



MANAGEMENT OF AN AERONAUTICS AND TECHNOLOGY EDUCATIONAL INSTITUTION IN THE PHILIPPINES

Roger A. Martinez, Jr

WCC Aeronautical & Technological College Inc.-Binalonan Campus
Binalonan, Pangasinan, Philippines
<https://orcid.org/0009-0004-8304-921X>

Abstract. The empirical investigation focused on ascertaining the management of WCC Aeronautical and Technological College and identifying the problems met in line with the processes and practices alongside the operation of the said entity. The researcher adopted the descriptive cross-sectional design with the aid of a questionnaire-checklist as main instrument in gathering data. The respondents in the study were the eight Department Heads, ten program heads, one Campus Director, and two Academic Heads. The findings of the study showed that the management of Binalonan Campus moderately practiced organizing, while the management of North Manila Campus satisfactorily practiced organizing. The extent of managerial practices and process implementation as to directing in the management of the WCC Aeronautical and Technological College Binalonan Campus and North Manila had an overall mean rating of 4.17 or with a descriptive rating of moderately practice. The two campuses moderately practiced planning, controlling, directing, and organizing. The problems faced by the top to middle-level educational managers of WCC Aeronautical and Technological College in two campuses were slightly serious, while the problems met by the top to middle-level educational managers of WCC Aeronautical and Technological College in North Manila Campus were moderately serious. The researcher concluded that the extent of managerial practices and process implementation in the management of the two campuses is the same, which affects the implementation of consolidate policy and standard of WCC aviation school in general. The management of WCC Aeronautical and Technological College for both Binalonan and North Manila Campus should conduct monthly meetings to enhance practice in financial planning, marketing planning and organizing. Further study is recommended.

Keywords: *aeronautics and technology education institution, planning, controlling, directing, organizing.*





INTRODUCTION

Aviation, far more than just pilots and airplanes, is a vibrant global industry that continues to soar to new heights. With an annual turnover surpassing \$1 trillion US dollars and employing over 5.5 million workers worldwide, the aviation industry stands as a formidable force in the global economy, ranking 21st in terms of GDP if it were a country (Oxford Economics, 2012). This remarkable success is not solely the outcome of piloting and engineering prowess but also a result of collective decisions based on public needs and empirical observations, transforming aviation into a business juggernaut.

Yet, the aviation industry is not without its challenges. As per the International Air Transport Association (IATA) research in 2017, the industry is projected to grow at a remarkable 5.6% compound average growth rate, leading to a demand for 500,000 new pilots within the next 15 years. The Asia-Pacific region, in particular, needs 192,300 pilots, highlighting the pressing need for aviation schools to train competent pilots, attendants, mechanics, and other professionals in line with industry requirements. This rapid expansion demands a fresh focus on school management to meet the growing needs of the aviation industry. In 2013, in yet another study done by Oxford Economics, as commissioned by the International Air Transport Association (IATA), they were able to determine the economic footprint of the aviation industry in over 54 countries. The Philippines, for instance, has witnessed the aviation sector contribute 2.4% of its GDP, and with the ASEAN's Open Skies policy and government support, the potential for growth in the local aviation industry appears boundless.

Despite the aviation industry's rapid development, education systems, especially in aviation, have often lagged behind other industries in embracing management practices. Business schools have long been recognized for producing leaders in various sectors, but the aviation industry is primed to emerge as the next incubator for billionaires, tycoons, and future leaders (Li-Yan, 2014). Managing an aviation school presents unique challenges, and school management must consider various aspects of business operations to thrive in the competitive landscape. To ensure the continued success of aviation education institutions, school administrators and managers must embrace innovation and modern entrepreneurial paradigms. They are the driving force behind the institution's success, responsible for fostering a culture of excellence, efficiently managing resources, and inspiring diverse teams to achieve technically demanding tasks with increasing efficiency. They must become pioneers of change, seamlessly adapting to the ever-evolving industry landscape. However, to fully tap into this potential, aviation schools must employ robust management processes (Perovic, 2013). Efficient planning, organizing, staffing, directing, and controlling are essential





in achieving the institution's educational objectives and providing a well-rounded education to aviation students (Weske, 2012).

In the midst of these changes, the role of higher education managers becomes paramount. Educational institutions worldwide, including aviation schools, face unprecedented challenges in a rapidly evolving global landscape. Granting more institutional autonomy to higher education institutions can foster greater management flexibility and expedite progress. Management practices, governance, and leadership play pivotal roles in differentiating successful institutions from others (Bell, et.al. 2012).

The WCC Aeronautical and Technological College serves as a prime example of an aviation education institution with a bright future. It has embraced the ever-changing demands of the industry by continuously improving its facilities, courses, and partnerships to meet aviation industry needs. The management's unwavering commitment to excellence and continuous improvement will undoubtedly propel the college to even greater heights. Nonetheless, challenges remain, ranging from technology adaptation to employee policies. The quality of an institution hinges on the proficiency of its managers (WCC ATC Manual, 2015). Addressing these challenges and enhancing school management approaches is essential to providing quality education and services to stakeholders. By assessing managerial practices, identifying hindrances, and integrating strategic and symbolic management actions, the institution can position itself as a leading force in aviation education. By combining visionary leadership, innovative approaches, and strategic planning, aviation education institutions can continue to shape the industry's future and contribute to the global economic landscape.

Despite the significant contributions of the aviation industry to the global economy and the growing demand for skilled aviation professionals, there is a research gap in the specific context of the management of aeronautics and technology educational institutions in the Philippines. While there are studies on general management practices and their impact on organizational effectiveness, there is a lack of research focusing on the unique challenges and requirements faced by aviation schools in the country. The present study aims to fill this research gap by examining the managerial practices within the two campuses of WCC Aeronautical and Technological College in the Philippines. The study's focus on the aviation industry's educational sector is essential because the aviation industry demands highly competent and skilled professionals, and the quality of education provided by aviation schools directly impacts the industry's success.

The research aimed to evaluate the level of managerial practices and process implementation at WCC Aeronautical and Technological College, specifically in the





areas of planning, organizing, directing, and controlling. Additionally, it sought to discover any notable variations in managerial practices and process implementation based on different groups of respondents and management aspects. Lastly, the study aimed to identify and gain insights into the management problems encountered by WCC Aeronautical and Technological College. By assessing the abilities of first to middle-level managers to adapt to changes and understanding the management approaches that mirror the specific culture of the school, the study seeks to provide valuable insights to improve the management practices in the aviation education sector. Moreover, the study's findings will contribute to addressing the pressing need for aviation schools to efficiently manage resources, implement innovative teaching methods, and adapt to the dynamic aviation industry's demands. By understanding the challenges faced by the management of aviation schools, the study will provide actionable recommendations to enhance the quality of education and services offered to students and stakeholders. It will help bridge the gap between the global aviation industry's rapid growth and the development of skilled aviation professionals, paving the way for continuous excellence and growth in the aviation education sector.

METHODOLOGY

This study used the descriptive cross-sectional design. Johnson, Onwuegbuzie, & Turner (2007) argue that such design involves collecting data at a single point in time to describe and analyze the current status or characteristics of a particular population or phenomenon. In the present study, it involves gathering of data from various respondents to assess the extent of managerial practices and process implementation, identify management problems, and explore differences based on respondent groups and management aspects.

This study covers WCC Aeronautical and Technological College specifically Binalonan Pangasinan Campus and North Manila Campus. These campuses represent two different campuses of the same aviation institution and offer unique perspectives for the research being conducted. By considering both campuses in the study, it gave a more comprehensive understanding of the educational and operational aspects of WCC Aeronautical and Technological College, encompassing both its rural and urban contexts and the unique offerings of each aviation campus.

The respondents in this study are the eight (8) Department Heads, two of them are from Binalonan campus; ten (10) program heads of different courses, of which five of them are from Binalonan campus; one (1) Campus Director came from Binalonan campus and two (2) Academic Head are from North Manila campus. The criteria in choosing the respondents is that they are employed for two years and above and are





qualified to answer the questionnaire as they are the frontliners and implementers of rules and regulation, they plan, organize, direct and control manpower, resources and others for the advancement of the institution. These respondents are chosen using simple random sampling method, this approach according Creswell (2005), ensures that each potential respondent has an unbiased and equal opportunity to participate in the study.

The study utilized a checklist questionnaire to gather data on managerial practices, process implementation, and management problems at WCC Aeronautical and Technological College. The questionnaire was carefully formulated based on relevant sources and validated through content and reliability assessments.

The questionnaire was formulated based on information from various books, online materials, and articles related to management processes and school management. The draft was reviewed and modified to ensure that the items aligned with each sub-problem of the study. For the validity, the instrument was shared with five deans and program heads from different schools who did not participate as respondents in the study. Result of the content validity was computed using the Cronbach alpha of .993 with inter-item correlation ranging from .652 to .936. Hence, no item was removed, and they remain equal with that retained after experts' validation. Content validity, which examines the representativeness, substance, and topics covered by the instrument, was used to improve it before actual use with the study respondents (Calmorin & Calmorin, 2005). For measuring the reliability of the instrument, the split-half method was employed on the entire scale and within subscales. The Cronbach's alpha ranged from .921 to .990 and .993 for the entire scale, indicating that the instrument is reliable. Statistical treatment used were the frequency count and distribution method, the average weighted mean, t-test and analysis of variances.



RESULTS

Extent of Managerial Practices and Process Implementation in the Management of the WCC Aeronautical Technological College

Table 1.

Extent of Managerial Practices and Process Implementation in the Management of the WCC Aeronautical Technological College as to Planning

PLANNING	Binalonan Campus n=8		North Manila Campus n=13		Overall (N=21)	
	M	DE	M	DE	M	DE
Financial Planning	3.87	MP	3.95	MP	3.91	MP
School Management and Marketing Planning	4.18	MP	4.38	SP	4.28	SP
Socio-Economic Planning	3.86	MP	4.14	MP	4.00	MP
Weighted Mean	3.97	MP	4.16	MP	4.06	MP

Legend: 5 (4.21-5.00)- Satisfactorily Practiced; 4(3.41-4.20) Moderately Practiced; 3 (2.61-3.40) Fairly Practiced; 2 (1.81-2.60) Poorly Practiced; 1(1.00-1.80) Not Practice

Table 1 shows the extent of managerial practices and process implementation in the management of the WCC Aeronautical and Technological College of the two campuses as to planning with an overall mean rating of 4.06 or with a descriptive rating of moderately practice.

Organizing

Table 2 shows the extent of managerial practices and process implementation as to organizing in the management of the WCC Aeronautical and Technological College Binalonan Campus and North Manila Campus had an overall weighted mean rating of 4.02 or with a descriptive rating of moderately practice. The management of Binalonan Campus moderately practice organizing (M=3.77) while the management of North Manila Campus satisfactorily practice organizing (M=4.26). In line with organizing, one item is highly practice by the management of Binalonan Campus, this is planning for initial meeting before the start of semester or curriculum year (M=4.30).





Table 2.
Extent of Managerial Practices and Process Implementation in the Management of the WCC Aeronautical Technological College as to Organizing

ORGANIZING		Binalonan Campus n=8		North Manila Campus n=13		Overall (N=21)	
		M	DE	M	DE	M	DE
1.	Utilize the basic qualification standards and adhere to pertinent policies in recruiting and hiring teachers/staff	3.57	MP	4.21	SP	3.89	MP
2.	Create and train School Selection and Promotion Committee and train its members	3.30	FP	4.31	SP	3.81	MP
3.	Recommend better ways and means to improve recruitment, hiring and performance appraisal of teachers	3.50	MP	4.49	SP	4.00	MP
4.	Align the school improvement plan with national, regional and local education policies and thrusts	3.57	MP	4.07	MP	3.82	MP
5.	Communicate effectively department/program improvement plan to internal and external stakeholders	3.50	MP	4.32	SP	3.91	MP
6.	Resolve problems at the department level only	3.87	MP	4.18	MP	4.03	MP
7.	Assist faculty and students to understand problems and identify possible solutions	4.17	MP	4.69	SP	4.43	SP
8.	Analyze cause/s of problems critically and objectively	4.10	MP	4.63	SP	4.37	SP
9.	Address the causes of the problem rather than the symptoms	4.17	MP	4.41	SP	4.29	SP
10.	Explore several approaches in handling problems	4.30	SP	4.29	SP	4.30	SP
11.	Demonstrate a proactive approach to problem solving	3.73	MP	4.29	SP	4.01	MP
12.	Aligning the budget with the strategic plan helps increase the plan's impact.	3.60	MP	4.40	SP	4.00	MP
13.	Plan for initial meeting before the start of semester or curriculum year	4.30	SP	4.41	SP	4.36	SP
14.	Monitoring implementation, tracking progress, and revising the strategic plan as necessary	4.17	MP	4.01	MP	4.09	MP
15.	Allowed to suggest and plan for the schools improvement in all departments such as registrar, library and others	3.73	MP	4.34	SP	4.04	MP
16.	Performance Dialogue through measuring quality of review conversations	3.60	MP	4.46	SP	4.03	MP
17.	Consequence Management through measuring whether differing levels of school performance (not only individual teacher performance) lead to different consequences	3.73	MP	3.88	MP	3.81	MP
18.	Monitor and evaluate accomplishment of different committees/teams	3.10	FP	3.69	MP	3.40	MP
19.	Give feedback on the team's performance using performance – based assessment tool	3.67	MP	3.91	MP	3.79	MP
WEIGHTED MEAN		3.77	MP	4.26	SP	4.02	MP

Legend: 5 (4.21-5.00)- Satisfactorily Practiced; 4(3.41-4.20) Moderately Practiced; 3 (2.61-3.40) Fairly Practiced; 2 (1.81-2.60) Poorly Practiced; 1(1.00-1.80) Not Practice





At the Binalonan Campus, three items emerged as the highest-scoring aspects with a commendable weighted mean rating of 4.17. These areas involve the management's efficacy in assisting faculty and students to understand problems and identify possible solutions, addressing the root causes of problems instead of merely treating the symptoms, and diligently monitoring the implementation and progress of various committees and teams. These achievements showcase the campus's capability to proactively tackle challenges and foster a supportive environment for faculty and students. On the other hand, the North Manila Campus displayed a remarkable performance in thirteen out of the nineteen controlling practices, receiving mean ratings ranging from 4.21 to 4.69. These practices underscore the management's prowess in areas such as recruitment and hiring of teachers/staff based on established standards and policies, effective communication of department/program improvement plans to stakeholders, adopting diverse approaches in problem-solving and offering opportunities for collaborative planning and improvement across different departments. The campus's emphasis on aligning the budget with the strategic plan to increase its impact and promoting transparent and constructive performance dialogues further enhances its reputation as a well-organized institution.

Directing

Table 3 shows the extent of managerial practices and process implementation as to directing in the management of the WCC Aeronautical and Technological College Binalonan Campus and North Manila had an overall weighted mean rating of 4.17 or with a descriptive rating of moderately practice.

As per table, recognizing the potentials of staff and providing them with ample opportunities for professional development emerged as another area of strength for both campuses, achieving noteworthy ratings of 4.80 for Binalonan Campus and 4.70 for North Manila Campus, further affirming that they satisfactorily practiced such. However, the data also identifies areas that warrant further attention and improvement. Notably, benchmarking department/program performance at Binalonan Campus scored 3.87, indicating a descriptive rating of moderately practice, while both campuses received a rating of 3.73 for assigning teachers and personnel to their areas of competence, suggesting opportunities for refining the allocation of staff skills to specific roles. While fixing poor performers through measuring whether the school is able to deal with underperformers got the lowest mean rating of 3.53. The management of North Manila Campus perceived that socio-economic planning is highly practice ($M=4.25$) and academic heads ($M=4.29$) while the assessment made by the department heads ($M=4.09$) in their campus.





Table 3.

Extent of Managerial Practices and Process Implementation in the Management of the WCC Aeronautical Technological College as to Directing

DIRECTING	Binalonan Campus n=8		North Manila Campus n=13		Overall (N=21)	
	M	DE	M	DE	M	DE
Mentor and coach employees and facilitate the induction of new ones	4.50	SP	4.77	SP	4.64	SP
Recognize potentials of staff and provide opportunities for professional development	4.80	SP	4.70	SP	4.75	SP
Ensure that the objectives of the school development plan are supported with resources for training and development programs	4.07	MP	4.37	SP	4.22	SP
Benchmark department/program performance	3.87	MP	4.70	SP	4.29	SP
Establish and model high social and academic expectations for all	4.07	MP	4.31	SP	4.19	MP
Create an engaging learning environment	4.80	SP	3.94	MP	4.37	SP
Participate in the management of learner behavior within the school and other department/program related activities done outside the school	4.67	SP	4.07	MP	4.37	SP
Assign teachers and other personnel to their area of competence	3.73	MP	4.16	MP	3.95	MP
Assist teachers and staff in setting and resetting performance goals	3.73	MP	4.12	MP	3.93	MP
Monitor and evaluate performance of teaching and non-teaching personnel vis-a-vis targets	4.17	MP	3.99	MP	4.08	MP
Delegate specific tasks to help manage the performance of teaching and non-teaching personnel	4.63	SP	3.61	MP	4.12	MP
Coach deputized staff as needed on managing performance	4.17	MP	3.93	MP	4.05	MP
Create a functional school-based performance appraisal committee	3.67	MP	4.19	MP	3.93	MP
Rewarding High Performers through measuring whether good teacher performance is rewarded proportionately	3.60	MP	4.07	MP	3.84	MP
Fixing Poor Performers through measuring whether the school is able to deal with underperformers	3.53	MP	4.08	MP	3.81	MP
Promoting High Performers through measuring whether promotions and career progression are based on performance	4.43	SP	4.00	MP	4.22	SP
WEIGHTED MEAN	4.15	MP	4.19	MP	4.17	MP

Legend: 5 (4.21-5.00)- Satisfactorily Practiced; 4(3.41-4.20) Moderately Practiced; 3 (2.61-3.40) Fairly Practiced; 2 (1.81-2.60) Poorly Practiced; 1(1.00-1.80) Not Practice





Controlling

Table 4 shows the extent of managerial practices and process implementation as to controlling in the management of the WCC Aeronautical and Technological College Binalonan Campus had an overall weighted mean rating of 4.18 or with a descriptive rating of moderately practice.

Table 4.
Extent of Managerial Practices and Process Implementation in the Management of the WCC Aeronautical Technological College as to Controlling

CONTROLLING	Binalonan Campus n=8		North Manila Campus n=13		Overall (N=21)	
	M	DE	M	DE	M	DE
1. Resolve problems at the school level	4.50	SP	4.30	SP	4.40	SP
2. Assist teachers and students to understand problems and identify possible solutions	4.80	SP	4.41	SP	4.61	SP
3. Analyze cause/s of problems critically and objectively	4.07	MP	4.24	SP	4.16	MP
4. Address the causes of the problem rather than the symptoms	3.87	MP	4.19	MP	4.03	MP
5. Explore several approaches in handling problems	4.07	MP	4.18	MP	4.13	MP
6. Demonstrate a proactive approach to problem solving	4.80	SP	4.24	SP	4.52	SP
7. Conduct Instructional Supervision using appropriate strategy	4.67	SP	4.40	SP	4.54	SP
8. Evaluate lesson plans as well as classroom and learning management	3.73	MP	4.34	SP	4.04	MP
9. Provide in a collegial manner timely, accurate and specific feedback to teachers regarding their performance	3.73	MP	4.07	MP	3.90	MP
10. Provide expert technical assistance and instructional support to teachers	4.17	MP	3.88	MP	4.03	MP
11. Assess and analyze the needs and interests of teachers and other school personnel	4.63	SP	4.01	MP	4.32	SP
12. Continuous Improvement through measuring the attitudes towards process documentation and continuous improvement	4.17	MP	4.01	MP	4.09	MP
13. Performance Tracking through measuring whether school performance is measured with the right methods and frequency	3.67	MP	4.12	MP	3.90	MP
14. Performance Review through measuring whether performance is reviewed with appropriate frequency and follow-up	3.60	MP	4.19	MP	3.90	MP
WEIGHTED MEAN RATING	4.21	SP	4.18	MP	4.18	MP

Legend: 5 (4.21-5.00)- Satisfactorily Practiced; 4(3.41-4.20) Moderately Practiced; 3 (2.61-3.40) Fairly Practiced; 2 (1.81-2.60) Poorly Practiced; 1(1.00-1.80) Not Practice





It can be gleaned from the table that in line with controlling, the management of Binalonan campus perceived that controlling was satisfactorily practice ($M=4.21$) while the management North Manila campus perceived that in line with controlling, they moderately practiced ($M=4.18$).

Out of fourteen controlling practices, the following are satisfactorily practice by the management of WCC Aeronautical and Technological College Binalonan campus and North Manila campus with mean rating of 4.32 to 4.61, these are: resolve problems at the school level (4.40), assess and analyze the needs and interests of teachers and other school personnel ($M=4.32$), conduct instructional supervision using appropriate strategy ($M=4.54$), assist teachers and students to understand problems and identify possible solutions ($M=4.61$) and demonstrate a proactive approach to problem solving ($M=4.52$).

Nine of these controlling practices and moderately implemented with mean rating ranging from 3.60 to 4.17, these are performance review through measuring whether performance is reviewed with appropriate frequency and follow-up (3.90), performance tracking through measuring whether school performance is measured with the right methods and frequency (3.90), evaluate lesson plans as well as classroom and learning management ($M=4.04$), provide in a collegial manner timely, accurate and specific feedback to teachers regarding their performance ($M=3.90$), address the causes of the problem rather than the symptoms ($M=4.03$), analyze cause/s of problems critically and objectively ($M=4.16$), explore several approaches in handling problems ($M=4.13$), provide expert technical assistance and instructional support to teachers (4.03) and continuous improvement through measuring the attitudes towards process documentation and continuous improvement ($M=4.09$).

Summary of the Extent of Managerial Practices and Process Implementation

Table 5 shows the summary of the extent of managerial practices and process implementation in the management of the WCC Aeronautical Technological College in their two campuses with overall mean rating of 4.11 or moderately practice. Based on the overall result, moderately practiced planning ($WM=4.06$), controlling ($WM=4.02$) directing ($WM=4.17$), and organizing ($WM=4.20$) are moderately practiced. This implies that among the four aspects, financial planning, socio-economic planning, organizing, directing and controlling need to be improved.





Table 5.
Summary of the Extent of Managerial Practices and Process Implementation in the Management of the WCC Aeronautical Technological College

MANAGEMENT PROCESS	Binalonan Campus n=8		North Manila Campus n=13		Overall (N=21)	
	WM	DE	WM	DE	WM	DE
Planning	3.97	MP	4.16	MP	4.06	MP
Organizing	3.77	MP	4.26	SP	4.02	MP
Directing	4.15	MP	4.19	MP	4.17	MP
Controlling	4.21	SP	4.18	MP	4.20	MP
OVERALL MEAN RATING	4.03	MP	4.20	MP	4.11	MP

Legend: 5 (4.21-5.00)- Satisfactorily Practiced; 4(3.41-4.20) Moderately Practiced; 3 (2.61-3.40) Fairly Practiced; 2 (1.81-2.60) Poorly Practiced; 1(1.00-1.80) Not Practice

Organizations must continually assess their employees' strengths and weaknesses. By doing so, employers are better able to match employee qualification to job assignments. Employee evaluations provide an assessment of the strengths and weaknesses for individual employees as well as the collective talents of employees by department or team. For example, an employee evaluation can reveal whether your employees have strong proficiency in computer software applications for finance use, yet weaknesses in applications used for presenting finance-related information in multimedia format. The importance of employee valuations to assess workers' skills is particularly significant in work force planning processes.





T-test Result of the Significant Differences Exist Relative to the Extent of the Managerial Practices and Process and Implementation of the Two Groups of Respondents

Table 6 presents the t-test result in determining the significant differences exist relative to the extent of the managerial practices and process and implementation when categorize according to group of respondents.

Table 6.

T-test Result of the Significant Differences exist Relative to the Extent of the Managerial Practices and Process and Implementation when Categorize according to Group of Respondents

Test Value = 0.05						
	t	df	Sig. (2- taile d)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
binalonan_campus	49.964	5	.000	3.95667	3.7531	4.1602
north_manila_campus	71.260	5	.000	4.13333	3.9842	4.2824

Table 6 shows the t-test result of the significant differences exist relative to the extent of the managerial practices and process and implementation when categorize according to group of respondents, the computed t-value of 49.964 and 71.260 had a significant (2-tailed) value of .000 which is lower than the 0.05 level of significance with 5 degree of freedom, therefore the hypothesis is accepted, that there is no significant differences exist relative to the extent of the managerial practices and process and implementation when categorize according to group of respondents.

Analysis of Variances (ANOVA) Result of the Significant Differences Exist Relative to the Extent of the Managerial Practices and Process and Implementation of the when Categorize according to Management Aspects

Table 7 presents the ANOVA result of the significant differences exist relative to the extent of the managerial practices and process and implementation relative to the management process and practices utilized by the respondents in line with planning, organizing, directing and controlling.





Table 7.
Analysis of Variances (ANOVA) Result of the Significant Differences Exist Relative to the Extent of the Managerial Practices and Process and Implementation of the when Categorize according to Management Aspects

Sources of Variation	Degree of Freedom	Sum of Squares	Mean Squares (SSr/df)	F Value	
				Computed (MSb/MSw)	Tabular
Planning					
Between Groups	1	0.118333	0.131667	- 1.79	4.33
Within Groups)	21	-2.65667	-0.07335		
Total		-2.745			
Organizing					
Between Groups	1	2.12	2.12	11.02	4.33
Within Groups)	21	3.076	0.19225		
Total		5.196			
Directing					
Between Groups	1	0.1796	0.1796	1.31	4.33
Within Groups)	21	4.3979	0.1374		
Total		4.41			
Controlling					
Between Groups	1	0.4057	0.4057	8.46	4.33
Within Groups)	21	1.535	0.04796		
Total		1.5459			

Problems Met by the Top to Middle-Level Educational Managers of WCC Aeronautical and Technological College in Implementing such Managerial Approaches

The researcher presents the responses of in line with four major functions of planning, organizing, directing, and controlling as to the problems met by the top to middle-level educational managers of WCC Aeronautical and Technological College specifically Binalonan Pangasinan Campus and North Manila Campus in implementing such managerial approaches. The researcher used the Average Weighted Mean as the statistical tool.





Table 8.

Summary of the Problems Met by the Top to Middle-Level Educational Managers of WCC Aeronautical and Technological College specifically BINALONAN and NORTH MANILA CAMPUS

MANAGEMENT PROCESS	Binalonan Campus n=8		North Manila Campus n=13		Overall (N=21)	
	WM	DE	WM	DE	WM	DE
Planning	2.18	SSPM	2.54	MSPM	2.36	SSPM
Organizing	2.30	SSPM	2.97	MSPM	2.63	MSPM
Directing	2.35	SSPM	3.08	MSPM	2.71	MSPM
Controlling	2.34	SSPM	2.32	SSPM	2.33	SSPM
OVERALL MEAN RATING	2.29	SSPM	2.73	MSPM	2.51	SSPM

Legend: 5 (4.21-5.00)- Very Highly Serious Problem Met; 4(3.41-4.20) Highly Serious Problem Met; 3 (2.61-3.40) Moderately Serious Problem Met; 2 (1.81-2.60) Slightly Serious Problem Met; 1(1.00-1.80) Not a Problem

Discussion

Planning. Table 1 shows that financial planning was moderately practiced at Binalonan Campus (M=3.97), similar to the management of North Manila Campus (M=4.16). Among the three aspects of planning, school management and marketing planning were satisfactorily practiced (M=4.28), while the socio-economic aspect was moderately practiced (M=4.00). Financial planning received the lowest mean rating of 3.91. This implies that the two campuses focused more on school management and marketing planning than on financial planning, as evidenced by their failure to prepare budget forecasts. This may be due to a lack of knowledge among school management regarding how to prepare budget forecasts. Based on informal interviews, they allocate budgets to specific projects even in the middle of the year, provided that project heads have proposals.

The role of management accounting in schools is crucial for understanding the status of accounting reports and for making strategic decisions regarding resources. Given the significant changes within the school system over the last few years, knowing how to make decisions about various resources and having the necessary tools in place is critical. According to Onduso (2013), the aim of the budget-setting process is to ensure that resource allocation aligns with school priorities. Unplanned overspending or underspending of a school budget can divert attention from previously agreed-upon





spending priorities, potentially affecting the achievement of school development plans, and can indicate weak financial management.

A school must decide whether its budget is realistic and whether it has satisfactory systems in place to aid the setting of the annual budget and subsequent regular period reporting (monitoring) to the Head Teacher and Governors. Key benefits of establishing a realistic budget that directs limited school resources in line with priorities include reducing the risk of financial crises during the year. Consequently, the school is more likely to fund its planned activities and less likely to spend valuable teaching and management time addressing funding shortages.

Organizing. Based from the result in Table 2, monitoring and evaluating accomplishment of different committees/teams got the lowest mean rating while assisting faculty and students to understand problems and identify possible solutions as assessed by the management of North Manila campus while the management of Binalonan campus, monitoring the achievements of their employees is not fully implemented. Despite these commendable achievements, the data suggests that the management of both campuses can benefit from focusing on certain aspects to strengthen their overall planning and controlling practices further. For Binalonan Campus, particular attention could be given to improving the less practiced area of monitoring the implementation and tracking progress, which might lead to enhanced coordination and execution of initiatives. As for North Manila Campus, while it excels in numerous areas, there remains potential for enhancing the remaining controlling practices to achieve even greater levels of efficiency and excellence. By leveraging these insights and implementing targeted strategies, WCC Aeronautical Technological College can continue to enhance its planning and controlling practices, thereby elevating its overall performance and ensuring an optimal learning and working environment for faculty, students, and stakeholders alike.

This implies that the management of North Manila campus and Binalonan Campus were able to exercise their role in solving problems and assist their faculty and students but failed to fully monitor the accomplishments of their team.

Effective management and leadership involve creative problem-solving, motivating employees, and making sure the organization accomplishes objectives and goals. The organizing function of leadership controls the overall structure of the company. The organizational structure is the foundation of a company; without this structure, the day-to-day operation of the business becomes difficult and unsuccessful. Organizing involves designating tasks and responsibilities to employees with the specific skill sets





needed to complete the tasks. Organizing also involves developing the organizational structure and chain of command within the company.

Ahmad (2011) perceived that organizing is a form of the enterprise or institution and the arrangement of the human and material resources functioning in a manner to achieve the objectives of the enterprise. It represents two or more than two people respectively specializing in functions of each perform, working together towards a common goal as governed by formal rules of behavior. Organization is the formation of an effective machine; management, of an effective executive; administration, of an effective direction. Administration defines the goal; management strives towards it. Organization is the machine of management in its achievement of the ends determined by Administration.

The scope of school organization is very vast. It includes; efficiency of the institution, securing benefits of the school through practical measures, clarification of the functions of the school, coordination of the educational programs, sound educational planning, good direction, efficient and systematic execution. It provides close collaboration and sense of sharing responsibilities, organized purpose and dynamic approach. Any organization plays a vital role in the life of human being. It plays different functions like; brings efficiency, guide pupil to receive right direction from the right teachers, enables the pupil to get profit from their learning, bring coordination of the student-teacher-parents-society. It provides well defined policies and programs, favorable teaching learning situation, growth and development of human beings, make use of appropriate materials, effective development of human qualities, execution of the programs, arrangement of the activities, efforts for attainment of the objectives etc.

Directing. Based from the result in Table 3, mentor and coach employees and facilitate the induction of new ones is highly practice while delegating specific tasks to help manage the performance of teaching and non-teaching personnel got the lowest mean rating. This implies that North Manila Campus practice mentoring and coaching. The management of WCC Aeronautical Technological College can leverage the identified strengths, such as effective mentorship and staff development programs, to nurture a more engaging learning environment and foster professional growth among its employees. Simultaneously, addressing the areas of improvement, including benchmarking performance and optimizing personnel assignments, can lead to streamlined operations and improved organizational efficiency. By utilizing this data-driven assessment, the institution's management can develop a well-rounded improvement strategy, enhancing the quality of directing practices to support the overall growth and success of the educational community. Continuous efforts towards refining and implementing these practices will undoubtedly contribute to a more robust





and effective learning environment at WCC Aeronautical Technological College, benefitting students, staff, and stakeholders alike.

Monitoring and evaluation give a basis for both questioning and testing assumptions. Monitoring and evaluation should be an integral component of any particular school since it helps in planning. A school should use technological tools available to help in gathering information. Also, it shows the mistakes and creates paths for both learning and improving. Management is an aspect of the business that doesn't have the same specific duties some of the other parts of the business have. In essence, management is about a dynamic process, with a number of elements and activities as part of the process. The dynamic and social element of management mean the functions of management are separate from operational functions. Whilst operational functions refer to activities and processes such as marketing, finances and purchases, the management functions differ depending on the organizational level at which they take place.

Mentoring helps their employees cope with changes in their environment in which the managers guide, instructs, and oversees the performance of the workers to achieve predetermined goals. Adaptability with changing environment helps in sustaining planned growth and becoming a market leader. It is directing function which is of use to meet with changes in environment, both internal as external. Effective communication helps in coping up with the changes. It is the role of manager here to communicate the nature and contents of changes very clearly to the subordinates.

Smith (2014) cited that those directions is the function, which is the starting point of the work performance of subordinates. It is from this function the action takes place, subordinates understand their jobs and do according to the instructions laid. Whatever are plans laid, can be implemented only once the actual work starts. It is there that direction becomes beneficial. Through direction, the superiors are able to guide, inspire and instruct the subordinates to work. For this, efforts of every individual towards accomplishment of goals are required. It is through direction the efforts of every department can be related and integrated with others. This can be done through persuasive leadership and effective communication. Integration of efforts bring effectiveness and stability in a concern. Direction function helps in achievement of goals. A manager makes use of the element of motivation here to improve the performances of subordinates. This can be done by providing incentives or compensation, whether monetary or non - monetary, which serves as a "Morale booster" to the subordinates Motivation is also helpful for the subordinates to give the best of their abilities which ultimately helps in growth. Stability and balance in concern becomes very important for long term sun survival in the market. This can be brought upon by the managers with the help of four tools or elements of direction function – a





judicious blend of persuasive leadership, effective communication, strict supervision, and efficient motivation. Stability is very important since that is an index of the growth of an enterprise. Therefore, a manager can use of all the four traits in him so that performance standards can be maintained.

Controlling. The result in Table 4 implies that the management of the two campuses of WCC Aeronautical and Technological College, assisting teachers and students to understand problems and identify possible solutions and demonstrating a proactive approach to problem-solving got the highest mean while performance review through measuring whether performance is reviewed with appropriate frequency and follow-up got the lowest mean rating, this implies that the management of Binalonan campus least focus on reviewing the performance of their teaching team and follow-up.

The purpose of an employee evaluation is to measure job performance. Many evaluations provide quantitative measurements essential for a production-oriented work environment. Other employee evaluations provide employers with metrics regarding the quality of employees' work. The importance of an employee evaluation is that it's instrumental in determining whether an employee's skill set is appropriately matched to the employee's job.

Through monitoring and evaluation in schools, good leadership is put into practice and accountability which leads to school improvement. Effective monitoring and evaluation can best be achieved through record keeping and proper reporting systems, to help find out whether the school resources are being spent according to plan or not. This also helps in figuring out whether the teaching method in the school is delivering to the desired educational results. Any school management team will have better means to learning and improve from past experiences, improve planning, and better allocation of resources if they put the best monitoring and evaluation practices. Through this, the school can be accountable to the stakeholders.

Jacobs (2014) posited that controlling is an important function of management. Its importance becomes apparent when we find that it is needed in all the functions of management. Controlling checks mistakes and tells us how new challenges can be met or faced. The success of the organization thus hinges on the effective controlling. Controlling is the last function of the management process which is performed after planning, organizing, staffing, and directing. On the other hand, management control means the process to be adopted to complete the function of controlling. With the help of controlling, deviations are immediately detected and corrective action is taken. Therefore, the difference between the expected results and the actual results is



reduced to the minimum. In this way, controlling helps achieving the goals of the organization. Controlling makes it possible to use human and physical resources efficiently. Under control, it is ensured that no employee deliberately delays his work performance. Coordination among all the departments of the organization is necessary to achieve the organizational objectives successfully and all the departments of the organization are interdependent.

T-test results of the significant differences exist relative to the extent of the managerial practices and process and implementation when categorized according to the group of respondents.

Table 6 shows the t-test result of the significant differences that exist relative to the extent of the managerial practices and process and implementation when categorized according to group of respondents, the computed t-value of 49.964 and 71.260 had a significant (2-tailed) value of .000 which is lower than the 0.05 level of significance with 5 degree of freedom, therefore the hypothesis is accepted, that there is no significant differences exist relative to the extent of the managerial practices and process and implementation when categorize according to group of respondents. Taking into consideration the result, any standard requirement of a school differs in how the school administration practices every managerial process as they differ from the needs, students, school demand, school environment, school culture, and others. Although they are following the same standards and policy, the extent of practice vary. This only means that the performance of each campus is not dependent on the other campus, therefore, there is a need to enhance the managerial practices of both campuses to attain the objective of the school.

Analysis of Variances (ANOVA) Result of the Significant Differences Exist Relative to the Extent of the Managerial Practices and Process and Implementation of the when Categorize according to Management Aspects

The computed f-values for the volume of planning as rated by the two groups of respondents ($f = -1.79$) and direction ($f = 1.31$) are lower than the tabular value of 4.33 at the 0.05 level of significance, with a degree of freedom of 21, respectively. Hence, the hypothesis is accepted, indicating that no significant differences exist in relation to the extent of the managerial practices and processes and implementation when categorized according to planning and directing.





Moreover, the computed value for organizing, as rated by the two groups of respondents ($f = 11.027$), is higher than the tabular value of 4.33 at the 0.05 level of significance, with a degree of freedom of 21. The same applies to the computed value under controlling ($f = 8.46$) with a degree of freedom of 21. Therefore, the hypothesis is rejected, indicating that significant differences exist in relation to the extent of managerial practices and processes and implementation when categorized according to organizing and controlling.

This implies that the management practices and implementation at the two campuses differ from each other, especially in how they organize their personnel and control work and management duties and responsibilities. This may be due to the differing needs and environments of the two campuses.

Problems Experienced by the Top to Middle-Level Educational Managers of WCC Aeronautical and Technological College in Implementing Such Managerial Approaches

The researcher presents the responses of in line with four major functions of planning, organizing, directing, and controlling as to the problems met by the top to middle-level educational managers of WCC Aeronautical and Technological College specifically Binalonan Pangasinan Campus and North Manila Campus in implementing such managerial approaches. The researcher used the Average Weighted Mean as the statistical tool.

Planning. In line with planning, the top to middle-level educational managers of WCC Aeronautical and Technological College in the two campuses met a slightly serious problem in implementing such managerial approaches under planning ($WM=2.36$). At North Manila Campus, the management assessed that of the financial planning (2.70) and school management and marketing planning (2.71) are moderately serious problems met by the management with mean rating of 2.54 but still fall under workable problem met by the management of North Manila Campus while socio-economic planning is slightly serious problem met. In Binalonan campus, financial planning (2.13), school management, marketing planning (2.16), and socio-economic planning (2.25) are all slightly serious problem met by the management of Binalonan campus management. This implies that one of the problems encountered by both campuses is preparing forecast budget maybe because of several circumstances that changes their financial and development needs. As part of its strategic analysis and planning processes, the school must also consider the financial resources available to support its plans. If the school's development planning and financial planning are to align



effectively with one another, the school must also have a strategic view of its finances and have good financial planning processes in place. As part of a strategic review, it may also be beneficial therefore to review the school's financial planning. This further implies that both campuses experience school management planning problems but of minimum effect. Times have changed, and many schools are finding that they need to engage in strong marketing tactics to thrive in today's market. That means more schools than ever are looking to develop marketing plans to guide them. Unfortunately, for those institutions building a school marketing plan for the first time, it can be overwhelming to get started. This implies that they experience these problems but of minimum effect.

Organizing. As to the problems met by the top to middle-level educational managers of WCC Aeronautical and Technological College in the two campuses in line with organizing with an overall mean rating of 2.63 or moderately serious problem met. The management of Binalonan Campus (WM=2.30) perceived that these organizing problems are slightly serious problem met in which it gain the highest mean rating among other organizing problems presented, these are : demonstrate a proactive approach to problem solving got the highest mean rating of 2.90 while communicating effectively department/program improvement plan to internal and external stakeholders and aligning the school improvement plan with national, regional and local education policies and thrusts got the lowest rating of 2.00 but all fall under very least serious problem met. This implies that they experience these problems but of minimum effect. The role of the management is to link planning with all other roles of communicating, motivating and controlling The organizing function entails primarily the structuring of student sub groups and defining of rules, as well as making preparations for the implementing of plans. Planning what is to happen in the classroom is one thing; having everything in readiness so it can happen is another. Logistics as a major aspect of preparation, involving the procurement maintenance and distribution of equipment and supplies and in many instances, the actual development of instruction materials. The organizing role expects teachers to make arrangements and develop an orderly structure to combine all elements in classroom processes into a unified whole. Well organizing is closely associated with systematic planning. Further, planning is concerned with identification of appropriate activities, organizing is concerned with making arrangements and structuring the classroom to implement classroom activities.

Directing. In line with the problems met by the top to middle-level educational managers of WCC Aeronautical and Technological College in two campuses in implementing managerial approaches such as directing with an overall mean rating of 2.71 or moderately serious problem met. The management of Binalonan campus





slightly met serious problem in line with directing (WM=2.35) while North Manila Campus moderately met a serious problem in line with directing. Of these directing problems, recognize potentials of staff and provide opportunities for professional development got the highest mean rating of 3.10 rated as moderately serious problem met while creating a functional school-based performance appraisal committee got the lowest rating of 2.45 but all fall under very least serious problem met. This implies that they encounter modest problems in line with creating and engaging staffs in different activities in order for them to determine the performance and problems with their faculty as a group that hinders professional development but of failed to heightened their organizations reward and recognition system to motivate their subordinates. In a competitive business climate, more business owners are looking at improvements in quality while reducing costs. Meanwhile, a strong economy has resulted in a tight job market. So while small businesses need to get more from their employees, their employees are looking for more out of them. Employee reward and recognition programs are one method of motivating employees to change work habits and key behaviors to benefit a small business. Although these terms are often used interchangeably, reward and recognition systems should be considered separately. According to Schemarton (2014), employee reward systems refer to programs set up by a company to reward performance and motivate employees on individual and/or group levels. They are normally considered separate from salary but may be monetary in nature or otherwise have a cost to the company. While previously considered the domain of large companies, small businesses have also begun employing them as a tool to lure top employees in a competitive job market as well as to increase employee performance. Properly measuring performance ensures the program pays off in terms of business goals. Since rewards have a real cost in terms of time or money, small business owners need to confirm that performance has improved before rewarding it.

Controlling. In line with the problems met by the top to middle-level educational managers of WCC Aeronautical and Technological College in two campuses in implementing managerial approaches such as controlling with an overall mean rating of 2.71 or slightly serious problem met. The management of Binalonan campus slightly met serious problem in line with controlling (WM=2.34) same as with North Manila Campus management (WM=2.32). Of these controlling problems, evaluating lesson plans as well as classroom and learning management got the highest mean rating of 2.89, same as with the problem on difficulty in conducting instructional Supervision using appropriate strategy rated as moderately serious problem met while difficulty exploring several approaches in handling problems and Difficulty in providing expert technical assistance and instructional support to teachers got the lowest rating of 2.06 but all fall under very least serious problem met. This implies that they encounter modest problems in line with monitoring classroom performance of the teachers





specially assisting and supervising how their teachers conduct their role in the organization, this maybe due to work overload for the administrative heads and overlapping of responsibilities. Hence, a need to develop an institutional plan and enhancement of business development plan is recommended. Controlling consists of verifying whether everything occurs in conformities with the plans adopted, instructions issued and principles established. Controlling ensures that there is effective and efficient utilization of organizational resources so as to achieve the planned goals. Controlling measures the deviation of actual performance from the standard performance, discovers the causes of such deviations and helps in taking corrective actions. According to Brech (2014), controlling is a systematic exercise which is called as a process of checking actual performance against the standards or plans with a view to ensure adequate progress and also recording such experience as is gained as a contribution to possible future needs. According to Donnell (2013), just as a navigator continually takes reading to ensure whether he is relative to a planned action, so should a business manager continually take reading to assure himself that his enterprise is on right course. Controlling has got two basic purposes, this is it facilitates coordination and it helps in planning.

In general, the problems met by the top to middle-level educational managers of WCC Aeronautical and Technological College specifically Binalonan and North Manila Campus with an overall mean rating of 2.51 or slightly serious problem. Management of Binalonan campus met a slightly serious problem with mean rating of 2.29 in line with managerial aspects while North Manila campus management experience moderate problem with mean rating of 2.73. This implies that they met problems in line with planning, organizing, directing and controlling which may affect the management and practices of North Manila Campus management. Hence a need for five-year business development plan is proposed specially focusing on preparing budget forecast, fully monitor the accomplishments of their team cash incentives/vacation incentive since majority of the faculty who are pilots, wherein their performance as pilot is not measured thru certification and all submitted reports by the middle-level educational managers shall be data-driven assessment to determine the status and prospects of their respective department.

CONCLUSION

The evaluation of managerial practices and process implementation as to directing at WCC Aeronautical Technological College, provides valuable insights into the strengths and areas for improvement within the institution. Both the Binalonan and North Manila campuses demonstrate a satisfactory to moderately practiced level of directing practices. Effective mentorship, coaching of employees, and facilitating the





induction of new staff of the two aviation campuses of WCC-ATC's notable strengths. Additionally, recognizing the potentials of staff and offering opportunities for professional development stand out as strong points in both campuses. Some practices of the management that fall under satisfactorily practiced range, reflect the two campuses' commitment to fostering an engaging learning environment and supporting the growth and performance of its employees. However, the data also highlights areas that require further attention and enhancement. Benchmarking department/program performance and optimizing personnel assignments are identified as potential areas for improvement. These aspects, along with other practices rated as moderately practice, present opportunities for the management of WCC Aeronautical Technological College to refine and align their directing strategies effectively. To optimize the directing practices, it is crucial for the institution to integrate effective monitoring and evaluation processes. Monitoring and evaluation serve as the foundation for questioning assumptions and testing the effectiveness of processes. By leveraging technological tools available, the institution can gather valuable information to identify mistakes and create paths for learning and improvement. Direction, being a dynamic and social element of management, plays a pivotal role in guiding and inspiring employees to work collaboratively towards achieving organizational goals. The effective communication of changes is essential in helping the organization cope with a dynamic environment. Managers' role in providing clear instructions and integrating efforts helps in achieving stability and effectiveness within the institution. By combining persuasive leadership, effective communication, strict supervision, and efficient motivation, the institution can foster stability and balance, leading to long-term sustainability and growth in the market. Therefore, the evaluation of directing practices provides valuable guidance for the management of WCC Aeronautical Technological College to enhance its leadership strategies, improve employee performance, and create a more cohesive and effective learning environment. By leveraging the identified strengths and addressing areas for improvement, the institution can further strengthen its position as a reputable educational institution, nurturing a culture of excellence, and ensuring the success of its students, staff, and stakeholders alike.

REFERENCES

- Abdel, W., Rowena, M., & Robyn, R. (2010). Determinants of innovation in SMEs: A study of manufacturing firms in Australia. *International Journal of Innovation Management*, 14(1), 35-61.
- Andriopoulos, C., & Dawson, P. (2010). *Managing change, creativity and innovation*. SAGE Publications.





- Anh, N. T. T. (2013). One Village One Product (OVOP) and local economic development in Asia: The case of Vietnam. *Sustainability*, 5(10), 4416-4430.
- Beck, T., & Demircug-Kunt, A. (2016). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & Finance*, 30(11), 2931-2943.
- Brink, T., & Madsen, E. L. (2016). The role of creativity in entrepreneurship and innovation. *Innovation: Organization & Management*, 18(1), 3-9.
- Burgelman, R. A. (2012). Strategy is destiny: How strategy-making shapes a company's future. *Organization Science*, 23(2), 299-310.
- Chesbrough, H. (2013). *Open business models: How to thrive in the new innovation landscape*. Harvard Business Review Press.
- Cooper, R. G., & Kleinschmidt, E. J. (2016). Winning businesses in product development: The critical success factors. *Research Technology Management*, 59(1), 21-31.
- Dalberg (2011). *Small and medium-sized enterprises: Key drivers of competitiveness and employment in South Africa*. Dalberg Global Development Advisors.
- FAO (Food and Agriculture Organization of the United Nations). (2017). *Innovation in family farming: Food and Agriculture Organization of the United Nations*.
- Guiné, R. P., Ramalhosa, E., & Cruz-Lopes, S. (2016). Innovation as a key driver of economic growth: Evidence from Portugal. *Journal of Innovation Management*, 4(1), 24-50.
- Hurley, R. F., & Hult, G. T. M. (2018). Innovation, market orientation, and organizational learning: An integration and empirical examination. *Journal of Marketing*, 82(3), 1-20.
- Jordana, J. (2015). The food industry and healthy diets: Trend or dead end? *Catalan Journal of Communication & Cultural Studies*, 7(2), 213-218.
- Llanto, G. M. (2010). *Philippine small and medium enterprises: Structures, performance, and credit access survey*. Philippine Institute for Development Studies.
- Llanto, G. M., & del Prado, F. M. (2015). *Role of innovation in achieving competitive advantage and sustainable growth: A case study of manufacturing SMEs in the Philippines*. Philippine Institute for Development Studies.
- OECD (Organisation for Economic Co-operation and Development). (2017). *Innovation, productivity and sustainability in food and agriculture*. OECD Publishing.
- Pachava, S. (2018). Innovation in small and medium-sized enterprises (SMEs) in India: A case study of food processing sector. *Indian Journal of Economics and Development*, 6(2), 47-52.





- Pandey, R. (2018). Trends in the food industry: Challenges and opportunities. *Journal of Food Science and Technology Nepal*, 8, 43-48.
- PIDS (Philippine Institute for Development Studies). (2017). Philippine Innovation Index.
- PIA (Philippine Information Agency). (2017). Innovation powers food SMEs in Pangasinan.
- Quickie, R. A. (2019). Measuring innovation in small and medium-sized enterprises. *International Journal of Technology Management*, 79(1/2/3), 1-19.
- Sajid, A., Al-bloush, A. A., AL-Faieq, A. F., Monsef, H., & Sadegh, A. M. (2015). The role of innovation in competitive advantage of companies. *European Journal of Business and Management*, 7(27), 2222-2839.
- Ueasangkomsate, P. (2016). A study on the competitiveness of SMEs in the food industry in Thailand. *Procedia Economics and Finance*, 35, 127-135.
- Wyness, L., Buttriss, J., & Stanner, S. (2012). Reducing food poverty and inequalities in the UK: The role of the food and drink industry. *Nutrition Bulletin*, 37(3), 286-292.
- Yokakul, N., & Zawdie, G. (2011). National innovation systems in less successful developing countries: The case of Thailand. *International Journal of Technology Management & Sustainable Development*, 10(2), 157-176.

Supplementary Materials: No supplementary materials were published with the manuscript.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgments: The information in this document reflects only the author's views and responses of the respective Department Deans, Program Heads, and the triangulators is the Academic Head and the Campus Director of WCC-Aeronautical and Technological College two campuses specifically Binalonan Pangasinan Campus and North Manila Campus and is not liable for any use that may be made of the information contained therein.

Conflict of Interest: The author declares that there are no conflicts of interest regarding the publication of this paper.

Ethical Statement: All participants provided their informed consent prior to inclusion in the study. The study was conducted in accordance with the principles of the Declaration of Helsinki.

