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Agriculture graduates' employment profile and feedback on curriculum

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ABSTRACT

Tracer studies are essential in evaluating curricular programs, including agricultural courses whose graduates face a changing labor market. This study aimed to determine BS Agriculture graduates' employment profile, feedback on the adequacy of curriculum, and satisfaction with competencies acquired from the program. A total of 74 alumni from Batch 2018 was selected via simple random sampling to respond to the questionnaire adapted from the Commission on Higher Education Graduate Tracer Study Questionnaire. Results showed that graduates have a 98.5% employment rate, mostly employed through their initiative (66%), on a contractual status (73%), related to agriculture (68%), locally employed within the Philippines (96%), and whose career plans are to be promoted at the current job (57%). The majority of graduates rated the overall adequacy of the BSA curriculum as either adequate (51%) or very adequate (42%) and were mostly satisfied with the professional competencies, personal attributes, and management or leadership skills they developed from the curriculum. Significant associations are observed in the perceived overall adequacy of curriculum, and development of graduates' professional competencies, personal attributes, and management skills. The curriculum of the program has contributed significantly to the employability of the agriculture graduates and has enabled them to acquire jobs related to their degree. However, with the present shift of employment trends globally, the curriculum is suggested to be updated and revised to better prepare graduates in meeting the current demands of the labor market.

KEYWORDS: *Agriculture education, curriculum, employability, tracer study*

1 INTRODUCTION

Agriculture plays a significant role in the progress of the Philippine economy. Based on the 2019 Philippine Statistics Authority (PSA) data, the value of agricultural production has an average two percent increase from 2000 to 2019. In addition, according to the Department of Labor and Employment's 2020 Vision, agriculture-related professions are considered one of the most in-demand jobs in the country (DOLE, 2020). Courses related to agriculture have been one of the Commission on Higher Education (CHED) priority programs. The Asian Development Bank (2018), as cited by Ra, Ahmed, and Teng (2019), reported that agriculture in the Philippines had a 25.4 percent share in employment in the Philippines in the year 2017.

Bulacan Agricultural State College (BASC) is the lone agricultural state college in Bulacan that offers a BS Agriculture program in the province in 1960. Over the years, the Bachelor of Science in Agriculture (BSA) program has undergone several curriculum revisions through the mandate of CHED, and presently, the course is adapting the outcomes-based education (OBE) curriculum. While the college has produced thousands of BSA graduates in the past decades who are reported to occupy higher positions both in public and private sectors, no official records can testify or support it. For this reason, this tracer study will be conducted to provide information in tracking its graduates and see how successful they are in their current jobs.

As employment opportunities after graduation are very competitive, the institution's role is to find innovative programs to address society's challenges. There should be a suitable venue for curriculum enhancement as well as institutional development by updating their field of specialization in terms of academic and skills competencies to the present occupation. This process is likely to unfold through program evaluation conducted regularly by the college.

Program evaluation and assessment is a consistent feature of school management, offering a critical role in the globalization phenomenon, especially when the learning institution faces the pressing demands of change (Osei et al., 2015). For a graduate to be competent and equipped with the proper knowledge, skills, and attitude, innovative information and skills must be constantly provided and taught to handle the ever-changing work standards of employment. The effective educational program boosts the graduates' job performance,

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enhances the demand for their services, and maximizes their involvement and role in the economic process.

As economic development occurs rapidly and technology exponentially, higher education institutions (HEIs) should focus on the graduates' moral and intellectual development. Curricula in universities can be more effective with an emphasis on professional training. HEIs nowadays are advised to guarantee that education and training are market-driven and responsive to the ever-changing needs of the different sectors of an economy (Centillas, 2019). Ra et al. (2019) also argued that investing in education and skills development to create a new breed of agropreneurs in Asian developing countries is crucial to cope with the projected demand for food in the coming years.

The International Labor Organization (2010) describes a tracer study as an impact assessment or evaluation tool where the impact of a project or program on target groups is tracked to identify effective and ineffective project components. In numerous social and educational researches, the tracer study is sometimes referred to as a graduate or alumni survey, explicitly targeting former students as respondents (Kiliswa et al., 2016).

Cuadra et al. (2019) considered graduate tracer studies as a subject and strategy appropriate in evaluating the results of education and training provided in the academic institution. It was asserted that a tracer study is unquestionably essential in determining the success of curricular programs (De Castro, 2017). It affirms the effectiveness of an institution in providing quality education and services (Reusia et al., 2020). Tracer studies must be conducted regularly by higher education institutions (HEIs) as these offer quantitative-structural data on employment and career, character of work, related competencies and skills, information on the professional alignment, practices, and career plans of graduates (Baking et al., 2015; Badillo-Amador & Vila, 2013; Millington, 2008). Moreover, Kalaw (2019) emphasized that curriculum development feedback is the critical aspect of tracer studies.

The labor market dictates the competencies to be developed and adopted by educational institutions. Hence, academic courses, programs, and training are designed to cater to the world of labor and society itself (Paixao & De Souza, 2018). In several pieces of literature, numerous concerns and issues of dissatisfaction persist about the quality of the knowledge, skills, and performance displayed by young and junior employees (Van der Vleuten, 2015; Jossberger et al., 2010) as well as the growing disparity between the skills or capabilities of new graduates and the labor demands in the global scale (Cunningham et al., 2016; Andrews & Higson, 2008).

Employers across nations hire highly qualified and skilled employees who could securely and confidently respond to changing, complex needs and trends in modern workplaces (Boahin & Hofman, 2013). With this, students preparing for employment do not need only technical skills and concepts of the learning process, but they also need to acquire employable skills, also known as generic skills and essential skills (Gibb, 2004) that are necessary for them to effectively participate in the vast array of employment and social settings (Boahin & Hofman, 2013).

The Australian Chamber of Commerce and Industry & Business Council of Australia (2002) defines employability skills as skills needed to get a job, advance within an organization, and contribute successfully to strategic directions. In many countries, these employability skills include communication, teamwork, problem-solving, initiative and enterprise, planning and organizing, self-management, learning, and technology skills, as well as personal attributes such as loyalty, commitment, reliability, and motivation (Gibb, 2004). Though the concept of employability skills is dynamic and evolving, it is a critical factor determining graduates' employability in today's flexible labor market (Haddouchane et al., 2017; Boahin & Hofman, 2013).

Employability is considered a central point in plotting visions and guiding strategies of HEIs, also has meanings in various contexts. Felicen and Mejia (2014) defined employability as the capability of individuals to move and transfer within the labor market self-sufficiently in realizing their full potential through sustainable employment. Overall, numerous works of literature have concurring views of employability as the ability to seek and secure a job or career based on knowledge, skills, competencies, attitude, and values. These perspectives on employability skills and employability served as the initial foundation for the current study.

In the Philippines, while there has been a reported expansion in the supply of qualified and competent labor force (Centillas, 2019), there is still a pressing concern of low job productivity as the country struggles to address job mismatch combined with a lack of coordination among the tripartite social partners (government, employers, and workers) in the labor arena (OECD/ADB, 2017). The sector of agriculture, in particular, has shown a steady decrease in employment share from 30.4% in 2014 to 24.3% in 2018 (PSA, 2019) despite the increasing demand for food production and agricultural production systems (FAO, 2017). This finding is the opposite of the service sector where employment is continuously rising with graduates seeking employment in service-related industries.

From this premise, the problem of compatibility between the job market and programs offered by HEIs needs to be addressed. Hence, this tracer study aims to determine the employability of BS Agriculture graduates and review the training and competency development

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they need in preparation for their career progress. Although the institution conducts tracer studies on an annual basis, this is the first batch to provide feedback on the curriculum's adequacy and their level of satisfaction with the program's acquired competencies. The findings of this study can assist administrators and faculty at higher education institutions that offer agriculture and related programs in their curricular planning, review, and assessment, particularly in terms of improving graduate employability and addressing the competencies required in today's labor market for professional agriculturists.

Objectives of the Study 11

This tracer study is conducted to provide relevant information on the employability of the Bachelor of Science in Agriculture graduates of Bulacan Agricultural State College and to determine the strengths and weaknesses of the BSA program under outcomes-based education (OBE) curriculum. Specifically, it aimed to describe the respondents in terms of employment characteristics, to assess the BS Agriculture program in terms of the overall adequacy of curriculum and satisfaction on competencies gained, and to obtain feedback from alumni and employers on the effectiveness of curriculum and their suggestions for curricular improvement.

2 METHODOLOGY

The study utilized a mixed-method research design to obtain the graduates' necessary information, including names, contact numbers, and addresses. The researchers sought permission from the BASC Registrar's Office to examine the records on file available.

Simple random sampling was used in the study. The formula of Tabachnick and Fidell (2007): $N \geq 50 + 8K$, where N is the total known population, and K is the number of predictor variables, was used to determine the sample size. In the present study, N = 136, the total number of BSA graduates from 2017-2018, and K = 3, the predictor variables include professional competencies, personal attributes, and management and leadership skills. $136 \geq 50 + (8 \times 3)$ resulted in n= 74.

The questionnaire used for the quantitative part was adapted from the tracer study questionnaire of the Commission on Higher Education. Apart from the demographic data, the questionnaire included questions on job attainment mode, duration before securing the first job after graduation, employment status, nature of employment, location, salary rate, and career plans. The respondents were given a 5-point Likert scale, with five (5) being the highest (very adequate) and one (1) being the lowest (very inadequate) to assess the overall adequacy of the curriculum based on client feedback. To determine the level of satisfaction on gained competencies from the BSA program in terms of professional competencies, personal attributes, and managerial and leadership skills, respondents were given the list of skills or competencies and a 5-point Likert scale, with five (5) as the highest (very satisfied) and one (1) as the lowest (very dissatisfied).

To arrive at a verbal description of each item in the questionnaire, the mean range and verbal interpretation used by Bringula et al. (2012) and Pimentel (2019) was followed: 4.51–5.00: Very Satisfied/ Very Adequate; 3.51–4.50: Satisfied/Adequate; 2.51–3.50: Somewhat Satisfied/ Somewhat Adequate; 1.51–2.50: Dissatisfied/Inadequate; 1.00–1.51: Very Dissatisfied/Very Inadequate.

Data analysis used descriptive statistics such as frequency and percent distribution for the demographic and employment data. Inferential statistics, chi-square goodness of fit, and Cramer's V in the satisfaction were used to analyze the overall perceived adequacy of the BS Agriculture curriculum, level of satisfaction on different competencies gained, and association of these variables and their strength. All data were computed using SPSS v.25.

For the qualitative part of the study, a semi-structured interview was used involving randomly selected graduates and employers for their feedback on the curriculum. The respondents answered open-ended questions regarding the effectiveness of the curriculum in preparing them for their current job and their suggestions for improvement of the BSA curriculum to prepare students better for employment. The employers gave feedback on their employed alumni and also gave suggestions for curricular improvement. The interviews were done by phone and social media messaging applications. Thematic and frequency methods of analysis were done on the answers to the qualitative questions.

3 RESULTS AND DISCUSSION

Demographic and Employment Profile of BSA Graduates

Table 1 shows the demographic and employment profile of the graduates. From 74 graduates of BSA A.Y. 2017-2018 surveyed, 72.97 % are male while 27.03 % are female. As to civil status, 97.30% are single, and only 2.70 % are married. Most of the graduates are aged 21-24 years old at 78.39% and the rest are 25 years or older.

As shown in Table 1, 66.22% acquired their first job through their initiative, and the second mode was through referral of relatives 24.32%. Subsequently, there are 5.41% who got their job from job fairs, and finally, 4.05% of the graduates were invited by the company. The data collected shows that the majority of the BSA graduates are independent in terms of applying and

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securing jobs. However, the mode of referral through relatives is an inevitable option for many graduates because of the culture of nepotism, which still lingers in many sectors of the society in the country, especially in the government (De Dios, 2007). Job fairs in the Philippines have also proven to be an effective method of obtaining formal employment. Generating job fairs is common to all municipalities in the country because it is the primary responsibility of Public Employment Service Offices (PESO) in each municipality. PESO promotes employment through job fairs and related activities to directly connect a large volume of attendees with jobs. At the same time, the job fairs may serve to convey information about formal sector employment more broadly (Beam, 2016).

Almost a third of the graduates or 31.08% were hired three months or less after graduation, 17.57 % waited for only 4-6 months, while 48.65% were hired within 7-12 months. This result is equivalent to 97.3 % of graduates being hired within a year after graduation. This outcome

Table 1. Demographic and employment profile of BS Agriculture graduates

Demographic or employment characteristic	Frequencies (n=74)	Distribution (%)
Sex		
Male	54	72.97
Female	20	27.03
Civil Status		
Married	2	2.70
Single	72	97.30
Age		
21-24	58	78.39
25-28	14	18.92
29-32	2	2.69
Job attainment mode		
Own initiative	49	66.22
Invited by company	3	4.05
Through job fair	4	5.41
Referral through relatives	18	24.32
Duration before securing the first job after graduation		
Less than 3 months	23	31.08
4-6 months	13	17.57
7-12 months	36	48.65
13 months or more	2	2.70
Employment Rate		
Employed	73	98.65
Unemployed	1	1.35
Status of Employment		
Regular	16	21.62
Contractual/Casual	54	72.97
Self-employed	3	4.05
Nature of Employment		
Agricultural related	50	67.57
Non-agricultural related (underemployed)	23	31.08
Location of Employment		
Local	71	95.95
Abroad	2	4.05
Salary Rates (PhP)		
10,000-20,000	42	56.76
21,000-30,000	27	36.49
31,000 above	4	5.41
Career Plans		
Promotion at current job	42	56.76
Start own business	12	16.22
Employment abroad	12	16.22
Transfer to another job	8	10.81

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aligns with the increasing employment rate in Central Luzon in the agricultural sector based on 2019 Philippine Statistics Authority (PSA) data. Local tracer studies in the country also reported a short duration of seeking employment for college graduates in varying professions (Daquis et al., 2016; Sagarino et al., 2017; Caingcoy & Barroso, 2020). Only one graduate was unemployed during the conduct of the survey, which was due to personal preference to care for a sick parent.

Regarding employment status, it is revealed that the contractual/casual employment type is the most common among the respondents, accounting for 72.97% (54) of them. This was followed by 21.62% (16) of graduates who are regular employees in their current job, and 4.05% (3) of those who are self-employed, according to the survey results.

The majority at 67.57% (50) of the employed BSA graduates are hired in agriculture-related industries, both in public and private agencies. Meanwhile, 31.08% or 23 are employed in a non-related field, including sales and entrepreneurship, customer service, and the food and beverage industry. The high employment rate of BSA graduates contributes to the increasing employment rate in Central Luzon, which is currently ranked fifth in Luzon according to PSA data (2019) and third in the country in terms of employed persons in the agriculture sector, with 4.45 million agriculture and agriculture-related workers (PSA, 2019).

In terms of employment location, 71 out of 74 surveyed graduates are employed locally while 2 BSA graduates are currently working abroad.

The majority of the graduates at 56.76% are under the salary bracket for entry-level employment of 10,000-20,000 Philippine pesos (Php), while 36.49% are already earning between Php 21,000-30,000 5.41% have a salary of above Php 31, 000. This finding is similar to the data of Philippine Statistics Authority (PSA, 2019) Agricultural Indicator System (AIS): Population and Labor Force, wherein the projected income for fresh graduates and entry-level agriculturists fall within 12,000-20,000 pesos, or 500 to 700 pesos a day. Likewise, this trend in agricultural graduates' salary profiles is similar to that of graduates of business administration and accounting programs, who earned a salary range of 10,000-20,000 in entry-level positions and as few as 6% were able to obtain positions in companies offering an initial pay offer of more than 25,000. (Cervantes et al., 2016).

Shown also in Table 1 are the career plans of surveyed BSA graduates in the next five years. The leading career plan is "promotion at current job" which accounts for 56.76% followed by both "start own business" and "employment abroad" at 16.22% each. Only 10.81% opted to transfer to another job. This is due to the line of work and industry in which the graduates are currently employed. The majority of them are hired in agriculture and agriculture-related industries, where they apply the BSA program's principles and training. On the other hand, respondents who intend to start their own business and transition to self-employment are also currently employed in agriculture. According to the interviews conducted, these graduates wish to establish their own agriculture-related business. Meanwhile, respondents who intend to work overseas in the next five years are potential contributors to the growing number of agricultural emigrants who prefer lower-skilled but higher-paying jobs overseas (Battistella & Liao, 2015). This further supports the claim of Mendoza (2015) and PSA data on labor statistics that despite the large labor supply in the Philippines, emigration may lead to a shortage of skills in four specific sectors within the next ten years - agriculture, construction, education, and health.

Satisfaction of Graduates on Competencies Gained from BS Agriculture Curriculum and its Association to Perceived Overall Adequacy of Curriculum

Table 2 reveals that 51.35% of the surveyed graduates believe that the overall level adequacy of the Curriculum of BSA program is adequate to make them equipped for their current jobs. Additionally, 41.89% of respondents consider the curriculum as very adequate, and only 6.76% say it is somewhat adequate.

Table 2. Perceived overall level of adequacy od curriculum for BSA graduates' employment needs

Adequacy of Curriculum for their Employment Needs	Frequency (n=74)	Distribution (%)
Very Adequate	31	41.89
Adequate	38	51.35
Somewhat Adequate	5	6.76

These results on the adequacy of curriculum imply that the graduates believe the institution gave them enough preparation for employment. Similarly, in the study of Reusia et al. (2020), graduates rated their curricular program as adequate, implying that they found the outcomes of the program to be sufficient and valid in their professional growth. Reviewing and restructuring curricula is one of the significant and critical tasks of higher education (Yazdi, 2016). Therefore, strong congruence between academic strategies, skill development, and career-focused development in universities and required competencies and abilities for the labor market must be maintained. Results of the present study corresponded to the findings of Chavez et al. (2016), in which engineering graduates perceived that their course curriculum contributed to their job search and employment in six months to within a year and that their mathematical capabilities landed them on the companies where such skills are highly required. Similar

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results were observed among graduates of psychology degree assessed through focus groups and sets of exercises and interviews stating that embedding employability into the curriculum contributes to career development and career success (McMurray et al., 2011). Integration of early practical exposure and advanced technical training into the curriculum to make the graduates fit for employment was also asserted in the investigation of Alpaslan (2019) upon surveys among employers and employees in the field of social work.

Students' satisfaction with their professional competencies developed under the BSA program displayed a composite mean of 4.30, which translates into "satisfied" (Table 3). The 10 auxiliary competencies also obtained a mean of 3.51-4.50, interpreted as "satisfied." Agriculture graduates are satisfied with the professional competencies they gained or improved on the current BSA curriculum (Table 3).

The post hoc test demonstrating the strength of association (Table 3) revealed that practical, research, extension, and critical thinking skills are strongly dependent on the program curriculum as perceived by the students. Competencies such as practical, research, and extension skills are considered to be more dependent on curriculum content, strategies, and implementation as compared to other professional competencies. Professional competencies are found to have a weak relationship (written communication, listening ability, knowledge in a specialized area) or a moderate relationship (knowledge in a specialized area) with curriculum content, strategies, and implementation (oral communication, legal thinking, computer literacy).

Table 3. Graduates' Satisfaction on Professional Competencies Gained from BSA Program and its Association to Perceived Adequacy of the Curriculum

Professional Competencies	Satisfaction Level on Gained Competency		Association with Perceived Overall Adequacy of curriculum			
	Mean	Verbal Interpretation	Chi-square value	Significance (α=0.05)	Cramer's V	Strength
Oral Communication	4.31	Satisfied	64.27	0.05	0.23	moderate
Written Communication	4.30	Satisfied	46.73	0.05	0.18	weak
Listening Ability	4.34	Satisfied	41.38	0.05	0.11	weak
Legal Thinking	4.31	Satisfied	70.32	0.05	0.23	moderate
Computer Literacy	4.22	Satisfied	88.49	0.05	0.22	moderate
Knowledge in specialized area	4.28	Satisfied	48.84	0.05	0.19	weak
Practical Skills	4.24	Satisfied	90.54	0.05	0.33	strong
Research Skills	4.38	Satisfied	68.92	0.05	0.35	strong
Extension Skills	4.24	Satisfied	90.54	0.05	0.34	strong
Critical Thinking Skills	4.36	Satisfied	70.11	0.05	0.32	strong
Overall Mean	**4.30**	**Satisfied**	**50.21**	**0.05**	**0.45**	**Strong**

Practical, research, and extension skills are essential skills that a BSA graduate must possess. Graduates of the BSA program who wish to be hired in technical jobs in an agricultural industry are expected to have sufficient, if not excellent skills, in the field of research and extension. At the same time, practical skills are necessary for decision making and providing alternative solutions to various problems encountered in project management and field experiments. On the other hand, critical thinking skills covers all the other three as it is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, and synthesizing information obtained from or generated by observation, experience, reflection, and/or communication as a guide to beliefs and actions (Scriven & Paul, 1996).

The strong association between curriculum adequacy and critical thinking skills corresponded to the views of Zivkovic (2016) which considered critical thinking to be a major attribute for success in the 21st century and one of the main objectives of every contemporary curriculum developed in learning institutions. In these modern times and complex societies, employers globally seek employees capable of transferring their critical thinking abilities to the workplace (Tapper, 2004), thus promoting critical thinking and other skills requiring it like research, practical, and extension skills.

Although computer literacy showed moderate strength in association with the adequacy of the curriculum, several studies (Dadios et al., 2018; Albert et al., 2017; Cirera & Maloney, 2017) have stated that emerging technological innovations along with the compulsion of computing and information technology (IT) skills will reorganize the global workforce and alter traditional commerce and business models. In the 2020

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DOST Report, it is mentioned that this reorganization and shift is currently steering what is known as the fourth industrial revolution (FIRe) and can be observed across households, production fields, industries, cities, and nations (DOST, 2020). Similarly, reports from World Economic Forum (2016) and Asian Development Bank (2018) established the same findings that disruptions across industries due to the use of science, technology, and innovations are reshaping business models and demanding various skill sets for the workforce. These results show that educational institutions and students must anticipate the demands of the rapid changes brought by the fourth industrial revolution or FIRe involving the expansion of smart technologies and automation. Routine tasks in many fields including agriculture will be replaced by automation, thereby transforming employment and the economy.

In Table 4, the twelve (12) personal attributes and the corresponding ratings for graduates' level of satisfaction are shown. All of the personal attributes gained mean scores between 3.51-4.50 and were interpreted as "satisfied." The attribute "desire for continuous learning" has the highest mean score of 4.50, followed by "awareness of strengths and weakness" with 4.41, and "self-discipline" and "creativity" both obtaining 4.36.

in the BSA curriculum. Second, personal attributes as a collective set of skills are not entirely dependent on the program curriculum. The first possibility concurred with the findings from the semi-structured interviews conducted with the selected employers. Several employers give feedback to their employees about their lack of self-confidence and creativity in solving problems and making decisions when the employees are faced with problems related to management and field experiments. Poor interpersonal skills and a lack of initiative were also mentioned as some of the agriculture graduates' weaknesses in their current jobs.

Additionally, according to Virgona et al. (2003), the nature of generic skills and personal attributes are not exclusively developed through formal education but are rather developed continuously throughout life, in a variety of social contexts such as family and community life, education, social circles, and community contexts, as well as in the workplace. Although work is considered the primary context for the development of these generic skills as well as personal attributes, it is also pointed out that experiential learning is observed to be the primary mode of acquisition in this context (Virgona et al., 2003).

While there are no strong associations observed in the specific personal attributes and perceived curriculum adequacy, the overall inclusive association between the

Table 4. Graduates' Satisfaction on Personal Attributes Honed by BSA Program and its Association to Perceived Adequacy of the Curriculum

Personal Attributes	**Satisfaction Level on Honed Attribute**		**Association with Perceived Overall Adequacy of curriculum**			
	Mean	**Verbal Interpretation**	**Chi-square value**	**Significance (α=0.05)**	**Cramer's V**	**Strength**
Self-confidence	4.20	Satisfied	91.95	0.05	0.18	weak
Self-discipline	4.36	Satisfied	38.62	0.05	0.18	weak
Independence	4.34	Satisfied	41.38	0.05	0.13	weak
Desire for continuous learning	4.50	Satisfied	34.57	0.05	0.24	moderate
Awareness of strengths and weaknesses	4.41	Satisfied	35.70	0.05	0.12	weak
Creativity	4.36	Satisfied	38.62	0.05	0.18	weak
Punctuality	4.26	Satisfied	53.54	0.05	0.10	weak
Dependability	4.32	Satisfied	31.00	0.05	0.14	weak
Self-motivation	4.32	Satisfied	43.00	0.05	0.15	weak
Interpersonal Skills	4.32	Satisfied	43.00	0.05	0.15	weak
Initiative	4.32	Satisfied	43.00	0.05	0.15	weak
Positive attitude	4.34	Satisfied	41.38	0.05	0.23	moderate
Overall Mean	**4.33**	**Satisfied**	**57.35**	**0.05**	**0.41**	**Strong**

Although mean scores for personal attributes showed "satisfied" responses in general, the study reported weak associations between perceived curriculum adequacy and most personal attributes, suggesting two possibilities. First, students did not find sufficient integration of personal attributes development

two parameters expressed a strong relationship as shown in the last row of Table 4, signifying that the program curriculum is associated with the personal attributes of graduates and the manner in which they are going to apply it in the work settings.

Table 5 presents the students' satisfaction with the

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management and leadership skills developed from the BSA program. Three of the skills listed here displayed a strong association with the perceived curriculum adequacy. These are "resource management," "ability to prepare a plan," and "ability to implement a plan." Generally, resource management pertains to the capability to efficiently allocate and distribute resources based on the needs of the system or a specific situation, and in many organizations, it is an indicator of performance outcome and productivity (Patterson et al., 2010). On the other hand, planning skills are considered important skills to develop among agriculture students because jobs in agricultural sectors and sub-sectors frequently require the design and development of project programs, the achievement of target goals in set projects, the management of production field, service, scientific, and even entrepreneurial work, among other things (Clarke, 2018; Rana et al., 2018). These skill sets are not only valuable for gaining employment in any industry, but they are also critical for maximizing potential and moving within an organization to advance one's professional and personal development (Gibb, 2004).

Table 5. Students' Satisfaction on Management and Leadership Skills Developed from BSA Program and its Association to Perceived Adequacy of the Curriculum

Management and Leadership Skills	Satisfaction Level on Developed Skills		Association with Perceived Overall Adequacy of curriculum			
	Mean	Verbal Interpretation	Chi-square value	Significance (α=0.05)	Cramer's V	Strength
Ability to organize & delegate tasks	4.28	Satisfied	48.84	0.05	0.20	weak
Ability to prioritize tasks	4.32	Satisfied	43.00	0.05	0.18	weak
Ability to work in a team	4.38	Satisfied	37.49	0.05	0.12	weak
Ability to solve problems	4.35	Satisfied	39.92	0.05	0.11	weak
Presentation Skills	4.32	Satisfied	43.00	0.05	0.12	weak
Professional Attitude	4.32	Satisfied	43.00	0.05	0.12	weak
Time Management	4.34	Satisfied	67.08	0.05	0.19	weak
Resource management	4.26	Satisfied	87.41	0.05	0.36	strong
Ability to prepare a plan	4.38	Satisfied	68.92	0.05	0.33	strong
Ability to implement a plan	4.34	Satisfied	73.14	0.05	0.32	strong
Political skills	4.18	Satisfied	90.22	0.05	0.21	moderate
Ability to work under pressure	4.43	Satisfied	34.57	0.05	0.14	weak
Overall Mean	**4.33**	**Satisfied**	**41.06**	**0.05**	**0.47**	**strong**

Likewise, leadership skills and analytical skills scored low as an acquired skill in college as perceived by graduates (Cuadra et al., 2019). Interestingly, graduates recognize that these are important work-related values that contribute to meeting the demands of employment (Daquis et al., 2016). Planning and implementation skills can be linked to decisiveness. In the study by Osman and Murdad (2020), employers regard decisiveness as the top personal quality they want from agriculture graduates.

Meanwhile, one skill had a moderate relationship with perceived curriculum adequacy, namely "political skills," while the remaining specific leadership skills had a weak relationship with perceived curriculum adequacy. Having a majority of competencies with weak associations corroborated Ra et al.'s (2019) assertion that information technology, entrepreneurship, and management skills are emerging challenges in the development of modern farmers' skills. Moreover, the transition from conservative agriculture practices to a modern and knowledge-intensive approach should be addressed in the twenty-first century (Ra et al., 2019).

Presently, the BSA program curriculum has three program objectives that focus on producing graduates who can: (1) demonstrate scientific thinking, entrepreneurial skills, and entry-level competencies in technical agriculture as globally competitive professionals; (2) identify, diagnose and analyze problems in agriculture; and (3) design, package, and apply technologies needed in the development and conservation of the agriculture and food systems resources. The current curriculum promotes in-school and external training such as Technical Education and

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Skills Development Authority (TESDA) training to allow students to develop technical skills in particular specializations related to agriculture. The development and inculcation of employable skills among BSA graduates are consistently being improved to become competent and employable right after graduation.

However, the labor structure in the Philippines has difficulty matching graduates with relevant jobs because the informal or elementary sector accounts for 27.6 percent of labor in the Philippines, consisting of unskilled labor such as market vendors, construction site laborers, cleaners, domestic helpers, and farm aides. Only 13.1% of the employment rate in the country are considered skilled agricultural forestry and fishery workers, while professionals are found at 5.3% (Rastogi, 2018). This low distribution of labor force in agriculture aligned with a consistent contraction of jobs in the agriculture sector within the last half-decade from 33% in 2010 to 24% in 2018 as more employees shift to wholesale and retail and business process outsource (BPO) sub-sector and industry sector based on DOLE Jobsfit 2022 data (DOLE, 2020).

This observation also corresponded to the employment status presented in Table 1 where the major employment status of the graduates is categorized as contractual or casual basis despite them being degree holders. As defined in the Philippine Labor Code, contractual or casual workers are neither regular, seasoned, or project employees. This type of employment is the practice of hiring employees on a temporary or as-needed basis to perform or complete a job, work, or service that is only incidental to the usual business of the employer or to meet staffing needs during peak business periods. The pervading issue of the high incidence of contractual employment suggests that there is still a low job quality and productivity problem in the country (OECD/ADB, 2017). The findings further provided proof of the growing gap between the capabilities of new graduates and the labor demands on a global scale (Cunningham et al., 2016; Andrews and Higson, 2008).

Furthermore, as the labor trend is inclined in the service and industry sector, there is a need for the BSA curriculum to integrate more advanced training on management and entrepreneurship to prepare the graduates for their employment better. With the inclusion of agribusiness in the top ten (10) key employment generating sectors in the Philippines (DOLE Jobsfit 2022), restructuring of agriculture curriculum is recommended. Additionally, because significant correlations exist between perceived curriculum adequacy and graduates' growth in professional competencies, personal attributes, and management and leadership skills, the BSA curriculum content may be further improved by increasing the quantity and quality of training and learning content on skills development needed for the rising demand for agribusiness in the local and global labor market.

Qualitative Feedbacks on Curriculum

The graduates interviewed have been working for at least six (6) months in their current job. Out of 14 alumni who had time for the interview, 13 claimed that the BS Agriculture program effectively prepares them for their employment since they believe they are performing well in their current job. The only one who said the curriculum is not effective for her current employment works in a government statistical agency. According to the alumna, her job function is currently not directly related to agriculture because she is more involved in encoding and analyzing data, and her work demands more skills in using computer programs.

When asked why they believe the curriculum was effective, the respondents stated that they are applying their acquired knowledge and skills in their current jobs, including working in various aspects of crop or animal production. *"Sakto naman po ang mga natutuhan ko, gamit na gamit ngayon sa trabaho ko bilang farm technician"* (transl. "My learnings are fit for my current job as a farm technician"), said one graduate. Among the skills learned from the curriculum currently being performed in their employment are land preparation, soil testing, seed preparation, grafting, sowing, fertilizer computation and application, pesticide or herbicide application, feed computation and analysis, data collection, and data processing. These alumni are occupying technical positions, which demand actual involvement in farm processes in their daily routines. Another graduate said, "The curriculum is effective for me especially on basic skills like grafting, soil pH testing, transplanting, sowing, fertilizer application, and many more."

For their suggestions on curricular improvement, many respondents suggested further honing the communication skills of agriculture students, both in oral and written communications. One said, *"Sana mas nahasa pa ang kakayahan ko magsalita sa harap ng maraming tao, para di ako kinakabahan ngayon kapag may mga reporting sa company meetings, o may presentation sa farmers at ibang audience*" (transl. "I wish I had better training on speaking in front of an audience so that I will not be very anxious during company meetings or other presentations with a large audience"). Like him, several respondents have also admitted that they need to boost their confidence level in speaking or presenting in front of an audience, including both professional or farmer audiences. Some also want to improve their skills in writing official reports and project or research proposals. These results concur with the study of Osman and Murdad (2020), wherein the ability to communicate was considered a vital employability skill by graduates in the agriculture sector.

Others also suggested the integration of managerial

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or leadership skills and financial management skills so that graduates will be able to plan strategically, handle work under pressure, think more critically, and manage their business and personal finances well. The exact statement that one graduate said was "*Effective ang curriculum, nakatulong talga ang course sa paglaki ng business ng pamilya ko, pero suggestion ko lang po e more training on managerial and business skill, time and money management, yung more intensive pa"* (transl. "The curriculum is effective and my course helps with the family business but I suggest intensive training on managerial and business skills, time and money management).

A couple of respondents also suggested more emphasis on individualized training on research competencies since their current work is doing research and extension works. Their undergraduate thesis was a group endeavor and some relied on group leaders to do the bulk of research work. One alumnus said, *"Sana mas natutunan ko yung paggawa ng iba-ibang klase ng research, dahil kakailanganin ko pala sa trabaho ko ngayon"* (transl. "I wish I learned how to do various types of research because I need them in my current work").

Some respondents also suggested more hands-on training on their specializations, including the use of farm machinery, laboratory apparatuses, and more species of crops or animals.

Additional Feedback from Employers

The employers interviewed have BSA graduates working for them from six (6) months to two (2) years. Out of 18 employers, 16 of them said that the BSA program of BASC is effective based on the quality of work of their employees. Of these 16 who were satisfied with the curriculum, 15 were open to suggestions on improving the curricular program. A common suggestion from all of them is by adding training toward technical skills improvement in various agricultural processes. Some employers specified these agricultural skills training topics such as grafting and other plant breeding techniques. Others mentioned handling agricultural machinery, plant micropropagation, laboratory testing for disease diagnosis in crops and animals, computer-assisted techniques, farm equipment usage, and data encoding and processing. One employer did not give any suggestion, since *"wala naman akong masasabi sa curriculum dahil mukha namang nahasa sya nang husto sa eskwelahan, sana makakakuha siya agad ng regular item dahil magaling sya sa trabaho"* (transl. "I cannot say anything against the curriculum because my employee seems to have been prepared well in school, I hope he gets a regular position soon because he is doing well at work"). Additional suggestions were supplemental training for BSA students related to micromanagement, oral and written communication skills, building self-confidence, community immersion, and computer literacy and information technology management.

Two interviewed employers believed that the curriculum was ineffective. One of them suggested "*Bigyan ng mas maraming karanasan sa field, tulad ng paglalagay ng pataba at pestisidyo, at dagdagan ang oras sa OJT"* (transl. "Give the students more field exposure, like in the actual computation and application of fertilizers and pesticides, and more time for OJT"). The other employer suggested having the students focus on technical subjects so the graduates can have profound knowledge and understanding of the field of research, such as conducting basic experiments, research layout and design, writing technical reports, and statistical computations.

In general, the employers regarded the BSA graduates of BASC as diligent, motivated, willing and eager to learn, disciplined, respectful, and compliant at work. Four of these employers have recommended the BSA graduates working for them to be regular employees in their respective offices and departments .

It is consistent with the findings of Osman and Murdad (2020), who found that the ability to communicate was considered to be an important employability skill by employers in the agriculture sector. Communication skills were also mentioned as suggestions for improvement. The other suggestions agree with Ra et al. (2019) that modern farmers and agriculture professionals require information technology, entrepreneurship, and management skills.

4 CONCLUSIONS AND RECOMMENDATIONS

In this study, the agriculture graduates were determined to have high employment rates and good employment profiles. The assessment results provide evidence that the current Bachelor of Science in Agriculture curriculum has been designed to prepare graduates to meet the required competencies, personal attributes, and management skills for the effective and knowledgeable practice of their profession. The BSA curriculum has contributed to the employability of the agriculture graduates and has enabled them to engage in careers related to their specialization. The program objectives and content of the curriculum are highly linked to the skills that reflect the key role of agriculturists in the labor market. Nevertheless, given the ongoing global shift in the labor structure and employment trend in the agriculture sector as a result of the rise in smart digital technologies and a preference for industry and service, it is suggested that the curriculum undergoes an update and revision to better transform graduates in meeting the present demands of the global workforce. The conduct of graduate tracer studies is also recommended for all the future batches to continuously identify weak areas in the

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curriculum, maintain the high employability of agriculture graduates, and further enhance the institution's reputation and its linkage with industry.

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