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Crematorium in San Pedro City, Laguna: A Feasibility Study

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Abstract

With the growing number of COVID-19 related deaths in the Philippines, cremation has become more practical and safer. More local government units are mandating the cremation of the deceased despite the administrative option of either cremation or traditional burial for a 12-hour duration at most. This gave rise to the limited supply of crematoriums within the City of San Pedro in Laguna and its neighboring towns. Employing a descriptive and exploratory research design, data were collected from 387 respondents from the cities of San Pedro, Biñan, and Sta Rosa, Laguna. Information focused on the business functions were also gathered through unstructured interviews from a crematorium supervisor and a funeral parlor owner. Using the results of the survey, it revealed an optimistic demand and market share from the population. The interview helped in determining the 1,440 annual business capacity which was used to determine the average 12% unmet market demand or 450 cremation procedures a year. The unmet market demand was further translated into revenue which is increasing at an average of 27% every year. The annual revenue exhibits the ability to cover related costs and operating expenses resulting to an average of 50% income per year. The optimistic outcomes were consistent for the five-year projection resulting to ₱3,702,598, ₱5,651,528, ₱7,683,884, ₱9,777,968, and ₱11,981,665, respectively. Various financial analyses were also performed to rationalize not only its profitability but also its liquidity, efficiency, and investment returns. The overall study proved that establishing a crematorium in San Pedro City is a highly feasible project.

Keywords: *crematorium, COVID-19, funeral, pandemic, viability*

Cremation was a very controversial and popular topic back in the 1900s as it touches beliefs and alters traditions. It was referred to as a grave sin. Initially, the studies were done to defend cremation from arguments about the violence and inhumanity of the process, offensive smell, and potential for the concealment of murder (Knight, 2018). Knight (2018) also cited that the Cremation Society of England was formed in 1874. Despite the widespread of normalizing cremation, there was a great refusal from the Roman Catholic. In 1917, the Code of Canon Law was promulgated. The code strictly prohibited cremation and those who defy will receive severe punishment such as deprivation of church funeral. However, through continuous debate and study, the Code of Canon Law was revised in 1983 allowing the people to follow the custom of burial or to have a cremation.

The customs and practices of Catholicism are deeply rooted in the Philippines where the mourning of a death of a loved one extends up to a year and its succeeding years. Step by step, the issues concerning cremation were answered and justified by the Church. The Catholic Church is concurrently asserting that cremation is acceptable as long as it does not disrespect the deceased's body and does not affect the resurrection of the cremated (Bahr, 2015).

As the world continues to develop, more opinions and insights arise about cremation proving its practicality, usefulness, and timeliness. The difference in cost between cremation and burial is apparent. According to Alpad (2015), a traditional funeral has costs that can exceed more or less P95,000 in the Philippines, P20,000 to P35,000 more expensive than cremation. Adrian (2020) believed that "The finality of death does not only take a toll on emotions; it also affects our finances" (para. 1).

The pandemic has affected the recognition of cremation worldwide. According to the World Health Organization (WHO, 2020), the Philippines reportedly had its first confirmed case of COVID-19 infection on January 30, 2020. While the WHO (2020) has not mandated the cremation of all dead bodies infected by COVID-19, it has been clear that proper handling such as wearing of prescribed personal protective equipment (PPE) and other precautionary measures, including clear instructions of no kissing or hugging of the corpse, has been highly compulsory. The organization has been very respectful towards the religious and cultural choices of the people. In the same manner, the Philippines has adopted parallel guidelines whilst sustaining harmony with the current conditions of the country (Department of Health, 2020).

Burial is clearly allowed as stated in the Memorandum Circular No. 2020-063 issued by the Department of the Interior and Local Government (DILG, 2020), but can only be done for a manner of 12 hours provided that strict measures are implemented. However, cremation was highly favored in helping to contain the disease. For instance, Quezon City in Manila has mandated in its localized guidelines the cremation of dead COVID-19 patients as required by Mayor Joy Belmonte (Lalu, 2020b).

According to a survey administered by the Social Weather Stations (SWS), there are about 85% of Filipinos who are either greatly worried or somewhat worried about catching the dreaded virus (Lalu, 2020a). With all the stringency in protocols and the anxiety the people are experiencing, it is but more compelling to find alternatives that will ease the fear of the Filipinos through the affordable, yet proper management of human remains of COVID-19 patients, and through giving the citizens the liberty to be with their loved ones, even after death.

Methodology

Primary and secondary data were collected and used by the researcher in establishing facts and information. Primary data includes interviews and survey questionnaires which were collected specifically for the task. Owners and managers of cremation and funeral services were the key interviewees regarding the practices, prices, and technical requirements concerning the operation of related business. Secondary data were gathered and based on the original piece on reading materials where the information evidence can be found. It includes data from National Statistics Office, articles, magazines, and other written materials, books, and the internet.

Research Design

This study employed the descriptive and exploratory method of research. A descriptive research method is mainly concerned with gathering information through surveys, interviews, and observation in the proposed target market.

Exploratory research often depends on researches from secondary sources. This includes reviewing literature and qualitative approaches such as discussions with customers, workers, and even competitors. The pricing scheme, different views, and various practices of other crematoriums were searched through the internet.

Population and Sampling Technique

The random sampling method was the sampling technique used by the researcher to determine the sample size. The formula is: (Narbarte, 2015)

$$n = \frac{N}{(1 + Ne^2)}$$

where: n = is the sample size

N = is the population

e = is the margin of error expressed in percentage

Based on the available data from the DILG of Region IV-A, the total registered voters in San Pedro, Biñan, and Sta Rosa, Laguna as of the year 2016 is 521,613. A 5% margin of error has been applied to this study:

$$n = \frac{521,613}{1 + 521,613 (.05^2)}$$

$$n = 399.03$$

Table 1. *Target Market Residents of San Pedro, Biñan, and Santa Rosa, 2016*

Target Respondents	Population		Questionnaire Distributed	Questionnaire Retrieved
	Number	Percentage		
San Pedro	165,073	32%	267	255
Biñan	174,876	34%	96	96
Santa Rosa	181,664	35%	36	36
Total	521,613	100%	399	387

Source: *Department of the Interior and Local Government*

Instrumentation

The self-constructed survey questionnaire was mainly composed of eight (8) questions, not to mention the location for additional profiling of the respondents. It was validated by five (5) experts with good background and education credentials to ensure completeness and relevance of questions, whereas five (5) laymen assisted in articulating the content for the ease of understanding. After all commentaries and suggestions have been incorporated into the survey questionnaires, it was distributed to the population derived from the required optimum sample size. The researcher distributed 399 questionnaires using Google Forms to the possible target market of the proposed business. The respondents were given enough time to respond to the question and the researcher collected the surveys after answering.

Data Analysis

The data were gathered through the instrumentality of Google forms. Percentage based on frequency and tables were used to determine the projected demand and supply from the target market, which were further translated to sales. All costs and expenses were derived from a combination of interview and exploratory study. The following financial analyses were performed to rationalize not only its profitability but also its liquidity, efficiency, and investment returns.

Capital Budgeting Techniques. Capital budgeting is the process of not only planning but also the administration of the long-term investments of a firm (Ross et al., 2017).

Net Present Value (NPV) is a technique that considers the time value of money by discounting all cash inflows and outflows from different points in time. A positive outcome should indicate acceptance of the project (Mathur & Rangarajan, 2015).

Internal Rate of Return (IRR). An IRR is a discount rate that makes all the NPV equal to zero (Brigham et al., 2016).

Profitability Index (PI). The Profitability Index shows the relationship between the PV of all future cash flows and the investment required for a certain project. A PI greater than 1 is considered an acceptable project (Chen, 2020).

Profitability Ratios. Profitability ratios take into consideration a company's efficiency in the management of its assets and operations (Ross et al., 2017).

Return on Sales. This ratio measures the number of earnings in a dollar of sales. The efficiency in terms of operations can be determined (Hayes, n.d.).

Return on Investment (ROI). This ratio indicates the efficiency of the use of and the amount of return of an investment (Chen, 2019).

Gross Profit Margin. The gross profit margin is a percentage of sales that depicts the financial health of a business after removing the cost from the revenue. (Brigham et al., 2016).

Liquidity ratios show the relationship of a firm's current assets to its current liabilities, thus, its ability to meet maturing debts. Two commonly used liquidity ratios are the current ratio and the quick ratio also called the acid test ratio (Brigham et al., 2016).

Current ratio. When measuring a company's capacity to repay short-term debts, the current ratio is commonly used (Brigham et al, 2016).

Test of Return on Capital Investment. These are financial tools that measure the reasonableness of project investments.

Average Rate of Return (ARR). This ratio measures the return rate in an investment without considering the time value of money (Murphy, n.d.).

Payback Period. The payback period is measured by the duration for an investment to be recovered (Ross et al., 2017).

Ethical Considerations

Since any topic related to death is taken sensitively by some Filipinos, the respondents were not forced to answer the survey questionnaire. They were given the free will to decline the invitation. Furthermore, the names of the respondents who answered the survey questionnaire were preserved for confidentiality.

Results and Discussion

Demand

Every business requires demand to sustain its continuity, more so in a venture that is yet to begin. Market satisfaction will greatly influence the realization of the company's goals. An analysis of demand will assist in determining who is willing and capable to avail of the cremation services. The proposed business intends to market its service in San Pedro, Laguna including the nearby cities of Biñan and Sta. Rosa. Table 2 illustrates the number of deaths from the years 2015 – 2019. The table shows inconsistencies in terms of growth at 0.97% in 2016, 4.05% increase in 2017, 0.64% increase in 2018, and 2.80% increase in 2019.

Table 2. *Historical Number of Deaths of Target Market, 2015-2019*

Year	Number of Deaths	Increase (Decrease)	Growth Rate
2015	5,377	-	-
2016	5,429	52	0.97%
2017	5,649	220	4.05%
2018	5,685	36	0.64%
2019	5,844	159	2.80%
Average	5,597	117	2.11%

Source: Philippine Statistics Authority, Vital Statistics

The information was gathered by the researcher from the annual vital statistics released by the Philippine Statistics Authority (PSA) from the three (3) towns of Laguna. Given the information, the total number of deaths from 2015 to 2019 has an annual compounded growth rate of 2.11%. Using the aforementioned, the researcher projected the population of death in the next five years from 2021 through 2025. The projection was computed using the Statistical Straight-Line Method since the variables are increasing inconsistently (Narbarte, 2015).

$$Y = a + bX$$

$$b = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2}$$

$$a = \frac{\sum y - b\sum x}{n}$$

Where, n = number of observations
 x = year index
 y = population size for the given census years

Table 3. *Projected Number of Deaths of the Target Market, 2021-2026*

Year	Number of Deaths	Increase (Decrease)	Growth Rate
2021	6,177	166	2.76%
2022	6,342	166	2.68%
2023	6,508	166	2.61%
2024	6,674	166	2.55%
2025	6,840	166	2.48%
2026	7,005	166	2.42%
Average	6,674	166	2.58%

The projected number of deaths will be utilized in the succeeding parts of this study particularly for the projection and analysis of demand and supply. The average population growth rate is 2.58% for the projected five-year period. In determining the future demand of the business, a survey questionnaire was distributed to 399 respondents with a 97% participation rate. A computation of demand in peso was computed from the year 2022 to the year 2026.

Table 4. *Projected Demand of Cremation Services in Peso for 2022-2026*

Year	Demand in Quantity	Demand in Peso	Increase (Decrease)	Growth Rate
2021	3,304	110,463,273		
2022	3,392	116,715,977	6,252,704	5.66%
2023	3,481	123,238,439	6,522,461	5.59%
2024	3,570	130,041,045	6,802,606	5.52%
2025	3,658	137,134,558	7,093,514	5.45%
Total	17,406	617,593,292	26,671,285	22.22%
Average	3,481	123,518,658	6,667,821	5.56%

As shown from Table 4, the projected demand in peso increases at an average of 5.56% and ₱6,667,821 yearly.

Supply

There were several crematoriums within the area of San Pedro and its neighboring towns of Biñan and Sta. Rosa. From the three cities, there are only five known crematoriums namely Phoenix Memorial Chapels and Crematory in Santa Rosa, St Nathaniel Crematory Branches in San Pedro and Biñan, Eternal Crematory Corporation, and Heaven's Park Memorial Gardens in Biñan.

Based on the available information from interviews, news articles, and phone call interviews, the researcher determined that the cremation process per crematorium differs. A complete cremation process with Phoenix Memorial Chapels and Crematory takes three (3) hours to complete. As with St Nathaniel Crematory in Biñan, since it is considered the better branch than the one in San Pedro, their cremation process takes only one and a half (1.5) hours as opposed to the twenty-four (24) hour capacity of the poor performing branch. Heaven's Park Memorial Gardens boasts equal efficiency of completing a whole cremation process at only one and a half (1.5) hours. Lastly, the Eternal Crematory Corporation strictly implements machine rest-time and finishes a cremation process at two and a half

(2.5) hours. Due to the current pandemic, offices have been restricting their office hours to eight (8) hours only per day but are still open on weekends.

To compute for their capacity, the researcher determined the daily capacity by dividing 8-hour shift per cremation process. Thereafter, multiplying it by six (6) working days, then by four (4) weeks in a month, and ultimately by 12 months to get the annual capacity. Similar to demand, since cremation is considered a one-time event, frequency has been eliminated. The supply for the next five (5) years has been computed using the aforementioned.

Table 5. *Projected Supply of Cremation Services in Peso, 2022 – 2026*

Year	Projected Supply	Projected Supply in Peso	Increase (Decrease)	Growth Rate
2022	3,120	78,167,544	2,202,973	2.90%
2023	3,120	80,434,403	2,266,859	2.90%
2024	3,120	82,767,000	2,332,598	2.90%
2025	3,120	85,167,243	2,400,243	2.90%
2026	3,120	87,637,094	2,469,850	2.90%
Total	15,600	414,173,284	11,672,522	14.50%
Average	3,120	82,834,657	2,334,504	2.90%

Based on the projected supply of cremation services in peso amounts, the increase of supply in peso resulted in an average increase of 2.90% from 2021 to 2025. The supply in quantity was multiplied with the price the average price the respondents answered in the survey questionnaire.

Demand and Supply Analysis

The study of demand and supply shows a depiction of the market share of the proposed business. An excess demand over supply represents unmet market demand. This characterizes the proposed business' market share.

Table 6. *Projected Demand and Supply Analysis of Cremation Services in Peso, 2022 – 2026*

Year	Demand in Peso	Supply in Peso	% of Satisfied Demand	Unmet Demand	% of Unsatisfied Demand	Business Capacity	Market Share
2022	116,715,977	78,167,544	67%	38,548,433	33%	44,496,000	100%
2023	123,238,439	80,434,403	65%	42,804,036	35%	45,830,880	100%
2024	130,041,045	82,767,000	64%	47,274,044	36%	47,205,806	100%
2025	137,134,558	85,167,243	62%	51,967,315	38%	48,621,981	94%
2026	144,530,131	87,637,094	61%	56,893,038	39%	50,080,640	88%
Average	130,332,030	82,834,657	64%	47,497,373	36%	47,247,061	96%

Market Share

The analysis of the demand and supply from the previous tables illustrates an insufficient supply in the target market. Computed average market share in peso is 96%. Besides, the business capacity to create the new crematorium shows adequacy in accommodating the excess from the market demand. This is a good indication of the proposed business.

Capital Investment

Pre-Operating Expenses. Various expenses must be taken into consideration in setting up a business. Estimated pre-operating expenses amount to ₱112,884.

Working Capital. As a start-up business, it is normal to come across challenges and experience an increase in initial cash outflows especially in the first year of business. The researcher assumed to bear the operating expenses for at least six (6) months and include them in the capital requirement amounting to ₱1,487,310.

Capital Expenditure. All fixed assets which require a material amount of cashflow were considered a capital expenditure. This includes the purchase of land and the construction of the building which consumed a major part of the investment. Details were discussed previously in Table 11 of the Technical Study.

Table 7. *Capital Requirement*

Description	Amount	Total
Pre-Operating Expenses		
Feasibility Study	₱5,000	
Licenses and Permit		
SEC Certificate of Registration	2,040	
HLURB Locational Clearance	13,164	
DENR Environmental Compliance Certificate	20,000	
Community Tax Certificate	500	
Barangay Clearance	500	
Mayor's Permit	15,000	
Building Permit	3,000	
BIR Certificate of Registration	500	
Documentary Stamp Tax	30	
ATP for Official Receipts and Invoices	5,000	
ATP for Manual Books of Accounts	150	
Advertising and Promotion	48,000	₱112,884
Working Capital		
Service Cost	₱489,648	
Salaries and Wages	246,000	
Employee Benefits	150,280	
Office Supplies	35,345	
Utilities Expense	89,994	
Cleaning Supplies	69,511	
Depreciation Expense	298,521	
Repairs and Maintenance	24,000	
Insurance Expense	76,446	
Assets Expensed Outright	7,565	₱1,487,310

{table continues on the next page}

Capital Expenditures

Equipment	₱3,469,360	
Furniture and Fixtures	83,867	
Land	3,600,000	
Building	7,000,000	₱14,153,227
TOTAL		₱15,753,421

Financial Statements

To provide information about the result of the activities and operations of a business, financial statements prove to be a source of useful insights when making financial decisions. Financial statements are also beneficial in connection to forecasts such as determining the business's ability to generate income, the capacity to pay debts, or monitoring the cash flow.

Projected Statement of Comprehensive Income. This report encapsulates the financial performance of a business for a certain period. It will show the revenues, expenses, gains, and losses, all leading to the computation of net income or loss and the determination of appropriate taxes, if applicable.

Excluding the impact of Year 0 where all pre-operating activities are assumed, the five-year projection in Table 8 shows a positive trend. It is important to note that upon the successful start of operations, there is a noticeable growth most especially in terms of revenue.

Projected Statement of Financial Position. When evaluating the financial standing of a business, the statement of financial position or also known as a balance sheet can be useful. The assets, liabilities, and capital components of a business are all established in this report. Table 9 shows that the business is heavily relying on equity capital rather than debt.

Projected Statement of Cash Flows. This statement shows all the cash inflows and outflows from the different activities of the business. These activities are operating, investing, and financing activities, respectively. From the analysis of cash flows, both cash generation and expenditures can be closely monitored.

Based on Table 10, it can be understood that since all pre-operating expenses and major capital disbursements will transpire in Year 0, there will initially be no return of cash but a substantial outflow from investing activities. As soon as the operations have started in 2022, constant progress is apparent from operating activities. There is more room for withdrawals among the investors which can be seen in the financing activities.

Table 8. *Projected Statement of Comprehensive Income*

PROJECTED STATEMENT OF COMPREHENSIVE INCOME										
for the years ended December 31, 2021-2026										
	Year 0	2022	%	2023	%	2024	%	2025	%	2026
Service Revenue	-	₱8,404,800	100%	₱11,489,547	100%	₱14,751,815	100%	₱18,165,712	100%	₱21,805,945
Gross Revenues	-	8,404,800	100%	11,489,547	100%	14,751,815	100%	18,165,712	100%	21,805,945
Service Cost	-	979,295	12%	1,254,860	11%	1,588,235	11%	1,984,512	11%	2,454,171
Gross Profit	-	7,425,505	88%	10,234,687	89%	13,163,580	89%	16,181,200	89%	19,351,774
Operating Expenses	17,673	70,690	1%	72,033	1%	73,402	0%	74,796	0%	76,218
Office Supplies										
Utilities Expense	44,997	179,988	2%	183,408	2%	186,893	1%	190,443	1%	194,062
Cleaning Supplies	34,756	139,023	2%	141,664	1%	144,356	1%	147,099	1%	149,893
Advertising and promotions	-	48,000	1%	48,720	0%	49,451	0%	50,193	0%	50,945
Salaries and wages	218,760	492,000	6%	501,840	4%	511,877	3%	522,114	3%	532,557
Employee Benefits	23,940	300,560	4%	304,127	3%	307,765	2%	311,476	2%	315,261
Depreciation Expense	149,261	597,043	7%	597,043	5%	597,043	4%	597,043	3%	592,849
Repairs and Maintenance	-	48,000	1%	49,728	0%	51,518	0%	53,373	0%	55,294
Insurance Expense	38,223	152,892	2%	152,892	1%	152,892	1%	152,892	1%	152,892
Miscellaneous Expense	-	48,000	1%	48,000	0%	48,000	0%	48,000	0%	48,000
Assets Expensed Outright	7,565	-	0%	-	0%	-	0%	-	0%	-
Pre-operating expenses:										
Permits and Licenses	59,884	59,884	1%	61,621	1%	63,408	0%	65,246	0%	67,139
Advertising and promotions	48,000	-	0%	-	0%	-	0%	-	0%	-
Feasibility Study	5,000	-	0%	-	0%	-	0%	-	0%	-

{table continues on the next page}

Total Operating Expenses	648,058	2,136,079	25%	2,161,075	19%	2,186,603	15%	2,212,675	12%	2,235,110	10%
Income before tax	(648,058)	5,289,425	63%	8,073,612	70%	10,976,976	74%	13,968,525	77%	17,116,664	78%
Income tax expense (benefit)	-	1,586,828	19%	2,422,084	21%	3,293,093	22%	4,190,558	23%	5,134,999	24%
Income after tax	-P648,058	P3,702,598	44%	P5,651,528	49%	P7,683,884	52%	P9,777,968	54%	P11,981,665	55%

Table 9. *Projected Statement of Financial Position*

PROJECTED STATEMENT OF FINANCIAL POSITION

for the years ended December 31, 2022-2026

	Year 0			2022			2023			2024			2025			2026		
		%			%			%			%			%			%	
ASSETS																		
Current Assets																		
Cash	1,182,443	8%	5,031,179	27%	9,221,917	41%	14,460,499	54%	20,769,048	63%	28,217,015	71%						
Accounts Receivable	-	-	175,100	1%	239,366	1%	307,329	1%	378,452	1%	454,291	1%						
Inventory	-	-	11,333	-	15,794	-	20,672	-	25,950	-	31,755	-						
Total Current Assets	1,182,443	8%	5,217,612	28%	9,477,077	43%	14,788,501	55%	21,173,450	65%	28,703,060	72%						
Non-Current Assets																		
Land	3,600,000	24%	3,600,000	19%	3,600,000	16%	3,600,000	13%	3,600,000	11%	3,600,000	9%						
Building	7,000,000	46%	7,000,000	38%	7,000,000	31%	7,000,000	26%	7,000,000	21%	7,000,000	18%						
Less: Accumulated Depreciation	58,333	0%	291,667	2%	525,000	2%	758,333	3%	991,667	3%	1,225,000	3%						
Building, net	6,941,667	46%	6,708,333	36%	6,475,000	29%	6,241,667	23%	6,008,333	18%	5,775,000	15%						
Equipment	3,469,360	23%	3,469,360	19%	3,469,360	16%	3,469,360	13%	3,469,360	11%	3,469,360	9%						
Less: Accumulated Depreciation	86,734	1%	433,670	2%	780,606	4%	1,127,542	4%	1,474,478	4%	1,821,414	5%						
Machinery and Equipment, net	3,382,626	22%	3,035,690	16%	2,688,754	12%	2,341,818	9%	1,994,882	6%	1,647,946	4%						
Furniture and Fixtures	83,867	1%	83,867	-	83,867	-	83,867	-	83,867	-	83,867	-						

{table continues on the next page}

Less: Accumulated Depreciation	4,193	-	20,967	-	37,740	-	54,513	-	71,287	-	83,867	-
Furniture and Fixtures, net	79,673	1%	62,900	-	46,127	-	29,353	-	12,580	-	-	-
Total Non-Current Assets	14,003,966	92%	13,406,923	72%	12,809,881	57%	12,212,838	45%	11,615,795	35%	11,022,946	28%
Total Assets	15,186,409	100%	18,624,535	100%	22,286,957	100%	27,001,339	100%	32,789,245	100%	39,726,006	100%
Year 0												
LIABILITIES												
Utilities Payable	14,999	-	14,999	-	15,284	-	15,574	-	15,870	-	16,172	-
Income Tax Payable/ (Benefit)	-	-	1,586,828	9%	2,422,084	11%	3,293,093	12%	4,190,558	13%	5,134,999	13%
Salaries Payable	41,000	-	41,000	-	41,820	-	42,656	-	43,510	-	44,380	-
Statutory Payable	25,047	-	25,047	-	25,344	-	25,647	-	25,956	-	26,272	-
Total Liabilities	81,046	1%	1,667,873	9%	2,504,531	11%	3,376,971	13%	4,275,894	13%	5,221,822	13%
EQUITY												
Capital	15,753,421	104%	15,105,363	81%	16,956,662	76%	19,782,426	73%	23,624,368	72%	28,513,352	72%
Withdrawals	-	-	(1,851,299)	-10%	(2,825,764)	-13%	(3,841,942)	-14%	(4,888,984)	-15%	(5,990,832)	-15%
Income	(648,058)	-4%	3,702,598	20%	5,651,528	25%	7,683,884	28%	9,777,968	30%	11,981,665	30%
Total Equity	15,105,363	99%	16,956,662	91%	19,782,426	89%	23,624,368	87%	28,513,352	87%	34,504,184	87%
Total Liabilities and Equity	15,186,409	100%	18,624,535	100%	22,286,957	100%	27,001,339	100%	32,789,245	100%	39,726,006	100%

Table 10. *Projected Statement of Cash Flows*

STATEMENT OF CASH FLOW												
for the years ended December 31, 2021-2026												
	Year 0	%	2022	%	2023	%	2024	%	2025	%	2026	%
Cash generated from operating activities												
Net Income after Tax	₱648,058	-55%	₱3,702,598	71%	₱5,651,528	60%	₱7,683,884	52%	₱9,777,968	46%	₱11,981,665	42%
Adjustments for:												
Depreciation	149,261	13%	597,043	11%	597,043	6%	597,043	4%	597,043	3%	592,849	2%
Inc/ Dec in Inventory	-	-	(11,333)	-	(4,460)	-	(4,878)	-	(5,278)	-	(5,805)	-
Inc/ Dec in Utilities Payable	14,999	1%	-	-	285	-	290	-	296	-	302	-
Inc/ Dec in Income Tax Pay/ (Ben)	-	0%	1,586,828	30%	835,256	9%	871,009	6%	897,465	4%	944,442	3%
Inc/ Dec in Salaries Payable	41,000	3%	-	-	820	-	836	-	853	-	870	-
Inc/ Dec in Statutory Payable	25,047	2%	-	-	297	-	303	-	309	-	315	-
Cash flow from operations	(417,752)	-35%	5,875,135	113%	7,080,769	75%	9,148,487	62%	11,268,655	53%	13,514,638	47%
Cash used in investing activities												
Purchase of Land	(3,600,000)	-304%	-	-	-	-	-	-	-	-	-	-
Construction of Building	(7,000,000)	-592%	-	-	-	-	-	-	-	-	-	-
Purchase of Equipment	(3,469,360)	-293%	-	-	-	-	-	-	-	-	-	-
Purchase of Furnitures & Fixtures	(83,867)	-7%	-	-	-	-	-	-	-	-	-	-
Cash flow used in investing activities	(14,153,227)	-1197%	-	-	-	-	-	-	-	-	-	-

{table continues on the next page}

Financial Analysis

In interpreting financial statements, more than their face value, financial analysis is better understood when figures are translated into ratios.

Capital Budgeting Techniques. As with any cautious investor, the analysis of projects serves an important role before its acceptance. Unlike other measures, capital budgeting usually considers the time value of money into the computation (Capital Budgeting Techniques, 2021).

Net Present Value (NPV). Considering the time value of money, NPV foretells the present value of all future cash flows. When more than zero, the project is deemed acceptable. The business is expressing favorable outcomes in terms of capital budgeting techniques. This is evident with an 8-digit positive NPV amounting to P21,725,258.

Internal Rate of Return (IRR). In pursuing an investment, the internal rate of return of an investment project is considered acceptable if it is greater than the cost of its capital. The calculated IRR is 48% which is proven to be greater than the desired rate of return which was set at 8%.

Profitability Index (PI). A profitability index is the ratio of all the present value of cash inflows to outflows. It should be preferably greater than 1 to be considered acceptable. The computed profitability index resulted to 2.54.

Profitability Ratios. As the name suggests, profitability ratios are related to determining the efficient use of its various resources to generate profit. Higher ratios are usually an indication of good performance.

Return on Sales. As a service firm, revenues are considered the bread and butter of the organization. Determining the return on sales measures the effective management of operating expenses.

Return on Investments. Most of the time, especially with small businesses, defining the return on investments is considered one of the more popular indicators of measuring profitability. The higher the ratio, the more profitable the business is.

Gross Profit Margin. A high gross profit margin can be a good indicator of being able to cover its operating expenses and meeting a positive net profit. Maximizing gross profit can warrant, at a certain point, an optimistic income.

Table 11. *Summary of ROS, ROI, and GPM for 2022-2026*

	2022	2023	2024	2025	2026
Return on Sales	63%	70%	74%	77%	78%
Return on Investment	24%	36%	49%	62%	76%
Gross Profit Margin	88%	89%	89%	89%	89%

Liquidity Ratios. In honoring agreements of repaying any sort of obligation in the future, it is imperative to secure a steady position in terms of the availability of liquid assets in the business.

Current Ratio. A positive current ratio is preferred because it signifies the ability to repay current or short-term liabilities. This is summarized in Table 30 demonstrating the outcome for the five-year projection.

Table 12. *Summary of Current Ratio for the Year 2022-2026*

	2022	2023	2024	2025	2026
Current Ratio	302%	368%	428%	486%	540%

Test of Return of Capital Investment. Almost similar but unlike to profitability ratio such as return on investment, determining the return on initial capital investment in considers the time value of money.

Average Rate of Return. It determines the average income per peso of an initial investment. A higher rate is considered favorable. Consistent progress is seen in Table 13.

Payback Period. It straightway determines when the initial investment is recovered in terms of the present value of cash inflows. A shorter period is desirable.

Table 13. *Summary of ARR and Payback Period for the Year 2022-2026*

	2022	2023	2024	2025	2026
ARR	7%	16%	23%	30%	37%
Payback Period	2.16				

Based on the study conducted and the established demand for the service, the proposed business of a crematorium to be established in San Pedro, Laguna is feasible and viable. With the culmination of the study and its results, it is therefore, recommended that the proposed business be implemented for operations by the year 2022.

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Work Engagement in Relation to Innovative Behavior Among University Lecturers in Ghana

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Abstract

Ghanaian universities are facing challenges such as incapable graduates, heavy reliance on foreign curriculum and teaching materials and offering bad customer service to students. These issues might be as a result of low level of innovative behavior among its employees but studies in innovative behavior is rare in the Ghanaian context and is particularly non-existent in the Universities context. This study therefore assessed the relationship between work engagement and innovative behavior of lecturers in Ghanaian universities through a descriptive correlational study. A simple random sample of 370 respondents were drawn and the data were analyzed quantitatively. The results showed a *moderate to high significant, positive relationship* ($r = 0.482$; $p = 0.00$) between work engagement and innovative behavior at 95% confidence level. Additionally, work engagement *significantly predicts* innovative behavior ($R^2 = 0.335$; $p = 0.00$). The findings suggest that work engagement is a critical factor that can help achieve innovative behavior in the Ghanaian Universities setting. Universities in Ghana therefore needs to pursue work engagement policies and programs to help them deal with the innovative behavior of their employees. The study has contributed to the understanding of work engagement as an antecedent of innovative behavior and it is also a rare examination of the Ghanaian context. Future research may explore other factors that contribute to innovative behavior such as leader member exchange, organizational culture and person-organization fit.

Keywords: *work engagement, innovative behavior, Ghanaian universities*

Innovative behavior, while thriving in most economies in the world and leading to their economic and social development, is a challenge in Ghana. The 4th industrial revolution or Industry 4.0 is anchored on innovation and Ghana cannot be left behind (Morrar et al., 2017). The Annual Global Innovation Index (GII) attest to the fact that countries that possess high levels of innovative behavior in the world are the most advanced. Ghana ranked 107 out of 126 countries in the 2018 innovation ranking, suggesting the low level of innovation in Ghana. Ghanaian universities, the focus of this study, are facing challenges such as producing incapable graduates, heavy reliance on foreign curriculum, outmoded teaching materials, and bad customer service to students (Ameyaw et al., 2019; Mohammed, 2020; National Council for Tertiary Education, 2018). These challenges might be a result of low level of innovative behavior among its employees most especially the lecturers, the fulcrum on which the universities revolve to achieve their goals. Studies in innovative behavior is however very rare in the Ghanaian context and it is particularly non-existent in the universities' context (Bawuro et. al, 2018; Kuok & Taormina, 2017; Singh & Sarkar, 2019; Wu & Wu, 2019).

On the other hand, the influence of work engagement (WE) on innovative behavior has received significant attention in scholarly research (Garg & Dhar, 2017; Khan & Malik, 2017). A study by Kim and Park (2017) suggested the important role that employee WE has on the relationships among various factors in the organization, including innovative behaviors. According to Kahn (as cited Kuok & Taormina, 2017), WE is the ability to harness the members of the organization to their job positions; in commitment, individuals employ and express themselves physically, and mentally during role performances. WE has been seen to be used interchangeably with employee engagement in the literature (Tagoe & Amponsah-Tawiah, 2019). It is a concept that has gained prominence in the management literature of the last decade (Kuok & Taormina, 2017; Tagoe & Amponsah-Tawiah, 2019). Shaufeli and Bakker (as cited in Agarwal & Gupta, 2018) also described WE as a favorable mental state towards work, recognized by features such as the desire for work, commitment, and work absorption. They described it as a favorable work-related state of mind characterized by vigor, commitment, and absorption.

Recent researchers such as Kuok and Taormina (2017) however defined WE as “the intentional involvement with or attachment to tasks, objectives, or organizational activities cognitively, emotionally, and physically” (p.266), i.e., by having positive thoughts about improving one’s effectiveness, feeling positive emotions about executing the tasks, and voluntarily utilizing one’s energy and effort to achieve those tasks and thus these dimensions have been discussed as follows:

Cognitive Work Engagement

Cognitive work engagement is based on the concept of efficacy, i.e., to be more efficient at the job, individuals need to work with logic and consciousness (Kuok & Taormina, 2017). It has been suggested that employees who are cognitively engaged at work have what is referred to as “cognitive resources”. These cognitive resources involve time spent thinking about the job and the concentration needed to get the job done (Bakker, 2017; Kuok & Taormina, 2017). Also, cognitive work engagement involves obsessive job passion which is seen as the psychological presence of an individual at work and the ability to be highly focus on what one is doing. In this state, these individuals see the work as positive and fulfilling to them (Agarwal and Gupta, 2018; Bakker, 2017; Gupta &

Sharma, 2016). Finally, the cognitive aspect of engagement is seen to be able to address employees' vigilance, attention, and mindfulness in their job roles. For instance, it can be seen as an individual performing his/her job in an absorbing manner that he/she forgets about everything else (Bakker & Demerouti, 2017).

Emotional Work Engagement

Emotional work engagement, on the other hand, is the method of controlling one's emotions at work. Emotional control or awareness, which is today termed as emotional intelligence, has gained prominence today with both academics and practitioners alike (Peter & Honea, 2017). People who are involved emotionally in their work would generally feel good or pleased about their job and experiencing such beneficial effects would give them pleasant emotions about their job (Bakker & Albrecht, 2018; Bakker et al., 2016). Emotional work engagement is also grounded in Kahn's work and have been discussed thoroughly by subsequent writers on the subject of WE that the idea of engagement at the workplace involves emotions or feelings of individuals about their jobs. These studies have concluded that work engaged employees always have a feeling of delight about what they are doing at work and feel very happy when carrying out the key tasks assigned to them (Bakker, 2017; Gupta & Sharma, 2016; Kuok & Taormina, 2017; Mauno et al., 2016).

Physical Work Engagement

Physical work engagement is based on the concept of involving the body in any type of work. For instance, to finish duties, people exert physical effort/energy. Although the amount of physical effort spent doing work may vary in different jobs (e.g., factory work and teaching), the use of energy at work is a valid concept. Physical engagement not only involves the quantity of energy one spends but also the intensity or frequency with which the energy and effort are spent at the job (Bakker & Albrecht, 2018). Additionally, the intensity and frequency of the energy and efforts needed by employees to get the work done is also part of the physical work engagement (Bakker, 2017). One could note that the central focus of physical work engagement is about physical energy, both the quantity levels and intensity, that an individual possesses. To this end, Kuok and Taormina (2017) saw physical engagement as the exertion of physical energies by individuals in order to accomplish organizational valued behaviors at higher levels of effort through an extended period (Agarwal & Gupta, 2018; Bakker & Albrecht, 2018).

In linking these concepts together, the researcher viewed that operationalizing the dimension into cognitive, emotional, and physical has brought a lot of light to the conceptualization drive and has helped in dealing with some of the difficulties past scholars have with previous studies. This current study used these three dimensions as the basis for operationalizing the WE variable (Tagoe & Amponsah-Tawiah, 2019).

Innovative Behavior

Innovative behavior has been discussed extensively in the literature in recent times (Afsar et al., 2018; Bani-Melham et. al, 2018; Li & Hsu, 2016; Yasir & Majid, 2019). Most of these writers describe it with different names albeit referring to the same thing. Some authors refer to the concept of innovative behavior as employee innovative behavior (EIB) (Bani-Melham et. al., 2018; Garg & Dhar, 2017; Li & Hsu, 2016) while others refer to it as innovative work behavior (IWB) (Afsar et al., 2018; Yasir & Majid, 2019). However, more

scholars refer to this same concept as innovative behavior (IB) (Feng et al., 2016; Helmy et al., 2019). In this current study, IB is used to mean both EIB and IWB. Hammad (2020) defined IB as the intentional generation, promotion, and realization of new ideas within a work role, group, or organization. Thus, IB includes all activities of an individual that leads to the generation of ideas, promotion of these ideas to key stakeholders in the organization including co-workers and managers and the application of these ideas to produce goods or services, or the enhancement of a method or process of production at all levels of the organization (Bawuro et. al, 2018; Kohli & Kohli, 2016; Lin & Lee, 2017; Shanker, 2017).

Due to the topical nature of the concept of IB, several scholars continue to conceptualize it though with very little difference in how they define the concept. For example, quite recently, Yasir and Majid (2019) defined IB as the creation and implementation of fresh ideas to deal with various problems in the organization to improve work-related tasks. Due to the key role innovation plays in promoting organizational success and socio-economic prosperity among nations, researchers have tried to identify various drivers that could potentially lead to the IB of individuals and teams (Jaiswal & Dhar, 2016). IB of employees is perceived as a unique asset of the organization and it cannot be easily copied by its competitors, hence making it achieve competitive advantage in its industry (Wood et al., 2018). In view of this, Li and Hsu (2016) postulated that IB involves creativity and innovation at work, including the processes, outcomes, and products developed and introduced into the market, new and improved ways of doing things (Kohli & Kohli, 2016; Lin & Lee, 2017).

While the work of De Jong and Den Hartog (cited in Lin & Lee, 2017) and Kleyson and Street (cited in Kim & Koo, 2017) were seen as breakthrough research on the measurement of IB. This study focused on three the sub-dimensions of IB namely idea generation, idea championing, and idea application.

Idea Generation. The beginning of an innovation process often has a chance element: the discovery of an opportunity or a problem that arises. The trigger may be an opportunity to enhance circumstances or an instant reaction to danger. Exploration of the idea involves the search for ways to enhance present goods, services, or procedures or try to think about how this could be done in a different way. Opportunity exploration could be for a very long time or instant luck. Idea generation involves the generation of new methods, new techniques, new processes, new product formulation that is needed to keep the organization in business. As an organization fails to generate new ideas, chances are it is likely to fold up as it might become rusty and cannot meet the changing needs of its customers. Carnevale et. al. (2017) asserted that an individual's creative abilities would not be optimized unless they could possess the needed psychological energy which stimulates their interest in creative process . The generation of ideas often involves rearranging existing pieces into a new whole. This means that idea generation could sometimes be on an incremental basis, i.e., small improvements in the existing methods or processes over time (Kohli & Kohli, 2016; Lin & Lee, 2017).

Idea Championing. When an idea has been generated, championing the idea becomes relevant. Most concepts need to be promoted as they often do not match what their job group or organization already uses. Even if ideas have validity or seem to fill a performance gap, it is unsure for most ideas whether their advantages will exceed the development and implementation costs, and resistance to change often happens (Afsar et al, 2018; Yasir & Majid, 2019). Idea championing includes finding explicit resources and

forming coalitions of individuals to advocate for the acceptance of the new idea. Usually, the resistance to change is mostly strong in certain organizations and therefore such a broad coalition could build a consensus of like-minded individuals who can help withstand the resistance to change (Kohli & Kohli, 2016; Lin & Lee, 2017). Afsar and Masood (2018) asserts that individuals should be willing to take the risk and promote new ideas and help those ideas to be implemented. Employees who are more engaged in their work are more likely to champion new ideas for implementation than less engaged employees (Feng et al., 2016; Jaiswal & Dhar, 2016).

Idea Application. Idea application, the last of the three stages of IB, is about making ideas happen in the organization. Also known as idea implementation, this stage is known to most scholars as innovation (Afsar & Masood, 2018). It requires considerable effort and a result-oriented attitude for any idea to be turned into reality be it about a new process, new methods, new products, or new services. Therefore, this stage is very critical to the entire IB architecture. Adequate attention must be given to the activities at this stage, as if care is not taken, the ideas might not come to fruition. Application of the idea also involves making innovations part of periodic job procedures (Afsar et al., 2018). A champion is usually assigned at this stage (Bawuro et al., 2018) while the idea is being applied. Anticipating issues and proactively dealing with the anticipated issues is very crucial at this stage (Li & Hsu, 2016). A budget is needed to make this idea application flourish. Overcoming obstacles, barriers, and resistance is the key challenge in the application (Bawuro et al., 2018; Jaiswal & Dhar, 2016).

Work Engagement and IB

A number of studies exists that have looked at the relationship between WE and IB (Agarwal & Karpouzian, 2016; Garg & Dhar, 2017; Khan & Malik, 2017; Kwon & Kim, 2020). However, most of these studies looked at WE in a mediating role with IB (Agarwal & Karpouzian, 2016; Garg & Dhar, 2017; Khan & Malik, 2017; Wu & Wu, 2019). More so, studies have found that WE is closely linked to the IB of employees (Jung & Yoon, 2018; Kim & Koo, 2017; Kim & Park, 2017; Kwon & Kim, 2020). These studies demonstrated a relation between the two variables, for example, a study by Kim and Park (2017) suggested the important role WE has on the relationships among various factors in the organization, including IBs. Also, Kwon & Kim (2020), on WE and IB, found that engaged employees tend to behave innovatively by activating coping strategies to deal with challenges. Furthermore, Jung and Yoon (2018) suggested a relationship between WE and IB. This study was of the view that employees who are highly engaged are likely to be able to manage conflict and this conflict management ability can lead to them possessing high levels of IB.

On the other hand, studies that examined WE in a mediating role with IB includes, Wu and Wu (2019), which found that WE mediated the effect of employees' positive emotions on their IB. The study was conducted among China Mobile's Marketing department. The study's location which is in China inherently has different characteristics to Ghana in terms of the behavior of individuals (Rojo et. al, 2020).

Most of the studies on WE and IB seem to be in a mediating role, very few studies looked at WE as an independent variable to IB, therefore the current study sought to look at WE as an independent variable to add to the few existing literature in this area. Secondly, the literature suggests that studies in IB is non-existence in the Ghanaian context and thirdly

studies on WE and IB has ignored the higher education core employees: lecturers who are the fulcrum of innovation endeavors. It is these gaps in research that this study intends to fill. Based on these, the objective of this study is (a) to determine the level of significant relationship between WE and IB and (b) to find out the extent to which WE IB of lecturers in Ghanaian universities by testing the following null hypothesis

H1: *There is no significant relationship between work engagement and Innovative Behavior of university lecturers in Ghana.*

H2: *Work engagement does not predict the Innovative Behavior of university lecturers in Ghana.*

Figure 1. *Research Paradigm for Work Engagement and Innovative Behavior*



Attachment theory, which is based on the premise that human beings, like many other animals, have a natural inclination to make and maintain lasting affectional bonds – or attachments – to familiar, irreplaceable human beings (Bowlby, 1969), underpinned the WE variable in this study and it suggests that once the bond is established between the employee and the organization, it ensures the quality, security, and stability of the ties between them are likely to lead to individuals ‘deep engagement with the organization with his mind, heart and hand. On the other hand, social cognitive theory underpinned the IB of individuals. It posits that individuals always hold the belief that they have the ability to make things occur through their own action which is also referred to as self-efficacy (Bandura, 2005).

IB is defined in this study as a lecturer’s capability to generate new ideas, champion these ideas and apply these ideas in the university that could lead to improvement in the universities ability to introduce and deliver new programs. WE is the deliberate intention of a lecturer to be involved in or attached to tasks, objectives, or university activities cognitively, emotionally, and physically.

Methodology

Research Design

This study utilized a descriptive correlational design (Saunders et al., 2019). Descriptive research is used because enough information exists on both work engagement and IB which makes it easier to examine the relationships between them. Also, the study was correlational in that, it investigated the extent to which variation in one factor corresponds in one or more factors based on correlation coefficients (Creswell & Creswell, 2017). It also examined the strength of the relationship between the variables.

Population and Sampling Technique

The study was conducted among lecturers of the 14 autonomous universities in Ghana with a total of 4457 (National Council for Tertiary Education, 2018). The study utilized simple random sampling as a sampling technique to select 370 lecturers in these autonomous universities to allow for generalization of the outcome on the population. Of the

370 lecturers, 76% were males while 24% were females. A list was made of faculties/schools in the various universities of which a ballot was done to select only two faculties/schools in universities with lecturer population above 200 and one faculty/school in universities with lecturer population below 200. The researcher then approached the deans of these faculties who offered a list of lecturers in the faculty which became the sampling frame of which a ballot was done to select lecturers to respond to the study in a random way.

Instrumentation

The instrument used for the study was a self-designed questionnaire based on recent literature in the areas of WE and IB. This is because most of the existing instruments in the area were relatively older and they did not contextualize the universities setting (Kulikowski, 2017; Shanker et al., 2017). There were 8 items on cognitive and emotional work engagement with 7 items on physical work engagement. The IB variable had 11 items for idea generation and 9 items for both idea championing and idea application. These items were based on the extensive literature review conducted and the opinions of 10 experts who made various recommendations to shape the various items. Additionally, a pilot study of 35 respondents was done to ensure the instrument was reliable for the purpose intended.

All the items were measured on a four-point Likert scale ranging from 1 = *Almost Never*, 2 = *Sometimes*, 3 = *Often*, and 4 = *Always*. The items had a Cronbach's Alpha which indicates they were all reliable and internally consistent as the Alpha ranges from 0.73 (Idea generation) to 0.91 (Competence).

Analysis of Data

The study adopted the Pearson product-moment correlation coefficient to find out the relationship between work engagement and IB. The strength of the relationships was determined and interpreted based upon Cohen's (1988) absolute correlation values where $r = 0.1$ to 0.29 is *small/low*, $r = 0.30$ to 0.49 is *medium/moderate*, and $r = 0.5$ to 1.0 is *large/high*. Additional linear regression was used to establish the prediction.

Ethical Considerations

To ensure ethical compliance, the respondents were assured of confidentiality, anonymity, and participation made voluntary. Additionally, the researcher submitted the research instrument to the Ethical Review Board of AUP for review and consideration for approval before administering the survey.

Results and Discussion

The results of the study aimed at assessing the relationship between work engagement which includes cognitive work engagement, emotional work engagement and physical work engagement and IB which includes the generation of ideas, championing of ideas and application of ideas among lecturers in autonomous universities in Ghana has been presented in this section.

On work engagement, emotional work engagement with a scale response of *always* which means *highly engaged* ($M = 3.46$; $SD = 0.46$) was the highest form of work engagement of the lecturers followed by physical work engagement ($M = 3.21$; $SD = 0.51$). The least form of work engagement the study found was cognitive work engagement

($M = 3.12$; $SD = 0.44$) was with a scale response of often which means engaged. Table 1 and 2 below presents the summaries of the mean scores and standard deviation of work engagement and IB and their components.

Table 1. *Summary of the Mean and Standard Deviation of Work Engagement*

Variable	Mean	SD	Interpretation
Cognitive work engagement	3.12	0.44	Engaged
Emotional work engagement	3.46	0.46	Highly Engaged
Physical work engagement	3.21	0.51	Engaged
Work Engagement	3.26	0.47	Engaged

Legend: 1.00-1.69=Highly Not Engaged; 1.70-2.49=Not Engaged; 2.50-3.29=Engaged;
3.30-4.00=Highly Engaged

The findings regarding work engagement of university lecturers in Ghana showed *engaged* ($M = 3.26$; $SD = 0.47$) but not highly engaged on the average. The finding is line with recent studies in a global trends survey on work engagement, where only 24% percent reported to be highly engaged and it is retracted from last year (Adair et al., 2017). The effect of the levels of disengagement among employees has been estimated to cost \$11 billion per annum in the US alone. In South Africa, another study found only 9% of employees highly engaged while 45% are not engaged (Gallup, 2017) which is much poorer a state than what this study found. In addition, Kuok and Taormina (2017) found professionals more engaged on all the three components than laborers or junior staff. It therefore suggests that higher level employees are more likely to be engaged in their work than lower-level employees but the issue of relatively low engagement levels at workplaces is a global phenomenon.

On IB, idea generation had the highest score with a scale response of *often* ($M = 3.13$; $SD = 0.47$) indicating a *high level* of IB, followed by idea Application closely ($M = 3.03$; $SD = 0.60$). Idea championing was the least form of IB among the university lecturers with a scale response of *sometimes* ($M = 2.78$; $SD = 0.63$) even though it was indicating a *high level* of IB.

Table 2. *Summary of the Mean and Standard Deviation of IB*

Variable	Mean	SD	Interpretation
Idea Generation	3.13	0.47	High Level
Idea Championing	2.78	0.63	High Level
Idea Application	3.03	0.60	High Level
IB	2.98	0.57	High Level

Legend: 1.00-1.69=Very Low Level; 1.70-2.49=Low Level; 2.50-3.29=High Level; 3.30-4.00=Very High Level

Cumulatively, IB had a score of *high level* ($M = 2.98$; $SD = 0.57$), this score is in line with the assertion that university lecturers have only adequate (high level) of IB but to deal with the woes of the university such as the training and graduating of incapable students, the usage of foreign curriculum and teaching materials and the bad customer service students receive, university lecturers will need very high level of IB. This study is in line with Feng et al., (2016) who found a similar mean score of IB in some Chinese

firms even though the study looked at group IB instead of the individual focus of this study. A study by Garg and Dhar, (2017) indicated that employees disagreed that they were innovating in the services they provided to their customers which show a very low level of IB among employees even though the study was conducted in the Indian banking industry. However, IB was considered very high level in a study by Bani-Melhem et al. (2018) which does not support the findings of this study and other studies that found barely high level of IB among employees (Feng et. al, 2016; Garg & Dhar, 2017; Jaiswal & Dhar, 2016).

Correlation of Work Engagement and IB

The relationship between WE and IB of these lecturers was clearly established as the study found a *moderate, significant positive relationship* ($r = 0.482$; $p = 0.00$) at 95% interval. The three sub-dimensions of WE had *moderate, significant positive relationship* as follows: cognitive work engagement ($r = 0.356$; $p = 0.00$), emotional work engagement ($r = 0.395$; $p = 0.00$) and physical work engagement ($r = 0.447$; $p = 0.00$). Cohen's (1988) interpretation of the magnitude was used to arrive at a moderate significant positive relationship. The details of the results are in table 3. The study therefore rejects the first null hypothesis which proposed, there is no significant relationship between work engagement and IB of university lecturers in Ghana.

This study is in line with many studies that found significant relationship between work engagement and IB in different parts of the world and industries other than Ghana and the universities context respectively (Agarwal & Karpouzian, 2016; Garg & Dhar, 2017; Khan & Malik, 2017; Kwon and Kim, 2020; Kim & Park, 2017).

Table 3. *Correlation between Work Engagement and IB*

	Idea Generation			Idea Championing			Idea Application			IB		
	r	Sig	VI	r	Sig	VI	r	Sig	VI	r	Sig	VI
CWE	.332**	.000	S	.296**	.000	S	.333**	.000	S	.356**	.000	S
EWE	.324**	.000	S	.309**	.000	S	.398**	.000	S	.395**	.000	S
PWE	.334**	.000	S	.378**	.000	S	.448**	.000	S	.447**	.000	S
WE	.393**	.000	S	.393**	.000	S	.472**	.000	S	.482**	.000	S

** Correlation is significant at the 0.01 level (2-tailed).

S=Significant, SN=Not Significant, VI=Verbal Interpretation

Though some of these studies saw work engagement in a mediating role with IB (Agarwal & Karpouzian, 2016; Garg & Dhar, 2017; Khan & Malik, 2017; Wu & Wu, 2019), there are other studies such as Kwon and Kim (2020) and Kim and Park (2017) that found a significant relationship between these two variables. For instance, Kwon and Kim (2020) found that engaged employees tend to behave innovatively by activating coping strategies to deal with challenges. This goes to buttress the relationship, or the role work engagement plays in building the IBs of employees. It further explains that individuals who are highly engaged develop coping strategies to make them very innovative in their organizations. Therefore, this study further affirms the existing of a significant relationship between work engagement and IB most especially in the Ghanaian context which studies on these two variables are rare.

Prediction of IB by Work Engagement

The study was quite revealing as work engagement predicted IB. From Table 4, $R^2 = 0.335$ (33.5%) means that 33.5% of the variance in IB is accounted for by work engagement. The remaining 66.5%, however, is due to other variables not yet known. Based on this finding, the study further rejects the second null hypothesis which proposed that work engagement does not predict the IB of lecturers in Ghana.

Table 4. *Regression analyses Predicting IB*

Independent Variable	Unstandardized Coefficients	t-value	p-value	Verbal Interpretation	R-Squared Change
Constant	0.392	-1.55	0.122	Not Significant	
Work Engagement	0.302	4.553	0.00	Significant	0.037

Dependable Variable: IB; $R^2=0.335$; $F=20.730$; $p=0.00$

This study's outcome supports a number of studies (Ariyani & Hidayati, 2018; Lin, & Lee, 2017; Wang et al., 2019) that predicted WE's influence on IB. This suggests that WE is an important factor when it comes to building IB of employees (Wu & Wu, 2019). When individuals are highly engaged with their work, they usually show how they immerse themselves in their job roles to come up with innovative ideas that can be championed and applied to produce new products, new processes, new methods to ensure an organization stays competitive in its industry (Sjödén et al., 2019). The opposite of this assertion is also true that when WE levels among employees are low, there hardly will be any serious concentration and deep thinking to come up with new ways of doing things and hence unable to help the organization to stay relevant and competitive in this ever-changing and unpredictable business environment (Singh et al., 2020). The conclusion drawn from this study therefore is that WE is one of the major factors that can enhance the IB of employees in Ghana, so Ghanaian organization should take the issue of WE of employees seriously towards achieving their organizational goals (Jung & Yoon, 2018).

This study has a lot of implication for organizations in Ghana. Firstly, organizational leaders should craft and adopt WE policies, programs, and practices to better motivate employees to engage in IB (Feng et al., 2016). Secondly, these organizational leaders should have clear indicators for measuring IB through innovation performance targets and encouraging employees to work towards these targets (Wang et al., 2019). Additionally, for institutions to achieve their goals in this current dynamic and uncertain environment that is global in nature (Marshall & Dolley, 2019), they have to constantly innovate and understand that innovation in the organization can be enhanced when the individual employees' IBs have been harnessed (Yun & Liu, 2019), it is therefore a responsibility on the leaders of the organization to help employees to understand and appreciate their IBs (Oliva et al., 2019).

Also, an understanding that WE is a state of mind of the individual and organizations must work to generate vigor and dedication among its employees' (Malik & Garg, 2020), through the organization of seminars, workshops and training to improve upon an individual's WE. Making sure that the enabling environment that help individuals become highly engaged is created, harnessed, and sustained. Instituting incentives that reward highly engaged individuals through their innovative output and making sure that an overall culture of engagement and IB is built and sustained (Gupta, 2018).

Notable among the limitations of this study includes the use of only lecturers as respondents might not give the adequate reflection of the situation in the universities as there are other sets of employees that make up the university (Odame & Ameyaw, 2021). Secondly, the outcome is being generalized on the Ghanaian context even though only the higher education industry was studied. Future research may explore other factors that contribute to IB such as leader member exchange, organizational culture and person-organization fit in the university context. Additionally, focus of future studies could be on the other employees of the university or in different sectors such as banking and hospitality since they are increasingly becoming competitive and survival depends on innovation success.

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Telemedicine: How Technological Advances During a Pandemic has Paved the Way for Business in the Healthcare Sector

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Abstract

Access to telemedicine is not new as it has existed for more than 40 years in many countries. Even before the Coronavirus Disease (COVID-19) pandemic had existed in the first quarter of 2020, medical professionals have already been providing care to persons in rural areas through the use of technology. Telemedicine has given healthcare providers a better response system to the needs of patients who need medical care. However, not all conditions are considered viable for e-consultations, given that it is a newly practiced method in the Philippines which led to this study. This qualitative research explored how telemedicine can be an effective and efficient way to reach those needing non-urgent medical care, focusing on the necessary requirements to start telemedicine and how e-consultations can help in today's fast-paced digital-aged society. The research employed an integrative review of literature and a meta-synthesis of papers and journals accessible from 35 online sources. Results of the study indicated that there is a need for further research, policy adjustments, training, and development for healthcare providers if telemedicine is to be considered as one of the major platforms for the continuity of patient care in the country. The researcher recommends further research to maximize the utilization of a central app or program that can be used to increase the ease of delivering secured healthcare through e-consultation in the Philippines.

Keywords: *telemedicine, e-consultation, COVID-19*

Businesses almost came to a halt when Coronavirus Disease-19 (COVID-19) had overcome the world in the first quarter of the year 2020. The economy suffered an immediate crisis as the invisible virus progressed, affecting all persons that had been exposed to it. Because of the increased concern for possibly becoming infected with COVID-19, the healthcare professionals needed to find an alternative to providing non-urgent patient care.

Instead of requiring all patients to go through doctor's clinics, telemedicine was utilized through e-consultation with the help of technology. Not only did this limit patients from being exposed to COVID-19, but this also gave more security and protection to the healthcare providers as they are also able to limit physical interactions with their patients—thereby preventing the risk of infection to one another, which presented the opportunity to provide a holistic continuity of care. Simultaneously, the community quarantines ensued, following the government's strict regulations for social distancing.

Telemedicine presents a challenge for healthcare organizations that do not fully prepare with the equipment for the practice. Even if the physicians are fully capable of practicing e-consultations, hospitals may not have full access to the necessary tools to make this practice effective and efficient for care (WHO, 2010). This research expounds on the necessary preparations that healthcare organizations must consider when implementing telemedicine into their provision of care during the battle with the COVID-19 pandemic since the traditional face-to-face practice has been the norm for providing care in the Philippines.

Methodology

Research Design

This research utilizes an integrative review of literature and a meta-synthesis of articles, papers, and journals focused on telemedicine practice and its implementation. This design was selected to identify what businesses have to consider while setting up the practice.

Data Gathering

Since there has been minimal access to physical library materials and literature due to the COVID-19 pandemic, the researcher was able to collect information from online sources in the form of articles, journals, and published regulations, from 2002-2020.

Data Analysis

Various resources were compiled into a synthesis matrix that has been organized by order of relevance. The researcher analyzed, compared, and synthesized the ideas while comparing the findings to existing frameworks for telemedicine.

Results and Discussion

The definition of telemedicine has been defined by multiple authors, leading towards the same meaning of the provision of health care and other medical services from a distance through technology. This method allows the patient and the healthcare provider to communicate and exchange diagnostic files remotely, as defined by Calton et al. (2020), Eccleston et al. (2020), and Wahezi et al. (2020). With telecommunication, healthcare is provided through synchronous phone or video call options while both patient and healthcare provider are in two different locations. Here, the patient may seek medical advice about

non-emergent medical problems, which does not require the doctor to immediately see the patient (Thomas, 2018).

According to the World Health Organization (2016), telehealth is the “delivery of health care services, where patients and providers are separated by distance” (para. 1). Telehealth refers to the use of electronic communication technologies made possible for providing distant healthcare for a broad number of services, not limited to clinical care (American Academy of Family Physicians, 2020).

Although similarly sounding, it was differentiated that telemedicine is a branch of telehealth that involves the use of technology to deliver video and audio consultations from a distance for healthcare specific clinical services. Telehealth has a broader scope, making use of technology to provide other remote non-clinical services such as health research, training, and education (American Academy of Family Physicians, 2020).

A new telehealth poll finds that one in four older Americans had a virtual medical visit in the first three months of the COVID-19 pandemic, most by video call. This resulted in 4% higher for people in the age range of 50 to 80 than those who had taken a similar poll in 2019.

This data showed that people have started to become more comfortable with telemedicine as opposed to having a face-to-face consultation with a physician during the pandemic (Gavin, 2020).

Importance of Telemedicine to the Healthcare System

In facing today’s unprecedented time and challenges brought about by COVID-19, telemedicine comes as an advantage to the healthcare system, although many are still not fully accustomed to it. Telemedicine is cost-effective and has provided an outlet for better access to healthcare. Telemedicine offers an excellent option for delivering treatment during the COVID-19 pandemic as patients experiencing viral symptoms do not need to physically expose themselves to others, potentially spreading the virus without their knowledge by visiting a healthcare organization.

Although telemedicine offers a great potential for delivering treatment during the COVID-19 pandemic, older technologies offer immediate and easy-to-use ways of providing care remotely. This includes the use of emails as an alternative to calls or video conferencing. There are resources such as mobile phone apps that have been developed that could assist in reducing the anxiety and stress that clients may be experiencing related to the pandemic. These apps are said to assist persons in self-managing issues during the pandemic (Henderson, 2020).

Also to be considered are healthcare organizations that did not have telemedicine before the pandemic started, so those are the ones needing more training in terms of the use of software services. This is when telehealth comes of significant importance as it assists healthcare providers that rely on such services to push through with telemedicine (Siwicki, 2020).

Effects of Telemedicine on the Healthcare System

Telehealth provides more efficient healthcare services that are accessible to any person from any place. This reliance on technology, although still improving, shows a potential to improve the quality of making remote healthcare accessible and more coordinated (Mayo Clinic Staff, 2020). According to Siwicki (2020):

As the healthcare system grapples with COVID-19, however, we'll see more and more hospitals adopt these technologies to limit exposure at the frontlines, and to protect staff as well as other patients. Hospitals that choose well will find that the benefits of telehealth extend beyond this current public health need—because other crises will surely come (para.45).

Craig and Patterson (2020) and Eccleston et al. (2020) agreed that clinical assessment and patient reports can also be performed remotely through the use of gadgets such as smartphones with a camera, which allows the transfer of files, videos, and images for diagnostic and paper assessments. Through telemedicine, physicians and clinicians have been allowed to review these data and take the patient history through interviews, virtual physical examination, and a guided patient self-examination, all through the virtual model of remote care.

Having to screen patients remotely before directly visiting a hospital can minimize the risk of a possible infection spread to other patients and primary healthcare providers. These non-emergent cases can receive treatment from the comforts of their home (Siwicki, 2020).

According to Craig and Patterson (2020), telemedicine can be expected to improve equity of access to health care, given that the quality and efficiency of the care delivered are enhanced by communication. If telemedicine gets implemented in developing countries, it could have the most significant potential, giving under-served people the chance to benefit from an improved health-care standard. Telemedicine can also permit more opportunities such as better diagnostic and therapeutic services, faster and easier access to medical knowledge, and better communication between clinicians.

Pros and Cons of Telemedicine

With the spread of the virus, telemedicine has become increasingly prevalent as treatment centers worldwide closed. Telemedicine offers a wide range of convenience compared to a traditional face-to-face appointment with a physician. Telehealth has allowed clinical care to continue even during the time when physical distancing is considered the norm. Patients and clinicians risked exposure to COVID-19 while carrying out routine clinical visits (Wahezi et al., 2020). Virtual visits allowed medical needs to be met while minimizing exposure to COVID-19 (Henderson, 2020).

Wu (2015) also cited that one of the biggest advantages is that telemedicine “gives you access to specialists and information that you might not have access to otherwise” (para. 11). The cost of telemedicine is less for the same quality of medical diagnosis and treatment. It also allows access for a shorter wait time for a consultation as the patient's records are already readily accessible online, which in exchange allows the provision of a more reliable and accurate prescription (Wu, 2015). Second opinions are also easily accessible, and it produces improved health outcomes (Thomas, 2018).

Telemedicine can make treatment readily accessible anytime and anywhere, but it is not the same as the typical face-to-face consultation with a physician. Filipinos, in general, prefer to have a personal rapport and physical assessment with their physicians before trust is established. The chances of that happening with telemedicine are slim as there might be a possibility that the patient will not meet with the physician at all personally.

According to Isip Tan et al. (2020) and Wahezi et al. (2020), while teleconsultations may be more convenient especially during this COVID-19 pandemic, physicians should

be mindful about the tradeoffs from the patients' viewpoint such as invasion of privacy at home, limitations in the physical examination and possible awkwardness in the virtual interaction.

Telemedicine Limitations from COVID-19

COVID-19 comes with the increased need for rapid testing and swab tests, which is not a service rendered by telemedicine. Although the results of the test will be forwarded to the online system, the primary act of testing cannot be done during telephone conversations or video conferencing. Telemedicine needs to be modified to aid in the management of early detection and testing for those who may need immediate hospital care (Siwicki, 2020).

According to Mayo Clinic Staff (2020), while telehealth has the potential for better-coordinated care, there is also a risk for fragmenting healthcare which involves "gaps in care, overuse of medical care, inappropriate use of medications, or unnecessary overlapping care."

There are also still some healthcare organizations that do not come fully prepared with the equipment for telemedicine. Even if the physicians are fully capable of practicing telemedicine, hospitals may not have full access to the necessary tools needed to make this practice effective and efficient for care. Ample training should be provided aside from the provision of equipment as some medical personnel may still be coherent with the traditional way of consultations (Siwicki, 2020).

Lastly, telemedicine services may be limited in terms of funding and insurance coverage. Some may also experience less access to healthcare, especially those from within the rural areas that have limited accessibility to the internet or those that may not own a photo/video compatible mobile phone.

The Philippines still needs to learn from other neighboring countries that have started implementing a nationwide telemedicine service. Partnerships with these healthcare organizations must require all the necessary resources to make it work successfully in the country (Siwicki, 2020).

Who Can Practice Telemedicine

Isip Tan et al. (2020), a practicing physician must hold a valid professional practitioner license when considering performing consultations via telemedicine in the Philippines. One must demonstrate proficiency in digital communication skills, clinical judgment, and knowledge of the technology and equipment to be used while adhering to ethical practice.

It is possible to communicate with patients if the personnel and infrastructure are available. Investment in developing web-based or application-based platforms delivering self-management has produced some evidence of effectivity (Eccleston et al., 2020).

State and Regulatory Ordinances. There is a growing need for telemedicine in the healthcare community, but in all industries, there are certain considerations and challenges to starting a telemedicine business.

Riddle (2020) held an interview with Elizabeth Westbrook, the government relations advisor at the law firm of Buchanan, Ingersoll & Rooney who states:

Many of the creative, forward-thinking entrepreneurs who seek to start new tech businesses aren't naturally inclined to consider the regulatory implications of their new venture, especially when it comes to the heavily regulated world of medicine

(“How to Start a Telehealth Business”, para 11). So, anyone looking to launch a telehealth business needs to consider the laws of the location(s) in which they will launch and whether their business will be tenable in more than one state” (para. 12).

Further adding to this statement was the mention of state laws having varied licensure laws that could prohibit or hinder the delivery of health care as there are clinic professionals that do not hold certain necessary credentials. It is important to note that when launching a telemedicine business, one must consider the laws of the selected location (Riddle, 2020).

In the Philippines, there are already administrative ordinances, executive orders, and house bills that have been drafted to set the direction for telehealth in the country. These policies recognize the role of telehealth and telemedicine in support of the existing government programs in health promotion. When launching a telemedicine business, it is important to consider following the laws and regulations that accompany it.

First, the telemedicine platform must be able to ensure confidentiality as it will gather private information that should only be accessible solely by the healthcare provider. The platform should have all necessary maximum-security measures to minimize the possibility and risk of a breach within the data shared between the patient and the healthcare provider.

In 2012, the Philippine legislature passed the Republic Act 10173, known as the Data Privacy Act of 2012, which attempts to cover the entirety of data privacy, not limited to healthcare information. According to Palmares (2019), the Data Private Act “protects individuals from unauthorized processing of personal information that is (1) private, not publicly available; and (2) identifiable where the identity of the individual is apparent either through direct attribution or when put together with other available information.” The Data Privacy Act provides for security for the disposal of all information. Personal information must be discarded in a way that it does not make it visible and accessible to unauthorized third parties” (para. 7).

Second, to meet the demand for clear audio and video needed for telemedicine consultation, it has been recommended that a minimum of 2 Mbps per user is recommended for a resolution of HD720p and a frame rate of 30 frames per second (Isip Tan et al., 2020). Third, according to Greenhalgh et al. (2020), the considerations for office space involved a provision of a private, quiet, well-lit room that should be the setup for a telemedicine consultation. Lastly, it is also required that the healthcare provider wears appropriate attire during the consultation as it will show professionalism even if it occurs from home (Isip Tan et al., 2020).

Funding and Payment Processes. Bediang et al. (2014) agreed that funding should address overall healthcare rather than limited to specific diseases for the financing of telemedicine services. Even if most of the financing is provided by foreign or private donors, collaborative funding should be shared between government agencies to ensure that the initiatives are needs-driven rather than donor-driven.

Charrier et al. (2015) also reiterated, “Operating costs will be valued from the health provider perspective. These costs include the labor costs related to operation of the telemedicine intervention, professional and patient education and training, investment in equipment, the cost of building alterations and the call center, where relevant” (para. 47).

For patients to be able to benefit from telemedicine, it is important to study the regulations and to be oriented with the healthcare system before pursuing additional processes. Lisa Hedges of Software Advice said that there are two main areas of adaptation for hospitals that are expanding their healthcare services and are finding ways to train staff over a shortened period (Siwicki, 2020). “The extent of telemedicine features that hospitals can deploy varies, but it could include investing in anything from video hardware to facilitate remote consultations or telemedicine carts to conduct exams with hospitalized patients from outside their rooms” (<https://www.healthcareitnews.com/news/telemedicine-during-covid-19-benefits-limitations-burdens-adaptation>, para. 51). Second, using telemedicine proves to be of help in flattening the curve of COVID-19 in hospitals as patients and healthcare providers are not in close proximity with each other, overall reducing the burden on the healthcare system.

Third, Whitten et al. (2002) stated that “many have equated benefits of telemedicine with cost savings, with no analysis of changes in benefit to patients” (para. 12). Their study assumed that there is not much difference between conventional face-to-face clinical practice as compared to telemedicine when it comes to the clinical diagnosis or management of an underlying problem.

There are healthcare organizations that did not have telemedicine before the pandemic started, so those needing more training in terms of the use of software services. This is when telehealth comes of significant importance as it assists healthcare providers that rely on such services to push through with telemedicine (Siwicki, 2020).

The structural barriers need to be addressed by the managers by developing remote care protocols that should be considered so that new work routines would be created while telemedicine is being used. There should be a good relationship between the doctors and other healthcare providers as these go beyond interpersonal interactions (Amaral et al., 2017).

Despite the existence of telemedicine in clinical practice before the COVID-19 pandemic, the unprecedented phenomenon of 2020 opened the door for technology to further accelerate the growth of telehealth. As the need for remote healthcare is slowly being recognized more and more, so is the need for further research, training, and development for healthcare providers and organizations around the world.

The impact of the pandemic had positively expanded more opportunities for growth as the general worldwide population relies heavily on a proper healthcare system. COVID-19 may just be the beginning of another global phenomenon, and this served as a wake-up call for everyone, not only in the healthcare sector, to prepare for the so-called new normal and for what is yet to come.

The literature review focused on how telemedicine has been widely used and how it has changed the vision of healthcare when aligned with technology. There needs to be plenty of training and adjustments in the Philippine setting as this healthcare method may still not be the most accessible to many. However, due to the need of physicians and other healthcare workers to have less risk of contracting the virus, telemedicine is proving to be a great platform for safety and awareness compared to the usual face-to-face consultations, which is the common mode of treatment today. Since telemedicine can be done anywhere, anytime, as long as one has a connection to the internet, it becomes a benefit to those who are within range of healthcare options in the country.

It is recommended for further research to maximize the utilization of a central app or program that can be used to increase the ease of delivering secured healthcare through

e-consultation in the Philippines. Additionally, a recommendation for further research should be made to identify if telemedicine can still be as beneficial to be used regularly after the COVID-19 pandemic has been eradicated. By collecting patient feedback, further study can help future healthcare sectors consider whether adding telemedicine to their business would still be beneficial to their organizations.

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The Effect of Institutional Pressure on Environmental Reporting of Ghanaian Companies

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Abstract

Damage to the environment may be irreversible. It is therefore essential that humans take care of the environment for the generations to come. Consequently, companies need to report the impact of their activities which could have an effect to the environment. Thus, this study examined the effect of institutional pressure on environmental reporting of Ghanaian companies. The study used a population of 552 comprising of manufacturing, construction, mining, and oil and gas sectors. The sample size comprised 281 respondents who were purposively selected. The respondents were accountants or chief finance officers of the randomly selected companies. A self-constructed questionnaire was used for institutional pressure, while questions on environmental reporting were adapted and modified from the Global Reporting Initiative framework. The study revealed that the level of institutional pressure was *high* ($M = 3.49$, $SD = 0.686$) which was represented by coercive, mimetic, and normative pressures while the level of environmental reporting was *moderate* ($M = 3.23$, $SD = 1.061$). Additionally, the study found a *moderate positive significant correlation* between institutional pressure and environmental reporting ($r = 0.416$, $sig = 0.000$). Lastly, it was found that *institutional pressure* predicts environmental reporting. It is therefore recommended that top management of companies within manufacturing, construction, mining, and oil and gas sectors pay particular attention to the pressure from the institutional environment.

Keywords: *environmental reporting, institutional pressure, global reporting initiative, coercive pressure*

The natural environment in which humans exist is the only place they have to exist. Without it, life will be no more. Damage to the environment may be irreversible. Unfortunately, according to Jakhar (2016), the growing scale of human activity on a global scale is having irreversible environmental damage that is severely threatening the very existence of humans due to civilization. To add to the problem, the Renewable Resources Coalition (2019) reports that air pollution is becoming an increasingly dangerous problem, particularly in heavily populated cities. The World Health Organization [WHO] (2016) revealed that 80% of urban residents are subjected to rates of air quality considered unsuitable.

Moreover, Ramos et al. (2018) and Masrom et al. (2018) posited that environmental problems are widespread in manufacturing areas all over the world resulting in increasing concern regarding ever-increasing environmental degradation due to industrial activities. Environmental problems have also been severe in Africa (Beinart, 2000). Ghana is not spared from environmental issues. According to the United Nations Environmental Report ([UNEP] 2013), the state of the environment in Ghana has not been the best. This is because, between 2008 and 2011, the manufacturing sector contributed about 1.7% to GDP but resulted in environmental cost estimated at 10% of the GDP. Sarkodie and Strezov (2018) found that these environmental issues have become possible in Ghana because environmental policies and regulations in developing, and least developing countries are weaker compared to developed countries making them haven for high-energy and carbon-intensive industries.

There is therefore incessant pressure on companies to report on the impact of their activities on the environment. Consequently, environmental reporting has become a significant concern of accounting bodies and professionals as a means of addressing governance issues in ensuring environmental sustainability (Ojiakor, 2017). Agyei and Yankey (2019) contended that this reasoning describes environmental reporting's countless empirical attention currently. Over the past two decades, many guidelines have been developed for corporations, as they act as the benchmarks for disclosure of environmental information to the public (Arthur et al., 2017). The most prominent among these guidelines is the Global Reporting Initiative (GRI) framework, which is the most widely accepted set of guidelines for reporting on environmental issues to stakeholders (Akrouf & Othman, 2015; Arthur et al. (2017)

Since companies belong to industries which are mostly regulated, it is believed that pressure from these institutions may ensure that companies report their environmental impact. For companies to be deemed as legitimate, they need to conform to industry standards. Institutional environments therefore, dictate the rules, norms and beliefs which describe the organization's reality, explain what is, what can and can't be done (Roszkowska-Menkes & Aluchna, 2018). Institutions act as kinds of forces upon organizations by creating pressures and limitations, forming boundaries for what is accepted and not accepted. According to Gunaratne and Lee (2019), there are three mechanisms through which institutional pressure occur. These are coercive, mimetic, and normative.

Studies relating to the relationship between environmental reporting and institutional pressure have mainly been conducted in developed countries (Daddi et al., 2016; Ferdous et al., 2019; De Grosbois, 2016;). However, only a few studies (such as Welbeck, 2017) seem to have been done in developing countries, especially Ghana. Also, according to Welbeck et al. (2017), firms in Ghana have low disclosure level of environmentally related

information based GRI. Therefore, the main purpose of this study was to determine the effect of institutional pressure on environmental reporting in Ghanaian companies particularly those in manufacturing, mining, oil and gas and construction industries. This study answered the following questions:

1. What is the level of institutional pressure among Ghanaian companies in terms of coercive pressure, mimetic pressure, and normative pressure?
2. What is the level of environmental reporting among Ghanaian companies in terms of Global Reporting Initiative framework?
3. Is there a significant relationship between institutional pressure and environmental reporting?
4. Does institutional pressure predict environmental?

Hypothesis

The study tested the following null hypothesis:

1. There is no significant relationship between institutional pressure and environmental reporting.
2. Institutional pressure does not predict environmental reporting.

Institutional Pressure

Business environments are in constant changes, and this requires organizations to adopt proactive measures and pursue better substantive performance to achieve economic efficiency. Added to this is an indication that institutions form rules, standards, and beliefs that describe the organization's reality, explain what it is and what it is not, what it can do, and what it cannot do (Roszkowska-Menkes & Aluchna, 2018). Institutions act as forces on organizations by establishing constraints and pressure. They set limits to what is accepted and not approved. Organizations face a variety of institutional pressures, and to survive, they may adopt similar processes and behaviors to other organizations (Boxenbaum & Jonsson, 2017). This process leads organizations to modify their direction and behaviors to become compatible with their environmental characteristics (Gunarathne & Lee, 2019). According to DiMaggio and Powell (cited in Gunarathne & Lee, 2019), there are three mechanisms through which institutional pressures occur. These are coercive, mimetic, and normative. Khan et al. (2018) argued that these pressures occur because organizations strive for legitimacy.

Coercive Pressure. Coercive pressure stems from political influence, and organizational legitimacy often conveyed through laws, regulations, and accreditations processes (or other outside agencies for standardization or oversight and compliance requirements). Coercive pressure results from outcomes of official as well as unofficial pressure by other organizations upon which they are dependent (Gunarathne & Lee, 2019). Examples of coercive pressures that would lead to organizational pressure include government mandates, a system of contract law, the budget cycle, financial reporting requirements, and regulatory agencies such as the Environmental Protection Agency (EPA) in Ghana. By complying with expectations, standards, guidelines of standard organizations, and sustainability rating agencies, companies attempt to receive social legitimacy through sustainability management (Bose et al., 2018).

Mimetic Pressure. Organizations are keen to adopt a particular practice either due to the favorable results obtained in the same setting by other adopters or because

of the popularity of a practice (Alziady & Enayah, 2019). Mimetic pressure refers to an organization's tendency to imitate the structure of another organization, believed to have a useful structure. Mimetic pressure arises when a company sees the success and wishes to have the same advantages as rivals (Zhang et al., 2018). When faced with uncertainty on issues, a company may investigate the activity of benchmark rivals and mimic these successful companies (Posen et al., 2019). Ahmed et al. (2019) explained that when the external environment changes significantly and pose a risk to the survival of such organizations, they seek role models that they feel have struggled to face the external challenges and try to adapt to these role models.

Normative Pressure. Normative pressure is associated with professional values. Normative pressure comes from companies, trade unions, the media, and other social actors such as suppliers and consumers (Wang et al., 2019). Also, Gunarathne and Lee (2019) add that normative pressure stems primarily from professionalization, deriving from professional networks, corporate sustainability associations, education, and training. Many of these pressures are the outcome of increasing professionalism due to the level of skill and professional training received by organizations (Posen et al., 2019). Gunarathne and Lee (2019) add that the hiring of individuals from the same industry, from a small number of educational institutions and common promotion practices, and skill-level requirements for particular jobs can result to normative pressure.

Environmental Reporting

There has been a lot of environmental problems facing the world today such as air pollution, water pollution, natural resource depletion, waste disposal, deforestation, and CO2 emissions. Therefore, Agyei and Yankey (2019) posited that due to effect of business activities on the environment, attention of stakeholders has been shifted to environmental reporting. Also, Nor et al. (2016) posit that the demand for businesses to incorporate environmental reporting nowadays is very high to save the planet, and it is proven that the company can achieve good performance with environmental reports. Agyei and Yankey (2019) further assert that the development concerning activities of companies on the environment has become major concern for most professional bodies. The demand for environmental reporting has been solely voluntary for companies in most countries. But due to the massive impact of corporate activities on the environment, countries such as France, Brazil, South Africa, and EU nations have made it mandatory for companies to incorporate environmental reporting in their annual reports (Bednárová et al., 2019). There are many metrics through which organizations can report their environmental impact (Epstein, 2018). The most prominent among them is the International Organization for Standardization (ISO) on environment management system (ISO 14001) and the Global Reporting Initiative (GRI) (Boiral & Heras-Saizarbitoria, 2017). This study emphasized the reporting guidelines proposed by the Global Reporting Initiative.

Global Reporting Initiative. Among the most widely and frequently used models for environmental reports is the Global Reporting Initiative Guidelines (GRI, 2017; Junior & Best, 2017). It can be used by organizations of any size, location, or sector as well as for non-profit and government organizations. Reporting using the GRI guideline can be done through various forms including web or print, stand alone or combined with annual or financial reports (GRI, 2017).. This study adopts the G3.1 which was released in 2011.

There are many of studies on environmental reporting in different countries using the GRI Reporting Framework. Arthur et al. (2017) found that environmental reporting using GRI among large manufacturing firms in Ghana is increasing because the guideline brings about increased transparency, credibility and comparability in sustainability reporting. Also, Mbuthia (2016) found that environmental reporting is low in Kenya however it is on the upward trend between 2011 and 2014 within the telecommunication and technology industry.

Institutional Pressure and Environmental Reporting

Gallego-Alvarez et al. (2017) investigated the relationship between institutional constraints, stakeholder pressure, and corporate environmental reporting policies. The study revealed that companies had modified their environmental strategies due to institutional pressure because of the institutional environment. Again, Jaaffar et al. (2018) conducted a study on the impact of institutional pressures of climate change on corporate environmental reporting practices of Malaysia's environmentally sensitive public listed companies. The results show that environmental strategies are positively influenced by external factors such as institutional pressures and climate change concerns.

Also, Zhao and Patten (2016) found that Chinese managers perceive coercive, normative, and mimetic pressures arising from peer organizations influenced social and environmental reporting in a study on social and environmental reporting in China. Moreover, Chen et al. (2018) carried out a study on whether institutional pressure contributes to corporate green innovation in the top 100 companies in China. The findings show that both normative pressure and coercive pressure significantly and positively influence corporate green innovation.

Moreover, Charan and Murty (2018) examined institutional pressure and the implementation of corporate environmental practices. The study revealed that there is a positive relationship between institutional pressure and corporate environmental practices. Also, Foo et al. (2019) found that coercive, normative, and mimetic pressure have a positive effect on green manufacturing capabilities and practices. This was found as a result of a study conducted on the correlation between green purchasing capabilities, practices, and institutional pressure. The study used survey method to sample data from 163 ISO 14001 certified companies in Malaysia. This study is underpinned by institutional theory and legitimacy theory.

Institutional Theory. DiMaggio and Powell propounded institutional theory in 1983. The institutional theory states that organizational behaviors and practices are strongly influenced by external and internal conditions, such as laws, values, cultures, common cognitions, norms, and social expectations (DiMaggio & Powell, 1983). According to DiMaggio and Powell, cited in Gunarathne and Lee (2019), there are three mechanisms through which institutional theory operates. These are coercive, mimetic, and normative. Institutional theory studies have shown that coercive pressures, such as laws, are necessary for an environmental license for behavior (Lin & Ho, 2016).

Legitimacy Theory. Dowling and Pfeffer advanced legitimacy theory in 1975. They posited in legitimacy theory that to remain in existence, a company must act in line with the values and norms of society. Legitimacy theory has been widely used in the social and environmental disclosure literature as providing valuable insights into such disclosure practices. Legitimacy is defined by Lindblom (1994) as a condition or status which exists

if the value system of an entity corresponds to the value system of the broader social system of which the entity is a member. The argument underlying legitimacy theory is that organizations can only survive if they are operating within the framework of society's norms and values. The firm's legitimacy is known through the stakeholders who view the firm's report (Hahn & Lulfs, 2014). This implies that the GRI application level indicates the quality to the user who would expect a difference in environmental reporting based upon report levels (Bebbington et al., 2008).

Methodology

Research Design

This study employed a quantitative design. Quantitative research involves the collection of data so that information can be quantified and subjected to statistical treatment to support or refute claims (Apuke, 2017). This study is quantitative because it examined whether institutional pressure has any influence or effect on environmental reporting

Population and Sampling Techniques

The population of the study covered all companies in the manufacturing, construction, oil and gas and mining industries registered with the Association of Ghana Industries (AGI) and Minerals Commission Ghana as of 2020. These industries were chosen because according to Tackie (2019), they are classified as environmentally sensitive industries. The total population of the study was 552.

To estimate the sampling size for the study, the Yamane (1986) sample size formula (at 95% confidence level and .05 population variability) was used which resulted in sample size of 235. The table below represent the distribution and response rate of how the data was gathered for the study.

Table 1. *Distribution and Retrieval*

TYPE OF INDUSTRY	Population	Questionnaire distributed	Number returned	% of retrieval
Manufacturing	450	230	193	84
Mining	16	14	12	86
Construction	70	25	20	80
Oil and Gas	16	12	10	83
Total	552	281	235	84

Source: AGI (2020), Minerals Commission of Ghana (2020) and Author's compilation.

The sampling techniques employed for the study were random and purposive. Relating to the specific respondents, purposive sampling was used to select finance officers or accountants for the study since they are the ones who are knowledgeable about the issues concerning environmental reporting. One finance officer or accountant was chosen per company.

The frequency of the respondents based on company size indicated that small companies comprised 46(19%), medium companies comprised 63(27%), while large companies comprised 126(54%).

Instrumentation

Instrument used for data collection was questionnaire. The questionnaire was made up of three sections based on the variables of the study. A 5-point Likert-Scale was used in measuring the variables of this study. Content validity is related to validity type in which diverse elements, skills and behaviors are sufficiently and efficiently measured by the instrument (Zohrabi, 2013). To ensure validity, the research instrument was given a review by the 10 experts from field of business. A pilot study was carried out in 35 companies in the Ashanti Region of Ghana with Cronbach's Alpha coefficient of 0.948.

Data Analysis

Data was analysed with the help of SPSS (version 20) using descriptive statistics (i.e. frequencies, means, and standard deviation), Pearson's correlation and linear regression.

Ethical Considerations

The respondents were assured of the confidentiality and anonymity of responses. Therefore, personal details of the respondents or companies were not required.

Results and Discussion

Level of Institutional Pressure in Among Ghanaian Companies.

Coercive Pressure. Table 2 presents the level of coercive pressure among Ghanaian companies. The overall mean score was 3.75 which is interpreted as high. This implies that companies in Ghana are under high level of pressure from regulatory agencies and accreditation institutions.

Table 2. *Coercive Pressure*

	Mean	Std. Deviation	Scaled Response	Interpretation
Environmental Protection Agency (EPA) impose penalties on this company when there is noncompliance.	4.28	.937	Strongly Agree	Very High
Metropolitan or municipal assemblies pressure this company to conform to standards.	3.95	1.146	Agree	High
There is pressure from industry associations for this company to conform to standards of the industry.	3.71	1.071	Agree	High
There is pressure from rating agencies for this company to conform to standards in the industry.	3.53	1.159	Agree	High
Investors put pressure on this company to conform to industry standards.	3.35	1.215	Moderately Agree	Moderate

There is pressure from affiliate members for this company to comply with rules and regulations of the industry.	3.85	1.167	Agree	High
There is pressure from Ministry of Science and Environment for this company to use environmentally friendly operations.	3.38	1.179	Moderately Agree	Moderate
There is pressure from EPA on this company to meet environmental practices.	3.91	1.088	Agree	High
Coercive Pressure	3.75	.802	Agree	High

Legend: 1-1.80 = Strongly Disagree, 1.81-2.60 = Disagree, 2.61- 3.40 = Moderately Agree, 3.41-4.20 = Agree, 4.21-5.00 = Strongly Agree

The highest mean score item was “environmental Protection Agency (EPA) impose penalties on this company when there is noncompliance” ($M = 4.28$, $SD = 0.937$), while the lowest mean score item was “investors put pressure on this company to conform to industry standards” ($M = 3.38$, $SD = 1.215$). This finding is consistent with Wang et al. (2019) stating that firms must obey the rules and the policies unconditionally because they would be penalized if they violated the rules and regulations.

Mimetic Pressure. Table 3 showed that most of the respondents moderately agree ($M = 3.00$; $SD = 0.951$) on the presence of mimetic pressure in their companies with a verbal interpretation of moderate. This implies that companies may choose to consider copy the processes of other companies. The highest scaled item was “this company is under pressure from owners to look to industry giants as role models” ($M = 3.29$, $SD = 1.144$) and the lowest scaled item was “this company imitates the environmental reporting style of other competitors due to financial benefits” with a mean score of 2.72. Ahmed et al. (2019) posited that when the external environment changes significantly and pose a risk to the survival of such organizations, companies seek role models that they feel have struggled to face the external challenges and try to adapt to these role models.

Table 3. *Mimetic Pressure*

	Mean	Std. Deviation	Scaled Response	Verbal Interpretation
This Company:				
is under pressure from owners to look to industry giants as role models.	3.29	1.144	Moderately Agree	Moderate
is pressured to imitate the structure of competitors believed to have useful organizational structure.	3.17	1.149	Moderately Agree	Moderate
is under management pressure to follow industry leaders who have benefitted from first mover’s advantage.	3.06	1.125	Moderately Agree	Moderate

{table continues on the next page}

is under pressure to copy the processes of competitors due to advantages enjoyed by them	2.96	1.178	Moderately Agree	Moderate
is pressured investors when there is uncertainty on issues concerning operations to look to industry leaders.	2.89	1.104	Moderately Agree	Moderate
is under organizational pressure to mimic competitors processes to achieve legitimacy.	2.83	1.127	Moderately Agree	Moderate
imitates the environmental reporting style of other competitors due to financial benefits.	2.72	1.130	Moderately Agree	Moderate
financial performance is positively linked to the industry imitation tendencies.	3.06	1.222	Moderately Agree	Moderate
Mimetic Pressure	3.00	.951	Moderately Agree	Moderate

Legend: 1-1.80 = Strongly Disagree, 1.81-2.60 = Disagree, 2.61- 3.40 = Moderately Agree, 3.41-4.20 = Agree, 4.21-5.00 = Strongly Agree

Normative Pressure. From Table 4, the highest scaled item was “this company is mindful of industry pressure to conform to standards and regulations” ($M = 4.03$, $SD = 0.877$) while the lowest scaled items was “this company is pressured to be a member of an association in the industry” ($M = 3.23$, $SD = 1.270$). The overall result showed that the respondents agree that they face normative pressure in their respective companies interpreted as high with a mean score of 3.71 and standard deviation of 0.761. The implication of this score is that companies in Ghana received high level of pressure from professional bodies, educational institutions, etc. Gunarathne and Lee (2019) add that normative pressure stems primarily from professionalization, deriving from professional networks, corporate sustainability associations, education, and training. These industry and trade associations play essential roles in creating basic rules.

Table 4. *Normative Pressure*

	Mean	Std. Deviation	Scaled Response	Verbal Interpretation
This Company:				
is pressured to be a member of an association in the industry.	3.23	1.270	Moderately Agree	Moderate
is pressured by trade unions to conform to industry standards and regulations.	3.40	1.244	Moderately Agree	Moderate
mandates its employees to receive professional training from professional bodies.	3.44	1.121	Agree	High
require special skills from employees which are derived from professional bodies.	3.75	.978	Agree	High
is mindful of industry pressure to conform to standards and regulations.	4.03	.877	Agree	High

{table continues on the next page}

complies to pressure to conform to industry regulations in order to have positive reputation.	3.98	.915	Agree	High
complies to pressure to conform to industry regulations in order to survive.	3.89	.891	Agree	High
complies with pressure to conform to industry regulations to enhance financial performance.	3.77	1.069	Agree	High
complies with industry regulations because it results in strengthened legitimacy.	3.94	1.005	Agree	High
Normative Pressure	3.71	.761	Agree	High

Legend: 1-1.80 = Strongly Disagree, 1.81-2.60 = Disagree, 2.61- 3.40 = Moderately Agree, 3.41-4.20 = Agree, 4.21-5.00 = Strongly Agree

Level of Environmental Reporting Among Ghanaian Companies

Table 5 shows that the highest scaled response was “this company reports direct energy consumption” ($M = 3.74$, $SD = 1.277$) while the lowest scaled response item was “this company reports total direct and indirect greenhouse gas emissions by weight” ($M = 2.68$, $SD = 1.398$).

Table 5. *Global Reporting Initiative*

	Mean	Std. Deviation	Scaled Response	Verbal Interpretation
This company reports:				
the environmental impact through annual reports.	3.43	1.361	Reported	High
environmental impact through separate environmental reports.	3.37	1.252	Somewhat Reported	Moderate
initiatives to mitigate environmental impacts of products and services.	3.54	1.343	Reported	High
monetary value of significant fines for non-compliance with environmental laws and regulations.	3.06	1.433	Somewhat Reported	Moderate
non-monetary sanctions for non-compliance with environmental laws and regulations.	2.97	1.389	Somewhat Reported	Moderate
total environmental protection expenditures and investments by type	3.19	1.327	Somewhat Reported	Moderate
percentage of materials used that are recycled input materials.	3.36	1.488	Somewhat Reported	Moderate
direct energy consumption.	3.72	1.277	Reported	High
energy saved due to efficiency improvements.	3.54	1.331	Reported	High
total volume of water recycled and reused.	3.21	1.442	Somewhat Reported	Moderate

{table continues on the next page}

total direct and indirect greenhouse gas emissions by weight.	2.68	1.398	Somewhat Reported	Moderate
initiatives to reduce greenhouse gas emissions and reductions achieved.	2.87	1.376	Somewhat Reported	Moderate
emissions of ozone-depleting substances by weight.	2.89	1.374	Somewhat Reported	Moderate
total water discharge by quality and destination.	3.26	1.493	Somewhat Reported	Moderate
total weight of waste by type and disposal method.	3.36	1.409	Somewhat Reported	Moderate
Global Reporting Initiative	3.23	1.061	Somewhat Reported	Moderate

Legend: 1-1.80 = Not Reported, 1.81-2.60 = Rarely Reported, 2.61- 3.40 = Somewhat Reported, 3.41-4.20 = Reported, 4.21-5.00 = Always Reported

The overall scaled response of environmental reporting based on Global Reporting Initiative Framework was *somewhat reported* which is verbally interpreted as *moderate* reporting ($M = 3.23$, $SD = 1.061$) as shown in Table 5. This implies that environmental reporting among Ghanaian companies is at moderate level and therefore most companies in Ghana have not been very serious with reporting the environmental impact of their activities to the Ghanaian populace especially by using the Global Reporting Initiative Framework. This is contrary to Nor et al. (2016) who posit that the demand for businesses to incorporate environmental reporting nowadays is very high to save the planet. This may be so due to the voluntary nature of environmental reporting especially with the use of GRI Framework. This is consistent with Arthur et al. (2017) who found that environmental reporting using GRI among large manufacturing firms in Ghana is increasing even though not yet high because the guideline brings about increased transparency, credibility, and comparability in sustainability reporting.

Summary of Institutional Pressure and Environmental Reporting

From Table 6, the study revealed that institutional pressure among the responding companies is *high* with scaled response of *agree* ($M = 3.49$, $SD = 0.686$). The result implies that there is high level of institutional pressure among companies in Ghana leading to the need for companies to conform to industry standards and regulations. Zeng et al. (2016) found high level of institutional pressure among Chinese eco-industrial park firms. Also, Yang (2017) found high levels of institutional pressure among container shipping companies and agencies in Taiwan.

Moreover, environmental reporting received a scaled response of *somewhat reported* interpreted as *moderate* ($M = 3.23$, $SD = 1.061$). Adusei (2017) found that the level of social and environmental reporting in the extractive industry had seen an upward surge between 2009 and 2015 which is contrary to the findings of this study. Moreover, KaoDui et al. (2019) found that there was a 60% increase in social and environmental reporting among the mining sector due to the environmental sensitive nature of the industry.

{table continues on the next page}

Table 6. *Summary Table*

	Mean	Std. Deviation	Verbal Interpretation
Institutional Pressure	3.49	.686	High
Coercive Pressure	3.75	.802	High
Mimetic Pressure	3.00	.951	Moderate
Normative Pressure	3.71	.761	High
Environmental Reporting	3.23	1.061	Moderate
Global Reporting Initiative	3.23	1.061	Moderate

Legend: 1-1.80 = Lowest, 1.81-2.60 = Low, 2.61- 3.40 = Moderate, 3.41-4.20 = High, 4.21-5.00 = Highest

Correlation Between Institutional Pressure and Environmental Reporting

Correlation between institutional pressure and environmental pressure was examined. The study revealed according to Table 7 that, there is a positive significant correlation between institutional pressure (IP) and environmental pressure ($r = 0.416$, $sig = 0.000$) at 99% confidence interval. As such, the study rejects the null hypothesis that there is no significant relationship between institutional pressure and environmental reporting. The results imply that when there is an increase in institutional pressure from industry regulators, it will yield an increase in the amount of information companies will disclose about the impact that their activities on the environment in their annual report or separate report. The findings support the results by Jaaffar et al. (2018) which shows that there is positive correlation between environmental reporting and institutional pressures. The findings of Charan and Murty (2018) revealed that there is a positive relationship between institutional pressure and environmental reporting.

Table 7. *Correlation between Institutional Pressure and Environmental Pressure*

	Environmental Reporting		
	<i>R</i>	<i>Sig</i>	<i>VI</i>
CP	.400**	.000	S
MP	.263**	.000	S
NP	.375**	.000	S
IP	.416**	.000	S

***.* Correlation is significant at the 0.01 level (2-tailed).

S=Significant, NS=Not Significant, VI=Verbal Interpretation

The study additionally revealed that there is a positive significant correlation between environmental reporting and the sub variables of institutional pressure such as coercive pressure (CP), mimetic pressure (MP) and normative pressure (NP). The findings support Foo et al. (2019) who found that coercive, normative, and mimetic pressure have a positive relationship with environmental reporting. Also, Zhao and Patten (2016) found that coercive, normative, and mimetic pressures have positive influence on environmental reporting in China. Chen et al. (2018) showed that both normative pressure and coercive pressure significantly and positively influence environmental reporting.

Predictors of Environmental Reporting

Linear regression application approach was used to test the extent to which institutional pressure predict environmental reporting. The results revealed that institutional pressure is a predictor of environmental reporting. The total variance explained by the model was $R\text{-Squared} = 0.173\%$, $F = 48.69$, $p = .000$ as shown in Table 8.

Table 8. *Predictors of Environmental Reporting*

	Unstandardized Coefficients	t-value	p-value	Verbal Interpretation	R-Squared Change
Constant	.987	3.016	0.003	Significant	
Coercive Pressure	.643	6.978	0.000	Significant	.173
	R=.416	R2=.173		F=48.692	P=.000

Dependent Variable: Environmental Reporting

Predictors: (Constant), Institutional Pressure

From Table 8, the results indicate that there is 82.7% variance of environmental reporting which are still not accounted for in this study. Institutional pressure had a positive beta coefficient of unstandardized coefficient beta of 0.643, t-value of 6.978 which is significant at 0.000 level. The results indicate that for every unit of institutional pressure, the environmental reporting of companies improve by 0.987. This means that the more the pressure from industry regulators in the form institutional pressure, the better the increase in environmental reporting.

The model resulted from this study can be stated as $\text{Environmental Reporting} = .987 + .643 \text{ Institutional Pressure} + \text{error term}$. Therefore, the study rejects the null hypothesis that institutional pressure does not predict environmental reporting. The findings are supported by that of Gallego-Alvarez et al. (2017) who found that institutional pressure is essential predictor of environmental reporting.

To conclude, damage to the environment may be irreversible. It is therefore essential that efforts are directed keep the environment as natural as it ought to be for current and future generations. There is therefore the need to sustain the physical environment. This can only be achieved when companies report on the extent to which their activities impact on the physical environment. The study therefore found that there is a positive relationship between institutional pressure and environmental reporting. The study therefore concludes that pressure from institutional environment in which companies in the manufacturing, mining, oil and gas and construction industries can enhance the level of environmental reporting by these companies.

Based on the findings, the following recommendations are suggested:

1. There is the need for top management of companies to be conscious about the pressure posed by industry regulators and leaders as this will help the companies to be in line with required standards and to ensure compliance.
2. More so, the Environmental Protection Agency (EPA) of Ghana will have to intensify the monitoring activities about the requirement of companies on submitting their environmental impact assessment and filing of annual report on these requirements. As monitoring efforts, are increased, this will force companies to increase their reporting on how their activities impact the environment to ensure sustainability for current and future generations.

3. Again, there is, the need for policymakers such as EPA, to design educational program tailored toward the environment. The program will need to highlight the harmful effect of the activities of companies as a result of environmental irresponsibility. Again, the educational program may highlight the benefits attributable to managing the environment to ensure sustainability for current and future generations.
4. There is the need for further studies to be conducted on other factors that contribute to environmental reporting other than institutional pressure. Future researchers may focus on company characteristics, board characteristics, etc. again, future studies may consider additional industries other than the ones considered in this study.

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The Mediating Effect of Compensation on Organizational Politics, Human Resource Management Practices, and Organizational Citizenship Behavior

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Abstract

Tertiary institutions in Ghana need engaged and committed employees to ensure their success. To increase the engagement in discretionary work activities, institutions need to encourage positive influence and improve human resource management practices, especially compensation. This study examined the role of organizational politics and human resource management practices in predicting compensation and employee engagement in discretionary work efforts. It also evaluated the intervening role of compensation in the influence of organizational politics and human resource management practices on organizational citizenship behavior of employees of Ghana's private tertiary institutions. This quantitative study adopted the descriptive correlation and mediation research. Three hundred and thirty-four respondents were conveniently sampled to answer a self-developed research instrument. The statistical treatment for the prediction was regression and Smart PLS was used to determine the mediation effect. The result showed that the total variance in compensation explained by organizational politics and human resource management practices is 54.6%, $F_{(331)} = 198.961, p < .000$. The total variance in organizational citizenship behavior explained by organizational politics is 24.4%, $F_{(332)} = 107.188, p < .000$. Human resource management practices did not predict organizational citizenship behavior as it was not significant. Compensation partially mediated organizational politics' path to organizational citizenship behavior while it fully intervened in the path of human resource management practices to organizational citizenship behavior. The study recommends improvement in human resource management practices and enhancement in compensation packages of employees as it is a positive intervener in enhancing voluntary work behavior.

Keywords: *private tertiary institutions, organizational politics, human resource management practices, organizational citizenship behaviors*

The success of private tertiary institutions in developing human capital in Ghana is dependent on human resources as core competencies in determining organizational competitiveness. Organizational effectiveness emanates from employees' qualitative performance to go the 'extra mile' to perform duties outside the job description but crucial to achieving organizational goals and maintaining a satisfied customer base.

Tania Pratiwi and Setiawan (2017) postulated that employees' high literacy in organizational citizenship behavior contributes to companies' success. Therefore, stakeholders must pay attention to organizational citizenship behavior. Private tertiary institutions' success depends on human resources' organizational citizenship behavior amidst competition from state-funded public universities. Thus, organizations rely heavily on workers whose actions determine the success of the firms. The utilization of positive influence and employee satisfaction with human resource management practices, especially compensation, defines all other employee attitudes.

In 2018, Organ asserted that organizational success depends on quantitative and qualitative dimensions, referred to as corporate citizenship behaviors. Organ (2018) defined organizational citizenship behavior (OCB) as an "individual at-work activity that is voluntary, not expressly or acknowledged explicitly by the structured rewards program, and facilitates the organization's effective and efficient functioning in general" (p.4). The voluntary behaviors are five: courtesy, sportsmanship, civic virtue, conscientiousness, and altruism. Courtesy is giving other organizational members respect and engaging in activities that prevent organizational problems. Sportsmanship refers to tolerance for minor issues, while civic virtue supports and participates in other social events, such as attending meetings. Conscientiousness is performing other organizational tasks outside one's job requirements, and altruism means helping other employees with job tasks and responsibilities (Díaz & Alecchi, 2017).

Generally, OCB enables employees to go the extra mile in performing their responsibilities while others do not engage in these discretionary behaviors, more so when such actions are not recognized and rewarded. It enables employees to cope with stress and adapt to unforeseen problems and demanding work schedules through interdependence (Koopman et al., 2016), and employees exhibiting low levels of voluntary behavior are more likely to leave the organization (Ciocirlan, 2017).

Organizational politics is one of the essential workplace phenomena that directly or indirectly influence employee conduct and attitudes. It affects corporate loyalty, determining OCB (Saleem et al., 2018).

Besides, corporate politics is a prerequisite to continuing as a member of an organization as it improves organizational responsibilities and allows people to take many voluntary steps required for organizational life and high standards of achievement. Therefore, corporate politics influence the maintenance of organizational membership, which also determines organizational citizenship behavior.

Although there is extant literature on the phenomenon, the study conceptualized organizational politics using Jarrett's framework (2017). In 2017, Jarrett defined organizational politics as a range of activities that use influence strategies to enhance personal or corporate interests. Contrary to popular dimensions of organizational politics espoused by previous authors (Agarwal, 2016; Donald et al., 2016; Kaya et al., 2016; Vigoda-Gadot & Drory, 2016), Jarrett advanced that, to influence an organization, one should understand the four dimensions of organizational politics. The author posited four

metaphorical representations of organizational politics, which depend on two categories. Using two levels of analysis that is where political actions take place (individual and corporate stages) and sources of power (formal and informal), the author posited four dimensions of organizational politics, namely the 'woods' which refers to an informal source of influence at the corporate level and the 'high ground' referring to the formal basis of power at the organizational level.

On the other hand, the study mentioned the 'weeds,' which is personal influence and informal networks, and the 'rocks' referring to personal political activities derived from traditional sources of power in the organization. Therefore, organizational politics refers to using individual or corporate influence derived from formal or informal sources to achieve the desired outcome (Olusegun, 2019). It also refers to the utilization of tactics meant to impact desired results and a social mechanism that can contribute to the organization's fundamental functioning.

Ahmed (2016) proposed that human resource management (HRM) strategies-performance evaluation, training and development, and employee movement are needed to develop employee citizenship behavior. Hence, companies prefer to follow different HRM plans to stimulate citizenship activity. Ahmed (2016) averred that evaluating employee performance in light of performance standards, upgrading employee knowledge, skills, abilities, and other competencies through training and development, and employee mutation or movement influence workers' citizenship behaviors.

Performance evaluation is the formal and systematic checking of employees' achievement of targets and identifying, assessing, and improving employee effectiveness to accomplish personal and organizational objectives. According to Adjibolosoo (2018), training refers to a firm's intentional effort to promote work-related skills upgrades for its workers. Such abilities provide knowledge, skills, and other competencies that are essential to good job results. On the other hand, development is acquiring expertise, skills, and attitudes that improve the ability of employees to match changes in job requirements and customer demands. Therefore, training is viewed as specific to current job demands, whereas development prepares the individual for future job responsibilities.

Another dimension of HRM practices is employee movement. Rinaldi et al. (2018) mentioned that employee movement or employee mutation is a change in an employee's job or role, which can be done either horizontally or vertically and can influence employees' job attitudes and behavior.

Okeke and Ikechukwu (2019) argued that whether employees are happy with their work and readiness to continue in an employment relationship results from the organization's remuneration packages and reward plan. Hence, compensation management is an essential function of human resource management.

Beede Emerole and Ogbu (2017) advanced direct and indirect components of employee compensation and posited that it refers to wages and salaries, incentive payments, bonuses, and commissions. Employee compensation includes all types of remuneration and benefits for the performance of organizational tasks. Akter and Moazzam (2016) mentioned that compensation is all economic earnings and palpable services and benefits workers receive as part of the working relationship. According to Bustamam et al. (as cited in Ahmat et al., 2019), compensation management determines the caliber of employees hired and retained to achieve the establishment's goals and is the foundation for participation to strengthen employee performance.

Similarly, Mabaso and Dlamini (2017) maintained that compensation determines employees' attraction and retention to attain corporate objectives. Therefore, organizations need to innovate reward schemes that help employees attract, retain talented employees, and be competitive. The components of direct compensation considered by the study are salary, incentives, benefits, and allowances. Salary is a set of periodic payments for non-manual employees expressed on an annual basis, paid monthly independent of productivity (Calvin, 2017).

Nosenzo (2016) noted that incentives are forward-looking plans based on achieving particular goals predetermined and communicated. Thus, incentives are monetary payments conditional on the accomplishment of targets and are the critical organizational way to reinforce employees' morale (Ritala et al., 2019). Therefore, incentives determine who is recompensed and declares the ideals of an organization. Benefits are packages or programs made available to a worker by an employer to complement cash pay. Benefits may include income protection, savings, health benefits, job security, and pension plans (Hoole & Hotz, 2016).

Jaworski et al. (2018) described the benefits as programs that an employer utilizes to complement workers' direct monetary compensation. These benefits provide staff and their dependents with a security level and may include health insurance, time off, disability insurance, and pension programs. Galanaki (2019) thought that benefits are also known as indirect compensation and refers to other financial and non-financial payments to employees based on continued employment and constitute a significant component of each employee's total rewards. Other terms are fringe benefits, worker services, additional compensation, and extra pay.

Numerous studies on organizational citizenship behavior (Abane, 2016; Agustini et al., 2017; Atta & Khan, 2016; Dwomoh et al., 2019; Njage, 2017) have focused on the impact of extra-role behavior on client reactions and organizational performance. Employees' perspectives on the mediating role of compensation on organizational politics, HRM practices, and discretionary work behavior have received less attention from researchers in Ghana.

Khan et al. (2019) conducted research using 392 respondents from tourism companies at two different periods in Southern China that showed that awareness of organizational politics negatively influenced organizational citizenship behavior mediated by moral efficacy. Similarly, De Clercq and Belausteguigoitia (2017) randomly selected 109 respondents from northern Mexico, and the results showed that organizational politics negatively correlated to organizational citizenship behavior. Hence, respondents' views on self-serving actions and tactics diminished the probability of engaging in extra-role behaviors.

In contrast, Ud Din et al. (2018) researched the influence of organizational politics on organizational citizenship behavior moderated by employee engagement, using a sample size of 125 employees of Faisalabad textile organizations. The study showed a positive correlation between organizational politics and organizational citizenship behavior.

According to Munyon et al. (as cited in Zahid et al., 2019), little empirical work investigating how the perception of corporate politics affects compensation. A review of the two constructs (compensation and organizational politics) established that organizational politics increase employee output rewards. Thus, engaging in corporate politics increases employee compensation based on efforts expended.

Contrarily, Munyon, Jacobs, Carnes, et al. (2016) in their study found an inverse association between how employees view organizational politics in compensation strategies and effectiveness of compensation, indicating that pay systems will be regarded as less effective by employees when they perceive politics to have an impact on compensation outcomes.

Tinti et al. (2017) studied the human resource management practices and discretionary work with data from 156 employees of São Paulo State-based, private and mixed companies. They found that human resource management practices (Involvement, Training and Development, Performance Evaluation, Remuneration and Rewards, Work conditions, and Recruitment and Selection) explained 31.7% of organizational citizenship behavior. Therefore, it concluded that H.R.M. practices predicted 31.7% of the change in organizational citizenship behavior.

Cesário and Magalhães (2017) sampled 165 government workers in Portugal to determine the connection between human resource management practices and turnover intentions mediated by organizational citizenship behavior. The study used confirmatory analysis and multilinear regression and found that human resource management practices significantly correlated with organizational citizenship behavior, training, and development, having the highest mean score.

In 2019, Otoo conducted research using 50 senior staff of the Accra Technical University and concluded that training and development were positively related to employee salary and benefits because training improved employees' knowledge, skills, and abilities, which made employees promotable and competitive. Therefore, the lack of assistance in training and development affects personal and organizational growth and compensation.

Furthermore, Al Adresi and Darun (2017) researched strategic human resource management and commitment to 52 oil and gas companies in Lybia. They found training and development increased organizational inner career possibilities linked to pay satisfaction due to increment to direct payments and other benefits.

In Pakistan, Khalid and Nawab (2018) studied employee movement and retention moderated by compensation by sampling 1054 respondents from six industries. The findings showed a positive relationship between promotion and employee retention, and compensation moderated the relationship between promotion and retention.

Ducharme et al. (as cited in Levy et al., 2017) randomly sampled 15,000 Canadian employees and discovered that employees who received performance feedback received higher compensation. Performance feedback led to greater pay satisfaction than any other staff who did not receive any performance feedback.

Suryani et al. (2019) investigated the effect of compensation on organizational citizenship behavior using 89 respondents of the Office of Cooperatives and Small and Medium Enterprises in Bali Province. The findings indicated that the fairer the reward workers receive, the higher the level of employee participation in discretionary work activities.

In examining incentives and organizational citizenship behavior mediated by corporate support, Detnakarin and Rurkkhum (2019) gathered data from 327 frontline hotel staff in the most visited provinces in southern Thailand. Employing Confirmatory Factor Analysis (C.F.A.) and Structural Equation Modeling (S.E.M.), the results showed that pay-for-performance (incentive) increased organizational citizenship behavior, and perceived institutional support partially intervened the relationship between the two variables

(incentives and organizational citizenship behavior). Therefore, incentives increased engagement in extra-role behaviors and communicate how valuable organizational citizenship behavior is to organizations.

The research aimed to fill the knowledge gap and solve organizational citizenship behavior in Ghana's private tertiary institutions with compensation, corporate politics, and HRM practices in Ghana's public and private tertiary institutions. The study answered the following research questions:

1. Which of the variables below predict organizational citizenship:
 - a. Organizational politics?
 - b. Human resource management practices?
2. Which of the following variables predict compensation:
 - a. Organizational politics?
 - b. Human resource management practices?
3. Does compensation mediate the relationship of organizational politics and human resource management practices on organizational citizenship behavior

Methodology

Research Design

The study adopted the quantitative design and mediation studies to analyze research questions and explain the mediating effect of compensation (Creswell & Creswell, 2017). Specifically, it used a descriptive correlational design and mediation studies to describe the exogenous and endogenous variables and examine the relationships and interrelationships between the variables and the interrelationships between the variables.

According to Akinlua and Haan (2019), the descriptive correlational design approach is used if the researcher wants to understand the relationship between variables and describe variables or phenomena.

Population and Sampling Technique

The study focused on private tertiary institutions in Ghana with valid accreditation and registered with the Ghana Tertiary Education Commission. Out of a population size of 3,717, the estimated sample size was using the Raosoft sample size calculator 349 with a 5% margin of error, 95% confidence interval, and a response rate of 50%. The recommended sample size of a total population size of 3,717, using the Raosoft sample size calculator, was estimated at 349, approximated to 352 due to sampling figures' decimal nature.

The study was conducted among 352 faculty and staff of 33 private tertiary institutions in Ghana with valid accreditation and belonging to the Ghana Tertiary Education Commission.

The research used purposive sampling to sample 352 respondents who could read and understand the questionnaire and had at least a General Certificate of Examination/ Advanced/ Ordinary Level or West African Senior School Certificate Examination and available to fill the questionnaire. The study used a purposive sampling technique due to the unavailability of a sample frame. The purposive sampling technique is cheaper, more convenient, more manageable, and gives access to willing and ready people to participate in the study (Creswell & Creswell, 2017). The study used 334 responses for the analyses due to outliers which constituted 5% of the estimated sample size.

Instrumentation

The study used a self-developed research instrument based on reviewed literature to obtain information from respondents on the variables under study. The research measured organizational politics and OCB on a scale ranging from 'strongly agree' to 'strongly disagree,' verbally interpreted very high to very low. Human resource management practices and compensation items were scaled 'always' to 'never' verbally translated very poor to very good. The Cronbach's alpha for the variables was above .65. Therefore, the instrument for data collection was reliable since all sub-dimensions scored above .65 (Vaske et al., 2017).

Again, the research used Cohen's (as cited in Peprah et al., 2019) absolute correlation values in determining the strength of the relationship in the mediation path, where $r = .10$ to $.29$ means *low*, $r = .30$ to $.49$ implies *moderate*, and $r = .50$ to 1.0 indicates *high*.

Analysis of Data

The study used regression to answer the research question of how the exogenous variables (organizational politics, human resource management practices) predicted OCB and Smart Partial Least Squares (PLS) Structural Equation Model (SEM) in answering the mediation question.

Ethical Considerations

The respondents were assured of anonymity, confidentiality, and informed of the purpose of the study. The research instrument was not intrusive and conformed with Ghana's Data Protection Act (Act 843, 2012). The study sought respondents' informed consent, had the option to refuse to participate in the research, and the right to withdraw from participating in the study. Furthermore, respondents were aware of the type of information the research sought, how they were to partake, its purpose, and the benefits of findings to private and public universities in Ghana. However, the respondents were informed that the results would be shared broadly through colloquia, workshops, conferences, and publications. Respondents did not receive any financial benefits for participating in the study.

The Ethical Review Board of AUP considered, reviewed, and approved the research instrument to ensure that the research met ethical standards. The Board assessed the manuscript, informed consent form, and research instrument, and the study was approved by the Board and assigned study protocol code 2020-ERB-AUP-029.

Results and Discussion

Predictors of Organizational Citizenship Behavior

The study sought to determine whether independent variables-organizational politics and HRM practices predicted organizational citizenship behavior. The result *reflects* the independent variable that significantly predicts organizational citizenship behavior. The R -value was .494, and the R square value was .244. The total variance in organizational citizenship behavior explained by the model was 24.4%, $F(332) = 107.188$, $p < .000$. The research rejects the null hypothesis that states organizational politics does not predict organizational citizenship behavior. Human resource management practices were excluded from the predictors as it was not significant ($p = .320$); this means that the study *fails to reject* the null hypothesis, which states that human resource management practices do not predict organizational citizenship behavior.

From the result, 75.6% of the variance was not considered in this research but can explain organizational citizenship behavior in employees of private tertiary institutions in Ghana. The regression coefficients output of organizational politics ($\beta = .518$) shows that organizational citizenship behavior would increase by .518 points for each unit increase in organizational politics. The proposed applied model based on the unstandardized beta for this study is $OCB = .624 + .518OP + e$. Therefore, this equation can predict organizational citizenship behavior. The ANOVA result confirms the accurateness of the model. The table shows that the significance value of F statistics in the model was less than 0.05. Therefore, organizational politics rightly accounted for the variance in organizational citizenship behavior.

Table 1. *Predictors of Organizational Citizenship Behavior*

Model	R square Change	B	Std. Error	Beta	T	Sig
1 (Constant)		0.624	0.107		5.835	0.000
Organizational Politics	0.244	0.518	0.05	0.494	10.353	0.000
R=.494	R ² =.244	F=107.188			p=0.000	
Excluded Variables ^a						
Model	Beta In	T	Sig.			
1 Human Resource Management Practices	.048b	0.996	0.32			

a. *Dependent Variable: Organizational Citizenship Behavior*

b. *Predictors in the Model: (Constant), Organizational Politics*

Organizational politics' ability to predict organizational citizenship behavior contradicts the work of De Clercq and Belausteguigoitia (2017), who found politics to be negatively related to organizational citizenship behavior.

Human resource management practices' inability to predict organizational citizenship behavior suggests that human resource management practices (training and development, performance evaluation, and employee movement) as perceived employees in private tertiary institutions do not motivate employees to engage in voluntary work behaviors beyond their job descriptions. This finding is supported by Tinti et al. (2017), who discovered that acceptable human resource management practices predicted organizational citizenship behavior by 31.7% in Sao Paulo companies.

Organizational Politics, Human Resource Management Practices as Predictors of Compensation

The research used the regression analysis approach to evaluate the two independent variables of organizational politics and human resource management practices to predict compensation. The result reflects that human resource management practices and organizational politics significantly predicted compensation. When the two predictors were taken as one, the R-value was .739, and the R square value was .546. They explained 54.6% of the variation in compensation. Hence, organizational politics accounted for (.546-.430)

0.116 in the total R square. When the factor is used as a separate indicator, it explained only 11.6% of the compensation variation. The total variance in compensation explained by the model was 54.6%, $F_{(331)} = 198.961$, $p < .000$. The study rejects the null hypothesis, which states that none of the variables (organizational politics and human resource management practices) predict compensation.

From the result, 45.4% of the variance in compensation was not considered in this study but can explain employee compensation in Ghana's private tertiary institutions. The regression coefficients output of human resource management practices ($\beta = .714$) and organizational politics ($\beta = .658$) show that for each unit increase in the measure of the two independent variables, compensation would increase by 0.714 and 0.658 points, respectively. When human resource management practices are written as HRMP and organizational politics are written as O.P., and compensation is written as COMP, by using their coefficients, a right regression equation that reflects the model could be written as follows: $COMP = -.383 + 0.714HRMP + 0.658OP + e$. They all predicted compensation. This equation can predict the value of compensation.

The ANOVA result confirms the accurateness of the model. The table shows that the significance value of F statistics in the model was less than 0.05. Therefore, human resource management practices and organizational politics rightly accounted for the variance in compensation. The results suggest that employees in private tertiary institutions utilize various influence tactics to affect their compensation. This result is supported by Munyon et al. (2015), who found a positive relationship between organizational politics and compensation based on employee performance. Similarly, it confirms Kipnis and Schmidt (as cited in Clarke et al., 2019), who said that upward influence tactics are positively related to salary.

Additionally, human resource management practices' prediction of compensation suggests employees' fair perception of skills upgrade and favorable performance evaluation outcome to influence employee advancement, positively affecting the compensation employees receive. In 2019, Otoo research found training and development positively related to employee salary and benefits since training improved employees' knowledge, skills, and abilities, making employees promotable and competitive. This finding is also supported by Levy, et al. (2017), who found a positive relationship between performance appraisal feedback and compensation.

Table 2. *Predictors of Compensation*

Model	R square Change	B	Std. Error	Beta	T	Sig
(Constant)		-0.383	0.175		-2.192	0.029
Human Resource Management Practices	0.43	0.714	0.045	0.6	15.991	0.000
Organizational Politics	0.116	0.658	0.072	0.345	9.193	0.000
R=.494	R ² =.244	F=107.188			p=0.000	

a. *Dependent Variable: Compensation*

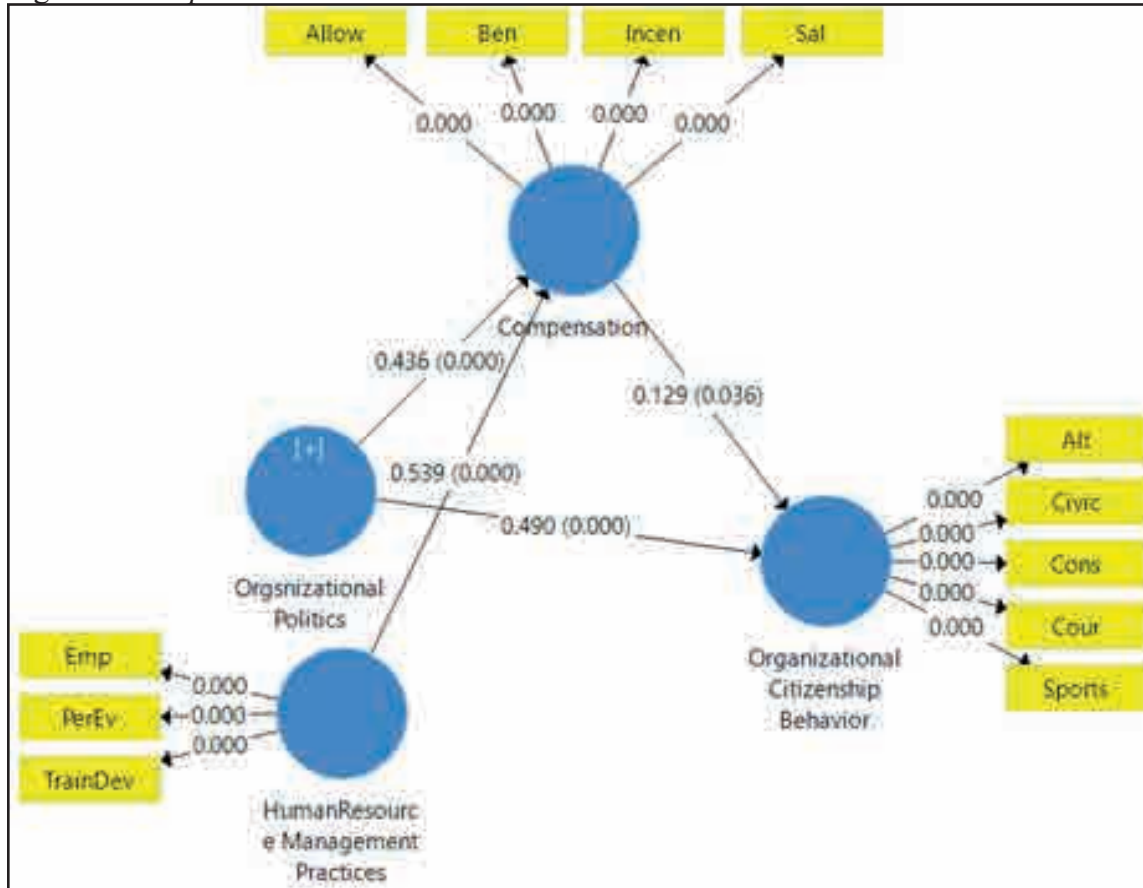
b. *Predictors: (Constant), Human Resource Management Practices*

c. *Predictors: (Constant), Human Resource Management Practices, Organizational Politics*

The third research question was to determine whether compensation mediated the

relationship of organizational politics and H.R.M. practices on organizational citizenship behavior. This research question was answered using Partial Least Squares Structural Equation Model (PLS-SEM).

Figure 1. *Compensation Mediation Model 1*



The relationships' path regression model found that compensation mediated the relationship of the two independent variables (organizational politics and H.R.M. practices) on organizational citizenship behavior. In detailed analysis, the study found that the mediating effect of compensation on the relationship of organizational politics and organizational citizenship behavior was partial. The direct and indirect effects both are significant and point in the same direction. Since the direct and indirect effects are both positive, and their product is also positive, compensation represents complementary mediation of the relationship from organizational politics to organizational citizenship behavior. organizational politics exerts a pronounced (0.490) and significant effect ($t = 10.856$, $p = 0.000$) effect on organizational citizenship behavior. Furthermore, the mediating variable compensation accounts for the observed relationship between organizational politics and organizational citizenship behavior. Organizational politics had a direct effect of (0.490) and an indirect effect of ($0.436 * 0.129 = 0.056$) on organizational citizenship behavior. The indirect effect of organizational politics is 5.6% and direct effect is 49% resulting in a total effect of $0.490 + (0.436 * 0.129) = 0.546$. Hence, when mediated by compensation, organizational politics predicts a 54.6% increase in organizational citizenship behavior.

The intervening role of compensation on the relationship of HRM practices and organizational citizenship behavior was significantly full mediation. In the model, HRM practices are not directly related to organizational citizenship behavior but are fully mediated by compensation. As a result, human resource management practices will rely on compensation to influence employee organizational citizenship behavior. This finding suggests that, although going the ‘extra mile’ is discretionary, employees’ voluntary work behavior will be impacted if employees receive fair compensation. Hence, human resource management practices are only indirectly linked to organizational citizenship behavior with an indirect effect ($0.539 \times 0.129 = 0.069$). Therefore, human resource management practices’ total effect is 0.069, or 6.9%, implying that an upsurge in human resource management practices when mediated by compensation accounts for a 6.9% increase in organizational citizenship behavior.

Table 3. *Mediating Effects of Compensation*

Independent Variable	Mediator	Dependent Variable	Indirect Effect	Direct Effect	Total Effect	VI	Type of Effect
Organizational Politics	Compensation	Organizational Citizenship Behavior	0.056	0.49	0.546	Small	Partial
Human Resource Management Practices	Compensation	Organizational Citizenship Behavior	0.069	Nil	0.069	Small	Full

VI-Verbal Interpretation

The results imply that whereas organizational politics can directly predict organizational citizenship behavior, this effect increases by 5.6% when compensation is introduced into the equation. Additionally, the findings suggest that H.R.M. practices cannot impact voluntary work conduct without compensation since the mediation was full. Although the magnitude of effects was *small*, they were significant.

In support of the intervening role of compensation, Suriyani et al. (2019) confirmed the influence of compensation on Indonesia’s organizational citizenship behavior. Additionally, the *full* mediating role of compensation on the connection between H.R.M. practices and organizational citizenship behavior is supported by Rahman and Chowdhuri (2018). They found that compensation influences other human resource management functions and determines employee voluntary work-related behaviors Okeke and Ikechukwu (2019).

Using political tactics and good human resource management practices in tertiary institutions enhances employee discretionary work behavior. Compensation is also a positive intervener between organizational politics, human resource management practices, and organizational citizenship behavior. Therefore, University Administrators and human resource managers should use positive influence skills and improve human resource management practices through periodic review of guidelines and policies and educating employees in compensation packages available.

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Establishing a Customized Beverage Operated by a Vendo Machine in Magallanes, Cavite: A Feasibility Study

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Abstract

With the continuing growth in the industry, tastes and sensibilities are ever-changing and are fueling greater customization that drives toward authenticity and innovation. There is a strong demand for products that can be classified as convenient such as snack foods and ready-to-drink beverages but few sizable players in the market and there is no business yet that provides a non-alcoholic customized beverage operated by a vendo machine. Therefore, this study is designed to determine the feasibility and viability of establishing a customized beverage operated by a vendo machine in Magallanes, Cavite. This feasibility study was conducted to 274 randomly sampled respondents from selected barangays in Magallanes, Cavite. Quantitative data were evaluated using the statistical parabolic method and computations of various financial ratios such as capital budgeting, profitability, liquidity, and solvency. Using a convenience sampling method, interviews with five managers and four staff from the beverage-related businesses were also employed and analyzed through content analysis to further study the different functions of the business. The researcher utilized technology to gather data through different platforms such as Google forms, Messenger, and emails. Based on the survey results, 89% are willing to patronize the product offered by the business. This favorable result leads to a positive outcome for the business. The results drawn from the financial analysis suggest that it is profitable, liquid, and stable for five years of operations. Based on the results, it is concluded that the proposed business is feasible and recommended to be established by 2022.

Keywords: *feasibility, customized beverage, vendo machine*

One of the biggest consumptions in the market is placed in the line of the food and beverage industry. According to Gulfood Global Industry Outlook (2019), the total sales value of food and beverage in the world has increased. It reaches US\$ 2.43 trillion in 2018 from US\$2.27 trillion in 2013. Based on an estimated forecast CAGR of 12%, the industry is anticipated to grow by about US\$2.73 trillion in 2023. Though the projection foresees a slightly better performance of 2.2 % CAGR, beverages still have a lower portion in the market. Beverages are composed of alcoholic and non-alcoholic drinks. It is stated in Errand Pro (2020), the world is now shifting its taste towards soft drinks and beverages with less or no alcohol. Millennials preferred non-alcoholic beverages rather than alcoholic ones. Non-alcoholic drinks are becoming popular as they cater to the needs of all ages either satisfying their thirst, hunger, or boredom.

The advancement of technologies developed changes in products or services in the market as well as the people's choice of food and beverage. People always look for something different to try on, both in food and beverage. As time passes by, trends in technology are growing. Many industries use technology to offer their products and services. One of the widely known advanced technologies for the beverage is the vending machine. Merriam Webster dictionary defines a vending machine as "a coin-operated machine for selling merchandise". Once a customer inserts money in a slot and clicks an order from the menu, the machine will dispense the product. Some of the products include snacks and beverages. Vending machines are one of the types of machinery that caters to the needs of the consumers especially those who are on the go. It offers a convenient way of serving the desired product of the customers. Vending machines today are customizable based on the needs of the business. The introduction of vending machines provides convenient and ready-to-drink beverages to consumers. Carrad et. al (2015) researched the consumer support of healthy food and drink vending machines in public places. The findings of their research show that vending machines with healthier snacks and drinks would be received positively by consumers. Healthier products offered by vending machines are supported in public places. It also gives support to the transition of healthier product availability, promotion, and labeling in this food environment. In addition, the serving process of vending machines has less interaction. In the time of the pandemic, this will apply to the regulations of less interaction and social distancing. Customers can have their beverage in a convenient service while obliging with the protocols.

With the continuing growth in the industry, tastes and sensibilities are ever-changing and are fueling greater customization that drives toward authenticity and innovation. There is a strong demand for products that can be classified as convenient such as snack foods and ready-to-drink beverages but few sizable players in the market and there is no business yet that provides a non-alcoholic customized beverage operated by a vendo machine. Therefore, this study is designed to determine the feasibility and viability of establishing a customized beverage operated by a vendo machine in Magallanes, Cavite. This study will focus on providing a non-alcoholic customized beverage operated by a vendo machine. The beverages present in the market are bottle sealed and already mixed with a standard taste. The standard vending machine is only programmed to dispense a bottled beverage while a customized vending machine particularly special type of machine offers a variety of programs that gives a new experience to the customers like freshly brewed beverage.

The scope of this study is mainly on the establishment of a customized beverage operated by a vendo machine in Magallanes, Cavite. The respondents consist of the residents in the selected barangays in Magallanes, Cavite. The scope is only limited to a five (5) year timeframe. Due to the global pandemic (COVID-19), the questionnaires were distributed online through google forms. Other data were gathered through an interview with the businesses that offer beverages. Some data were not provided due to limited time and resources. All the data utilized in the study related to decisions, estimations, and projections were only from those available data during the period of the study was conducted.

Industry Profile

The proposed business belongs to the beverage industry. The beverage industry is a mature sector that includes companies that offer non-alcoholic and alcoholic items in the market. Since growth opportunities are few compared to an existing business, many members of the industry endeavor to diversify their offerings to better compete. The market survey of Flanders Investment and Trade showed that the food and beverage sector in the Philippines is one of the top contributors to the country's economic growth. South-East Asia IPR SME (2018) stated that it contributes 23-24% of the country's GDP. There is a strong demand for products that can be classified as convenient such as snack foods, meal replacements, and ready-to-drink beverages (Abela, 2019).

Success and Risk Factors

One of the opportunities of the proposed business is the location. It is near to the target market. It is also near the Municipal Hall and other establishments such as rural banks, government offices, and public and private schools. The demand for a beverage is increasing. The products offered can cater to all ages, children, youth, and adults since the products are composed of soy coffee, chocolate drinks, and cappuccino. The products are caffeine-free. Since the process of making the beverage is operated by a vendo machine, it is very convenient to the customers. However, there are already existing businesses that sell different kinds of beverages. Another threat is, the concept of the business is new. People who are not familiar with the products and the machine may not avail of the beverage. There are also limited products offered in the business. The business will only have soy coffee, choco, and cappuccino with different variants (light, sweet, strong). People may not find the usual beverage they are looking for like soda and alcoholic drinks.

Methodology

Research Design

The researcher used descriptive and exploratory methods of research. Descriptive research is useful when not much is known yet about the topic or problem (McCombes, 2020). It is used to gather and describe facts on the proposed business. Exploratory research was also employed to gather data on the customs, values, buying practices of the target market, employees, and the management (Narbarte, 2015).

Population and Sampling Technique

The target market is the residents of Barangay 2,3,4, Magallanes, Cavite. The total population of the three barangays is 872 with a sample size of 274. It was computed using the total population of the three listed Barangays of Magallanes, Cavite. The researcher

used a 5% margin of error which is the allowed error in rejecting a true null hypothesis (Narbarte, 2015). The study was conducted to 274 randomly sampled respondents. The formula for obtaining the sample size is:

$$n = \frac{N}{1 + Ne^2}$$

Where: N = population

n = sample

e = margin of error

$$n = \frac{872}{1 + [(872) (.05)^2]} = 274.21$$

Instrumentation

The data were gathered through survey questionnaires and interviews with the target market. The survey questionnaires were developed by the researcher with the guidance of the adviser and validated by the experts and laymen for content validity. Due to the condition of the global pandemic, the questionnaires were given online through a google form. Another source of data was the unstructured questionnaire used for interviews from beverage-related businesses. Other data were utilized from the different articles, journals, magazines, books, and related studies related to beverages from the internet. The population of the target market was taken from the Municipality of Magallanes, Cavite, and on their website.

Analysis of Data

Quantitative data were evaluated using the statistical parabolic method while the data from the unstructured questionnaire were analyzed through content analysis. Various financial ratios were used in determining the projection, financial ratio, and other measures of financial performance.

Capital Budgeting. Capital Budgeting provides analysis on the financial capability of the business to return the capital investment through consideration of cash flows over its estimated life. It focuses on the cash flows that will flow through the business rather than revenues earned and expenses incurred from the business or investment (Hofstrand, 2013). Ratios such as net present value, internal rate of return, benefit-cost ratio, and accounting rate of return are used by the researcher for capital budgeting. The payback period is also used to determine the time it takes to recover the cost of an investment.

Profitability Ratios. This ratio shows the relationship between the investment's income against the total revenue, total assets, and capital. (Corporate Finance Institute, 2017). The researcher used Net Profit Margin, Return on Assets, and Capital to test the profitability of the proposed business.

Liquidity Ratios. Liquidity ratios help to scrutinize the capacity of the business to meet the demands of its current liabilities (Accountingtools, 2020). For the purposed of this study, the liquidity ratio is only composed of the current ratio and acid test ratio.

Solvency helps the company check if long-term liabilities can be funded. (Rahman, 2017). The solvency ratios used are the debt-to-assets ratio and the equity ratio.

Ethical Considerations

The researcher secured a letter from the adviser. Letters were given ahead of time before the distribution of survey questionnaires. All information gathered from interviews was withheld by the researcher and was used only for this study's purposes. For the sake of confidentiality, the names of the respondents are not disclosed. The researcher used labels instead of using their names.

Results and Discussions

The results of the survey aimed to determine the feasibility and viability of the proposed business considering the different areas of management: marketing, operations, organization, financial, strategic, and socio-economic responsibility.

Marketing Study

Customized beverages offer different kinds of non-alcoholic beverages that are suited to the taste preference of the customers. The customers can choose from three kinds of beverages namely, soy coffee, choco, and cappuccino. The study of Heng et.al (2018) found that the decline in fruit beverage and soft drink consumption may be a reflection of consumer's lifestyles and perceptions. Based on the demand analysis of their study, consumers are substituting tea and coffee for regular and diet soft drinks probably because of the caffeine content. These drinks come with customization based on the customer's desired taste whether light, sweet, or strong. Instead of manually processing products, the beverages are processed through a vendo machine. The machine is the one that will do the mixture of drinks and customize it based on the taste preference of the customer.

Demand and Supply Analysis

Demand is the estimated number of products and services that the customers want to avail. The business location will be located in Barangay 3 in Magallanes, Cavite and the target market are the nearby barangays including the location. The population data of the target market for the years 2015-2019 were gathered from the Philatlas website and the Municipality of Magallanes, Cavite. Table 1 shows the historical population of the target market from 2015-2019. No census or population count was conducted for the years 2017 and 2018. The researcher averaged the population from the years 2016 and 2019 to arrive at the figures used for the 2017 and 2018 populations.

Table 1. *Historical Population of the Target Market, 2015 – 2019*

Year	Barangay 2	Barangay 3	Barangay 4	Total	Increase/ Decrease	Growth Rate
2015	150	280	167	2394	-	-
2016	168	280	191	2974	580	24%
2017	200	300	245	3092	118	4%
2018	250	495	302	3442	350	11%
2019	263	501	325	3504	62	2%
Average	206	371	246	3081	278	10%

Source: Philatlas website and Municipality of Magallanes

The method of projection used to forecast projected data is statistical parabolic method. This method is ideal if variables are increasing, then decreasing and also in computing for the number of projected population for the next six years.

Statistical Parabolic Method Formula

$$Y = a + bx + cx^2$$

Table 2 presents the projected population for the years 2020 to 2026. Based on the historical population and through the statistical parabolic method, the projected population was computed.

Table 2. *Projected Population of the Target Market, 2020 – 2026*

Year	Population	Increase/ Decrease	Growth Rate
2020	1,025	-	-
2021	1,288	263	26%
2022	1,673	385	30%
2023	2,180	507	30%
2024	2,810	630	29%
2025	3,562	752	27%
2026	4,436	874	25%
Average	4,956	507	28%

Table 3 presents the comparison of the projected total demand and the projected total supply in quantity. Based on the results, the average demand of the proposed business is 752,986 while the total supply is 664,444. The unsatisfied demand is labeled as unmet. It is computed by deducting the supply from the demand. As illustrated in Table 1, the demand is greater than the total supply resulting in a market share of 14%. Market share is computed by dividing the business capacity by the unmet demand.

Table 3. *Projected Demand and Supply Analysis of Beverage in Quantity, 2022 – 2026*

Year	Demand	%	Supply	%	Unmet	%	Capacity	Market Share
2022	435,394	100%	379,094	87%	56,300	13%	138,300	13%
2023	563,358	100%	494,067	88%	69,291	12%	138,300	12%
2024	722,154	100%	636,743	88%	85,412	12%	138,300	19%
2025	911,782	100%	807,119	89%	104,663	11%	138,300	15%
2026	1,132,242	100%	1,005,198	89%	127,044	11%	138,300	12%
Average	752,986	100%	664,444	88%	88,542	12%	138,300	14%

Table 4 presents the comparison of the projected total demand and the projected total supply in peso. The average demand of the proposed business in peso is 28,208,906.99 while the average supply is 24,662,148.69.

Table 4. *Projected Demand and Supply Analysis of Beverage in Peso, 2022 – 2026*

Year	Demand	%	Supply	%	Unmet	%	Capacity	Market Share
2022	15,238,772.61	100%	14,326,051.26	94%	912,721.35	6%	5,117,100.00	6%
2023	20,280,891.70	100%	18,295,433.65	90%	1,985,458.04	10%	5,255,400.00	10%
2024	26,719,711.40	100%	23,578,728.49	88%	3,140,982.90	12%	5,393,700.00	12%
2025	34,647,726.69	100%	29,887,820.47	86%	4,759,906.21	14%	5,532,000.00	14%
2026	44,157,432.54	100%	37,222,709.59	84%	6,934,722.95	16%	5,532,000.00	16%
Average	28,208,906.99	100%	24,662,148.69	89%	3,546,758.29	11%	5,366,040.00	11%

Marketing Plan

The proposed business will offer customized beverages operated by a vendo machine. The products present in the business are soy coffee, choco, and cappuccino with different variants (light, sweet, strong). Different ways of promotions will be done such as giving pamphlets/flyers, placing posters or banners, and in the form of social media. All the respondents in the unstructured survey questionnaire said that they are using social media platforms in advertising their products. Respondent 1 stated that they also placed tarpaulins in places where customers usually go. Respondent 4 used flyers as part of their advertisement. The cost-plus method and market-oriented method will be used as a technique in pricing. The researcher decided to set the price that will give the business a profit after covering all the operating costs and based on the capability of the prospective customers to buy.

Operations/Productions Study

A customized beverage product with different variants will be processed with quality. The main concern of the proposed business is to offer customized beverage that suits the taste preference of the customers whether light, sweet, or strong kind of drink. The products will be operated through a vendo machine. It has four steps: arrival and payment, order taking, drink preparation and drink pick-up. There is an approximately five minutes production process per beverage. It is an automated process where a customer can avail of a beverage conveniently and efficiently.

All the necessary equipment, furniture and, fixtures will be purchased to provide quality products that will ensure the satisfaction of the customers. Since the business is introducing automation, there is a required machine needed for the business. The proposed business will be located in Barangay 3, Magallanes, Cavite. One of the advantages of the location is that it is near to the Municipal Hall and other establishments such as rural banks, government offices, public and private schools. The place is accessible to the target market and nearby barangays. According to Losch as cited by Berliansyah and Suroso (2018), the sales location is influential on the number of consumers obtained by the business. The study revealed that business locations that are far from the consumers affect the number of customers. The consumers who are living afar will not go to the area because of the transportation's cost. They are more likely to buy on the business near to their places. He suggested that the business production area should be placed in the target market or near to the market.

The capacity of the business to produce a beverage is 138, 300 cups annually. It is computed based on the availability of the vendo machine to process a beverage. The

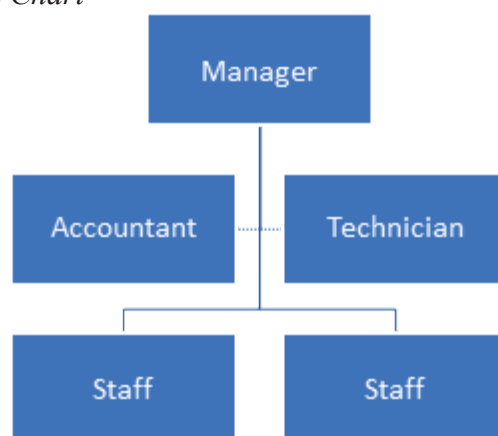
production cost of a customized beverage is consisting of direct materials and factory overhead. Direct materials are the expense of the raw materials in making a beverage while the overhead is the indirect labor or the staff who are filling and maintaining the vendo machine, and assisting the customers if necessary.

Organizational and Human Resource Study

There are different forms of ownership in a business. The researcher decided that the proposed business will be registered as a sole proprietorship firm. A sole proprietorship is a business entity owned and managed by an individual. It has minimal regulations and compliance needed from government agencies. Any decisions can be easily made by the sole proprietor because he has complete control of the business. However, the sole proprietor is also subject to unlimited liabilities of the business (Kittelsohn Carpo Consulting, n.d.). According to Respondent 1, 2, 5, 7, and 8, the requirements needed in opening the business are Department of Trade and Industry (DTI) registration, barangay permit, business permit sanitary permit, and fire and safety permit from the Municipal Hall, and registration with the Bureau of Internal Revenue (BIR). The business name will be registered as “Sweetie Cups”.

In the first five years of operation, the business will have five employees. The position is composed of a manager, accountant, technician, and two staff. The manager will oversee all the operations, an accountant is responsible for all the financial documents, the technician is accountable for the maintenance of the machine, then, staff will be responsible for the business operations. The qualification standards of the workforce of the proposed business are based on the personal qualification, experience, and academic background of the employee. Employees will receive a total compensation of ₱655,960.00 annually. The figure below illustrates the organizational chart of the business.

Figure 1. *Organizational Chart*



Financial Study

This section shows the evaluation of the financial aspect of the proposed business. Financial analysis is conducted to determine the potential viability of the business proposal.

The initial capital that will cover the pre-operating expense, working capital, and fixed assets is ₱2,070,894. Based on the computation of the payback period, the amount of investment will be recovered after 1.25 years or 1 year and 91 days. This is desirable because it only takes a short period to recover the investment.

Capital Investment

Capital investment refers to the total amount of money to be used in the furtherance of the project. The allocation of these amounts includes the pre-operating expenses, the working capital, and the capital expenditure.

Pre-operating expenses. This amount is used for paving the way for business to operate legally and properly – as planned. This includes the feasibility study cost, cost of obtaining business permits, acquisition of small equipment, and renovation cost. This totaled ₱80,095.

Working Capital. As the business is new to the market, the researchers believed that it may not meet the target sales, but in order to keep the business operating, an allowance for the operating expenses shall be allocated. This comprises the salaries, raw materials, utilities, and other operating expenses. The researcher assumed that six months allowance is reasonable enough until the business will operate as planned. A budget of ₱805,496 is allotted for the working capital.

Capital Expenditure or Fixed Assets. The business proposal also needs fixed assets to operate. Thus, this budget pertains to the acquisition of equipment, machinery, furniture, and fixtures. The total fixed assets totaled ₱1,185,303.

Table 5. *Capital Investments*

Pre-Operating Expenses	Amount (PHP)
Business and Other Permits	₱4,000
Hiring Expenses	₱1,000
FS Business Research	₱5,000
Non-Depreciable Assets	₱44,095
Renovation	₱26,000
Total Pre-Operating Expense	₱80,095
Working Capital/Operating Expense	
Production Cost	₱594,795
Utility Expense	₱30,000
Salaries - Manager and Accountant	₱125,000
General and Office Supplies	₱2,868
Advertisement and Promotion	₱2,000
Rental	₱25,000
Property Insurance	₱833
Miscellaneous	₱25,000
Total Working Capital	₱805,496
Capital Expenditure	
Equipment, Furniture & Fixture	₱1,185,303
Total Capital Expenditure	₱1,185,303
Total Capital Requirements/Investment	₱2,070,894

Financial Statements

Financial statements considered in the study are composed of the statement of comprehensive income, statement of cash flows, and statement of financial position.

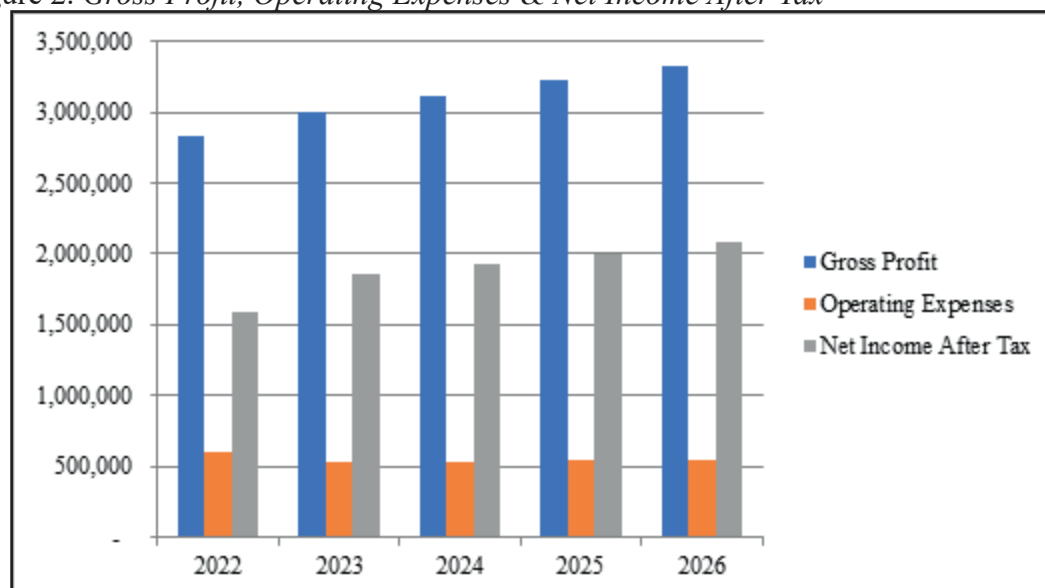
Statement of Comprehensive Income. This statement shows the outcome of the business operation. This is used by the investor to assess the ability of the business to create returns. The first-year net income will be ₱1,582,845 which is projected to be increasing for the coming years. Table 6 gives figures on the net income after tax for the years 2022 to 2026.

Table 6. *Net Income After Tax, 2022-2026*

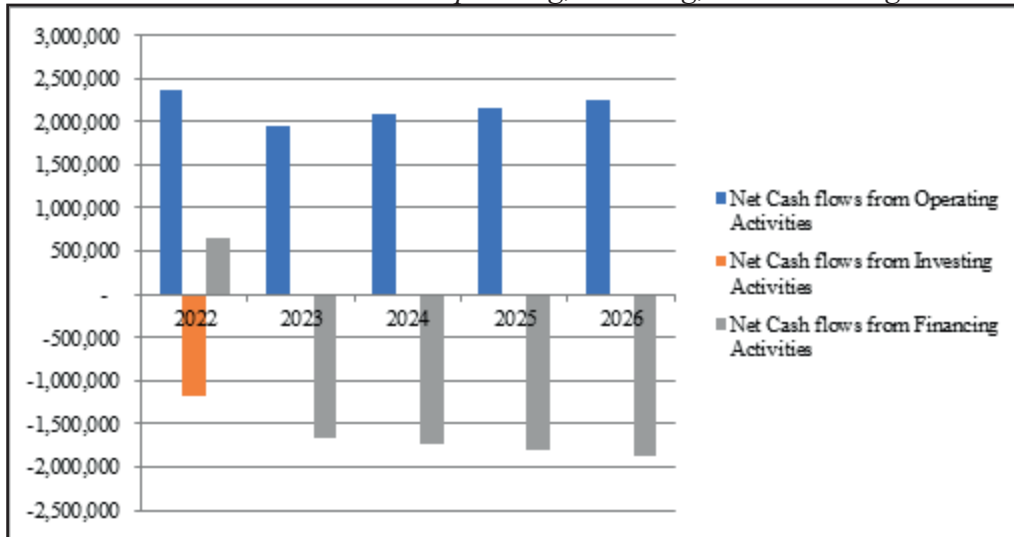
	2022	2023	2024	2025	2026
Net Income After Tax	1,582,845	1,851,742	1,927,378	2,002,697	2,077,693

Figure 2 presents the data of the statement of income in graphical form. The earnings are varying annually due to the effect of the inflation occurrence that affects the sales price and product costs. While the gross profit and net income after tax are increasing, the operating expenses are decreasing.

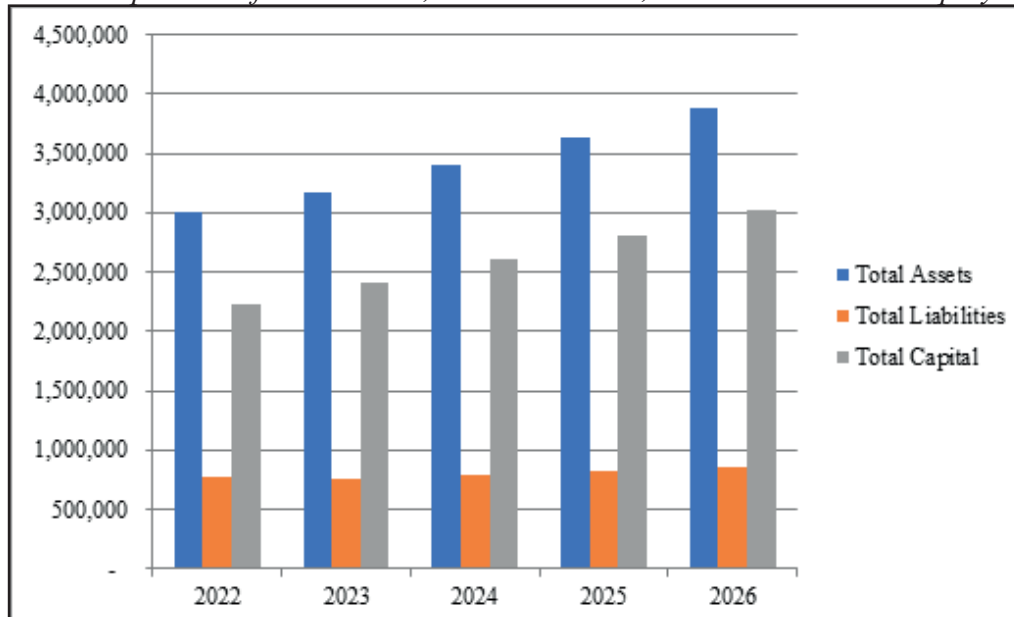
Figure 2. *Gross Profit, Operating Expenses & Net Income After Tax*



Statement of Cash Flows. This summarizes the operating, investing, and financing activities of the proposed business. It provides information about the cash receipts and cash disbursements of the proposed business during a period. Figure 3 gives information on the data of cash flows in a graph. Operating activities fluctuate because of the effect of net earnings. Purchases of fixed assets affected the investing activities. The initial investment and the annual withdrawals of the owner comprise the financing activities of the business.

Figure 3. *Cash Flows From / Used in Operating, Investing, and Financing Activities*

Statement of Financial Position. This is also called the balance sheet and this summarizes the business' economic resource, obligation, and capital at a certain period. Relative assets, liabilities, and equity increase annually as illustrated in figure 4. The proposed business will be able to pay its outstanding liabilities because the current assets of the proposed business are higher than the liabilities.

Figure 4. *Comparison of Total Assets, Total Liabilities, and Total Partners' Equity*

In capital budgeting analysis. NPV test suggests that the project is acceptable because it yields to positive cash flows of ₱5,911,674. The IRR accepts the project due to the result of 71% which is higher than the average interest rates in the market. The benefit-cost analysis accepts the project because it suggests that the project is acceptable due to the result of 3.85 or a ratio of above 1. The result of the capital budgeting analysis implies that the proposed business shall be undertaken.

For the years 2022-2026, the business will have a 37% average net profit margin. It means that 37% of the revenue is being earned by the business after all the expenses such as cost of production, operating expenses, and taxes are paid. Furthermore, the business will have a 55% average return on assets for the years 2022-2026. It means that 55% of the total assets is being returned to the company from its invested assets. The business will have a 72% average Return on Capital for the years 2022-2026. It means that 72% of the total capital is being returned to the company from its invested capital.

There is a current ratio of 3.25 and an acid test ratio of 3.09. These ratios proved that the proposed business can pay the current liabilities or obligations. Since the current liabilities could be paid more than once, thus, the investor may expect that the proposed business is liquid enough to deal with its obligation. In solvency, the average equity ratio of the proposed business is 0.76, or 76% of the total assets of the company is funded by the capital of the owner.

Socio-economic Responsibility

The establishment of the proposed venture will not only benefit the researcher but also the community. The products offered by the business can sustain customers' needs in terms of healthy refreshments. It can also cater to both the needs of customers when it comes to convenience and quality of drinks. The business will give a compensation package for the employees. They will be given fair and reasonable compensation to support themselves and their families. Also, the employees will have the opportunity to learn new skills through the training implemented by the business. In investing in this business, the owner will get all the profits gain from the business. The business will give 10% of its net profit as tithes and will give offerings to the church. Above anything else, the works of the Lord must be the first one to benefit from the business. The business will boost economic growth by providing employment opportunities to the people. The profits of this business will pay taxes to the government. It will be an additional income to the government.

Considering all the findings and analyses of the study regarding marketing, operational, human resource, strategic, financial, and socio-economic responsibility aspects, it is therefore concluded that establishing a customized beverage operated by a vendo machine in Magallanes, Cavite is feasible and viable. It is recommended to be established by 2022 or within the five-year time frame from the time the study was conducted.

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Strategies for Increasing Motivation and Productivity of Work-From-Home Employees During the COVID-19 Pandemic: An Integrative Review

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Abstract

Ever since the World Health Organization (WHO) declared a global pandemic in March 2020, many businesses were forced to cease operations and many employees lost their jobs. Businesses that could afford to continue had to implement Work-From-Home (WFH) arrangements for their employees to reduce the risk of transmitting the virus. However, one of the biggest challenges faced by WFH employees is motivation. What once was a coveted work arrangement now seems to negatively affect employees. Without clear physical boundaries of work and their personal lives, employees struggle with staying focused and motivated as they work from home. As a result, workers become less productive. This research explored the different theories of motivation, such as the content theory and process theory, and how they can be applied in practical ways in WFH setups. This research is an integrative literature review of various sources from 2014 to 2021 discussing motivational theories and practical applications. Ideas of authors were gathered and added to a synthesis matrix then organized by theme through thematic analysis. The most common themes were analyzed by synthesizing, comparing, and contrasting the different ideas and comparing them to existing theories of motivation. The results revealed that some of the most important ways to increase motivation in WFH setups involve *location, scheduling, communication, self-care, attire, and distraction management*. The researcher recommends future research to be conducted with employees of existing businesses in a locality to determine which of the WFH techniques mentioned in this research are practiced by their employees.

Keywords: *work from home, employee motivation, COVID-19*

On March 11, 2020, the World Health Organization declared Coronavirus disease (COVID-19) as a global pandemic (World Health Organization, 2020). Since then, so much has changed especially in the world of businesses. Due to the increased risk of spreading the virus, governments worldwide declared quarantines and social distancing protocols. As a result, many businesses were forced to halt operations and many employees lost their jobs. This also hurt the economic status of countries including the Philippines. Philippine Inquirer reporter De Vera (2020) wrote, “the COVID-19 crisis will cost the Philippine economy P2.2 trillion in losses this year as firms shed profits while millions of workers lose their jobs and income” (para. 2).

Due to this, businesses all over the world were forced to shift gears and find ways to keep their businesses afloat amidst the crisis. One of the solutions is to allow people to work remotely from the comforts of their homes. In the Philippines, the government urged employers to arrange for their workers to work from home if the nature of their business allows for this (Yap, 2020). The work-from-home (WFH) setup became a trend worldwide and is even predicted to be a norm for the “new normal” even after the pandemic (Abad, 2020; Lalu, 2020). Although working from home has its advantages such as physical distancing, less commuting time (Johnson, 2015), and increased satisfaction (Templeton, 2020), it provides new challenges especially for individuals who are more accustomed to working in an office.

This study was conducted in order to bridge the chasm between theory and practice. Most resources on the topic only discussed either the theories of motivation or the suggested strategies for keeping remote employees motivated. There was no literature that showed both. This research delved into the theories of motivation and looked into the practical applications that can be used immediately in the home workplace. Apart from sharing information, this research aims to encourage other researchers to find practical applications of theoretical frameworks.

One of the greatest challenges of working from home is staying motivated and increasing productivity (Gorlick, 2020). This paper explored the different strategies for managing motivation and productivity in work from home setups. The objective of this paper was to provide suggested strategies for increasing motivation and productivity while working from home during the COVID-19 pandemic and even beyond.

Methodology

Research Design

This research is an integrative literature review of various sources that discuss motivational theories as well as practical applications of these theories for the WFH employees. This design was used to identify the current trends for motivational strategies and compare them with theories of motivation.

Data Gathering

Due to the limitations brought upon by the COVID-19 pandemic, the researcher gathered information mainly from online sources that were published from 2014 to 2021. By not using older resources, this research can be more relevant and applicable to the time of writing.

Data Analysis

The ideas of the different authors were gathered and added into a synthesis matrix then organized by theme through thematic analysis. The most common themes were analyzed by synthesizing, comparing, and contrasting the different ideas and comparing them to existing theories of motivation.

Results and Discussion

Theories of Motivation

Motivation is the force that drives an individual to do something. Motivation may be intrinsic (internal) or extrinsic (external) as it can be influenced by various factors from within the person or their surroundings and circumstances (Souders, 2019). Two popular schools of thought regarding motivation are the Content Theory and Process Theory.

Content Theory

The Content Theory suggests that behavior is brought upon by a person's unmet needs. This theory investigates the "what" of motivation as it seeks to identify the factors that influence people and drive them to do something. Two notable theories under this school of thought were introduced by Abraham Maslow and Frederick Herzberg. Abraham Maslow's Hierarchy of Needs proposes that human needs in order of importance are physiological, safety, belongingness, esteem, and self-actualization (Cherry, 2020; Hopper, 2020). Frederick Herzberg's Two Factor theory for employee motivation deals with hygiene factors and so-called motivators. Hygiene factors refer to the basic needs of an employee such a salary and working conditions (Kuijk, 2018). Although these are necessary, these staples will not necessarily motivate a person do something. However, the absence of hygiene factors will demotivate a person. Meanwhile, motivators are additional factors that increase employee motivation. Examples of motivators are growth opportunities, appreciation, and recognition (Kuijk, 2018). Although workers will continue to work without the motivators, their presence will encourage employees to work with more gusto.

Process Theory

The Process Theory of motivation deals with the "how" of motivation. Models of this theory discuss the psychological and behavioral processes of how a person is motivated (World of Work Project, 2019a). Alternatively, Black et al. (2019) stated that process theory looks into the "why" behind the initiated behaviors. According to them, "these theories focus on the mechanism by which we choose a target, and the effort that we exert to 'hit' the target" (para. 2). Some notable theories under the process theory are behavioral theories and the expectancy theory.

Two of the most popular behavioral theories are Ivan Pavlov's Classical Conditioning and B.F. Skinner's Operant Conditioning. According to Elmer (2020), classical conditioning is the result of when "an automatic conditioned response is paired with a specific stimulus" (para. 1). This, in turn, creates a behavior. Meanwhile, B.F. Skinner's theory of Operant Conditioning refers to reinforcement where the outcomes of an action (whether negative or positive) will affect a person's behavior in the future (World of Work Project, 2019b). In other words, if people believe that something has worked well for them previously, they will do it again. Similarly, if people experienced unfavorable results from something they did previously, it will be unlikely for them to repeat it.

Similar to Operant Conditioning is Victor Vroom's Expectancy Theory. This theory suggests that motivation depends on the expected outcomes for an action. This theory has three aspects which are valence, expectancy, and instrumentality. Juneja (2015) summarizes the theory by saying:

The Expectancy theory states that employee's motivation is an outcome of how much an individual wants a reward (Valence), the assessment that the likelihood that the effort will lead to expected performance (Expectancy) and the belief that the performance will lead to reward (Instrumentality) (para. 2).

This means that a person is motivated to do something based on their perception of the action's outcomes. If a person values the expected value of an outcome, they are more likely to exert the necessary effort expected to produce the desired result. By knowing what the behavior will result to and knowing that they have the means and ability to achieve their goal, the person will be more willing to exert the necessary effort.

The strategies discussed in this paper are practical applications of said theories. The researcher selected the most common strategies found in the different sources reviewed. One must note that the strategies discussed in this research might not be applicable to everyone because different individuals may be motivated by different things.

Location Matters

Based on the various literature reviewed, one of the most important factors of being motivated and productive in a WFH setup is the work location. Several authors highly recommend that worker have a dedicated space that is not associated with leisure activities (Cronkleton, 2020; Francisco, 2020; Haslam, 2018; Liu, 2010; Olenski, 2015). Cronkleton (2020) and Francisco (2020) claimed that having a dedicated workspace at home will help the brain to focus better since it associates that section with working.

How about people who do not have spare rooms for a dedicated space? Liu (2020), and Lufkin (2020) claimed that the location should not necessarily be a dedicated room but could even be a portion of a room. For those without a dedicated room, it is recommended to place a table that could be cleared away after work so that one can "physically and mentally disconnect outside of work hours" (Set yourself up well physically section, para 2). Cronkleton (2020) also recommended staying away from the dedicated work area outside of work hours.

As convenient and comfortable as it seems, working from the bedroom is highly discouraged. Digneo (2017), Francisco (2020), Morin (2020), and Tassi (2014) advised against working where one sleeps. Working in bed could lead a person to associate their bed with work and result in sleep problems (Morin, 2020). Tassi (2014) further stated that if working in one's pajamas can make someone feel lazy to work, working close to one's bed triples that effect of laziness. Digneo (2017) also discourages working where one sleeps saying that sleep is so powerful that one might often find oneself justifying napping despite the deadlines.

It can be implied that WFH strategy is an application of both the Content Theory and Process Theory. The need for a dedicated space conducive to working touches on the person's physiological needs in Maslow's Hierarchy of Needs as well as the hygiene factors in Herzberg's Two Factor Theory. Workplaces are generally designed to be conducive to working. However, when an employee works from home, they might not have the most

ideal work environment, and this can affect their motivation and productivity. Hence, the employee needs to exert effort to create their work-environment. Furthermore, without a dedicated space, the line between one's work and personal life is even more blurred. By creating a dedicated space for work in one's home, a person can condition themselves to focus on their work while they are in that dedicated space.

Scheduling Work

One could argue that people have more time in a WFH setup. Employees do not need to wake up extra early to prepare for the day and no time is spent commuting to the workplace. However, there is a risk of mismanaging time by starting late or working overtime. The decrease of productivity and increase of distractions are not of much help either. Therefore, having a good work schedule helps increase motivation and productivity (Morin, 2020; Olenski, 2015). According to Tassi (2014), not having an established work schedule would cause people to not function properly as they work from home.

Without a rudimentary schedule, it is easy for individuals to lose track of all the tasks at hand and tasks may take longer to complete. Cronkleton (2020) recommended creating a breakdown of all the tasks for the day and put them in a visible area so that one can keep track of everything that must be done. Establishing a scheduled work routine based on realistic expectations would also make the individual more motivated and productive to achieve the goals of the workday (Digneo, 2017; Francisco, 2020; Haslam 2018; O'Hara, 2014).

Other than scheduling the tasks for the day, it is also crucial to establish the times for starting and ending the workday. Since workers do not need to commute to work, there is a temptation to stay in bed longer. There is a tendency to stay in bed until and get up just a few minutes before work starts. Morin (2020) claims that starting late can cause the individual to stay up late due to work. Furthermore, Haslam (2018) argued that overworking can further decrease productivity and increase burnout and may affect the individual's work-life balance. To overcome challenges like this, Digneo (2017) and Tassi (2014) recommend training oneself to wake up early for the workday even when working at home. According to them, this helps prepare the mind for work and helps the individual to be more motivated and prepared for the day.

This strategy is related to the Expectancy Theory and Skinner's Operant Conditioning because of the known results of setting a schedule or the lack thereof. If a person values their work-life balance, they will try to establish good schedules because they expect a good outcome which is a healthier mind and body. They expect that they will be able to function better at work and they will also have time for themselves and their families. Furthermore, the individual might experience the negative effects caused by mismanaging their time and they will be motivated to make better choices.

Communication

Due to the COVID-19 pandemic, people have been advised to stay home and reduce physical interactions, and this often leads to feelings of isolation which results in demotivation and a decrease in productivity. In an article in the Harvard Business Review, O'Hara (2014) quoted, "prolonged isolation can lead to weakened productivity and motivation. So if you don't have a job that requires face-time with others on a daily basis, you need to put in the extra effort to stay connected" (Stay connected section, para.

1). Hence, communication is also one of the important factors for motivation in the work from home setup. Individuals must be able to stay connected with colleagues, friends, and families.

Organizations can keep in touch with their employees through various platforms such as Microsoft Teams, Zoom, Google Meet, and other communication platforms. By communicating within the organization, employees are reminded of the work expectations and their roles in the organization, and bosses can be more aware of how their employees are doing and what challenges they may be facing (Argenti 2020, Francisco 2020, Liu 2020, O'Hara 2014). Lufkin (2020) provided an interesting viewpoint by saying that with or without COVID-19, communication is the key in any organization. Lufkin also suggests for organizations to have virtual bonding times such as virtual pizza parties just to sustain and enhance the sense of community and camaraderie.

Apart from communication with colleagues, it is also important to be in touch with other people outside the organization. This means communicating with family and friends outside the work circle. Having a support network would help boost an individual's motivation and productivity and keeps one to sustain their social skills (Evans, 2020; Tassi, 2014). It is also important to note that the pandemic is hard for everyone, so individuals need to be kind towards each other (Bodewits, 2020).

This strategy seems to closely relate to the social aspect of Maslow's Hierarchy of needs. A person may be more motivated to do their work well if their social needs are met. Hence, they will be able to collaborate harmoniously with their colleagues despite the distance because they can still feel belongingness. Reaching out to family and friends also helps with a person's social needs especially for people who might often feel lonely when only by themselves.

Self-Care

Another important factor for staying motivated while working from home is self-care. This includes taking care of one's physical and mental state. Various authors agree that taking care of one's physical and mental health contributes to one's motivations and productivity when working at home. These can be done through various strategies.

Taking care of one's physical state includes a proper diet, a good ergonomic workplace, some exercise, and adequate sleep (Morin, 2020). Having a well-balanced diet is one way of ensuring that the body will be in a good physical condition to work (Evans, 2020; Morin, 2020). Getting some physical activity through exercise, yoga, or even stretching also contributes to building motivation and increasing productivity in individuals while working at home (Bodewits 2020, Cronkleton 2020, Evans 2020, Francisco 2020, Olenski 2015, Tassi 2014). Tassi (2014) further mentioned that office jobs are already sedentary in themselves, and the fact that one no longer needs to walk around the office building means even less physical movement. It is recommended to take some short breaks even to just stretch to keep the brain awake and the body energized (Cronkleton 2020, Digneo 2017, Francisco 2020, Liu 2020, O'Hara 2014). Additionally, Liu (2020) and Cronkleton (2020) claimed that having an ergonomic workplace makes the individual feel more productive and motivated because they are comfortable and do not cause physical strain to their bodies.

For taking care of one's mental health, it is important to recognize the emotional and mental issues that one may encounter while working from home. Morin and Liu both

emphasize the importance of acknowledging and recognizing one's unpleasant feelings to find solutions for them. Morin claims that acknowledging one's feelings make it less scary to deal with them. Liu also says that one must practice self-compassion, to allow oneself to feel emotions, to allow oneself to feel human, and to find ways to bring back one's morale. With a similar idea, Evans (2020) suggests keeping a stress diary to identify stressors and find ways to address or avoid these stressors. Furthermore, authors also recommend celebrating small wins by giving rewards to oneself to boost motivation and morale (Digneo 2017, Liu 2020, Morin 2020, O'Hara 2014). Liu recommends acknowledging one's achievements rather than the things that still need to be done.

The Content Theory can once again be seen in this strategy. By taking care of one's body and mind, the individual will be able to develop intrinsic motivation. By getting enough sleep, doing exercise, they prepare their body and mind for the work ahead. Exercise is also known to boost happy hormones such as dopamine, endorphins, and serotonin (Raypole, 2019). Exercise can make a person feel good about themselves. It can help the individual to release stress at the end of the workday. Furthermore, the aspect of rewarding oneself for small wins taps into the Instrumentality Theory.

Getting Dressed for Work

Another recommended strategy for being motivated and productive in a WFH setup is getting dressed for work. When working from home, it is often tempting to roll out of bed in one's pajamas and begin working. However, Francisco (2020), Lufkin (2020), and Tassi (2014), argued that working in pajamas can make an individual feel lazy and cause them to be less motivated and productive in their work. Furthermore, Cronkleson (2020), Digneo (2017), Francisco (2020) Haslam (2018), and Olenski (2015) recommend getting dressed for the job puts the person in a work mindset and makes them feel more powerful and confident. Tassi (2014) emphasizes that attires may differ for individuals. Not everyone would need to wear a coat and tie. Regardless, wearing an attire that would make the employee feel as though they are at work would suffice and do the mental trick.

Similar to creating a dedicated workspace, dressing up in work clothes relates with conditioning. Pajamas and loungewear are generally not associated with work so an employee might not feel as motivated to work. By gearing up with clothes that one would normally wear at the office, it would prepare the conditioned mind for work and help the employee to be more focused and productive while working from home.

Managing Distractions

It is no surprise that working from home involves a lot of distractions. With the family staying at home due to the pandemic, there could be playful children, noisy neighbors, distracting apps and websites, and other personal distractions that would not normally be present at the workplace. Since there is less monitoring by management, it is much easier to get give in to temptations and distractions and result to slacking off. Therefore, it is crucial to set limitations to these distractions.

For people who work around their family or housemates, it is crucial to set some ground rules. Some authors recommend making an agreement with the housemates to not disturb the employee when they are working (Cronkleton 2020, Evans 2020, Lufkin 2020, Morin 2020, O'Hara 2014). Setting these kinds of boundaries may be a struggle especially with children around, and Morin suggests keeping the children busy with various

activities so that they are preoccupied and spend less time disturbing their parents at work. Distractions can interrupt focus and reduce productivity, so it is important to set boundaries with friends and family.

Aside from the company at home, other common distractions are mobile devices and the internet. Digneo (2017) stated that the internet is a great distraction. Tassi (2014) recommended declaring “war on distracting sites” and having the self-discipline to not access these sites while working. While social media apps were designed to make it easier to access and browse content, this very convenience may lead to decreased productivity. Furthermore, Digneo and Haslam (2018) recommend putting mobile phones away such as in another room to reduce the tendency of checking them whenever a notification appears.

Meanwhile, one author claims that distractions are not always detrimental and may be used to one’s advantage in boosting motivation. Tassi (2014) provides an interesting perspective of using distractions for rewards. Instead of giving in to the distractions and temptations such as binge-watching one’s favorite series, it is suggested that these distractions and temptations be used for rewarding oneself for one’s achievements. One example is finishing a task as soon as possible so they can proceed to watching an episode of their favorite show. Through this strategy, individuals will be more motivated to quickly finish their tasks because of the anticipated reward.

This strategy shows that distractions may come from external factors (noisy neighbors, crying children) as well as internal factors (personal wants). A good work environment is part of the hygiene factors in Herzberg’s Two-Factor. With the absence of a work-conducive workspace, it is more difficult for employees to focus and be motivated while working. Therefore, the employee must exert effort to manage the distractions and create a more ideal work environment. Lastly, using distracting temptations as a reward can be related to Vroom’s Expectancy Theory.

This COVID-19 pandemic has changed the way business is done and more businesses have been arranging WFH setups for their employees to keep their business afloat. Working from home has enabled businesses to continue their business operations while reducing the risk of spreading the virus, but it has some pitfalls in terms of motivation and productivity. These pitfalls must be addressed to have a more engaged, motivated, and productive workforce.

Although the company might be able to provide the assets such as computers, internet, and other office items to help their employee’s WFH situation, there are factors that are out of management’s control. However, management can help their employees by suggesting or implementing strategies for managing the WFH struggles so employees can stay motivated and productive even without management’s careful eye.

Coping with the “new normal” does have its fair share of struggles especially in the WFH scene, but these struggles can be managed effectively using various strategies. This literature review has presented some strategies for staying motivated in a WFH setup. Although not all strategies will work for everyone, the key is finding the right strategies to help individuals work effectively and efficiently from home.

The researcher recommends conducting a deeper study that involves interviews or surveys with employees working from home. A further study may provide more insight into the effectiveness of these motivational strategies as well as find more ways to keep remote workers motivated, productive, and engaged even after the pandemic.

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The Adoption of Computer Assisted Audit Techniques (CAAT): Knowledge and Attitude of Auditors From the Big Four Auditing Firms in Ghana

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Abstract

The use of information technology in the business world has grown exponentially. Besides, the recent outbreak of COVID-19 globally and its attendant challenges call for the need to minimize physical contact using information technology. This research therefore, assessed the adoption of, the attitude to, and the knowledge of computer assisted audit techniques (CAAT) of auditors from the big four auditing firms in Ghana. A sample of 60 auditors was used for the study. Data was collected through a five-point Likert scale questionnaire. Data was analyzed through descriptive statistics (frequency distribution tables, mean, and standard deviation) and correlation. It was found that all the audit firms have adopted some computer assisted audit techniques. Most of the elements under the knowledge level of auditors have high mean, which implies that auditors have *high* knowledge in using CAAT. Assessing auditors' attitude towards the use of CAAT, it was further found that they have good attitude toward the use of CAAT. However, there is *high* initial cost in setting up and operating CAAT. Moderately, components of CAAT are difficult to operate. It was also realized that system challenges and too many controls over passwords delay access to information. Lack of visibility of audit trail is also a challenge faced by auditors. It is recommended that auditors increase their understanding on the use of CAAT by organizing more training programs especially in this era of COVID-19 outbreak where many work from home.

Keywords: *computer assisted audit techniques, big four auditing firms, adoption of CAAT, knowledge on CAAT, attitude of auditors*

The use of information technology (IT) in the business world has grown exponentially in the past two decades. Hence, the auditors' knowledge of, adoption of, and attitude to computer-assisted auditing techniques (CAATs) to meet this growth is very essential. The use of computers within the business environment has immensely transformed the data processing and control methods of many businesses in Ghana. With the current pace of technological advancement, businesses, individuals, as well as corporate entities have to be abreast with computer usage to have a meaningful impact in the business world. This has caused many auditors to be concerned about the quality of auditing with the advent of computerization in the auditing industry.

Many organizations have moved to the use of computers to do their work more efficiently. In the view of Manghani (2011), auditing firms now have integrated computer techniques in their operations to improve on their effectiveness in terms of quality of both their auditing firms and audit work. However, some audit firms have not taken up this move seriously. This is because it is not clear whether the investment in computer technology would have any significant effect on audit firm's core objective of improving the quality of their work. Secondly, there was a contradiction on whether the introduction of computer technology would have any substantial effect of the quality of the auditors' work.

For instance, Moorthy et al. (2011) argued that electronic maintained records are not auditable. Nonetheless, auditors' responsibility is independent of the method by which accounting data is processed and recorded. The cost of leaving this problem unresolved will create opportunities for fraudulent activities in most organizations. In situations where controls are adequate, for management purposes, then they should be adequate for audit purposes.

Even though computerized systems present an auditor with problems, they also present some opportunities. Some of the opportunities led to the development of CAAT and the Generalized Computer Audit Software (GCAS). Therefore, when dealing with computerized accounting systems, it is necessary for auditors to acquire these new skills and techniques to perform audits in accordance with auditing standards.

Despite the crave for the use of computer assisted audit techniques in auditing services in most auditing firms, there comes a daunting task to educate and train auditors in the use of auditing techniques. Most of the auditors lack the capacity to use current auditing techniques in dealing with current accounting systems. Omonuk (2015) admitted that the intricacies in the accounting system need auditors who are abreast with the current development. Hence, without well trained auditors who understand the risk, level of fraud, quality of audit service, and other delicate issues which accompany auditing, the field of auditing will lack the requisite human resource to meet future challenges. It is against this backdrop that this study tried to investigate the knowledge and attitude of auditors' usage of CAATs and its challenges in Ghana.

In this current dispensation of complex auditing processes, CAATs are used as a tool to assist audit firms in their external and internal auditing of organizations' financial reports and internal controls (Rosli et al., 2012). Auditors and audit firms use CAATs in reducing audit cost, improving audit quality and productivity, supporting timely audit report, and enhancing audit effectiveness and efficiency. Besides the current emphasis on CAATs, research shows that auditors do not often and steadily use CAATs and less effort is made to incorporate up-to-date audit software in the audit process particularly among external auditors (Aidi & Kent, 2013). Braye et al. (2019) investigated the adoption of

CAAT in Ghana but is limited to a single firm in the oil and gas industry. It was found that the adoption of CAAT is influenced by employees' behavior to the use of information technology (IT). Auditor acceptance of CAATs may be driven by both firm resource issues and individual user perceptions. Prior information systems research indicates that even when sufficient resources exist to purchase IT, users may not adopt the new IT. Thus, the primary purpose of this research is to assess the adoption of CAATs, its knowledge and attitude of auditors as well as challenges from the perspective of the top four auditing firms in Ghana. The rest of the research looks at the concept of CAAT, its adoption, knowledge and behavior of auditors, and the challenges confronting the usage of CAAT.

The concept of introducing computers with its associated techniques in the auditing of firms accounting system has attracted a wide spectrum of experts, scholars, and researchers over the years. The concept is popularly known as CAATs. CAATs are computer tools that extract and analyze data from computer applications. CAATs allow IT audit work to be performed efficiently, effectively and reduce audit time (International Federation of Accountants [IFAC], 2011). For example, CAATs may automate previously manual audit tests reducing total audit hours expended. They enable auditors to test 100 percent of the population rather than a sample, thereby increasing the reliability of conclusions based on that test (Kamal et al., 2020). In addition, CAATs may be used to select sample transactions meeting specific criteria, sort transactions with specific characteristics, obtain evidence about control effectiveness, and evaluate inventory existence and completeness.

The International Federation of Accountants (IFAC) explains CAATs as the "applications of auditing procedures using the computer as an audit tool" (International Auditing and Assurance Standards Board [IAASB], 2013, p. 16). Information System Audit and Control Association (ISACA) uses the term CAATs to mean "any automated audit technique, such as Generalized Audit Software (GAS), test data generators, computerized audit programs and specialized audit utilities" (Information System Audit and Control Association [ISACA], 2012, p. 8). That is, CAATs are techniques that use the computer as an audit tool and comprise computer programs and data that an auditor may use to process information of audit significance contained in the entity's information systems. CAATs may include electronic working papers, fraud detection, information retrieval and analysis, network security, continuous monitoring, audit reporting, database of audit history, computer-based training, electronic commerce, and internet securities.

The review of accounting literature attests that CAATs can be used in auditing various businesses to make auditing easier and faster. They are computer programs used by auditors as a part of their audit procedure to sort out data that is instrumental in the performance of their audit. These CAATs play a huge role in ensuring the accuracy of an auditors audit report. CAATs are effective because they are used to gain and process audit evidence and information.

The Unified Theory of Acceptance and Use of Technology (UTAUT) explains the adoption of, and attitude to computer assisted audit tools and techniques by auditors. The UTAUT is a technology acceptance model (Mohamed et al., 2012/2019). This model explains the degree of acceptance of the use of information technology. The model assesses whether auditors will be able to accept the new technology and their ability to deal with it. In the same vein, the model help managers and decision makers assess the introduction of technology to the organization and motivate users (auditors) to accept the system. Regardless of the available infrastructure and other facilities in existence, there is the

concern that technology should be introduced to every facet of our human life especially in more complex auditing environment and other business-related activities.

Auditors look at the inputs and outputs to identify visible audit trail sufficient for audit purposes and the auditor does not intend to place reliance on controls that can only be verified by means of computer based assisted audit techniques. Also, auditors evaluate the client's hardware and software to determine the reliability of operations that cannot be viewed by human eye. Where reliance is intended to be placed on computer controls and where it is necessary to use CAATs for compliance and substantive testing, then it is essential that audit planning commence right at the start of the financial year or appropriate arrangements must be made early in the year with internal audit. More so, auditors may use techniques such as test packs computer audit programs and specially designed tests incorporated in clients own processing to perform audit task. This specialized audit software is known as embedded audit facilities.

The adoption of computer assisted auditing tools/ techniques are determined by numerous factors. However, research done by some scholars indicates that there are four major determinants that play crucial role in the adoption of CAAT in auditing environment. For example, auditors may believe that using CAATs will assist them in meeting their audit time budget since CAATs reduce the number of hours spent conducting tests of controls and substantive testing and thereby improve audit efficiency. The complexity and difficulty in the use of CAATs might have negative influence on the adoption of new audit technology by auditors (Aidi & Kent, 2013). UTAUT suggest that there is a higher possibility that auditors particularly those with significant IT training, would utilize CAATs when they are easy to use and therefore, no difficult learning process is required to make use of them (Curtis & Payne, 2010).

There is a higher likelihood that auditors would adopt CAATs when they are easy to use and therefore do not have to undergo a difficult learning curve to make use of CAATs. In addition, the degree to which auditors perceive that their direct managers support CAAT usage may influence whether they adopt CAATs or not. Moreover, the existence of organizational and technological infrastructure can support the adoption of CAATs. Besides, the provision of adequate information on what CAATs can do; support from software providers and support from top level management in any given organizations are relevant for the adoption of CAATs. Thus, the provision of the needed infrastructure may aid auditing firms provide appropriate CAAT resources and computer support to their employees such as specialized instruction, support center, hotline, and/or usage guidelines.

In determining the level of training needed by auditors as a result of the effect of technological changes, Vasarhelyi and Halper (2010) found that there is the need to shift from the current sampling-based audit to a model that includes continuous monitoring of all transactions, error reporting and immediate response. Further, Mohamed et al. (2019) researched into the factors that influence the adoption of CAAT and found that, performance expectancy, effort expectancy and facilitating conditions are the factors that auditors consider before deciding to use CAATs for auditing.

A similar study was done by Mahzan and Veerankutty (2011) in Malaysia indicated that in the year 2010, CAATS was used as a problem-solving aid by auditors to deal with the high volumes of auditing work at the workplace. In addition, Kimanywenda (2011) researched on the effect of computer technology on the effectiveness of audit firms in Uganda. He discovered that using computers in auditing lead to the effectiveness of audit

firms in terms of improving the quality of audit work, accelerating the speed of delivery of audit reports and entry of new clients. The research further revealed that there is a strong relationship between computer technology and the effectiveness of audit firms.

More so, the use of CAATs increases audit effectiveness improves efficiency and decreases the audit risk (Al-Hiyari et al., 2019). Considering the increasing demand on auditors to make the audit more effective and efficient, the use of most prominent CAATs by auditors can increase audit efficiency and effectiveness. Court et al. (2009) posited that auditors who have access to computers can relate to the client more efficiently as they will be able to meet the needs of specific client circumstances resulting in immediate benefits of cost minimization. CAATs enable auditors to file client information and data easily and maximize auditor's performance (Mansour, 2016). The use of CAATs also tests the reliability of the client's information presented and increase the accuracy of audit test.

Nonetheless the use CAATs can cause the loss of audit trail. Zuca and Tinta (2018) explained that CAATs may corrupt the database under audit. The auditors need therefore to ensure that data is sufficiently backed up incase data is lost and corrupted during the auditing processes. In addition, CAAT need regular development and maintenance (Handoko et al., 2020). CAATs are used once a year, they may not provide evidence that the system is functioning effectively throughout the period of the audit. CAATs, therefore, need to be run more than once a year. Besides, the set-up cost of CAATs is high and the Internal Auditors will need to be trained on how to operate the CAATs effectively. Dowling and Leech (2014) added that there are many factors that can influence the implementation of CAATs. Even the change in the organization's systems, can be very costly to the necessary alterations for CAATs.

Methodology

Research Design

The research adopts survey research design to elicit the opinions of auditors on the adoption of, knowledge on and attitude to the use of CAAT in Ghana.

Population and Sampling Techniques

This research surveyed the auditing staff of the top four (4) auditing firms comprising the Price Water House Coopers Ghana, KPMG, Deloitte Ghana and EY Ghana. A sample size of sixty (60) auditors was used for the study. Auditors were categorized into clusters based on their position (partner, principal auditors, senior auditors, and junior auditors) and years of experience in the auditing industry. The research selected eight (8) partners, fifteen (15) principal auditors, seventeen (17) senior auditors and twenty (20) junior auditors.

Instrumentation

Data was collected through a five-point Likert scale questionnaire: 1 = *strongly disagree*, 2 = *disagree*, 3 = *moderately agree*, 4 = *agree*, and 5 = *strongly agree*. All copies of questionnaire were personally delivered to the respondents in their respective auditing firms. The copies of the questionnaire were collected later.

Analysis of Data

Completed copies of questionnaire were collected and analyzed through frequency, percentages, mean, standard deviation and correlation.

Ethical Consideration

Completed copies of questionnaire were coded in a way to protect the confidentiality and anonymity of respondents.

Results and Discussion

The study which assessed the adoption of, the attitude to, and the knowledge on CAATs of auditors from the four big auditing firms in Ghana revealed the succeeding results.

Table 1. *Gender and Age of Respondents*

Gender	Male	Female	Total	Percentage (%)
Age				
Under 30 years	15	3	18	30.0
31-40 years	15	9	24	40.0
41-50 years	8	4	12	20.0
Above 50 years	4	2	6	10.0
Total	42	18	60	100.0

Table 1 shows that majority of the respondents are males (70%) and the remaining percentage females. The field survey indicated that there were more males compared to their female compatriots at the sampled four auditing firms. In addition, the most dominant age group was the age bracket of 31 – 40 years of age constituting 40%, followed by age bracket of 20 – 30 with 30%, and 10% each for the age brackets of 41 – 50 years and those above 50 years. This implies that most of the respondents are 40 years and below. This may be due to the high interest of the youth to adopt and use information technology.

Table 2. *Ranks and Working Experience of Respondents in Auditing Firms*

Rank	Partner	Principal Auditor	Senior Auditor	Junior auditor	Total	Percentage (%)
Working Experience						
Less than 5 years	0	2	7	9	18	30.0
5-9 years	0	1	7	9	17	28.3
10-14 years	2	8	3	2	15	25.0
15-19 years	2	2	0	0	4	6.67
20 years & Above	4	2	0	0	6	10.0
Total	8	15	17	20	60	100.0

The ranks of auditors also play a significant role in getting adequate information about adoption of CAATs in auditing firms. The results in the Table 2 indicate the ranks of auditors in the four sample auditing firms. The highest proportion of respondents are junior auditors (33.33%), followed by senior auditors (28.3%), 25% of the respondents are principal auditors, and the least represented group of respondents is partners (13.33%). The research gathered information from all the ranks of auditors in the sampled auditing firms. Table 2 further reveals that 30% of auditors have less than 5 years working experience, 28.3% have 5-9 years working experience closely followed by 25% of respondents who

have gained 10-14 years working experience. Only 10% of the respondents have worked 20 years and above in their respective auditing firms. Thus, it is anticipated that the auditors' experience would be adequate to facilitate the essential collaboration to have their clients' data in a state fit for the use of contemporary auditing techniques. It is hence, reasonably to expect that those auditors are familiar with latest audit technology and accordingly press for professional engagement of them in their different audit contexts.

Table 3. *Auditors' Knowledge of Computer Assisted Auditing Tools (CAATs)*

Statement	Mean	Std. Dev.	Response Scale	Interpretation
I have knowledge in using IT software	3.73	1.401	A	High
I have acquired training from IT professionals in the use of CAAT	4.10	.858	A	High
I have skills that enable me to operate CAAT	4.40	.718	A	High
I am conversant with CAAT	2.95	1.407	MA	Fair
I understand the intricacies of using CAAT	2.78	1.367	MA	Fair
I receive technical assistance from IT professionals	3.80	1.147	A	High
There is a technical support system readily available to auditors	4.03	1.164	A	High
I have a clear understanding of how CAAT operate	3.02	1.420	MA	Fair
I have mastery over the use of CAAT	3.98	1.157	A	High
Auditors' Knowledge of CAAT	3.64	.331	A	High

Scoring system: 1-1.49=Strongly Disagree, 1.5-2.49 =Disagree, 2.5-3.49=Moderately Agree, 3.5-4.49= Agree, 4.5-5= Strongly Agree

Adoption of CAAT requires that auditors to have some level of knowledge of CAAT to make meaningful use of it. Table 3 presents the level of auditors' knowledge in using CAAT. In the assessment of auditors' knowledge about CAAT, it was revealed that auditors have *high knowledge* relating to skills, training, technical support, mastery of CAAT usage, IT professionals' assistance, and IT software. The overall mean on knowledge of CAAT is also *high*. However, they have *fair knowledge* about the details and understanding. This is a clear indication that auditors have high training and necessary skills in operating CAAT to achieve quality audit but need more understanding on how to operate CAAT. Though most of the elements under the level of auditors are high, there is more room for improvement especially in this era where many organizations are using complex and sophisticated information technology and software. In identifying the factors that can influence the behavioral intentions of auditors to adopt and use CAAT, was discovered that expectancy of auditor performance, effort, and facilitating conditions are crucial factors (Mohamed et al., 2019). That is, training auditors and providing IT and technical support can increase auditors' knowledge in the adoption and use of CAAT.

Table 4. *Attitude of Auditors Towards CAATs Usage*

Statement	Mean	Std. Dev.	Response Scale	Interpretation
I am generally receptive to CAATs usage	3.90	1.085	A	Good
I feel well trained in the use of CAAT	3.93	1.233	A	Good
I am comfortable in using CAAT	2.33	1.145	D	Poor
I feel confident when using CAAT	3.68	1.282	A	Good
I encourage other auditors to use CAAT	3.17	1.404	MA	Fair
I am willing to help other auditors to make efficient use of CAAT	3.77	1.198	A	Good
Overall Attitude of Auditors	3.46	.456	A	Good

Scoring system: 1-1.49=Strongly Disagree, 1.5-2.49 =Disagree, 2.5-3.49=Moderately Agree, 3.5-4.49= Agree, 4.5-5= Strongly Agree

Table 4 presents the attitude auditors exhibit toward the usage of CAAT in auditing. Assessing their attitude, it was found that auditors have good reception to the usage of CAAT, feel that they are well trained, confident, and willing to help others use CAAT. Nonetheless, they are not comfortable in the use of CAAT, and they fairly encourage other auditor to use CAAT. In all, auditors have good attitude toward the use of CAAT. Besides, earlier studies found that the adoption and use of CAAT are influence by perceived ease of use and outcome (Mansour, 2016; Zainol et al., 2017). The study of Pedrosa et al. (2020) also indicated that auditors have high intention to use CAAT, but an earlier study intimated that auditors do not often and readily use CAAT (Aidi & Kent, 2013). The good attitude may be due to the current demand for the use of information technology to execute business strategies effectively and efficiently.

Table 5. *Correlation of Auditors Knowledge and Auditor Attitude to Adoption and Usage of CAAT*

	Attitude of Auditors to the Use of CAAT		
	Pearson Correlation	Significance	Interpretation
Knowledge of Auditors about CAAT	.175	.180	Not Significant

One's attitude can be influence by the level. Therefore, this study ran a correlation test between auditors' knowledge and attitude. The results in Table 5 show that there is insignificant relationship between auditors' knowledge on and attitude to the adoption and usage of CAAT. Braye, et al. (2019) investigated the adoption of CAAT in Ghana but their study is limited to a single firm in the oil and gas industry. The study of Pedrosa et al. (2020) also found that perceived usefulness and effort are the main determinants to the adoption of CAAT. This research finding may be different from Braye, et al. (2019) and Pedrosa et al. (2020) due to the industry or case study and the focus of their research. The studies of Braye, et al. (2019) used a case study and Pedrosa et al. (2020) focused on the perceived drivers, but this study focused on the actual knowledge and attitude of auditors. The difference may also be due to difference in geographical areas.

Table 6. *Challenges Auditors Face in Using CAATs*

Statement	Mean	Std. Dev.	Response Scale	Interpretation
It is not easy to initiate and operate CAAT	3.65	1.376	A	Strong
There is high set up cost in the use of CAAT	3.80	1.232	A	Strong
There are overelaborations in using CAAT	2.77	1.382	MA	Moderate
Incompatibility between client's data and CAAT	3.18	1.535	MA	Moderate
Key components of CAAT are difficult to work	3.38	1.462	A	Moderate
I have encountered system problems when operating CAAT	3.37	1.377	MA	Moderate
Overall Challenges	3.36	.488		Moderate

Scoring system: 1-1.49=Strongly Disagree (DA), 1.5-2.49=Disagree (D), 2.5-3.49=Moderately Agree (MA), 3.5-4.49= Agree (A), 4.5-5= Strongly Agree (SA)

The data in Table 6 indicates the challenges that auditors face in the adoption and the usage of CAAT. It is revealed that the setting up and operating CAAT is a strong challenge among auditors. Also, the setting up cost of CAAT is very high as indicated by their strong agreement to the statements in that regard. In addition, auditors assert that the components of CAAT are moderately difficult to operate, encounter system challenges, auditor-client system compatibility issues and overelaborations in the use of CAAT. All the elements put together also yielded moderate rank of challenges auditors face in the adoption and usage of CAAT.

Omonuk (2015) admitted that there are difficulties in the use CAAT by auditors. These difficulties can be overcome by adequate training of auditors in the use accounting systems and software. In spite of the numerous advantages in using CAAT, there are still weaknesses inherent in the audit of computerized accounting systems as revealed from the analysis. It was realized that too many controls over passwords delay access to information. Also, there is lack of visibility of audit trail because much information is entered directly into the computer. This often eliminates source document and records that allow auditors to trace accounting information. In addition, data verification on magnetic disk is not easily examined. Information can be assessed only by means of visual display units.

In light of these challenges, respondents stressed the necessity of putting in place certain policies and procedures to enhance the usage of CAAT. Among the measures the auditing firms have adopted are: ensuring that auditors have knowledge of packages used, getting clients to include auditors when installing computer software and using CAAT, completeness check and audit techniques.

The empirical analysis proved that auditors in the big four auditing firms in Ghana have high knowledge of and good attitude to the adoption and usage of CAAT but initial high set up cost and difficulties in operating CAAT are the major challenges. In addition, auditors are not comfortable in using CAAT. Further, the usage of CAATs in an auditing environment is very relevant in the era where many organizations are using information technology and accounting software to increase speed, accuracy and quality. Auditors can employ CAAT to enhance audit quality with speed, accuracy and minimize cost at the long-term. That is the proper adoption and operation of CAAT can save time and increase efficiency and effectiveness of auditors.

There is the need to increase training and IT support to make it easier for auditors to adopt and operate CAAT. Also, frequent exposure to the use of CAAT can help auditors to be comfortable in the use of CAAT. Moreover, professional auditors need to expand their knowledge of information technology and computer accounting audit methodology. The training syllabi of accounting and auditing programs for professional and tertiary institutions should be reviewed to include courses in accounting information system for audit to appreciate the relevance of computer in doing business. In addition to the above, auditing firms should provide more technical support to increase auditors' skills, encourage the use of CAATs in the provision of relevant accounting services and assurance.

Future studies are encouraged to sample medium and small auditing firms to know their knowledge of, and attitude to the usage of CAAT. Future research studies should also investigate this problem using a wider sample drawn from other developing countries. Further studies can examine the extent to which the usage of CAAT can improve audit effectiveness and efficiency.

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Tracer Study of Office Administration Graduates from 2016 to 2020 of the Adventist University of the Philippines: Feedback for Curriculum Enhancement

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Abstract

Graduate employability is the major priority of higher education institutions. This tracer study described the profiles of the graduates of Bachelor of Science in Office Administration (BSOA) of the academic year 2016-2017 to 2019-2020 from the Adventist University of the Philippines. Specifically, this study determined the demographic profile in terms of sex, marital status, and monthly income. Furthermore, the following were determined in this study: (a) current job of office administration graduates, (b) length of time working, (c) time period to find the first employment after graduation, (d) reason for the time gap after graduation, (e) graduates' first employment, (f) methods of finding the first employment, (g) type of work during the first employment, (h) usefulness of studies/program for job placement, (i) extent of the contribution of the degree office administration to personal knowledge, skills, and attitude, (j) extent of how BSOA program prepared graduates on the required professional competencies, and (k) extent of how BSOA program prepared graduates on the expected program outcomes. The respondents of the study were the purposively sampled 32 graduates of BSOA and data were collected using survey questionnaires on Google forms. Based on the results, 68.75% of the BSOA graduates pursued jobs related to their degree and the majority have worked for at least 3 years in their current job (71.9%). Office Administration graduates have 1-6 months to find their first employment (78.1%). No vacancies or job offering (31.3%) was the top 1 reason for not having a job after graduation. The graduates were able to find their first employment through referrals (40.6%), and 68.75% were related to their degree. The graduates perceived that their program is *very useful* for their job placement. The graduates of BSOA perceived that their degree has contributed *very much* to their knowledge, skills, and attitude. They further stated that their degree has also prepared them *very much* on the expected outcomes as graduates of this program. The results of this study were the basis for curriculum enhancement.

Keywords: *Bachelor of Science in Office Administration, employment, program outcomes, curriculum enhancement.*

Graduate employability has become a major priority of colleges and universities. Tracer study is one way to determine graduate employability and is crucial to the growth of any higher education institution. According to Calma and Clarin (2020), if there is no evaluation of outcomes of the educational process to be conducted by the institution, there will be no benchmark in which the basis of future developments can be based upon.

To sustain a job at the industrial global market, employability skill is the most required skill besides technical knowledge to compete for employment (Ismail & Mohammed, 2015). For this reason, colleges and universities provide training to meet the standards set by employers. Employees usually seek applicants or graduates whose skills are aligned to their field of specialization and meet their company standards.

Colleges and Universities must provide the training that meets the standards employers set for their workforce. Industries may have different standards, but they always have a set of characteristics they expect for their applicants to possess that would boost institutional objectives. Whether employers seek graduates whose skills are either related or not aligned to their field of specialization, they will always look for their standards (Albina & Sumagaysay, 2020).

The study conducted by Kinash et al. (2017) has revealed that most of the participants in the research they conducted did not clearly know their own desired post-course employment goals until graduation and were then positively surprised that their first careers were consistent with their choices. Further results of this study revealed that overall, students and graduates did not feel that their career decision-making was appropriately supported by their universities. The results of the interview were able to generate themes: students felt that they needed, and did not receive, career advice prior to course selection. These students did not feel that universities modelled positive and productive career-related employment practices in that they felt that their university careers were largely unsupported and unadvised. The results of this study need further validation.

To see and understand the success of graduates, colleges and universities conduct graduate tracer studies. Tracer studies evaluate the perceptions of graduates on their learning experience during their student years. The information gained from the tracer study can be used by the academic institutions and other educational partners for curriculum development (Gines, 2014).

Theoretical Framework

This study was anchored on labor market theory explored by Son as cited in Calma and Clarin (2020). Son theorized that higher education is an important determinant of employment in the Philippine labor market. He confirms in his study that an expansion in the supply of qualified workers has lowered the price for skilled labor over time. This issue is related to the mismatch between the labor market and the education sector since the current education sector does not supply the right kind of skills that are demanded by the labor market.

This framework was supported by Hwang (2017, pp. 6-7) who stated that: “graduate unemployment is not only an individual problem, but one that connects with other social issues such as crime, poverty, and life satisfaction. So, a comprehensive consideration of society is required to solve the unemployment problem. Although graduates have accumulated proper skills and abilities through their college education, the market may not accommodate them based on available capital. To improve the rate of

unemployment, collaboration between individuals and society is required”.

According to Cairo and Cajner (2016), those who are more educated have more opportunities related to job searching, training, and information, and college graduates are still struggling to survive in the job market.

Bachelor of Science in Office Administration (BSOA) is a degree program that covers practical skills needed to work in an office environment, including the use of computer software. Added to this skill include proper communication within business, basic budgeting, financial skills, and general office procedures. The graduates of BS in Office Administration may pursue a career path in medical companies or in legal services. They can work as a medical secretary, legal secretary, court stenographer, administrative staff, customer service representative, encoder, or bookkeeper, and other-office related jobs. In this program students are required to enroll in an On-the-Job Training (OJT) in various legal or medical companies. This program allows students to apply their knowledge and skills in the actual setting. Jasiński et al. (2017) argued that content and work experience prior to graduation are important at the start of economic activity. This means that maintaining high employability requires equipping students with skills for lifelong learning that allow them to further develop their human capital after graduation.

BSOA is one of the degree programs offered by the Adventist University of the Philippines (AUP). The BSOA program is a four-year degree program designed to equip its graduates with the professional skills and competencies needed in the workplaces. A tracer study is needed to determine the employment related profile of the graduates.

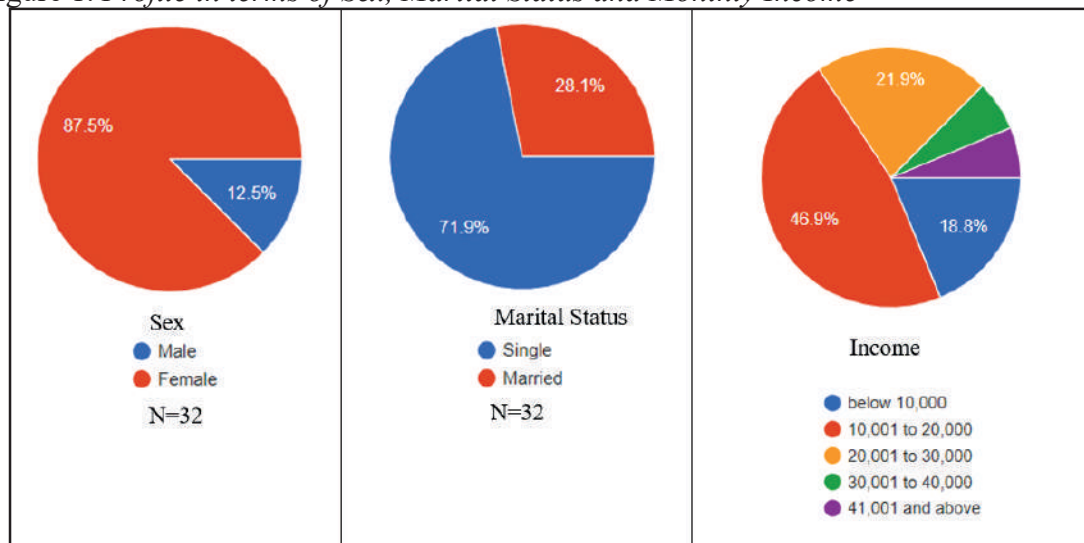
Therefore, this tracer study was conceptualized to determine the following: (a) current job of office administration graduates, (b) length of time working, (c) time period to find the first employment after graduation, (d) reason for the time gap after graduation, (e) graduates' first employment, (f) methods of finding the first employment, (g) type of work during the first employment, (h) usefulness of studies/program for job placement, (i) extent of the contribution of the degree, office administration to personal knowledge, skills, and attitude, (j) extent of how BSOA program prepared graduates on the required professional competencies, and (k) extent of how BSOA program prepared graduates on the expected program outcomes. This study was conducted to Office Administration graduates of 2016-2019 using Google form.

Methodology

This tracer study used the descriptive method of research. The study described the data and characteristics of the graduates of BSOA graduates. The respondents of the study were the purposively sampled 32 BSOA of AUP in Puting Kahoy, Silang, Cavite. The data were collected using survey questionnaires in Google forms. Frequency, percentages, mean, and standard deviation were used to obtain the needed information to address the objectives of this tracer study.

In terms of the respondents' demographic profile, the results showed that the majority of the graduates were female (87.5%), single (71.9%), Bachelor's degree holders (100%), and regular workers (62.5%). The current income of the Office administration graduates ranged from P10,000-P20,000 (15%), P20,001 to P30,000 (21.9%), and below P20,000 (18.8%). The other 6.3% have current monthly income between P20,001 – P30,000, and P30,001 – P40,000 (6.3%). These results are reflected in Figure 1.

Figure 1. *Profile in terms of Sex, Marital Status and Monthly Income*



Results and Discussion

Current Job of Office Administration Graduates

The employment profile of the graduates in any academic institution reflects the quality and relevance of the course offered by the university in terms of the employability of its graduates. AUP offers BSOA, and this tracer study determined the employment related profile of its graduates. As revealed in Table 1, the current job of Office Administration graduates are as follows: 22 or 68.75% are currently working related to their degree. Other graduates' current jobs also include assistant project manager, marketing officer, sports development officer, government employee, and one venture into business. Two of them have a part time job and four responded 'Not applicable' to the questionnaire.

Table 1. *Current Job of the Office Administration Graduates*

Current Job	Frequency	Percent
Assistant project manager	1	3.1
BUSINESS OWNER	1	3.1
Marketing officer	1	3.1
Accounting Staff		
Receptionist		
Customer service		
Medical Record Sorter		
Clerk		
Office Assistant	22	68.75
Office Secretary		
Office Secretary and Partially Admin. Assistant		
Administrative Assistant		
Stenographer		
Recruitment Specialist (Technical)		
Accounting Staff		

{table continues on the next page}

Sports Development Officer/Government Employee		
Part time/freelance	2	6.2
N/A	4	12.5
Total	32	100.0

The graduates of Office Administration are currently connected to the Seventh-day Adventist denomination (34.4%), government companies (12.55), and private/non-government companies (34.4%). One graduate is not employed (3.1%) and six just indicate “Not Applicable (15.65)”.

Length of Time Working

As shown in Table 2, 12 or 37% of the Office Administration graduates have worked for 1-3 years, 11 or 34.4% have worked for less than a year, seven or 21.9% for 405 hours, and only two have length of time working for more than five years.

Table 2. *Length of Time Working*

	Frequency	Percent
Less than 1 year	11	34.4
1 to 3 years	12	37.5
4 to 5 years	7	21.9
More than five years	2	6.3
Total	32	100.0

Period to Find the First Employment After Graduation

The majority (78.1%) of Office Administration graduates have a 1-6-month period to find their first employment, 3 or 9.4% have found their first employment between 7-12 months and 4 or 12.5% for more than a year. In a study conducted in Cambodia, it was found gainful employment after they have left the university for twelve months and the remainder are either in graduate school or still looking for acceptable work (Vong, 2015). This result related to the percentage of employed after graduation was similar to the study done by Corpuz in 2020. Based on the results of their tracer study, only more than half of the graduates were already employed.

Table 3. *First Employment Profile*

Period	Frequency	Percent
1 to 6 months	25	78.1
7 to 12 months	3	9.4
more than 1 year	4	12.5
Total	32	100.0

Reason for the Time Gap After Graduation and Graduates' First Employment

The reasons of BSOA graduates for not finding employment right after graduation included the following: no vacancies or job offering (31.3%), did not apply for any job (25%), work schedule conflict with Sabbath (15.6%), pursued graduate studies (6.3%), and not accepted in the job applied (6.3%). Three of the respondents were hired immediately

after graduation (9.4%). Two of the respondents answered 'Not applicable' and 'no comment' to the question (6.2%).

Methods of finding the first employment and Type of Work during the First Employment

The graduates were able to find their first employment through referrals (40.6%), previous internship/practicum (15.6%), walk-in (15.6%), online job vacancy (12.5%), being approached by employers (9.4%), from own business (3.1%), and through recommendation (3.1%).

Table 4. *Type of work during the first Employment*

Work	Frequency	Percent
Not related to my course/Tutorial	4	12.5
Office Secretary/Assistant/Receptionist/Customer service/Office assistant/ Accounting Processor/Staff/Clerk	22	68.75
Sales Coordinator/Recruitment Officer/Associate/executive/Marketing	4	12.5
NA	2	6.25
Total	32	100.0

In Table 4, the result of this tracer study revealed that majority of the Office administration graduates (68.75%) found jobs related to their degree during their first employment, four had a type of work not related to their degree, four had worked related to sales and marketing, and 2 declared 'Not applicable'. Of the 32 graduates, 28 or 87.50 % have worked locally, one worked in Dubai, UAE, one in Macau, China, one in the US, and one answered "Not applicable".

Since the majority of the graduates have worked related to their degree but there were those who slightly deviate and work outside their area of specialization. Hwang (2017) identified four reasons why college graduates are facing unemployment in the competitive market. These include market conditions particularly on how the market affects graduate unemployment, overeducation: Mismatching supply and demand, imbalance between individual perspectives and reality and skills and ability to hire.

Usefulness of Studies/Program for Job Placement

Table 5. *Usefulness of Studies/Program for Job Placement*

My Studies are useful for:	Fairly Useful	Useful	Very Useful	Mean (SD)
1. finding an adequate job after finishing studies		10 (31.3%)	22 (68.8%)	3.73 (.37) Very Useful
2. fulfilling the present tasks		9 (28.1%)	23 (71.9%)	
3. professional/career development		7 (21.9%)	25 (78.1%)	
4. improvement of personality		6 (18.75%)	26 (81.25)	
5. economic development of my country	1 (3.1%)	10 (31.3%)	21 (65.6%)	
<i>1 -Not Useful</i>	<i>2 -Fairly useful</i>	<i>3- Useful</i>	<i>4- Very Useful</i>	

The result of the study revealed that the majority of the graduates of Office Administration perceived that their job is useful and very useful for job placement. Specifically, their program is very useful for professional/career development and for the improvement of their personality. Only 1 or 3.1% perceived it to be fairly useful. The overall mean for usefulness of studies is 3.37 (.37) which is interpreted as very useful.

Extent of the Contribution of the Degree, Office Administration to Personal Knowledge, Skills, and Attitude

Table 6. *Extent of the contribution of the degree, Office Administration to Personal Knowledge, Skills, and Attitude*

My Studies are useful for:	A Little	Much	Very Much	Mean (SD)
1. Enhanced Knowledge		8 (25%)	24 (75%)	
2. Widened Perspectives		8 (25%)	24 (75%)	
3. Critical Thinking		10 (31.3%)	22 (68.8%)	
4. Problem-Solving Skills		9 (28.1%)	23 (71.9%)	3.70 (.40)
5. Research Skills	2 (6.3%)	8 (25%)	22 (68.8%)	Very Much
6. Communication Skills		7 (21.9%)	25 (78.1%)	
7. Leadership and Management Skills		13(40.6%)	19 (59.4%)	
8. Team Spirit		9 (28.1%)	23 (71.9%)	
9. Work Ethics/Values	1(3.1%)	6 (18.8%)	25 (78.1%)	
<i>1- Not at all</i>	<i>2-A Little</i>	<i>3-Much</i>	<i>4-Very Much</i>	

The graduates of OA perceived that their degree has contributed very much to their knowledge, skills, and attitude. The five top highest rated items were: communication skills, work ethics/values, Enhanced knowledge, widens perspectives, problem solving, and team spirit. The overall mean is 3.70 which implies that their degree had helped them improve their knowledge, skills, and attitude.

Extent of How AUP-COB Office Administration Department Prepared Graduates on the Required Professional Competencies

Table 7. *Extent of How AUP-COB Office Administration Department Prepared Graduates on the Required Professional Competencies*

Items	Much	Very much	Mean (SD)
1. Demonstrate theoretical knowledge in office procedures	6 (18.75%)	26 (81.25%)	
2.Demonstrate skills to solve problems in an employment context	5 (15.6%)	27 (84.4%)	
3.Apply office procedure theories and skills learned in employment	5 (15.6%)	27 (84.4%)	3.80 (.35)
4.Demonstrate understanding of the ethical dimensions of the use of office procedures	8 (25%)	24 (75%)	
5.Undertake higher level competencies through formal graduate education or in an employment context	8 (25%)	24 (75%)	
6. Communication Skills		7 (21.9%)	

{table continues on the next page}

7. Leadership and Management Skills	13(40.6%)
8. Team Spirit	9 (28.1%)
9. Work Ethics/Values	1(3.1%) 6 (18.8%)
<i>1- Not at all</i>	<i>2-A Little</i> <i>3-Much</i> <i>4-Very Much</i>

The result in Table 7 showed that AUP-COB office administration department had prepared them Much and Very much on their professional competence. Among these competencies, “Demonstrate skills to solve problems in an employment context (84.4%)”, “apply office procedure theories and skills learned in employment (84.4%)”, and “demonstrate theoretical knowledge in office procedures (81.25%)” were rated the highest. It only showed that the Office Administration department had prepared their student in the professional competencies needed in their future employment. The overall mean of 3.80 ($SD = .35$) had supported the results.

Extent of how AUP-COB Office Administration Department Prepared Graduates on the Expected Program Outcomes

Table 8. *Extend on how AUP-COB Office Administration Department Prepared Students on their Expected Program Outcomes*

Items	A Little	Much	Very much	Mean (SD)
1. Provide general administration and clerical support to high-level executives.		6 (18.75%)	26 (81.25%)	3.82 (.31) Very much
2. Coordinate office management activities.	1 (3.1%)	5 (15.6%)	26 (81.3%)	
3. Manage office communications and information.		6 (18.75%)	26 (81.25)	
4. Maintain and manage files and office supplies effectively.		7 (21.9%)	25 (78.1%)	
5. Exhibit acceptable human relations skills in a diverse environment.		8 (25%)	24 (75%)	
6. Engage lifelong learning to keep abreast of the development in the international employment market.		6 (18.75%)	26 (81.25)	
7. Practice a balanced healthy lifestyle--spiritually, mentally, physically, and socially.	5 (15.6%)	27 (84.4%)		
<i>1- Not at all</i>	<i>2-A Little</i>	<i>3-Much</i>	<i>4-Very Much</i>	

This study further determined how AUP-COB Office Administration Department prepared students on their program outcomes. Table 8 shows that among the items included in the measure, “provide general administration and clerical support to high-level executives (81.25%)”, “coordinate office management activities (81.25%)”, “manage office communications and information (81.25%)”, and “engage lifelong learning to keep abreast of the development in the international employment market (81.25%)” were rate *very much* by and graduates and also rated the highest. On the overall, the extent of how AUP-

COB Office Administration Department prepared their graduates on the expected program outcomes was rated *very much* ($M = 3.82$, $SD = .31$) by the respondents of the study. Moreover, 3.1% of the graduates perceived that the Office Administration department had prepared them a little on the item “coordinate office management activities” and 15.6% on “practice a balanced healthy lifestyle—spiritually, mentally, physically, and socially”.

The findings of the study proved that the graduates of BSOA of AUP from academic year 2016-2017 to 2019-2020 were successful in their chosen degree in such a way that their graduates have work related to their chosen degree. Majority of the Office Administration graduates were able to find their first employment job 1-6 months after graduation. One of the main reasons for not finding a job after graduation was “no vacancies or job offering”. This result should be given emphasis both by the graduates and institution. Further, results revealed that the graduates were able to find their first employment through referrals.

This tracer study was able to determine that the BSOA Program is effective. As claimed by the graduates, the program was useful in their job placement and has contributed *very much* to their knowledge, skills, and attitude in the workplace. They further agreed that their degree has also prepared them *very much* on the expected outcomes as graduates of this program.

Based on these results, the following were recommended:

1. Since the BSOA program is effective in preparing their graduates’ expected program outcomes, the department should continue their best practices and employ updated strategies to keep pace with the technological advancements.
2. No vacancies or no job offering was one of the reasons why there was a delay for find a job. With these, the University can create network and support services for the newly graduates of the program. The network includes graduates and friends who are already working. They can post job opportunities and vacancies so that the newly graduate can see and may apply after graduation.
3. A follow up study on the graduates’ challenging experiences while applying for their work considering their work attitude and behavior would be beneficial.
4. Further study be conducted evaluating the quality of graduates the University is producing yearly based on the University’s mission and vision.
5. The College of Business – Office Administration Department should continue to hone the professional competencies of their graduates to maintain the good image of the department and to attract more students to enroll in this program
6. The results of this study should be used as a basis for curriculum enhancement.

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Ergonomic Risk Factors and Work-Related Musculoskeletal Disorder Among Office Professionals

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Abstract

Work-related musculoskeletal disorders (WMSDs) are common among professions using computers. Workers in many organizations and industries can be exposed to ergonomic risk factors at work such as lifting, pushing, and pulling heavy items, bending, working in awkward body postures, and spending long hours in front of computers. Thus, this study investigated the (a) extent of exposure to ergonomic factors in terms of force, repetition, and posture, (b) the prevalence of work-related musculoskeletal disorders in terms of pain and discomfort, (c) their degree of relationships, and (d) the differences in the WMSDs considering their demographic profiles. The study was conducted to 85 purposively selected office professionals from two Adventist institutions. The standardized Nordic musculoskeletal questionnaire and a validated self-constructed questionnaire for ergonomic risk factors were used to gather the needed information. The study showed that the respondents were exposed to ergonomic risk factors such as repetition, force, and posture. Moreover, the respondents were *moderately experiencing* musculoskeletal disorders such as pain and discomfort. A *significant relationship* was found between the prevalence of WMSDs among office professionals and the following ergonomic risk factors: repetition, force, and posture. The socio-demographic profile, age, gender, marital status, and years in service were *not significantly associated* with WMSDs. It is recommended that awareness programs on ergonomic risk factors and WMSDs be provided among office professionals.

Keywords: *work-related musculoskeletal disorders, ergonomic factors, force, repetition, and posture*

Work-related musculoskeletal disorders (WMSDs) have become one of the most prevalent occupational diseases especially among people whose works require long use of computer. It is an issue to many countries such as North American and Nordic countries, Thailand, India, Japan, and the Philippines (Dinar et al., 2018; Maakip et al., 2016). The disadvantages of WMSDs include a decline in work productivity and economic loss (Moom et al., 2015). The common symptoms begin with a localized pain in one or more parts of the body, in which the level of pain may differ depending on the individual.

Ergonomics is known to be related to humans and their job. In a larger scope, ergonomics examines human behavioral, psychological, and physiological capabilities and limitations. Professionals in the field of ergonomics design new work environments or modify established work environments based on the studies on the human capabilities and limitations (Jaffar et al., 2011).

The Bureau of Labor Statistics of the Department of Labor defines MSDs as musculoskeletal system and connective tissue diseases and disorders when the event or exposure leading to the case is bodily reaction (e.g., bending, climbing, crawling, reaching, twisting), overexertion, or repetitive motion. MSDs do not include disorders caused by slips, trips, falls, or similar incidents. Examples of MSDs include sprains, strains, and tears, back pain, carpal tunnel syndrome (CTS) [Centers for Disease Control and Prevention (CDCP, 2018)].

Repetitive, forceful, or prolonged exertions of any part of the body, frequent or heavy lifting, pushing, pulling, or carrying of heavy objects, prolonged awkward postures, and vibration contribute to MSDs. Working conditions and combinations of the factors that can cause MSDs will increase the risk for musculoskeletal problems. The level of risk depends on how long a worker is exposed to these conditions, how often they are exposed, and the level of exposure (Middlesworth, 2011).

The field of ergonomics which started during World War II continued to develop during postwar when industries began to see the benefits in reducing sick leaves, worker's compensation claims, and lawsuits brought by employees with workplace injuries that were becoming increasingly expensive (Shaver, 2015). According to Occupation Safety and Health Administration, work-related musculoskeletal disorders are the cause of more than one-quarter of all occupational injuries reported to the Bureau of Labor Statistics (BLS) every year.

Ergonomics Risk Factors

Force, repetition, posture, and tool use and design are common ergonomic risk factors examined by ergonomists among jobs where there has been high incidence of work-related MSDs (De Lisa, 2013). These risk factors are also recognized by the United States Department of Labor-occupational Safety and Health Administration.

Middlesworth (2011) categorized risk factors into work-related and physical risk factors. He mentioned that workplace design plays a crucial role in the development of an MSD. When a worker is asked to do work that is outside his body's capabilities and limitations, he is being asked to put his musculoskeletal at risk. The first primary ergonomic risk is the high task repetition. A job is considered highly repetitive if the cycle time is 30 seconds or less. Forceful exertion is also a risk factor since many work tasks require high force loads on the human body. Muscle effort increases in response to high force requirements, increasing associated fatigue which can lead to MSD. The last primary risk

factor is the repetitive or sustained awkward posture, as it places excessive force on joints and overloads the muscles and tendons around the affected joint.

Force. According to Jaffar et al. (2011), force can be defined as the amount of physical effort required to perform a task (such as lifting) or to maintain control of equipment or tools. Exerting a force on a person or object may overload the muscles and tendons. The force may come from gripping, lifting, pushing, or pulling. The force that a worker exerts on an object is a primary risk factor.

Many office tasks require moderate force to be applied by very small muscles, which may cause fatigue, swelling, muscle strains, and ligament sprains. The forces applied to the computer mouse, keyboard, and other equipment may be a risk factor for musculoskeletal symptoms. A typist may make up to 10,000 separate impacts per finger per day. A few extra grams of force per impact can add up. Large, heavy, smooth, dry objects such as folders require a surprising amount of force to keep the item from slipping out of the fingers; habitually lifting items incorrectly can cause musculoskeletal disorder.

According to Park and Kim (2020), ‘employers should provide comprehensive interventions that change the work, and protect their employees from exposure to multiple ergonomic risk factors responsible for musculoskeletal symptoms. Employers should also provide their employees with sufficient time for rest and recovery of fatigued muscles.

Repetition. Work-related or cumulative trauma MSDs such as tendinitis, bursitis, muscle strains, and peripheral nerve compression, are usually the result of repetitive stress applied to the body which progressively lead to tissue damage (Bradoom, 2011). Compromise of soft tissue function may produce inflammation of tendons within the upper extremity, leading to pain and/or loss of function. It may also lead to compression of peripheral nerves, causing pain, numbness, and weakness in the involved nerve distribution. During muscle contraction, blood flow can be decreased by as much as 40% (De Lisa, 2013). This will diminish oxygen supply to the area while metabolite levels increase, causing fatigue and soreness.

Studies have given strong evidence that repetitious work is associated with increased MSDs. For many body areas, there is good to strong evidence that work exposures are associated with the development of injury and that the relative risk of certain work exposures is high. This is true for shoulder and hand/wrist tendinitis, low back pain, CTS, tension neck syndrome, and localized musculoskeletal symptoms (Blair, 2016).

Posture. Habitual placing of the parts of the body in awkward or unbalanced positions can lead to MSDs, mostly because awkward positions or postures press on nerves, stretched tendons, or push and pull tissues beyond their normal capacity. Poor posture has strong evidence for increased work-related MSDs of the neck, shoulder, elbow, hand, wrist, and back. Postures that bend the joints into positions where they are more likely to become injured are termed awkward postures. Ergonomic interventions, such as supporting the forearm between bone and tool are the most common forms of contact stress (De Lisa, 2013).

Furthermore, De Liza (2013) explained that peripheral nerves mostly acquire work-related injuries due to mechanical contact stress. CTS, which is one of the most common work-related musculoskeletal disorders, is an example of an MSD caused by localized, though internal pressure on the median nerve. Swollen tendons in the carpal tunnel or external pressures on the base of the palm can squeeze the median nerve damaging its ability to conduct signals to and from the hand thereby producing musculoskeletal symptoms.

Office workers put excess pressure on the forearms and hands when they habitually rest them on angular surfaces such as sharp keyboard edges, work surface corners, or hard, angular chair armrests.

In addition, the ulnar nerve is a common nerve that is injured due to habitually resting the elbow on hard, flat surfaces. The ulnar nerve runs outside the elbow and can easily be pressed between the bone and a hard surface. Damage of the ulnar nerve causes musculoskeletal problems such as pain and weakness on the ulnar distribution of the nerve on the hand (Bradoom, 2011).

Work-Related Musculoskeletal Disorders

According to Punchihewa and Gyi (2015), WMSDs are MSDs that are caused or aggravated primarily by work and by the effects of the immediate environment in which work is carried out. Viester et al. (2013) stated that MSDs have consequences at society level as it generates high impact on healthcare costs and on costs due to productivity loss. Some of the more common MSDs include low back pain, epicondylitis, tenosynovitis, tendinitis, myofascial pain syndrome, myalgia, and entrapment neuropathies such as CTS, Guyon's canal syndrome, and cubital tunnel syndrome.

According to the U.S. National Institute for Occupational Safety and Health (NIOSH, 2011), WMSDs can cause severe and debilitating symptoms such as pain, numbness, and tingling sensation; reduced worker productivity; lost time from work; temporary or permanent disability; inability to perform job tasks; and an increase in worker's compensation costs.

Aside from back pain, discomfort and pain in the neck are also common. Neck pain in the industrial setting is most commonly a result of fatigue of the musculature secondary to overuse, leading to tenderness within the trapezius and levator scapulae. The prevalence of neck pain with or without upper limb ranges from 9 to 18% of the general population. Cervical pain is more frequently encountered in clinical pictures than low back pain. The occurrence increases in the workplace, with a prevalence of 35-71% among Swedish forest and industrial workers (Bradoom, 2011).

Pain and Discomfort. All causes of pain experienced by a patient as being of the musculoskeletal system produce the same symptoms and signs as if the pain were arising within the system. There is something wrong in the musculoskeletal system. Pain is not a diagnosis, it is a symptom.

The study of Deros et al. (2010), which involved 500 workers, determined the trend of MSDs and the prevalence of back pain among workers who perform the Manual Material Handling (MMH). The highest prevalence of MSD was lower back pain, followed by the pain at the feet/ankle and at the upper back regions. Almost one-third of the study population claimed upper back and lower back pains. The workers claimed that the back pain is due to the excessive force and motions used because of their ignorance in the correct ergonomic techniques in materials handling.

According to Timoteo-Afinidad (2011) both employees benefit in the application of ergonomics. Adapting to poorly designed workplaces for a long period of time causes injuries and diseases to slowly develop. It will start from a feeling of discomfort and may lead to serious disabling injury.

Theoretical Framework

The theories used in this study postulated that the environment influences the health of an individual. The health promotion model proposed by Nola Pender defines health as a positive dynamic state, not just the absence of disease. It describes the multifaceted nature of persons correlating with their interpersonal nature and interacting with their interpersonal and physical environments as they trail towards health. The health promotion model which reflects the behavioral science perspective (Polit & Beck, 2007) has the following assumptions. First, individuals seek to actively regulate their behavior. Individuals in all their bio psychosocial complexity interact with the environment progressively transforming the environment and being transformed over time. Health professionals constitute a part of the interpersonal environment, which exerts influence on persons throughout their life span; self-initiated reconfiguration of person-environment interactive patterns is essential to behavior change.

The second assumption states that the environment can transform an individual over time and thus may also play a role in the causation of a certain disease. This model also theorizes that prior behavior as well as the inherited and acquired characteristics influence beliefs, affect, and enactment of health-promoting behavior and subsequently, the overall health status of an individual. Personal factors categorized as biological, psychological, and socio-cultural are predictive of a given behavior, thus, moderator variables such as age, gender, years of service and marital status are also considered as moderator variables in this study.

Furthermore, this model theorizes that situational influences in the external environment can increase or decrease commitment to or participation in health-promoting behavior. Participants' awareness of the role of ergonomic factors in the production of WMSDs is vital as this would influence them to incur self-administered musculoskeletal-related health improvement. This is also beneficial for the implementation of the program that would be proposed based on the results of this study.

Another theory which is significant to this study is Betty Neuman's system model. Neuman as cited in Ahmadi and Sadeghi (2017) stated that health is a condition in which all parts and subparts are in harmony with the whole. The assumptions of this theory that are relevant to this study. Each client system is unique; a composite of factors and characteristics within a given range of responses contained within a basic structure. Many known, unknown, and universal stressors exist. Each differs in its potential for disturbing a client's usual stability of level or normal line of defense. When the flexible line of defense is no longer capable of protecting the client against an environmental stressor, the stressor breaks through the normal line of defense. The research on WMSDs conducted among Seventh-day Adventist institutions is limited, thus there is a need to conduct this study.

Statement of the Problem

Due to the aforementioned issues, this study determined the relationship of ergonomics risk factors and work-related musculoskeletal disorders among office professionals in the Adventist University of the Philippines and the Southern Asia-Pacific Division (SSD).

Specifically, this study answered the following research questions:

1. How exposed are the respondents to ergonomics risk factors in terms of the following variables:

- a. Force,
 - b. Repetition,
 - c. Posture?
2. What is the prevalence of work-related musculoskeletal disorders of the respondents in terms of pain and discomfort?
3. Is there any significant relationship between ergonomics risk factors and work-related musculoskeletal disorders?
4. Is there any significant difference on the work-related musculoskeletal disorders of the respondents when the moderating variables were considered?
 - a. Gender,
 - b. Age,
 - c. Years of service, and
 - d. Marital status.

Methodology

This correlational study included 85 purposively sampled Seventh-day Adventist denominational office workers in which 50 were office workers from an academic institution and 35 were Division office workers. This study used the following specific criteria: respondents must be (a) 20-65 years old, (b) an office worker for at least six months, and (c) either employed within AUP or SSD.

The Standardized Nordic Questionnaire (SNQ) was used to gather information regarding the prevalence of WMSDs among office workers. The questionnaire shows a body map diagram divided into nine anatomic regions and asks about the presence of physical troubles including ache, pain, discomfort, etc. for the past 12 months and the past seven days in each of the body areas. Each question was answerable by yes or no. Additional questions to identify if the respondents have consulted a physician and if they were given a diagnosis of WMSDs were also included in the questionnaire. The prevalence rate of the MSDs was determined based on the results.

A self-constructed questionnaire was used to assess the exposure of the respondents to ergonomic risk factors through questions pertaining to repetition, posture, and force. To get the extent of exposure of the respondents to ergonomic factors, the mean score for each of the specific questions pertaining to the respondent's exposure to ergonomic factors was computed. The mean scores for the questions were recorded and classified using the two-point Likert scale.

The data that gathered were encoded using the predictive analytical software (PASW) and the Microsoft Excel Software. Frequency, percentages, mean, standard deviation, correlation, and multiple linear regression were used in the study.

Results and Discussion

Exposure to Ergonomics Risk Factors Among the Office Workers in Terms of Force, Repetition, and Posture.

Force. The results on Table 1 reveals that the majority of office workers were exposed to force as a form of ergonomic risk factor. Specifically, it was found that the office workers were *severely exposed* to force that presses on their fingers, hands, wrists, forearm, and thigh with more than 50% of them were exposed.

Table 1. *Respondents' Exposure to Force*

	F(%)
1. Is there adequate space for your knees and legs under your table or your work surface?	12
2. Are items stored close to where they would be used to reduce carrying distances?	14
3. Are there sharp edges that press	
a. Fingers	80
b. Hands	80
c. Wrists	76
d. Forearm	80
e. Thigh	78
4. Are armrest padded and contoured to avoid hard or square edges?	50
5. Do you lift heavy objects such as folders, papers, or books during work?	40
6. Do you lift heavy objects such as folders, papers, or books during work?	46

Repetition. The respondents were exposed to repetition through activities such as spending two hours of continuous work on the computer, writing, calculating, cashiering, and stapling papers. The respondents were also exposed to repetition with regard to typing, reading, as well as to other computer works, and sitting on a chair for more than 1 hour without getting up.

Table 2. *Respondent's of Exposure to Repetition*

Items	F(%) of Yes Response
1. Do you spend at least 2 hours of continuous work on the following activities per day?	
A. Typing	24
B. Writing	54
C. Calculating	56
D. Cashiering	68
E. Stapling papers	66
F. Reading	44
G. Other Computer Works	26
H. Other activities: Please specify	
2. Do you spend micro breaks (10-60 seconds rest or stretching) every after 20 minutes of continuous work on the following activities?	
A. Typing	48
B. Writing	66
C. Calculating	68
D. Cashiering	72

{table continues on the next page}

E. Stapling papers	70
F. Reading	58
G. Other Computer Works	52
H. Other activities: Please specify	
3. Is your job designed so that repetitive tasks are rotated or shared among employees?	50
4. Do you sit on a chair for more than 1 hour without getting up?	18
5. Do you stand for more than 1 hour without sitting down?	60

Table 2 presents the exposure of the respondents to repetition. More than 50% of the respondents were exposed to continuous work such as writing, calculating, cashiering, stapling papers, and reading. However, less than 50% of the respondents spend micro breaks every 20 minutes of continuous work in typing. More than 50% of the respondents spend micro breaks every after 20 minutes of continuous work in writing, calculating, cashiering, stapling papers, reading, and other computer works. More than 50% and 60% of jobs were designed so that repetitive tasks are rotated or shared among employees, and stand for more than 1 hour without sitting down, respectively.

Posture. It could be gleaned from Table 3 that the respondents were exposed to posture-related ergonomics risk in terms of (a) supports of a chair's back

(b) feet touch the floor, (c) comfortable amount of space between the edge of the seat and the back of the knees, (d) items within arm's reach, (e) reading posture, (f) mouse trackball moves freely and is well maintained, (g) knees at 90 degrees angle, (h) thighs parallel to the floor, (i) elbows at 90 degrees angle, (j) wrist in neutral position (k) monitor at eye level, and (l) monitor at arm's length. Majority of the items were answered by less than 50% of the respondents. However, questions "Is the overhead storage of your files too high for you to reach", "Do you have to twist or excessively reach to perform job duties", "Do you grip/hold the mouse tightly when you use it?", "Are documents that are referenced while typing placed in a document holder" and "Is the document holder placed to the side of and is level to the height of the monitor?" were answered yes by more than 50% of the respondents. This indicates higher exposure to ergonomic risk factors particularly on posture among office professionals.

Table 3. *Respondent's Exposure to Posture*

Items	F(%) of Yes Response
1. Does your chair's back rest provide support to your back?	24
2. Do your feet touch the floor/foot rest when you sit down?	54
3. Is there a comfortable amount of space between the edge of the seat and the back of the knees?	56
4. Are frequently used items within your arm's reach?	68
5. Do you read with this posture? (Picture with slouched picture)	66
6. Is the overhead storage of your files too high for you to reach?	44
7. Do you have to twist or excessively reach to perform job duties?	26

8. FOR COMPUTER USE.

A. Does the mouse/trackball move freely and is it well-maintained?	48
B. Do you grip/hold the mouse tightly when you use it?	66
C. Are your knees somewhat at 90-degree angle?	68
D. Is your thighs parallel to the floor?	72
E. Are your elbows at a somewhat 90-degree angle? It can be slightly over but it should not be less.	70
F. Are your wrists in a neutral position when you type? (This means you can put a ruler under your lower arm to your palms. Your wrist is level with your lower arm).s	58
G. Is the top of the monitor at eye level or slightly lower?	52
H. Is the monitor at an arm's length?	50
I. Are documents that are referenced while typing placed in a document holder?	18
J. Is the document holder placed to the side of and is level to the height of the monitor?	60

According to De Lisa (2013), habitual placing of body parts in awkward or unbalanced positions leads to musculoskeletal disorders. This is because awkward positions or postures press on nerves, stretch tendons, or otherwise push and pull tissues beyond their normal capacity. Examples of poor postures are typing with bent wrists, slouching, or leaning forward in the chair. Turning the head to the side to view the monitor, reaching up and over the keyboard to use the mouse, elevating the arms when writing on a work surface that is too high and bending at the waist to load copy machines are awkward and unbalanced positions that lead to MSDs.

Prevalence of Work-Related Musculoskeletal Disorders Among Office Workers

The prevalence rate of WMSDs among office workers during the last 12 months is 100%. All the respondents have experienced pain and discomfort on at least one body part for the last 12 months. Moreover, the prevalence rate of WMSDs during the last seven days is 34%. This means that 20 out of 50 respondents experienced pain or discomfort of at least one body part within the last seven days during the conduct of the survey.

The body part that is most frequently affected among the respondents within the last 12 months was the upper back and lower back (63.6 %), followed by the right shoulder (58.2 %), and the neck (56.4%). The body part that is the least commonly affected was the right and left ankle foot which is 25.5%. The most frequently affected body part within the upper extremity was the upper and lower back which is 63.6 % while the left and right ankle/foot has the most number of reported pain and discomfort within the lower extremity region.

Questions pertaining to the respondents' pain and discomfort of body parts within the last seven days reveal that the most frequently affected body part is the upper back (49.1%), followed by the lower back which is 43.6%, then the neck which is 36.4%. The most frequently affected region in the upper extremity is the upper back (49.1%), and the left and right ankle/foot (21.8%) for the lower extremity.

Table 4. *Prevalence of Work-related Musculoskeletal Disorder Among Office Professionals*

1. Have you at any time during the last 12 months had pain or discomfort in:			
a. Neck		31	56.4
b. Shoulder	Right shoulder	32	58.2
	Left shoulder	23	41.8
	Both shoulders	30	54.5
c. Elbow	Right elbow	17	30.9
	Left elbow	16	29.1
	Both elbows	15	27.3
d. Wrist-Hand	Right wrist-hand	22	40.0
	Left wrist-hand	19	34.5
	Both wrist-hands	17	30.9
e. Upper Back		35	63.6
f. Lower Back		35	63.6
g. Hip/Thigh	Right Hip/Thigh	19	34.5
	Left Hip/Thigh	17	30.9
	Both Hip/Thigh	24	43.6
h. Knee	Right knee	18	32.7
	Left knee	17	30.9
	Both knees	16	29.1
i. Ankle/Foot	Right ankle/foot	14	25.5
	Left ankle/foot	14	25.5
	Both ankles/feet	15	27.3
2. Have you at any time during the last 12 months been prevented from doing your normal work (at home or away from home) because of the pain and discomfort?			
3. Have you had pain or discomfort at any time during the last seven (7) days on the following body area/s?			
a. Neck		20	36.4
b. Shoulder	Right shoulder	19	34.5
	Left shoulder	19	34.5
	Both shoulders	19	34.5
c. Elbow	Right elbow	16	29.1
	Left elbow	13	23.6
	Both elbows	14	25.5
d. Wrist-Hand	Right wrist-hand	13	23.6
	Left wrist-hand	15	27.3
	Both wrist-hands	14	25.5
e. Upper Back		27	49.1
f. Lower Back		24	43.6
g. Hip/Thigh	Right Hip/Thigh	16	29.1

	Left Hip/Thigh	13	23.6
	Both Hip/Thigh	18	32.7
h.Knee	Right knee	15	27.3
	Left knee	13	23.6
	Both knees	13	23.6
i.Ankle/Foot	Right ankle/foot	12	21.8
	Left ankle/foot	12	21.8
	Both ankles/feet	13	23.6
4. Where you diagnosed with the following musculoskeletal disorders? Please check as many as applicable.			
a.	Carpal Tunnel Syndrome	11	20.0
b.	Myofascial Pain Syndrome	11	20.0
c.	Low back pain	19	34.5
d.	Trigger Finger	13	23.6
e.	Epicondinitis	9	16.4
f.	Other Nerve Entrapments	12	21.8
g.	Other tendinitis	12	21.8
h.	Other musculoskeletal disorders (Please specify)		

It was stated by De Lisa (2013) that low back pain is the most common musculoskeletal problem affecting the working population. Additionally, low back pain has been reported as the most frequent cause of disability for individuals less than 45 years old. This is particularly evident in this study wherein majority of the respondents are within the range of 20-30 and 31-40 years old.

The findings of this study indicated that MSDs most common manifestation was in the low back pain during the previous year as well as the neck during the previous week from the time the questionnaires were administered. MSDs were most common in the low back and neck during the previous week and previous year, respectively.

Relationship Between Ergonomic Factors and Prevalence of Work-Related Musculoskeletal Disorders Among Office Workers

As presented in Table 5, the prevalence of WMSDs showed a significant relationship with force ($r = .867^{**}$, $p\text{-value} = < 0.001$), repetition ($r = .719^{**}$, $p\text{-value} = < 0.001$), and posture ($r = .555^{**}$, $p\text{-value} = < 0.001$). The relationship between the prevalence of WMSDs among office workers and their risk factors was positive, implying that if the office workers' exposure to ergonomic risk factors in terms of force, repetition, and posture is high, the prevalence of work-related musculoskeletal disorder is also high.

Table 5. *Correlation Between Ergonomic Factors and Prevalence of Work-Related Musculoskeletal Disorders Among Office Workers*

Ergonomic Factor	Work-related Musculoskeletal Disorder		
	Correlation Coefficient	Significance (2-tailed)	Verbal Interpretation
Force	.867**	< 0.001	Significant
Repetition	.719**	< 0.001	
Posture	.555**	< 0.001	

The studies conducted by Baran et al. (2011) displayed a strong evidence of an association between repetition and WMSDs among office workers. Office workers who adopted improper and uncomfortable postures are at high risk for acquiring musculoskeletal disorders. Moreover, awkward positions or poor postures press on nerves, stretch tendons, or otherwise push and pull tissues beyond their normal capacity (De Lisa, 2013) thereby producing muscular pain, tendinitis, and nerve entrapments.

Difference in the Prevalence of Musculoskeletal Disorders Based on Demographic Variables

Age. The result of the comparison of the work-related musculoskeletal disorders among office workers based on their age group was not significant ($F = .604, p = .615$), meaning regardless of age the WMSDs was comparable.

Gender. The results on the comparison of the WMSDs by sex revealed that there was no significant difference between gender and the prevalence of WMSDs ($t = .915, p = .065$).

The result that there was no significant difference with gender and the prevalence of WMSDs is in contrast with the studies conducted Askrouf et al. (2010) and Baran et al. (2011) which concluded that female sex was a strong predictor of work-related musculoskeletal disorders, particularly among office workers.

Marital Status. The prevalence of WMSDs based on marital status had a t-value of .366, $p = .715$, which indicates that there was no significant difference in the prevalence of MSDs when marital status is considered.

Years of Service. Years of service was divided into the length of years the office workers spent working in their respective institutions. The results of the comparison of the WMSDs by years of service revealed a non-significant result ($F = 1.13, p = .355$), implying that the WMSDs do not differ even if they have worked for shorter or longer years as office workers.

The finding of this study regarding the length of service was contrary to the conclusions made by Taylor (2011). This study found out that the prevalence of MSDs, specifically low back pain, is higher among those who have longer length of work as an office worker than those who have shorter duration of work as an office worker. Taylor (2011) also explained that longer years of service would mean longer exposure of musculoskeletal structures to fatigue.

This study was able to find out that the office professionals working in the SDA denominations were exposed to ergonomic risk factors in terms of repetition, force, and posture. There was a prevalence of MSDs among office professionals. The most affected body parts are the low and upper backs.

This research concludes that the prevalence of MSDs among office professionals is related to ergonomics risk factors, force, repetition, and posture. This indicates a need to develop programs addressing ergonomics risk factors, particularly force, repetition, and posture to help the office workers to be aware and prevent the occurrence of musculoskeletal disorders among office professionals. The musculoskeletal disorder experienced by the respondents of the study do not differ by age, sex, marital status, and years of service.

Based on the findings and conclusions, the researchers recommend the following:

1. Office professionals must have health education, health research, and health promotion seminars regarding office health awareness. They should be informed about the effects of the ergonomic factors to their health and how they could avoid work-related disorders.
2. A substantial awareness of the risk factors that contribute to the reduction of WMSDs will help at-risk office workers. Hence, health lectures should include proper knowledge on ergonomics risk factors, specifically force, repetition and posture. Specific lectures and training on how to prevent exposure to ergonomic risk factors should be given emphasis such as proper posture during work, body mechanics, relaxation, and stretching exercises, varying tasks, and rest breaks.
3. Include in the program SDA institutions the regular ergonomic intervention programs to help prevent and control work-related musculoskeletal disorders.

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