 to 75 (65 males and 85 females). The participants were categorized as youth (between 18 - 21), adults (between 21 - 50), and seniors (between 50 - 75). There were 49 youths (24 males; 25 females), 64 adults (26 males; 38 females), and 37 seniors (15 males; 22 females). Among the 150 mushroom training participants, 15 (8 males and 7 females) participated in the study.

We used stratified sampling to select participants willing to share their experiences, balancing age, marital status, and gender. Finally, among the 150 mushroom training participants, 15 (eight males and seven females) participated in the study. Using the theory of planned behavior as a lens, we asked questions about participants' initial motivations to join the training, their perceived behavioral control, subjective norms in the community that they built during the training, and their intentions to be agro-entrepreneurs after the training.

Procedures

Several training sessions were held over two months, and each session lasted about two hours. We observed participants during training and conducted follow-up interviews to understand what influenced participants'

intention to start farming and become agro-entrepreneurs. We asked several questions during the interviews regarding participants' initial motivations to participate in the training, their experience during the training, and their intention to start mushroom farming following the training. In addition, we asked participants to list their perceived barriers and obstacles to starting farming. Interviews were conducted at the participants' convenience in person. Interviews lasted 30 to 40 minutes. Follow-up interviews were scheduled to check interpretations of interviewees' perspectives and conduct member-checking.

Interview Questions

Each interview question was designed to guide participants to elaborate on their motivation to join, experience mushroom farming training, and their intention to start farming. Further, we collected observation notes when participants were going through mushroom training. For example, we asked general questions rather than specific questions: *Can you tell me your initial motivation to join the mushroom farming training?* Then, questions focused on their specific experience from the training: *Can you tell me about your experience during the training?* Finally, we asked them about their intention for farming: *What are your short-term and long-term plans for mushroom farming? What are your goals with what you have learned from the training? Why or why not if you have decided to start your farm?*

Then, we inquired about more detailed information, such as their training experiences and perceived barriers and obstacles to starting farming. Interviews were conducted in person at the participant's convenience, lasting 30 to 40 minutes. As for privacy and confidentiality issues, we did not ask interviewees' names or other personal questions, and we used pseudonyms in the notes.

Data Analysis

In this research, data analysis involves several iterative steps with the Framework Analysis Technique (Srivastava & Thomson, 2009). First, the researcher reviews and familiarises with the data, often collected through interviews. The next step is coding, where the researcher identifies key themes, patterns, or categories in the data. This involves breaking the data into meaningful segments and assigning labels or codes to

them (Saldaña, 2021). These codes are then grouped into broader categories to identify relationships, patterns, or themes (Ritchie and Spencer, 1994). Researchers used thematic analysis to interpret these categories and understand the underlying meaning. Throughout the process, memo writing was used to document insights and reflections, helping to refine the analysis. The researchers then developed a narrative that ties together the findings, aiming to provide a deep understanding of the phenomena being studied (Mayring, 2004). We also used validation techniques, such as member checking or peer review, to ensure the accuracy and trustworthiness of the results (Weitzman, 2000).

As we analyzed data, we revisited the raw data to construct conditions and contacted participants to identify subtle nuances regarding their intentions to be agro-entrepreneurs. Finally, we conducted selective coding to create a conceptual model by identifying and elaborating propositions and underlying relationships between categories.

RESULTS

The present study adapted the fundamental constructs of the Theory of Planned Behavior (TPB) to correspond with themes categorized into four parts and illustrated in the model below (see Figure 2): attitude towards the behavior, perceived behavioral control, subjective norm, and intention towards the behavior. Figure 2 shows the overall result of the study, highlighting both positive and negative impacts on participants' intentions to become agro-entrepreneurs: 1) attitude towards the behavior, shaped by initial motivation for training participation; 2) perceived behavioral control, influenced by the acquisition of mushroom farming knowledge and skills; and 3) subjective norms, associated with the farming community of practice. The final behavioral intention synthesizes insights from participants who decided to become agro-entrepreneurs, shedding light on the underlying reasons behind their decision to start a farming business. In the figure, a plus (+) or a minus (-) icon represents a positive or negative influence on the intention towards becoming agro-entrepreneurs.

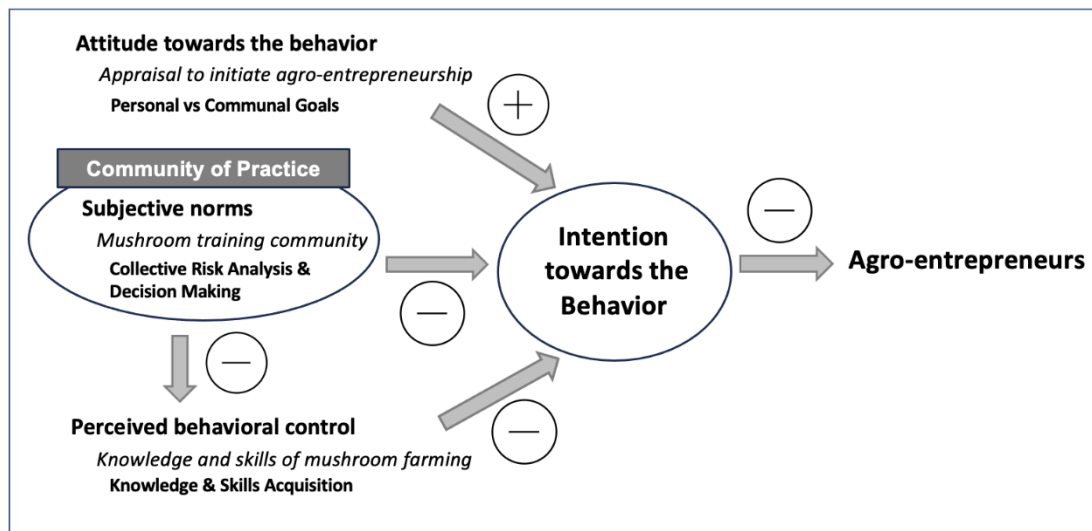


Figure 2. Agro-entrepreneurs development process.

Attitude Towards the Behavior

In TPB, attitude towards the behavior is explained as the degree to which an individual has a favorable or unfavorable perception of the target behavior. Data showed that initial motivation plays an essential role in influencing knowledge/skills acquisition and a degree of participation in the mushroom training community as well as overall attitude towards the behavior. Further, the initial motivation helped to negotiate and overcome

various hindrance factors such as a lack of self-efficacy in farming, perceived failure in the future, and even generating resiliency to overcome the fear of failure. There were three main motivations among participants' initial motivations that influenced their attitudes to become agro-entrepreneurs: feeding their family members, resolving malnutrition issues in the community, and starting their own business. Some participants mentioned communal goals including air

pollution issues and the need for clean air; however, it was not the main motivation for them to join the mushroom training and become agro-entrepreneurs. Three participants expressed their strong desire to participate in the training to seek the opportunity to support their own families and solve malnutrition problems in the community. These initial motivations positively influenced their attitude to become agro-entrepreneurs. For example, participant A mentioned:

I joined the training to learn how to grow mushrooms to feed my family. We definitely need another source of vegetables. I was very excited and determined about this opportunity to feed my family. I will surely start a mushroom farm.

Participant B also noted:

My plan is to become a successful agro-entrepreneur for my community. We need to develop a strategy to produce more vegetables. Our children need more vegetables and better food. This is an excellent opportunity. I will surely start farming mushrooms.

Participant C added:

I am a nursing mother of two and am currently pregnant. Growing my own mushrooms at home will give me a variety of healthy and nutritious food for me and my children. Moreover, it is easy to learn, that is why I joined this training. I also want to start a mushroom farming business later.

In addition, there were two more participants who expressed their intentions to join the mushroom training to start their own business as well as feed people in their community, similar to participant B. All participants showed strong motivations and expectations of the mushroom training when their goals were to solve family and community food scarcity and malnutrition issues.

It seems like when participants had a communal goal, such as supporting family and community, as their initial motivation, it strongly influenced their attitude and intention toward a specific behavior and impacted their learning attitude, resiliency, and participation in the community of practice. This phenomenon appeared in the following themes of perceived behavioral control

and subjective norms as well. Of the five participants who expressed intentions to join the training for communal goal incentives, none of the five actually started a farming business.

For the remaining ten participants (ten out of 15), the initial intention to join the mushroom training was to generate extra income. These individuals were either unemployed or had part-time work and welcomed the opportunity to have an additional source of income. Among these ten participants, only four started their own mushroom farming business.

In summary, most participants wanted to start farming as a business opportunity to generate extra income, and several wanted to start mushroom farming to feed their family members. The initial motivation appeared to strongly influence other factors, significantly impacting the intention towards becoming agro-entrepreneurs. However, there is a discrepancy between their attitudes towards behavior and the actual behavior. Even if all participants expressed high enthusiasm toward mushroom farming during and after the mushroom training, only a few participants (four out of 15) actually started their own farming business.

Perceived Behavioral Control

Perceived behavioral control refers to the perceived ease or difficulty of performing the behavior and is assumed to reflect the experience related to the behavior and anticipated impediments and obstacles to be successful. Perceived behavioral control seems highly influenced by participants' perceived self-efficacy and skills and knowledge-based confidence in a specific domain. Data showed that participants' perceived behavioral control seemed remarkably associated with their self-efficacy in mushroom farming knowledge and skills. It also seemed to influence participants' evaluation of potential challenges and mitigation strategies and eventually had substantial effects on their intention to start mushroom farming. In other words, participants' intention to start a farm is associated with their perceived control of the tasks that rely on their domain-specific knowledge and skills.

Most participants expressed difficulty starting mushroom farming because they did not learn much, so they felt that they lacked knowledge and practical experience. Participant A said he would not start a farm because he did not think he had sufficient skills. Similarly, participant B expressed:

The training was very informative, and I learned much about mushroom farming. But I do not think I have enough knowledge to sell mushrooms. I think I can grow mushrooms, but I did not have a chance to learn where and how to sell them.

Participant A mentioned that she would not start her farm due to a lack of practical knowledge of mushroom farming. Participant D said that *"...the training was very interesting, and I understood the steps in mushroom farming, but I am not sure I know enough to begin a farm...I am not sure I will be successful."* Similarly, another participant, E added, *"My current difficulty is a lack of practical and technical knowledge to start my mushroom farm."* Along the same line, participant E seemed to think that his difficulty was a lack of self-efficacy to succeed in mushroom farming: *"I will not start farming because I lack knowledge of a market for oyster mushrooms. My only difficulty is how to process my fresh mushrooms to attract local consumers."*

However, participant C actually started a farm because she was confident in her knowledge and skills to start and sustain her farm:

I learned a lot from the training, and I know what to do. So, I started my own farm and it's going well. I think I can sell some of my mushroom to the marketplace.

Participants identified different kinds of knowledge that supported their decisions to start their own farms: mushroom-related knowledge and skills and marketing- and business-related skills and knowledge. Since they did not have solid entrepreneurship training, including marketing and business aspects, they hesitated to start farming. These hesitation phenomena can be connected to the following theme, subjective norms, that they can gain knowledge and skills from the instructors and other trainees in the program. However, the level of perceived skills and knowledge-based confidence in mushroom farming varied. Therefore, even if participants were satisfied with the training, they showed signs of imposter syndrome in becoming agro-entrepreneurs.

The Subjective Norms in the Mushroom Training Community

According to the theory of planned behavior, the subjective norm refers to the perceived social pressure

to perform or not perform a behavior. In this study, a distinct learning community was formed by training participants and instructors. This community functioned as a collaborative environment (such as a place/group) where both participants and instructors could build knowledge and skills together and even generate collective attitudes and opinions toward becoming agro-entrepreneurs.

This community of practice impacted participants' intentions to start mushroom farming both positively and negatively, differing from the original TPB description of subjective norms as social pressure. Instead, this community became a group where participants collectively built knowledge, discussed the possibilities and challenges of mushroom farming, and made collective decisions that the mushroom farming business is hard and unlikely to be successful.

In this study, although participants enjoyed meeting new friends during the training and learning together, many were deterred from starting a mushroom farm due to the concerns shared in impromptu small group discussions. As participants shared their knowledge and skills about mushroom farming, they also discussed the hindering factors that impacted their intentions to start a farm. The community of practice mainly negatively impacted the participants' intentions to start a farm. It overpowered participants' initial positive attitudes and even their perceived behavioral control. In other words, even if participants had a strong positive initial attitude and had a high perceived control, public opinion could still extinguish a desired intention to be agro-entrepreneurs.

Participant K and J mentioned:

In the beginning, I was very excited about starting a farm, but...as I discussed with others in training, I realized there would be many issues that I must deal with. I am not sure I am ready to deal with problems as I begin a farm. I am pretty confident in growing mushrooms, but I heard from others that I need to know how to sell mushrooms before I start a farm. I do not think I know enough about it. But I would like to learn more about it. Until then... I do not think I will start a farm anytime soon.

In addition, several participants mentioned that instructors' support was essential and helpful for them

to understand the process and gain more knowledge about mushroom farming. For example, participants K shared:

I received support from both the trainers and the other participants. I learned a lot about mushroom farming from them. My short-term plan is to learn more about the mushroom farming business, and my long-term plan is to acquire knowledge on mushroom processing to add value to mushrooms before selling, but I do not think I can start my business anytime soon. I heard a lot of problems when I will start my own business. I am not sure I am ready to deal with it or not.

As the quotes above indicate, most participants were content in the mushroom training while learning and developing farming skills together, however, during impromptu small group discussions and casual conversations, they brainstormed about financial risk, negative comments and concerns about mushroom farming were expressed. Participant J addressed:

The trainers and the participants were very supportive throughout the training. My short-term plan is to build on my knowledge of mushroom farming, and my long-term plan is to expand my mushroom farm. However, I do not think I am confident to start my farming as I discussed with others in the group. I learned there are more complex issues that I have not thought about.

This unplanned communication in the mushroom training community influenced participants' self-efficacy to cultivate and sell mushrooms negatively, eventually discouraging their intentions to start mushroom farming.

Intention Towards the Behavior: Becoming Agro-Entrepreneurs

In the end, even if all participants had a high intention to become agro-entrepreneurs, only four out of 150 participants actually started their own farming businesses. Their characteristics and initial motivations to start a farm varied. The first participant to initiate mushroom farming was a woman with several children, driven by the need to generate food to feed her family. She was in a desperate situation where she had to

generate food or income to feed her children. She was highly motivated and confident in her abilities to grow mushrooms, overcome possible challenges, and support her family. Even if she heard possible challenges from others, she was determined to start her own mushroom farm. Participant J stated:

I know it is difficult to grow mushrooms and sell them in the market. Many people are talking about it, but I have to do it. I do not have other options. I think I can grow mushrooms and find a way to sell them.

The second participant to start a farm was a teacher who wanted to feed her family and students with vegetables. Since she had a stable income source as a teacher, she was not interested in extra income but was motivated by the nutritional benefits of oyster mushrooms. She had purchased mushrooms from the market and was strongly motivated to join the mushroom training to cultivate mushrooms though her involvement in group discussions with other participants was limited. Participant K mentioned:

I have some experience growing mushrooms, and I bought them from the market, so I think I can grow them myself and sell them in the market. People are talking about how difficult it is to grow mushrooms and sell them in the market. Yeah, it might be difficult for people who just started it, but it's not the first time for me, so it should not be that difficult.

The final two participants who also started farms were friends who had recently graduated from the same university. Their initial motivations were to be agro-entrepreneurs. One friend had a degree in education, and other in business.

During the training, they discussed the business plan, identified challenges, and created a possible mitigation plan. Notably, the business participant planned to sell mushrooms to markets, and the other had some monetary resources to start a farm. In this way, they created a small community of practice within a big community of practice, which meant that big group norms did not influence them as much. Participant M said:

We knew what we wanted to do from the beginning. I think we can make it work. The training was great. During the training, we discussed mushroom farming and marketing. I think we can make it happen.

Participants N mentioned:

We already discussed some challenges, and we know how to solve those problems. We want to make mushroom cookies eventually. It thinks we can sell them at a low price.

The findings revealed that key factors that influenced participants' intentions to start mushroom farming included their initial motivation to join the training, their self-efficacy in mushroom farming, and their experience within the community of practice. Participants entered the mushroom training with specific initial appraisal because of supporting their family and community, generating income, and potentially mitigating air pollution issues. However, participants with communal goals demonstrated a stronger initial desire to participate compared to those with personal goals, like earning extra money. However, it does not seem to make a direct contribution to the final behavior. While most participants found the training enjoyable and valuable for enhancing their knowledge and skills in mushroom farming, they were reluctant to begin mushroom farming to be agro-entrepreneurs due to concerns about initial financial investment and potential future risks.

They appreciated the collaboration with others and the interaction with instructors within a community of practice, which fostered a sense of unity. However, many participants hesitated to start farming due to collective risk analysis regarding becoming agro-entrepreneurs. These deterrents affected almost all participants' intentions to start mushroom farming to be agro-entrepreneurs. Participants highlighted the need for more marketing education and technical support to grow mushrooms and highlighted the limitations of the agricultural training's technical focus.

Ultimately, most participants chose not to start a farm, influenced by impromptu small discussions and informal conversations amongst training participants during and after the training. Therefore, in the end, only four individuals proceeded to establish their own farms.

The results show that the community of practice had a dual role: it served as a collaborative learning space but also became a source of negative opinions, emphasizing perceived challenges and obstacles. These perceived risks and challenges were seen as too significant, leading most participants to refrain from starting mushroom farming. The perceived control over these barriers influenced participants' views on their ability to manage future challenges.

DISCUSSION

The findings of this study shed light on the practical implementation of several of the United Nations' 17 Sustainable Development Goals (SDGs) (United Nations, 2015), which include Goal 1 (No Poverty), 2 (Zero Hunger), 3 (Good Health and Well-being) and 4 (Quality Education), regarding agricultural education and training in developing countries. The United Nations has worked to develop specific action plans for these goals. As Purvis et al. (2019) mention the importance of reciprocal relationships among different goals, stating that each goal should have equal importance and intersect with the others to create a balanced approach to sustainable development, those four goals were addressed in the study. Goals 1 and 2 aim to double the agricultural productivity and incomes of small-scale food producers, particularly focusing on women, indigenous peoples, and farmers, through secure and equal access to land, resources and inputs, knowledge, financial services, markets, and opportunities for value addition and non-farm employment. Based on Goals 1 and 2, Goal 3 focuses on achieving good health and well-being for people of all ages including resolving malnutrition issues. Goal 4, Quality Education, aims to substantially increase the number of youth and adults with relevant skills, including technical and vocational skills, for employment, decent jobs, and entrepreneurship.

Agriculture is crucial for economic growth, environmental sustainability, job creation, and addressing malnutrition and hunger, thus supporting the balanced achievement of SDG goals (Nhemachena et al., 2020). As Mulder and Kupper (2006) claimed, agro-entrepreneurial activities can contribute to the economic growth of developing countries and communities by commercializing agricultural products and participating in the agro-industry to generate profits. Therefore, agricultural training and education should integrate these multiple goals by holistically examining the community's problems and needs, rather than focusing on one at a time.

Building on the previous efforts of promoting agro-entrepreneurship and developing practical training, this study provides best practices and recommendations to overcome challenges for agricultural training programs. By highlighting those who started mushroom farming as agro-entrepreneurs compared to those who did not, the study shows successful strategies and approaches to inspire local community members. The priority is

enhancing participants' technical skills and cultivating an entrepreneurial mindset, aiming to drive sustainable development and economic growth in the local agricultural sector. Providing comprehensive training and a robust support system, the study aspires to create a vibrant community of agro-entrepreneurs who are well-equipped to tackle various challenges and seize opportunities within the agricultural industry. The goal is to build a resilient and innovative agricultural community that can adapt to changing conditions and contribute significantly to the local economy's prosperity and stability.

Herath (2013) and Rezaei et al. (2018) emphasized that farmers in developing countries should prioritize proper agricultural education from various sources to enhance their intentions and behaviors in initiating farming. This study specifically underlines the crucial role of knowledge development in enhancing behavioral control, showing that increased knowledge and skills had a significantly positive impact on the intention to start mushroom farming. This finding is aligned with previous theory of planned behavior (TPB) studies (e.g., Che et al., 2022; Haruna et al., 2019; Zamani-Miandashti, 2013), which emphasize the importance of knowledge and skills development in agricultural education. Participants' perceptions of their acquired knowledge and skills, or their self-efficacy in mushroom farming, appeared to shape their assessment of the difficulty of the intended behavior. Therefore, the acquisition of self-efficacy through targeted training can effectively encourage individuals to undertake agricultural ventures like mushroom farming.

Beyond the critical role of knowledge and skills development, it is essential to highlight the significance of social norms within the mushroom farming training community, which evolved into a cohesive group through a community of practice. According to Wenger (1991), participation in a community of practice profoundly impacts participants' professional development and identity formation. He asserted that a community of practice is intertwined with participants' sense of meaning, practice, community, and identity. These processes are inherently linked to interactions with fellow community members, and their behavioral intentions are shaped by the collective dynamics of the group rather than generated from sole personal goals.

This concept can be applied to agricultural training, as it involves individuals engaging in a community of practice

(Lave and Wenger, 1991). Within this context, participants can develop a shared perspective that emphasizes the importance of continued training and expertise in a particular field. The influence of a supportive peer group or mentor is also significant as it helps to guide participants through various stages of development marked by key formative events. The level of training and the resulting sense of familiarity and competence in the field are reinforced by these communal interactions. The agricultural training community fosters ongoing learning and professional growth, becoming a vital support system. However, the community can generate social pressure and place members collectively develop negative opinions, which discourage the intention to perform the behavior (Ajzen, 1991).

Although participants reported high satisfaction with the training itself after completing the mushroom training, only four of them actually initiated agro-entrepreneurship with mushroom farming. Most participants appreciated the knowledge and skills they gained and recognized the positive impacts of mushroom farming, such as reducing unemployment, malnutrition, and air pollution in their community. It means that they had positive attitudes (evaluation) for intentions to start mushroom farming. Despite these benefits, most participants did not follow through to start mushroom farming due to foreseen obstacles and challenges. That negative attitude was co-constructed during the training sessions by collective risk analysis discussion. So, most of the participants felt incompetent, lacking the necessary knowledge and skills to navigate future challenges such as marketing and customer service, perceiving these obstacles as insurmountable.

In the community of practice, perceived behavior control is shaped by collective resources, support systems, and shared knowledge within the community (Bandura, 1986). In this study, mushroom training groups and the training session itself were the communities of practice (Brown and Duguid, 1991). Resource availability, such as access to tools, materials, and information necessary for the behavior, increased perceived control (Li et al., 2009). For example, a research community providing access to journals, databases, and statistical software boosts researchers' perceived control over conducting and publishing research. Support systems, including mentorship programs, peer support groups, and collaborative networks, also enhance perceived behavior

control (Schwarzer, 1992). Shared knowledge, through knowledge exchange and collective problem-solving practices within the community, also enhances perceived behavior control (Wenger, 2010). For example, in an online coding community, shared code repositories, discussion forums, and problem-solving threads empower members to tackle coding challenges with greater perceived control.

Within a community of practice, subjective norms play a crucial role as they represent the perceived social pressure to perform or not perform a particular behavior (Ajzen, 2020). These norms are shaped by the expectations and behaviors of influential members of the community, such as mentors, peers, and leaders. Similarly, in this study, if seniors in the community claimed negative evaluations and opinions, junior and female members were likely to follow their decisions to gain recognition and respect within the community (Cialdini and Goldstein, 2004).

This social influence can significantly impact individuals' intentions and actions, as they often seek to align with the group to gain acceptance and maintain their membership within the community. Thus, in a community of practice, subjective norms are a powerful force that shapes behavior by leveraging the collective expectations and social dynamics of the group (Hogg and Reid, 2006). Whether in professional, academic, or informal settings, these norms guide individuals' actions and intentions, fostering a sense of belonging and coherence within the community.

In this research, participants' intentions regarding farming were predominantly influenced by subjective norms directly and indirectly through perceived behavioral control. The community of practice served as a hub for shaping these subjective norms, acting as a collective decision-making space crucial in motivating individuals to embark on farming ventures (Ijeghede, 2018). Conversely, training sessions had a counterproductive effect, impeding participants' intentions and actions. During training, participants collectively identified challenges and barriers, leading many to perceive future obstacles as insurmountable, thus dampening their enthusiasm for starting mushroom farming.

Moreover, participants' pessimistic outlook on their ability to control these challenges further impacted their willingness to engage in farming. This discovery aligns with Ephrem et al.'s (2022) assertion that contemporary

individuals are disinclined towards pursuing careers in agribusiness due to negative portrayals of the field on social media. To mitigate incompetence of knowledge, and fear of failure issues in perceived behavior control, providing expanded educational resources, including both technical training and non-technical support such as marketing and customer service, could help empower participants and better equip them to overcome difficulties associated with starting a farming venture (Aga and Singh, 2022).

However, out of four participants who ventured into farming, it was noteworthy that two recent college graduates exhibited a strong passion for agro-entrepreneurship. This finding is consistent with Augusto et al.'s (2015) assertion that African youth who perceive agribusiness as socially esteemed and supported are more inclined towards agro-entrepreneurial pursuits. Similarly, Zaremohzzabieh et al. (2022) investigated the career intentions of agricultural students and found that a favourable attitude towards agriculture was the most influential factor in shaping their career aspirations. These results underscore the importance of agricultural education in attracting highly educated young individuals to the agricultural sector.

CONCLUSION

This study utilized the Theory of Planned Behavior (TPB) framework to investigate participants' intentions to become agro-entrepreneurs, focusing on attitudes toward the behavior, perceived behavioral control, and subjective norms. The results revealed that while initial attitudes were positively influenced by participants' motivations to support their families and communities, actual behavior did not always align with their expressed intentions. Despite enthusiasm during the training, only four out of fifteen participants proceeded to start their own mushroom farms.

Perceived behavioral control played a critical role, as participants felt they lacked practical knowledge and skills, particularly in the business and marketing aspects of mushroom farming. This perceived inadequacy led to feeling of inadequacy (imposter syndrome), discouraging them from pursuing agro-entrepreneurship. Additionally, the subjective norms within the community of practice had a significant influence, as participants collectively shared and amplified concerns about potential challenges and risks

associated with mushroom farming. This collective risk analysis often led to a reluctance to pursue farming, despite initial optimism and interest.

The findings also highlight the dual role of the community of practice, which functioned both as a space for knowledge sharing and as a source of negative opinions about mushroom farming. Participants valued the collaborative learning environment, but the social pressure within the group to acknowledge challenges and obstacles led many to abandon their entrepreneurial intentions.

These results underscore the need for agricultural training programs to address not only technical knowledge and skills but also entrepreneurship education, including marketing and business strategies. Expanding resources and support systems, alongside fostering a community culture that encourages resilience and confidence, could empower more participants to overcome barriers and pursue agro-entrepreneurship.

RECOMMENDATIONS

Effective agricultural training and entrepreneurship programs are pivotal for sustainable development and economic growth, particularly in rural communities. Various stakeholders, including local governments, UN organizations, and research organizers, play critical roles in designing and implementing these programs. By addressing the specific needs and motivations of participants, fostering community engagement, and ensuring the inclusivity and sustainability of initiatives, these programs can significantly enhance the success rates of farming ventures and contribute to broader development goals.

Organizers of similar research

Future research should delve deeper into understanding participants' specific motivations. Tailoring training programs to address these motivations can increase engagement and improve outcomes. Incorporating a mix of personal and communal goals can enhance participants' commitment and success rates. Given the significant impact of perceived behavioral control on participants' intentions, training programs should place a strong emphasis on building self-efficacy. This can be achieved by providing comprehensive, hands-on training and ongoing support.

Additionally, it is important to pay close attention to the social dynamics within training communities.

Encouraging positive interactions and mitigating negative influences through structured activities and guided discussions can be beneficial. Facilitators should be trained to manage group dynamics effectively. Conducting long-term studies to assess the sustainability and long-term impact of training programs will help in understanding how initial training influences ongoing behavior and success in farming ventures.

Local government representatives

To support agricultural training and entrepreneurship, it is critical for local governments to create and implement practical policies and programs. Key initiatives should include providing financial incentives, grants, or low-interest loans to help training participants start their farming ventures; fostering community engagement by organizing local agricultural fairs and exhibitions; and offering ongoing support and advice to new and existing farmers through workshops and access to expert consultations.

In the long term, investing in infrastructure that supports agricultural activities is necessary. This includes improving transportation networks, ensuring access to markets, and providing reliable sources of water and electricity. Additionally, promoting agribusiness through local media and educational campaigns is crucial to highlight the benefits of agribusiness.

Non-Profit Organizations planning similar projects in the future

In the study, participants were hesitant to start businesses due to a lack of confidence in marketing and business operations. By offering a holistic training approach, NGOs can help participants transition more effectively into entrepreneurship. NGOs should provide not only technical skills like farming methods but also business and marketing strategies. It's crucial to equip participants with the knowledge to develop business plans, manage finances, access markets, and navigate supply chains. This approach ensures that participants are prepared for the realities of running a business and not just the technical aspects of production. Ongoing mentorship can also provide the support needed to bridge the gap between training and real-world application. This mentorship should guide participants through the initial challenges of starting and growing their businesses.

Collaboration with local governments, NGOs, and private sector entities is vital for leveraging resources and expertise. These partnerships can enhance the reach and effectiveness of training programs, ensuring they are well-supported and aligned with local needs. Robust monitoring and evaluation frameworks are essential for assessing the impact of these programs, allowing for continuous improvement. Inclusivity is also crucial, particularly in encouraging women's participation by addressing specific barriers they face in agriculture. By adopting a comprehensive, collaborative approach and scaling successful models, UN organizations can significantly enhance the impact of their capacity-building initiatives, empowering individuals and contributing to long-term development goals.

By focusing on participants' specific needs, fostering collaboration among key stakeholders, and ensuring the sustainability and inclusivity of agricultural training programs, significant strides can be made towards empowering individuals and fostering sustainable development. Local governments, UN organizations, and researchers each have a unique and crucial role in these efforts, and their coordinated actions can lead to more effective and impactful outcomes in the agricultural sector.

Limitations and Future Study

There are several limitations in this study. First, the use of resident sample size and convenient sampling may limit the generalizability of the findings of this study. Future studies should expand the sample selection to increase the result's generalizability. Future studies should consider following the participants who started farms to understand their motivation to continue agribusiness and their resiliency. Further, the current study found that prospective farmers learn from each other and discuss the advantages and disadvantages of starting mushroom farming based on a community of practice theory. However, the decision-making process differed among the participants' personalities. For instance, even though some participants knew about the risk and decided not to start mushroom farming, some decided to start mushroom farming despite the risks because of their different personality characteristics. Therefore, future studies should include personality as one of the driving factors in agricultural training using TPB. Lastly, participants' initial motivations in this study were reported after the training, and participants might

not have remembered their initial motivations clearly. To investigate genuine initial motivations, it is suggested to investigate them at the beginning of training rather than afterward.

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