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Sprout Up Movement: Strategy Formulation Based on Factors Influencing Youth Intent to Pursue Agriculture

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Abstract

Analysts predict the Philippines will face a deficit of farmers in the next 10 to 12 years, as the average age of farmers is 55 to 59 years. This challenges food security, with fewer youth interested in agriculture. To address this, the Sprout Up Movement was launched in 2022 to highlight the personal stories of those in agriculture through social media, to rebrand agriculture and engage young people. Theory of Planned Behavior argues that perceived behavioral control (PBC), including employment opportunities and personal confidence, significantly impacts attitudes toward agriculture, affecting subjective norms and intention to pursue an agriculture-related degree. A surprising finding is the indirect relationship between PBC and intention, mediated by attitude, a connection not widely explored in existing research. Strategies were developed using pseudo-quantitative methods like Internal Factor Evaluation and External Factor Evaluation, along with the I-E Matrix, SWOT Matrix, and Quantitative Strategy Planning (QSP) Matrix. The QSP matrix suggests the best path forward for the Sprout Up Movement involves expanding and building partnerships with higher education institutions and enhancing social media content to highlight employment opportunities and boost the youth's confidence to pursue agriculture-related careers.

Introduction

Engaging youth in agriculture is essential for nation-building. Many Filipino youth are discouraged from pursuing agricultural careers due to the prevailing negative perception that farmers are poor, underpaid, and unappreciated (Mercado & Osbahr, 2022; de Leon et al., 2023). Compounding this issue is the aging population of Filipino farmers, with an average age of 57 to 59 years old. Experts warn that this could lead to a severe shortage of farmers in the Philippines within the next 10 to 12 years, jeopardizing the country's aims for rice self-sufficiency and food security (Southeast Asian Regional Center for Graduate Study and Research in Agriculture [SEARCA], 2023). Therefore, it is crucial to expand opportunities in agriculture, rebrand the sector, and actively engage the youth.

One way to achieve this is by leveraging technology to make agriculture more appealing and accessible to young people. With the advent of technology, learning also democratized in social media platforms. Schacter and Szpunar (2015) present a conceptual model that outlines how online learning can be viewed as self-regulated learning, offering insights into improving learning outcomes with educational videos. Various meta-analyses have also indicated

that technology has the potential to improve the learning process, especially videos (Means et al., 2010; Hsin & Cigas, 2013; Schmid et al., 2014; Stockwell et al., 2015). This data supports the effectiveness of videos as a form of education.

On the other hand, empirical evidence suggests that engaging in practical, hands-on activities positively impacts student motivation, enhances their interest, and improves academic performance and retention (Franklin & Peat, 2005). This can be seen in capacity-building activities. Furthermore, Holstermann et al. (2010) discovered that hands-on activities significantly increased students' enthusiasm for academic pursuits. Hands-on learning is a pedagogical approach that encourages students to acquire knowledge through direct experience (Ekwueme et al., 2015). This method involves enabling students to interact with tangible materials or objects that represent the theoretical concepts being studied. For example, in agricultural classes, when teaching the cultivation of field crops such as cassava, instructors create an environment where actual cultivation can take place, allowing students to experience the practical aspects of the subject matter. However, drawbacks were also considered as implementing a hands-on approach to agricultural education necessitates the availability of specific resources, including a demonstration farm, qualified farm instructors, agricultural machinery, and suitable farmland (Amadi & Adejoh, 2020).

To bridge the gap, a social movement for agriculture awareness must be started. Social movements are crucial for regime changes as they influence the political and cultural processes that destabilize existing cultures (Turnheim & Geels, 2012). Campos and Marin-Gonzales (2020) highlighted that the modern definition of social movements encompasses driving social change across various issues—political, environmental, health, or social—by utilizing human agents to achieve desired outcomes. Villamayor-Tomas et al. (2022) also noted that social movements often positively impact community-based natural resource management.

Therefore, in 2022, the Sprout Up Movement, spearheaded by Sprout Up Philippines, an emerging organization in the Philippines, was born. This is a growing movement in the Philippines that aims to encourage young people to pursue agriculture as a career through the creation of social media content. This movement highlights the personal stories and journeys of people who are currently enrolled in agriculture-related degree programs as well as those who are now working in agriculture.

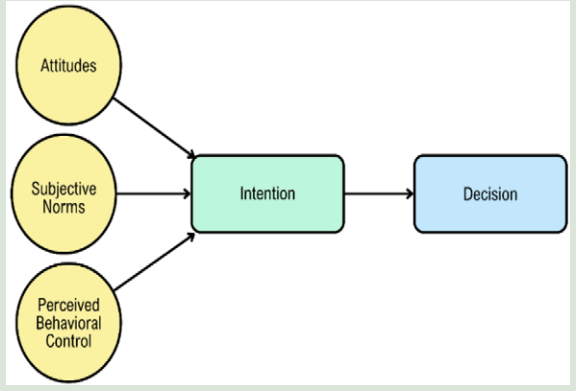
This paper aims to present the Sprout Up Movement to academia by exploring the factors shaping students' intention to pursue agriculture as a degree program, scanning the internal and external environment surrounding the movement, and developing strategies to guide the movement moving forward.

Theoretical Framework

In understanding the factors that shape students' intentions and decisions to pursue a specific field of study, several studies have utilized the Theory of Planned Behavior (TPB) to establish the relationships among various factors and the decision to pursue a specific degree program. The same framework was used by Potishuk and Kratzer (2017) in entrepreneurship and Santos and Almeida (2018) in accounting. According to the TPB, as seen in Figure 1, three main factors influence how people act: what they think will happen if they do something (behavioral beliefs), what they think others expect them to do (normative beliefs), and what they think can help or stop them from doing it (control beliefs). These factors work together as follows: 1) Behavioral beliefs affect how people feel about the behavior; 2) Normative beliefs affect how much social pressure people feel; and 3) Control beliefs affect how capable people feel of doing the behavior. When people have positive attitudes, feel social support, and believe they can do

Figure 1

Theory of Planned Behavior



something, they are more likely to intend to do it. If they have control over the situation, they are more likely to follow through. So, intention is the most direct step before taking action. If people accurately understand their control over the situation, they can better predict their behavior (Ajzen, 2020).

Methodology

Exploration of the Factors Shaping Intention to Pursue Agriculture

In this paper, the terms "construct" and "indicators" were used. Construct refers to an abstract concept that is not gathered from the respondents but is formed through related observed variables (Hair et al., 2021). In this study, the constructs were attitudes, subjective norms, and perceived behavioral control. On the other hand, indicators are those related observed variables that were measured from the responses of the respondents from the survey questionnaires. The surveyed population (n=58) comprised individuals aged 18-24 who were enrolled in agriculture-related degree programs at the University of the Philippines Los Baños. All information that respondents provided was treated with the utmost confidentiality per Republic Act 10173, otherwise known as the Data Privacy Act of 2012. The data collected and stored were only used in analyzing the factors shaping intent to pursue agriculture. All respondents agreed to this clause.

The research employed an exploratory approach that integrated a descriptive-correlational and predictive design. Descriptive research focused on describing the socio-demographic profiles of people who decided to pursue agriculture at the University of the Philippines Los Baños (UPLB), presented in percentages. UPLB was selected as the research site because it is recognized as a Center of Excellence in Agriculture—a designation awarded to departments within higher education institutions that consistently excel in instruction, research, and publication (Commission on Higher Education, 2022). Furthermore, UPLB has a strong track record of producing licensed agriculturists, achieving an impressive 99.02% passing rate in the 2023 Licensure Examination for Agriculturists (Professional Regulation Commission, 2023). Socio-demographic factors such as community type (social factor), household income level (economic factor), social media ownership (access to technology), and social media exposure (media consumption habits) were treated as background factors. They were correlated with constructs such as attitude, subjective norms, perceived behavioral control, and intention using Spearman's correlation matrix.

Quantitative data analysis involved the development of a structured survey questionnaire using the Likert scale, in alignment with the identified hypotheses and variables according to the Theory of Planned Behavior. The survey (Appendix 1) encompassed items designed to gauge attitudes including career prospects, personal interests, practical experiences, and societal impact (Potishuk & Kratzer, 2017; Santos & Almeida, 2018; Yusoff et al., 2022); subjective norm (Jafari & Aliesmaili, 2013; Kusumawati, 2013; Sadjail et al., 2022; Yusoff et al., 2022); and perceived behavioral control (Potishuk & Kratzer, 2017; Santos & Almeida, 2018; Sadjail et al., 2022; Yusoff et al., 2022). Figure 2 displays the conceptual framework used in this study.

To validate these paths, the data obtained from the survey was analyzed statistically using Partial Least Squares – Structural Equation Modelling (PLS-SEM) with bootstrapping with 5000 sub-samples using SmartPLS 4. PLS-SEM is ideal for estimating multiple relationships between constructs, especially when mediation is involved. Additionally, this technique is highly effective with smaller sample sizes (Gimeno-Arias et al., 2021).

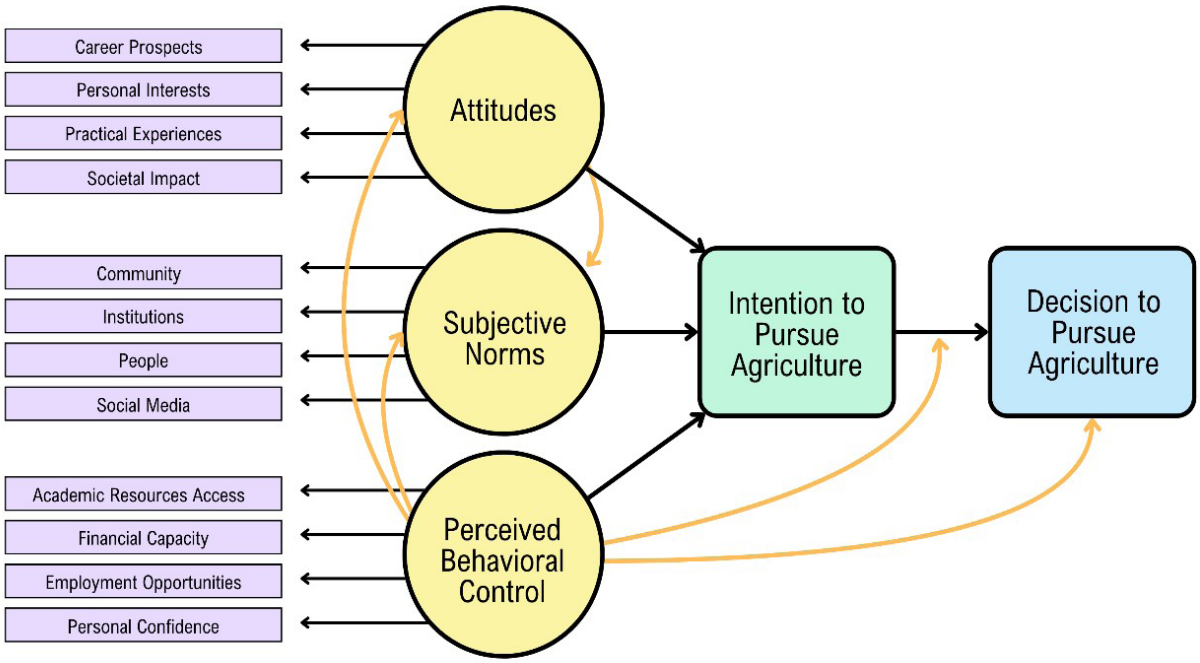
The reliability of constructs was analyzed using three measures, namely, Cronbach's alpha, composite reliability, and Dijkstra-Henseler rho A to assess internal consistency, where values higher than 0.50 are acceptable (Hair et al., 2021). The path model was validated through an analysis of the path coefficients for each construct and outer loadings for the relationship between constructs and indicators. For both of these parameters, values closer to 1 indicate a stronger relationship among the two connected paths (Hair et al., 2021).

Environmental Scanning

The Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) required data collection from both online sources and

Figure 2

Conceptual Framework of the Exploration of the Factors Shaping Intention to Pursue Agriculture. Constructs are Colored Yellow, Green, and Blue; While Indicators are Colored Purple. Black Arrows Signify the Relationships According to the TPB, While Orange Arrows are Additional Relationships According to Studies (Sadjail et al., 2022; Yusoff et al., 2022; Santos & Almeida, 2018; Potishuk & Kratzer, 2017).



reliable resources. Internal factors included overall performance, available resources, and organizational capabilities. This was based on the analytics from the social media platforms. External factors were both identified through a literature search and assessment of threats which encompassed market environment conditions, competitive forces, and regulatory changes.

Thirteen key internal factors and 15 key external factors were identified. These were placed as rows in two separate tables—one table for the strengths and weaknesses (internal), and another for opportunities and threats (external). For each table, the total weight must be equal to 1.0. To do this, random numbers were generated using an artificial intelligence tool, ChatGPT. The random numbers were arranged from highest to lowest, and these weights were assigned based on the relative importance of the factor to the movement. For each factor, the performance of the movement was scored from 1 (lowest) to 4 (highest) based on a guide from David (2011). The weights were multiplied by the scores to come up with the weighted scores. Weighted scores for each table were summed up to provide total IFE and EFE scores, reflecting the position of the movement, internally and externally. The results from the IFE and EFE were plotted on an IE Matrix to determine appropriate strategies. The intersection of the score must fall into categories such as grow and build, hold and maintain, harvest and divest, or overcome and minimize (David, 2011). This was used as the basis for formulating strategies for the TOWS matrix.

Strategy Formulation

The TOWS matrix involved a comprehensive examination of internal and external factors surrounding the initiative, Sprout Up Movement. From the strengths, weaknesses, opportunities, and threats listed in the environmental scanning, strategies that correspond to SO, ST, WO, and WT were formulated, and these were plotted into quadrants. From the chosen quadrant from the TOWS Matrix, the strategies were selected and evaluated through the Quantitative Strategic Planning Matrix based on their potential impacts on the overall health of the movement. In this

table, the strengths, weaknesses, opportunities, and threats from the IFE and EFE matrix and their weights were reused as rows, and the strategies from the chosen quadrant in both IE and TOWS Matrix were plotted as columns. Attractiveness scores were assigned answering the question "Does this factor affect the choice of strategies?" Furthermore, in assigning the attractiveness score, the researcher considered whether the strategy capitalizes on the strength, improves on the weakness, exploits the opportunity, and avoids the threat. The QSP Matrix calculated total attractiveness scores, leading to the ranking of alternatives based on their overall attractiveness (David, 2011). This matrix further resulted in the best strategies to implement moving forward.

The IFE, EFE, and QSP scores were determined by a single scorer to ensure consistency in applying the evaluation criteria. This approach was carefully implemented, leveraging the scorer's expertise and a comprehensive analysis of the data to uphold objectivity and reliability throughout the assessment process.

Results and Discussion

Exploration of the Factors Shaping Intention to Pursue Agriculture

Socio-Demographic Profile of Respondents

The surveyed population (n=58) consists of respondents aged 18-24 who pursued agriculture-related degree programs at university. Regarding their community background, 32.8% grew up in rural areas, 31% in suburban areas, and 36.2% in urban areas. The distribution of household monthly income levels is as follows: 19% earn less than approximately USD 370.35, 27.6% earn between approximately USD 370.35 and USD 765.86, 25.9% earn between approximately USD 765.86 and USD 1,339.73, 12.1% earn between approximately USD 1,339.73 and USD 2,297.59, 6.9% earn between approximately USD 2,297.59 and USD 3,829.31, and 8.6% earn more than approximately USD 3,829.31. The respondents pursued the following degree programs: 22.4% in BS Agriculture, 22.4% in BS Agricultural and Biosystems Engineering, 19% in Agribusiness Management and Entrepreneurship, 17.2% in Agricultural and Applied Economics, 15.5% in Agricultural Biotechnology, and 3.4% in Agricultural Chemistry.

Reliability Assessment of Constructs

To assess the reliability and internal consistency of the constructs, three measures were calculated: Cronbach's alpha (α), composite reliability (ρc), and Dijkstra-Henseler's rho A (ρa). The results are summarized in Table 1. These reliability metrics suggest that the Subjective Norms construct is the most reliable, while the Attitude and Perceived Behavioral Control constructs show moderate reliability. According to Hair et al. (2021), values above 0.50 are acceptable; therefore, all constructs are deemed sufficiently reliable, as their scores exceed this threshold. This indicates that the measurement of these constructs is stable and consistent, providing confidence in the validity of the subsequent analysis.

Correlation of Background Factors on the Constructs

The background factors, such as community type, household income level, social media ownership, and social media exposure, were correlated with the constructs of attitude, subjective norms, perceived behavioral control, and intention, as shown in Table 2. Spearman's correlation revealed a significantly weak negative relationship between community type and attitude. This indicates that increasing urbanization leads to a decrease in attitude towards agriculture, which is reflected in career prospects, personal

Table 1

Reliability of the Constructs Based on Cronbach's Alpha (a), Composite Reliability (pc), and Dijkstra-Henseler's rho A (pa), Values are Structured as Coefficient of Original Sample (p-values).

Constructs	Cronbach's alpha *(a)*	Composite Reliability *(pc)*	Dijkstra-Henseler's rho A *(pa)*
Attitude	0.643 (0.000)	0.782 (0.000)	0.653 (0.000)
Subjective Norms	0.746 (0.000)	0.835 (0.000)	0.804 (0.007)
Perceived Behavioral Control	0.608 (0.000)	0.746 (0.000)	0.551 (0.043)

Table 2

Correlation of Background Factors on the Constructs Based on Spearman's ($p<0.05$). Values are Structured as Spearman's Rank Correlation Coefficient (p-values).

Background Factors	Attitude	Subjective Norms	Perceived Behavioral Control	Intention
Community Type	**-0.268**	-0.186	-0.199	-0.044
	(0.004)	(0.167)	(0.138)	(0.745)
Household Income Level	-0.147	-0.248	-0.030	-0.050
	(0.274)	(0.063)	(0.827)	(0.710)
Social Media Ownership	**-0.265**	0.017	0.058	-0.235
	(0.046)	(0.903)	(0.670)	(0.078)
Social Media Exposure	0.027	0.062	0.197	0.007
	(0.844)	(0.645)	(0.141)	(0.962)

interests, practical experiences, and the societal impact of agriculture. Values closer to 1 signify stronger relationships; values closer to 0 have weak relationships (Leclezio et al., 2015).

In the following table, the community types are rural, suburban, and urban; the household income levels considered were as follows: less than approximately USD 370.35, between approximately USD 370.35 and USD 765.86, between approximately USD 765.86 and USD 1,339.73, between approximately USD 1,339.73 and USD 2,297.59, between approximately USD 2,297.59 and USD 3,829.31, and more than approximately USD 3,829.31. The social media ownership was assigned as increasing from 1, 2, 3, 4 to more than 5, while the social media exposure was rated by the respondents as low, moderate, and high.

Another significant weak negative relationship was found between social media ownership and attitude. This suggests that with a greater number of social media apps influencing potential career choices, students are less likely to choose agriculture. This indicates that social media participation may impact career choices. Hoag et al. (2017) supported this by noting that technology used for content participation and creation influenced students' choice of degree programs, specifically journalism, in their study. In the current study, increased social media app ownership revealed a lower tendency to choose agriculture. This aligns with the Paradox of Choice, where having too many options can reduce people's sense of control. The abundance of choices affects evaluation and increases the complexity of decision-making (Koivisto, 2020). While this aligns with the earlier finding that higher urbanization decreases the likelihood of choosing agriculture by influencing attitudes toward the field, the impact of having a multitude of options must also be considered. The abundance of career choices available through social media creates competition among various fields, making it less likely for any one option to dominate. In this context, agriculture may be disproportionately overlooked due to its relatively lower visibility or perceived prestige (Mercado & Osbahr, 2023; de Leon et al., 2023) compared to other professions frequently highlighted on these platforms. Therefore, the multitude of options amplifies the complexity of decision-making, particularly for students, and potentially dilutes interest in fields like agriculture, which may already face biases related to its traditional image.

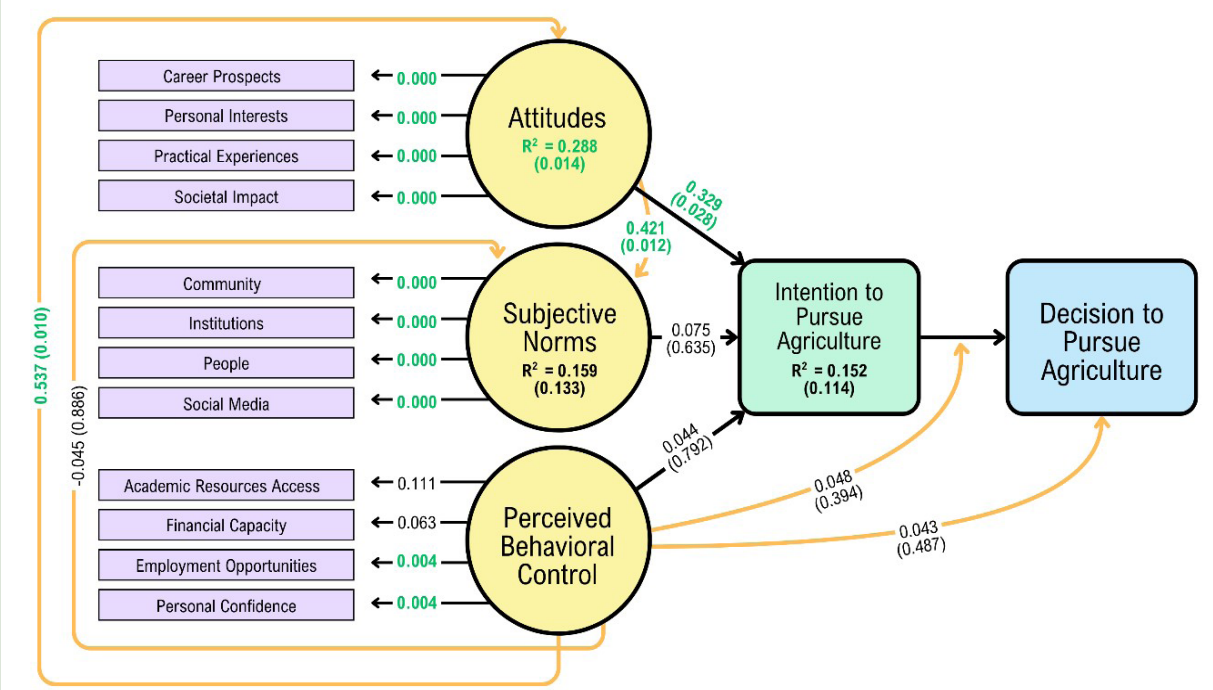
Path Model of Factors Influencing Students' Intention to Pursue Agriculture

Figure 3 illustrates the tested relationships using the Theory of Planned Behavior (TPB) path model, incorporating relationships established in previous studies (Ajzen, 2020). In this study, there is an absence of a significant relationship between subjective norms (SN) and intention (I), nor between perceived behavioral control (PBC) and intention, which contrasts with the Theory of Planned Behavior. However, this absence of direct relationships was compensated by indirect connections and interconnectedness among the three constructs.

In the figure below, it is evident that while perceived behavioral control (PBC) does not directly influence intention, it significantly affects

Figure 3

Results on the Path Relationships Among Factors Shaping Student's Intention to Pursue Agriculture. Values Inside Arrows from Constructs to Other Constructs are Represented as Path Coefficients (p-values). Values Inside Arrows from Constructs to Indicators are p-values. Values that are Green Indicate Significant Relationships.



attitude (A), and attitude directly influences intention. This is parallel to the TPB, where perceived behavioral control influences the extent to which attitudes affect intentions (Ajzen, 2020). Research in five universities in Indonesia demonstrates that students' favorable attitudes toward tertiary education institutions are significantly shaped by their perceptions of lecturer quality and educational facilities, which could fall under the academic resources access, reflecting PBC (Gayatri et al., 2021). This finding aligns with the current study, as both suggest that PBC (in this case, access to academic resources) influences attitudes, which, in turn, affect behavioral intentions. The Indonesian study serves as an example of how perceptions of control over one's environment—such as access to quality resources—can play a crucial role in shaping attitudes and ultimately influencing intentions.

This study also found the interconnectedness of the three constructs as attitude also significantly relates to the subjective norm. This suggests that favorable views towards career prospects, personal interests, practical experiences, and societal impact in agriculture can amplify social encouragement from communities, institutions, people, and social media. According to Thorson et al. (2021), algorithms usually tailor content based on user's previous interactions, like clicking on or reading relevant stories. For example, if a user has shown interest in agriculture, their social media algorithm might recommend more agricultural content based on past interactions. This scenario illustrates a connection between attitude and subjective norms.

Lastly, attitudes influence intention, which highly coincides with the TPB (Ajzen, 2020). Students' perceptions of a specific field significantly influence how they choose a certain field of study. For instance, if they hold negative attitudes towards a subject, they are more likely to avoid it. If they have positive attitudes toward it, the more they will be committed to it (Yusoff et al., 2022). This has been demonstrated as well in various fields such as accounting (Santos & Almeida, 2018) and entrepreneurship (Potishuk & Kratzer, 2017).

Path Coefficients for Relationships Between Constructs in PLS-SEM

In PLS-SEM, path coefficients show how changes in one variable (predictor construct) affect another variable (endogenous construct) when data is standardized. Path coefficients closer to -1 indicate strong negative relationships, while those closer to +1 indicate strong positive relationships. For example, a path coefficient of 0.505 means that if the predictor variable increases by one standard deviation, the endogenous variable will increase by 0.505 standard deviations, assuming other predictors remain constant (Hair et al., 2021).

In Table 3, the only significant structural paths at the 0.05 level of significance are perceived behavioral control → attitude, attitude → subjective norms, and attitude → intention. This reflects the interconnectedness of the three predictor constructs as outlined by the Theory of Planned Behavior.

Outer Loadings of Indicators for Constructs in the PLS-SEM Model

Table 4 reflects the strength of the relationships between the constructs and their indicators. This data validates which of the indicators shape

Table 3

Structural Path Coeffients for the Relationships Between Constructs, Namely, Attitude (A), Subjective Norms (SN), Perceived Behavioral Control (PBC), and Intention (I).

Structural Path	Original Sample	Sample Mean	p-values	Remarks
A → I	0.329	0.341	0.028	H_a supported
A → SN	0.421	0.419	0.012	H_a supported
PBC → A	0.537	0.505	0.010	H_a supported
PBC → D	0.043	0.042	0.487	H_a not supported
PBC → I	0.044	0.057	0.792	H_a not supported
PBC → SN	-0.045	-0.057	0.886	H_a not supported
SN → I	0.075	0.085	0.635	H_a not supported
PBC x I → D	0.048	0.045	0.394	H_a not supported

Table 4

Reflective Measurement Model: Outer Loadings on the Relationships Between Constructs, Namely, Attitude (A), Subjective Norms (SN), Perceived Behavioral Control (PBC), Intention (I), and Indicators.

Structural Path	Original Sample	Sample Mean	p-values
Career Prospects → A	0.757	0.697	0.000
Personal Interests → A	0.681	0.678	0.000
Practical Experiences→A	0.703	0.701	0.000
Societal Impact→A	0.607	.0607	0.000
People→SN	0.829	0.807	0.000
Institutions→SN	0.801	0.759	0.000
Community →SN	0.682	0.648	0.000
Social Media→SN	0.669	0.629	0.000
Academic Resources Access→PBC	0.490	0.465	0.111
Financial Capacity →PBC	0.692	0.566	0.063
Employment Opportunities→PBC	0.721	0.642	0.004
Personal Confidence → PBC	0.688	0.629	0.004

the constructs—attitude, subjective norm, and perceived behavioral control—in accordance with the theory of planned behavior. Outer loadings higher than 0.70 are highly satisfactory in the indicators associated with the construct, while those above 0.50 are acceptable (Taylor & Geldenhuys, 2019).

Outer loadings represent the correlations between a construct and its indicators, illustrating the contribution each indicator makes to its designated construct (Hair et al., 2021). All indicators of attitude and subjective norms have significant strong relationships with them, while for perceived behavioral control, only employment opportunities and personal confidence have the same relationship. This validates the framework for both A and SN (Potishuk & Kratzer, 2017; Santos & Almeida, 2018; Yusoff et al., 2022), while for PBC, there could be more considerations in the field of agriculture aside from academic resources access and financial capacity. Considering all results, Figure 4 displays the revised model for the factors shaping the intention of students to pursue agriculture-related courses.

Considering this exploration, the succeeding sections discuss internal and external environmental scanning for the Sprout Up Movement.

Environment Scanning

Internal Factor Evaluation Matrix

Table 5 provides an evaluation of the internal factors such as strengths and weaknesses inherent to the Sprout Up Movement. These factors are based on the performance of the movement based on analytics and key performance indicators (KPIs) obtained from the social media accounts of Sprout Up Philippines. David (2011) highlighted that higher weights should be placed on factors that highlight the goal of the enterprise.

From this list, higher weights were given to factors regarding the following (Strength 2 and Weakness 6) since it is a movement which means that audience reach is important; and availability of people who can share their narratives (Strength 5). This is because these factors are highly connected to the mission of the Sprout Up Movement, which is to rebrand agriculture among the youth by highlighting the personal narratives of agriculture practitioners through social media creation. The total score for the internal factor is 2.46, which reflects that the internal environment of Sprout Up Movement is only moderate, thus, there is still a need for improvement.

Figure 4

The Revised Conceptual Framework Based on the Relationships Drawn from PLS-SEM.

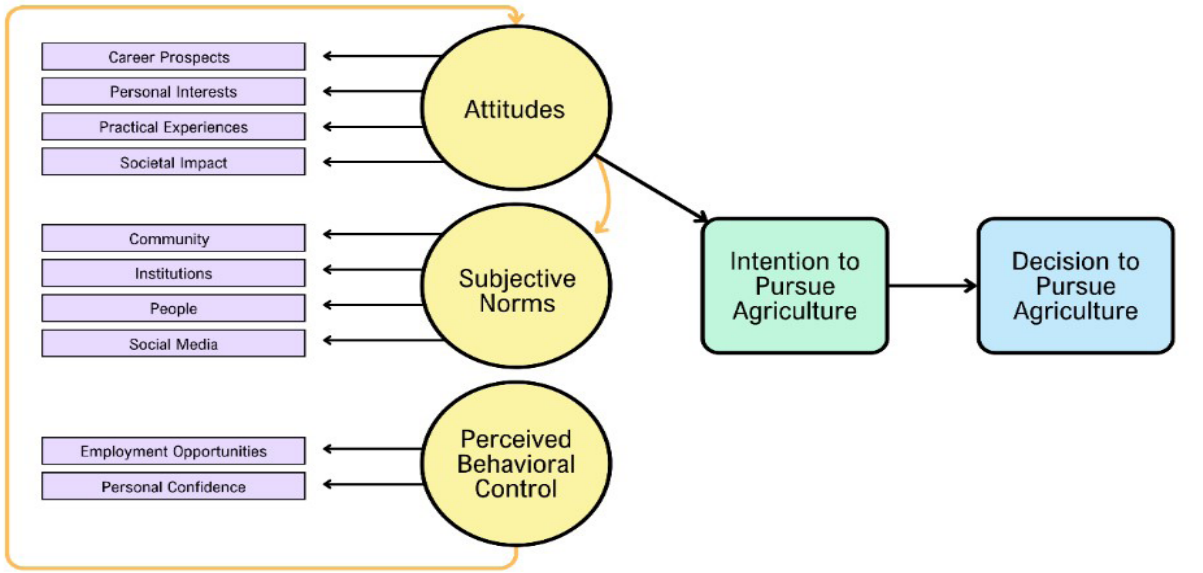


Table 5

Sprout Up Movement's Internal Factor Evaluation Matrix

Key Internal Factors	Weight	Rating	Weighted Score
Strengths			
1. Proximity to the University of the Philippines Los Baños, a premiere university in the agricultural sciences	0.04	4	0.28
2. Large following (38.8 K followers on TikTok and 2.64K subscribers on YouTube)	0.13	3	0.39
3. High reach of Sprout Up Movement videos, amounting to 144,4888	0.08	3	0.24
4. Post impressions equaled to 25,734	0.07	3	0.21
5. Availability of people who can share their personal narratives	0.11	4	0.44
6. Technical knowledge in agriculture	0.02	4	0.08
Weaknesses			
1. Limited human resource and personnel	0.06	2	0.12
2. Stagnancy of content creation for the first 2 quarter in 2024	0.06	1	0.06
3. Only 40.27% average video duration viewed	0.10	1	0.10
4. Low attention span of audience (i.e. 30 seconds)	0.07	1	0.07
5. Only 2.5% impression click-through rate	0.05	1	0.05
6. Few followers on Facebook (767) and Instagram (47)	0.12	2	0.24
7. Monetization is not yet attained, thus, a financial constraint	0.09	2	0.18
Total	1.0		2.46

External Factor Evaluation Matrix

Table 6 shows the evaluation of external factors such as opportunities and threats of the Sprout Up Movement.

Similar to the IFE matrix, higher weights were given here to those factors aligned highly with the mission of the Sprout Up Movement. In this matrix, higher weights were given to partnerships (Opportunity 6) and active engagement (Threat 3). The total score for the external environment of the Sprout Up Movement is 3.83. Since it is above 2.5, it indicates that the movement has more opportunities than threats (Suhendah et al., 2022). After evaluating the internal and external factors of the Sprout Up Movement, this paper presents strategies that can be undertaken through an integrated analysis.

Strategy Development

I-E Matrix

After calculating the EFE and IFE weighted scores, they were plotted in this I-E Matrix (Figure 5). The position of the Sprout Up Movement in this matrix indicates that it needs to grow and build (David, 2011). Since the EFE score (3.83) reflects a lot of opportunities for the movement, and the IFE score revealed that the movement's internal position is below average (2.46), it is needed to formulate strategies to increase the internal position and leverage the identified opportunities.

TOWS Matrix

After a thorough evaluation of Sprout Up

Table 6

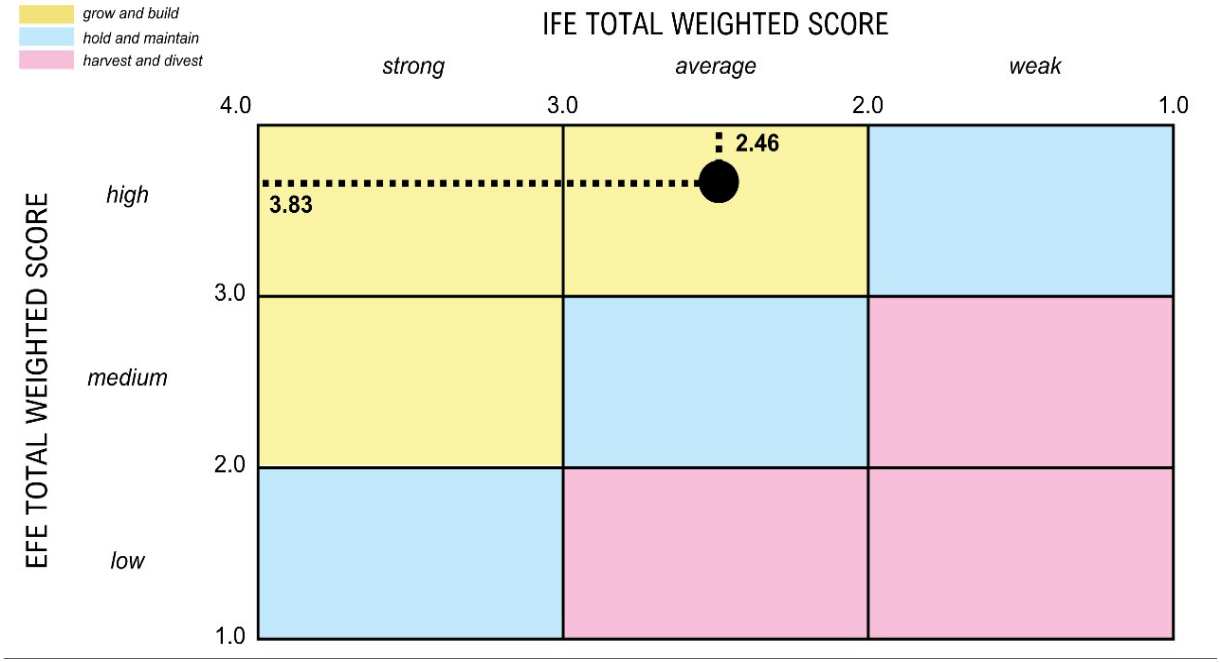
Sprout Up Movement's External Factor Evaluation Matrix

Key Internal Factors	Weight	Rating	Weighted Score
Opportunities			
1. Global digital population is 62.6% of the world population, 5.07 billion people use the internet (Petryrosyan, 2024)	0.04	3	0.12
2. In the Philippines, 33.4% of the social media users are aged 18-24 years old (Howe,2024).	0.13	4	0.52
3. There are 86.75 million social media identities in the Philippines (Howe,2024)	0.05	3	0.15
4. Social media used in the country are Facebook (94.6%), Messenger (92.1%), TikTok (80%), and Instagram (72.5%) (Howe, 2024).	0.14	4	0.56
5. Average time spent using social media apps per month is as follows: TikTok (40 hrs. 46 min), YouTube (32 hrs. 40 min), and Facebook (26 hrs. 54 min) (Howe, 2024).	0.10	3	0.30
6. Upsurge in partnerships among educational institutions and content creators.	0.16	3	0.48
7. The worldwide market for educational technology was valued at approximately USD 142.37 billion in 2023 and is projected to expand at a compound annual growth rate (CAGR) of 13.4% from 2024 to 2030 (Grand View Research, 2024).	0.06	2	0.12
8. Monetization opportunities increase in social media platforms	0.09	2	0.18
Threats			
1. More content creators rise to influence, which can affect algorithm and could potentially dilute the focus on the agriculture movement	0.07	2	0.114
2. Dynamic nature of social media	0.11	3	0.33
3. Difficulty in maintaining active engagement and participation from the target audience over time, leading to reduced impact and influence.	0.15	3	0.45
4. Issues such as platform outages, technical glitches, or changes in technology that impact the effectiveness of communication and outreach efforts.	0.08	2	0.16
5. Changes in social media policies, regulations, or algorithms that could affect the visibility and reach of content related to agriculture endorsement.	0.12	2	0.24
6. Negative publicity, backlash, or criticism from individuals or groups opposed to the goals or methods of the movement.	0.02	1	0.02
7. False or misleading information spread through social media platforms could undermine the credibility of the movement and its objectives.	0.03	2	0.06
Total	1.0		**3.83**

Movement's strengths, weaknesses, opportunities, and threats which were presented in Tables 5 and 6, the TOWS Matrix, as displayed in Table 7 offers strategic suggestions for each combination of these elements, aiming to guide potential courses of action, specifically to grow and build. The strategies also considered the results from the factors affecting youth intent to pursue agriculture, as identified through PLS-SEM. They focused on how to present agriculture employment opportunities (from PBC) and increase the personal confidence (from PBC) of youth to pursue

Figure 5

I-E Matrix for the Sprout Up Movement.



agriculture, thereby heightening their positive attitudes toward agriculture (career prospects, personal interests, practical experiences, and societal impact), which could potentially lead to increased intent.

Quantitative Strategic Planning (QSP) Matrix

Since the IE Matrix revealed that the position of the external and internal factors lies in the grow and build strategy, this analysis delved into the SO strategies. SO (Strengths-Opportunities) Strategies are proactive approaches designed to leverage a company's internal strengths to capitalize on external opportunities. The main goal of SO strategies is to achieve growth and enhance the company's competitive advantage by using its existing capabilities to exploit favorable conditions in the external environment (David, 2011).

Considering this, the following SO strategies were analyzed for the QSPM: 1) take advantage of the proximity to UPLB and create partnerships and collaborations with institutes, faculty, and student organizations; 2) launch awareness campaigns in social media platforms through educational series on agricultural stories, innovations, and research; 3) optimize social media content for trending agricultural topics like genetic engineering, businesses in agriculture, and technologies; and 4) gather compelling narratives of people in agriculture through lead generation and research. In Table 8, these strategies are coded as SO1, SO2, SO3, and SO4, respectively.

From the QSP matrix, the highest total attractiveness score was calculated for SO1 (6.59), which is to build partnerships and collaborations with institutes, faculty, and student organizations. This was followed by SO3 (6.47) which is to optimize social media content aimed to increase the average attention span of viewers through participating in social media trends. SO4 (5.46) came in next which focuses on gathering compelling narratives of people in agriculture through lead generation and research. Lastly, SO2 (5.22) which outlines launching awareness campaigns through educational series on agricultural stories, innovations, and research. This result means that higher priority must be given to SO1 and SO3 to take advantage of the opportunities presented and improve on their weaknesses.

Table 7

Formulated Strategies for Sprout Up Movement Considering the Strengths, Weaknesses, Opportunities, and Threats

Strength-Opportunity Strategies	**Strength-Threat Strategies**
• Take advantage of the proximity to UPLB and create partnerships and collaborations with institutes, faculty, and student organizations.	• Monitoring and adapting changes in social media algorithms
• Launch awareness campaigns on social media platforms through educational series on agricultural stories, innovations, and research.	• Diversifying content distribution across multiple social media platforms
• Optimize social media content for trending agricultural topics like genetic engineering, businesses in agriculture, and technologies.	• Highlighting proactive communication and transparency in content creation and dissemination
• Gather compelling narratives of people in agriculture through lead generation and research.	• Advocating for favorable social media policies and regulations that support educational and agricultural content initiatives
Weakness-Opportunity Strategies	**Weakness-Threat Strategies**
• Expand outreach social media campaigns through targeted marketing in advertisements	• Encouraging volunteerism or internship from the university
• Invite educational institutions to co-create content or host educational workshops in agriculture	• Implementing a structured content calendar using applications or built-in
• Explore monetization through affiliate marketing or educational product promotions	• Enhancing video retention by adjusting to shorter content length
• Align content with global educational technology trends such as EdTech platforms	• Adoption of trendy formats with a 3-second hook and refining call-to-action strategies

Table 8

Quantitative Strategic Planning (OSP) Matrix for Sprout Up Movement

Key Factors	**W**	**SO1**		**SO2**		**SO3**		**SO4**	
		AS	**TAS**	**AS**	**TAS**	**AS**	**TAS**	**AS**	**TAS**
Internal Factors									
Strengths									
1. Proximity to the University of the Philippines Los Baños, a premiere university in the agricultural sciences	0.04	4	**0.16**	2	**0.08**	2	**0.08**	3	**0.12**
2. Large following (38.8k followers on TikTok and 2.64k subscribers on YouTube)	0.13	3	**0.39**	4	**0.52**	4	**0.52**	3	**0.39**
3. High reach of Sprout Up Movement videos, amounting to 144,488	0.08	3	**0.24**	4	**0.32**	3	**0.24**	3	**0.24**

Table 8 ***Continuation...***

Key Factors	W	SO1		SO2		SO3		SO4	
		AS	TAS	AS	TAS	AS	TAS	AS	TAS
Internal Factors									
Strengths									
4. Post impressions equaled to 25,734	0.07	4	**0.28**	4	**0.28**	4	**0.28**	4	**0.28**
5. Availability of people who can share their personal narratives	0.11	4	**0.44**	3	**0.33**	3	**0.33**	4	**0.44**
6. Technical knowledge in agriculture	0.02	4	**0.08**	4	**0.08**	4	**0.08**	2	**0.04**
Weaknesses									
1. Limited human resource and personnel	0.06	4	**0.24**	2	**0.12**	2	**0.12**	2	**0.12**
2. Stagnancy of content creation for the first 2 quarters in 2024	0.06	4	**0.24**	3	**0.18**	3	**0.18**	3	**0.18**
3. Only 40.27% average video duration viewed	0.10	2	**0.20**	2	**0.20**	4	**0.40**	3	**0.30**
4. Low attention span of audience (i.e. 30 seconds)	0.07	2	**0.14**	2	**0.14**	4	**0.28**	4	**0.28**
5. Only 2.5% impressions click-through rate	0.05	3	**0.15**	3	**0.15**	4	**0.20**	4	**0.20**
6. Few followers for Facebook (767) and Instagram (47)	0.12	4	**0.48**	3	**0.36**	4	**0.48**	3	**0.36**
7. Monetization is not yet attained; thus, a financial constraint	0.09	4	**0.36**	2	**0.18**	3	**0.27**	3	**0.27**
TOTAL	1.0								
External									
Opportunities									
1. Global digital population is 5.07 billion people use the internet	0.04								
2. In the Philippines, 33.4% of the social media users are aged 18-24 years old.	0.13	3	**0.39**	2	**0.26**	3	**0.39**	2	**0.26**
3. There are 86.75 million social media identities in the Philippines.	0.05								
4. Social media used in the country are Facebook (94.6%), Messenger (92.1%), TikTok (80%), and Instagram (72.5%).	0.14	4	**0.56**	2	**0.28**	4	**0.56**	2	**0.28**
5. Average time spent using social media apps per month is high.	0.10	2	**0.20**	2	**0.20**	3	**0.30**	2	**0.20**

Table 8 ***Continuation…***

Key Factors	W	SO1		SO2		SO3		SO4	
		AS	TAS	AS	TAS	AS	TAS	AS	TAS
Internal Factors									
Opportunities									
6. Upsurge in partnerships among educational institutions and content creators.	0.16	4	**0.64**	2	**0.32**	3	**0.48**	3	**0.48**
7. Educational technology was valued at USD 142.37 billion in 2023; (CAGR) of 13.4% from 2024 to 2030.	0.06	4	**0.24**	3	**0.18**	3	**0.18**	2	**0.12**
8. Monetization opportunities	0.09	3	**0.27**	2	**0.18**	3	**0.27**	2	**0.18**
Threats									
1. More content creators rise to influence	0.07	4	**0.28**	2	**0.14**	2	**0.14**	3	**0.45**
2. Dynamic nature of social media	0.11								
3. Difficulty in maintaining active engagement	0.15	3	**0.45**	4	**0.60**	4	**0.60**	3	**0.45**
4. Issues such as platform outages, technical glitches, or changes in technology	0.08								
5. Changes in social media policies, regulations, or algorithms	0.12								
6. Negative publicity	0.02								
7. False or misleading information spread	0.03	4	**0.12**	4	**0.12**	3	**0.09**	2	**0.06**
TOTAL	1.0								
SUM TOTAL ATTRACTIVENESS SCORE			**6.59**		**5.22**		**6.47**		**5.46**

W=weights; AS=attractiveness score; TAS=total attractiveness score

Although this study provides valuable insights into the relationships between attitudes, behavioral intentions, and other constructs, several limitations need to be considered. First, the relatively small sample size may limit the generalizability of the findings, as it may not fully represent the broader population. The sample composition may also introduce biases that affect the external validity of the results. Second, the study relied on self-reported data, which is prone to social desirability bias and may result in inaccurate reporting of attitudes and behaviors. Third, while the use of PLS-SEM enabled a detailed analysis of the structural relationships among constructs, the cross-sectional design of the study restricts the ability to draw causal conclusions. These matrices provide valuable insights into the strengths and weaknesses of the constructs, yet the lack of a longitudinal design prevents a clearer understanding of the directionality of the relationships. Fourth, the strategies that were formulated through the matrices such as the IFE (Internal Factor Evaluation), EFE (External Factor Evaluation), IE (Internal-External), and QSPM (Quantitative Strategic Planning Matrix) were for a growing organization, Sprout Up Philippines,

thus these could change when the organization is already established in the future.

Conclusions

The Sprout Up Movement is a growing initiative in the Philippines that aims to encourage young people to pursue agriculture as a career through social media content creation. This movement spotlights personal stories and journeys of people who are currently enrolled in agriculture-related degree programs as well as those who are now working in agriculture as professionals. To provide a basis for further strategies moving forward, an exploration of the factors shaping the intention to pursue agriculture as a degree program was conducted. Backed by the theory of planned behavior, the exploration indicated that perceived behavioral control, including employment opportunities and personal confidence, has a strong relationship with attitude, which encompasses career prospects, personal interests, practical experiences, and societal impact. Attitude also affects subjective norms, and it directly leads to the intention to pursue an agriculture-related degree program. Furthermore, the IFE and EFE matrix revealed that the Sprout Up Movement has many external opportunities to explore but has moderate internal strength. Moving forward, the Sprout Up Movement could increase online and onsite audience reach and engagement by building partnerships and collaborations with institutes, faculty, and student organizations and optimizing social media content to highlight employment opportunities and boost the youth's confidence to pursue agriculture-related careers. Finally, future research could address these limitations by employing a larger, more diverse sample, incorporating longitudinal data to assess causal relationships, and using a combination of qualitative and quantitative methods. Another valuable avenue for exploration could involve analyzing how social media influences the perceptions of youth toward agriculture.

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Conflict of Interest

The author is affiliated with Sprout Up Philippines, which was used as an example in the environmental scanning and strategic formulation portions of this study. While every effort has been made to maintain objectivity, the author's connection to the organization could be perceived as a potential conflict of interest. The research was conducted independently, with no financial or material benefit sought or expected by the author or the organization. Additionally, this research aims to serve as a possible reference for future organizations with similar objectives as Sprout Up Philippines.

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Appendix

Appendix 1. The Survey Questionnaire Content
Name (Optional): _____ Age: _____ Province:_____
Description of the place where you grew up: __ Rural __ Suburban __ Urban

Household Income Level
- o < PHP 21,194 (USD 370.35)
- o PHP 21,194 and PHP 43,828 (USD 370.35 and USD 765.86)
- o PHP 43,828 and PHP 76,669 (USD 765.86 and USD 1,339.73)
- o PHP 76,669 and PHP 131,484 (USD 1,339.73 and USD 2,297.59)
- o PHP 131,484 and PHP 219,140 (USD 2,297.59 and USD 3,829.31)
- o > PHP 219,140 (USD 3,829.31)

Social Media Account Ownership __ 1 __ 2 __ 3 __ 4 __ more than 5

Social Media Exposure __ Low __ Moderate __ High

For each question, rate your level of agreement from 1-5.
Consider this levels:
5 = Strongly Agree
4 = Agree
3 = Neither Agree Nor Disagree
2 = Disagree
1 = Strongly Disagree

Attitudes
References: Yusoff et al. (2022), Santos and Almeida (2018), Potishuk and Kratzer (2017)

1. I am 100% sure that an agriculture degree leads to a stable and rewarding career.
2. I am a hundred percent sure that this degree program will land me job opportunities.
3. I am interested in environmental sustainability and food production.
4. I have a passion for working with animals, insects, the soil, and plants.
5. I enjoy outdoor work and rural lifestyles.
6. I have had positive experiences with agriculture-related activities or internships in high school.
7. I think that an agriculture degree provides practical and hands-on learning.
8. I perceive that agriculture contributes significantly to society.
9. I desire to be part of an industry that addresses global food security challenges.
10. I want to be part of agriculture to help our Filipino farmers.

Subjective Norms
References: Sadjail et al. (2022), Yusoff et al. (2022), Kusumawati (2013); Jafari and Aliesmaili (2013).

1. My parents or family members encourage me to pursue an agriculture degree.
2. My high school teachers or counselors promote agriculture as a viable career option.
3. My friends or peers are also interested in studying agriculture.
4. Outreach programs from educational organizations and clubs from higher education influenced my decision.
5. Agricultural organizations or clubs in high school support my interest in agriculture.
6. My community or culture emphasizes the importance of agriculture.
7. Society recognizes the value and necessity of agricultural professionals.
8. The media portrays careers in agriculture positively.
9. Social media applications like Facebook, YouTube, and TikTok influenced my decision to pursue agriculture.

10. Social media content creators or role models in agriculture led me to this course.

Perceived Behavioral Control
References: Sadjail et al. (2022), Yusoff et al. (2022), Santos and Almeida (2018), Potishuk and Kratzer (2017)

1. My family can support the expenses of my agriculture-related degree program.
2. Financial aid or scholarships for agriculture students are available to me.
3. Part-time jobs or internships in the agriculture field are available to me.
4. I am in close proximity to my university, thus it lessens living expenses.
5. I have access to agricultural research facilities or labs at the university.
6. I have access to academic resources, whether print or online.
7. Internet access is always available for my personal study time.
8. The job market for agriculture graduates is strong.
9. I am confident that I will be employed right after graduation.
10. I have the necessary academic skills to succeed in an agriculture program.
11. The course workload in the agriculture degree program is manageable for me.
12. I am confident in my ability to balance academic and extracurricular commitments in agriculture.

Intention (Retrospective)
1. Before enrolling, I 100% intended to choose agriculture as my degree program in college.
2. An agriculture-related degree program is my first choice.
3. I was determined to study an agriculture-related program in college.
4. I was likely to apply to colleges with strong agriculture programs.
5. I expected to pursue a degree in agriculture.

Decision
Are you in an agriculture-related program? ___ YES ___ NO
If yes, what specific degree program?
- o BS Agribusiness Management and Entrepreneurship
- o BS Agricultural and Applied Economics
- o BS Agricultural and Biosystems Engineering
- o BS Agricultural Biotechnology
- o BS Agricultural Chemistry
- o BS Agricultural Economics
- o BS Agriculture