



Emilio Aguinaldo College-Cavite

Journal of Multidisciplinary Research

ISSN 2651 - 7787 Volume 4 No.1 December 2020

STUDENT RESEARCH JOURNAL

Emilio Aguinaldo College-Cavite

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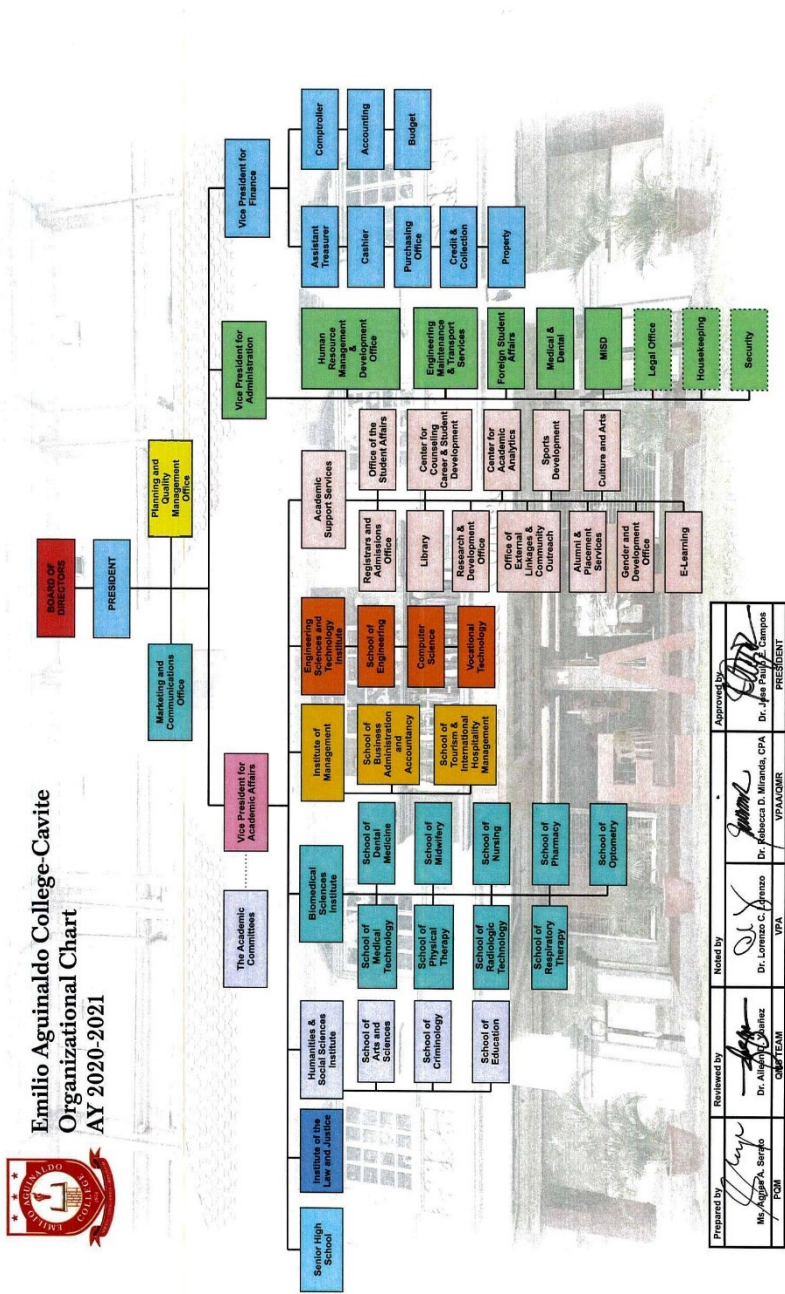
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Brief History of Emilio Aguinaldo College

The beginnings of Emilio Aguinaldo College - Cavite are attributed to Dr. Paulo C. Campos, then President of the University Physicians Services Incorporated (UPSI), which acquired the Marian College in Manila in 1973. Eventually, the school became Emilio Aguinaldo College.

With the various socio-economic developments and related circumstances during the Marcos regime, UPSI decided to open a new campus in Dasmariñas, Cavite, which is the hometown of Dr. Campos. This is to support the government's policy on the dispersal and decongestion of the student population in Metro Manila, particularly in institutions of higher learning. The policy also aimed to introduce regional development and democratization of opportunities in the rural areas (Campos, 2008).

Emilio Aguinaldo College in Bagong Bayan, Dasmariñas, Cavite was opened on March 17, 1978. Its opening coincided with the efforts of the then President, Ferdinand E Marcos and wife Imelda Marcos, who was the Minister of Human Settlements and Community Development, to remove the slum dwellers from the streets and under bridges of Manila and relocate them to Cavite. Dr. Campos proposed to the government through the Secretary of Education, Juan L. Manuel, to offer a tertiary school in Dasmariñas, Cavite patterned after the Emilio Aguinaldo College that had been approved in Manila (Campos, 2008).

Consequently, a campus comprising 29 hectares was established. In 1976 to 1978, UPSI developed over a dozen school facilities including school rooms, laboratories, a library, social hall, an administration building, dormitories, an Olympic oval, a landscaped campus, and a man-made lake. They also built a network of roads that covered the whole campus and dormitories (Campos, 2008). A commitment to improve the lives of the underprivileged sectors of the community motivated EAC-Cavite to offer courses in Dressmaking, High Speed Machine Operation and Ceramics. All programs were structured either for six months or two years of intensive study and training.

In the following year, owing to the permit granted by Minister Juan Manuel of the Ministry of Education and Culture, EAC-Cavite opened the College of Criminology, listing among its students the police forces in Cavite as well as the members of the Philippine Constabulary and the security guards of the establishments in the vicinity. In addition, the Graduate Program leading to the degree of Master of Arts in Teaching was offered to provide the school teachers with professional and academic advancement and opportunities. Envisioned, too, were the programs for Master of Science in Nursing and Master of Arts in Education.

On October 21, 1979, General Emilio Aguinaldo Medical School Foundation Inc. (GEAMSF) was established in Dasmariñas, Cavite, thus giving birth to the Emilio Aguinaldo College- Cavite of Medicine with Dr. Lourdes E. Campos as Dean. In its first year of operations, the College had 150 students. The University Medical Center (UMC), which was built in 1980 and opened in 1983, served as the training center for the health science students of the College of Medicine and other health science courses.

In 1980, UPSI formed the Yaman Lahi Foundation, Inc. (YLFI) to manage and operate both Manila and Cavite campuses.

In 1986, when Dr. Paulo Campos was not in perfect health anymore, Brother Andrew Gonzales of the De La Salle University (DLSU) expressed the University's interest in acquiring the EAC College of Medicine and the University Medical Center (UMC). Since his UPSI colleagues were not ready to take over, Dr. Campos decided to transfer the ownership and responsibility to this worthy and credible institution.

It was in June 1987 when De La Salle University finally took over the management and the administration of two campuses from UPSI: the 29-hectare campus in Bagong Bayan, Dasmariñas and the 1.5 hectare Health Science Campus along Congressional Avenue. Included in the transfer were the two big buildings which had a length of 100 meters, 17-meter wide and seven levels of floor area with two elevators, including a basement, ground floor, and rooftop for water tanks and for viewing purposes. The 29-hectare property in Bagong Bayan had a dozen buildings that included classrooms, two administrative units, Olympic oval, network roads and a landscape that included a lake, teaching facilities, hospital equipment, a modest library and a historical museum. After that, the EAC Administration focused on the development of EAC-Manila.

EAC-Cavite reopened in 1996-1997 as a vocational technical school – Center for Technical Education and Skills Training (CTEST) - in a lot along Congressional Avenue (now Mangubat Avenue) which UPSI bought. In 1998, after the completion of five buildings, the voc-tech school became the EAC-Cavite campus and all academic courses were opened except medicine.

In 2001, under the leadership of Dr. Jose Paulo E. Campos, the first son of Dr. Jose Paulo E. Campos, the school administration strengthened the curricula of existing academic programs and opened new courses aligned with emerging trends. In 2003, the Commission on Higher Education (CHED) granted government recognition to AB Communication, Psychology, Business Administration, Accountancy, Computer Science, Secondary Education, and Hotel and Restaurant Management.

The other academic programs soon followed. In 2005, Elementary Education, Civil Engineering, Mechanical Engineering, and Diploma in Graduate Midwifery earned government recognition, followed by Nursing

and Criminology in 2006; Customs Administration in 2007; and Computer Engineering and Electronics and Communication Engineering in 2010.

In 2008, the Technical Education and Skills Development Authority (TESDA)-registered vocational-technical courses, namely, Automotive Servicing, Computer Hardware Servicing, Consumer Electronics Servicing, Machining, and Programming were offered. In response to the emerging trends on health sciences, real estate and tourism, the administration opened Medical Technology, Physical Therapy and Radiologic Technology in 2011, Doctor of Dental Medicine and Real Estate Management in 2012, and Bachelor of Science in Midwifery and Tourism Management in 2015.

In its quest to achieve excellent standards in higher education, the institution participated in the accreditation by the Philippine Association of Colleges and Universities Commission on Accreditation (PACUCOA), thus, receiving Level 1 Accredited Status in Nursing, Psychology, Criminology and Hotel and Restaurant Management programs in 2015 up to 2018. Likewise, Elementary Education, Secondary Education and Business Administration programs were granted Candidate Status until 2017.

Along with the commitment to innovate, the institution inaugurated the *Bulwagang Aguinaldo* in 2012, which was the replica of the Aguinaldo Shrine in Kawit, Cavite making it the ideal venue for the annual Philippine Independence Day Celebration held by the city government of Dasmariñas. The modernization of Buildings 3 and 4 which house the Life Science Institute, Engineering Science and Technology Institute, and School Library were completed in 2014. These developments sought to meet the needs of the growing student population.

In adhering to the call of the Department of Education (DepEd) headed by Secretary Bro. Armin Luistro to enhance the basic education program in the country, the institution earned the permit to implement the Senior High School programs in April 2015. This paved way for the restructuring of Building 5 for Senior High School and Building 6 which housed the new canteen and multi-purpose hall. The Senior High School started its operations and welcomed its pioneer batch in June 2016.

The institution strives to explore more avenues to serve its community and undertake worthwhile development programs towards its continuous transformation as a responsive and competent institution, as its Founders envisioned it to be.

Special acknowledgements are accorded to Dr. Lourdes E. Campos (co-Founder), Atty. Paulo E. Campos Jr. (Director, EAEC), Dr. Jose Paulo E. Campos (EAC President), Dr. Georgina B. Palmario (Vice President for Academic Affairs), Ms. Maria Teresa Santos (Chief Librarian) and Ms. Shelley Anne C. Martinez (Executive Assistant) for their contributions to this manuscript.

PHILOSOPHY

Emilio Aguinaldo College is a private, non-sectarian, co-educational institution of learning that fosters equal and fair opportunities for the holistic development of the persons conscious of their national identity and their roles in the global community.

VISION

Emilio Aguinaldo College envisions itself as an internationally recognized autonomous academic institution rooted in its nationalist tradition that consistently pursues the advancement and welfare of humanity.

MISSION

Emilio Aguinaldo College provides an outcomes-based education with relevant curricula geared towards excellent research, active industry cooperation and sustainable community extension.

CORE VALUES

Virtue

Emilio Aguinaldo College integrates knowledge and understanding among Emilians equipping them with wisdom to choose to do only the right thing.

Excellence

Emilio Aguinaldo College inculcates among Emilians the habit of doing only the best in all undertakings.

Service

Emilio Aguinaldo College develops among Emilians a strong sense of duty and responsibility of helping others for the school, community, country and Mother Nature.

EDUCATIONAL OBJECTIVES

The objectives of Emilio Aguinaldo College are to:

- offer opportunities for quality and relevant education to all;
- cultivate the intellectual, spiritual, moral, social and physical aspects of a person;
- instill appreciation and pride for one's national identity; and
- produce graduates of global quality equipped with competencies in their field of expertise.

QUALITY POLICY

Emilio Aguinaldo College commits to the continuous improvement of quality standards with emphasis on instruction, research and community service to benefit its stakeholders.

QUALITY OBJECTIVES

The objectives of the Emilio Aguinaldo College are to:

- Adhere to all statutory and regulatory standards;
- Provide consistent quality service to the students, parents and other stakeholders; and
- Respond to periodic system review for continual improvement on quality standards.

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Acceptance of COVID-19 Vaccine among Healthcare Professionals in Region IV-A CALABARZON

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KEYWORDS:

Covid 19

Vaccine

Healthcare Professionals

Abstract. Healthcare professionals in the frontline are more exposed to Coronavirus disease 2019 (COVID-19), which is why an effective vaccine is essential for them. This study focuses on the healthcare professional's perspective regarding the COVID-19 vaccine in Region IV-A. In-depth analysis was taken through an online survey using Google form distributed thru social media like Facebook and messenger to gather 486 respondents composed of doctors, nurses, pharmacists, medical technologists, and dentists. Demographic characteristics were described and showed significance, excluding gender and location that are insignificant in the acceptance and hesitancy among healthcare professionals. The relevance of the current knowledge and interest of the respondents with their attitude and perception signifies a positive outcome regarding the vaccine's acceptance rate. Provinces including *Quezon* and *Cavite* showed the highest vaccine acceptance rate consecutively, wherein Pharmacists topped the ranking for the healthcare professional's vaccine acceptance rate.

INTRODUCTION

The greatest challenge that the world is facing right now is the newly discovered infectious disease caused by a coronavirus formally named Coronavirus disease 2019 (COVID-19). Produced by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and like severe acute respiratory syndrome coronavirus (SARS-CoV). COVID-19 has spread rapidly worldwide, causing major public health emergencies and global concern (1).

Mild to moderate respiratory illness will be experienced by most people infected with COVID-19. By coming into close contact with a person who has COVID-19 it can be transmitted from person to person. It spreads when a person infected by COVID-19 sneezes or coughs means they can spray droplets as far as 6 feet away. By touching an object or a surface with the virus and touching your mouth, eyes or nose can easily infect people. People who have underlying medical problems such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer; and older people are more likely to develop serious illness. Middle and older people are more commonly affected than children, as age increases the risk of developing dangerous symptoms and increases the association of COVID-19 in worsening the clinical condition of patients with an existing medical condition (2).

Vaccines are some of the most efficacious ways to prevent a specific disease. Vaccines have minimized the number of diseases, disability, and even death from various infectious diseases. Not only do vaccines offer individual protection for the vaccinated individuals, but they can also

help protect the community by preventing the spread of such disease inside a population (3).

Vaccination against coronavirus is essential especially for those who are working in the field of healthcare and for those who are leading the community to set an example to the larger population that vaccination imparts a large significance particularly in these times where we are facing a pandemic (4). Given the successful history of vaccines, it garnered that vaccine optimism in the early weeks of the COVID-19 pandemic.

Researchers from different universities and private sectors exert effort to produce a vaccine that is way more suitable for the situation we are facing right now. Currently, there are several vaccine candidates that our country might get. Healthcare providers are one of the prioritized sectors that will get the vaccine firsthand since they are at high risk in acquiring the disease because they are the one who handles patients (5).

Vaccine hesitancy has compromised vaccination as early as when the practice of immunization started by Edward Jenner in 1796 since skepticism about vaccines started with different beliefs and ideologies in different periods (6). Vaccine hesitancy as a definition is essential to make sure clinicians, policymakers and researchers will routinely make use of the standard term to cover low vaccination awareness influenced by the wide range of factors that are caused by personal choice or community behavior (7).

According to the World Health Organization Strategic Advisory Group of Experts on Immunization in

2015, vaccine hesitancy is a “delay in acceptance or refusal of vaccination despite the availability of vaccination services”. This hesitancy is a complex factor that may vary depending on the severity based on the situation, location, and on what type of vaccine is available. Indeed, vaccine hesitancy is considered by the World Health Organization as “one of the top ten threats to global health” (8).

Frontline healthcare professionals in times of pandemic are particularly at a higher risk of infection considering the number of patients they handle daily. While they were battling with the enemy that cannot be seen with the naked eye, many of them had been infected with the virus and some had already sacrificed their lives while fighting.

That is why vaccines would be helpful since some of them are deprived of personal protective equipment that led to high infection and mortality rates in our country. As of writing this paper, vaccines that our country considers acquiring are still being discussed by many sectors that lead to hesitancy in some individuals, and healthcare providers are not exempted from this skepticism.

The Department of Health reported a total of 494,605 COVID-19 cases in the Philippines, with 459,252 recovered cases, 25,614 active cases, and 9,739 deaths as of January 2021. Region IV-A CALABARZON is an administrative region situated in the southwestern part of Luzon. Region IVA, next to the National Capital Region (NCR), is the country’s second-most populous region. It has a total of 14,414,774 populations with five provinces, 19

cities (18 component cities and one highly urbanized city which is Lucena City), and 4,011 barangays.

As of January 2021, Region IV-A has 89,649 cases which is the second-highest case following National Capital Region (NCR), Cavite with a total population of 3,678,301 has 24,727 confirmed COVID-19 cases, 23,540 recoveries, and 240 deaths from COVID-19. Laguna with a total population of 3,035,081 has 23,599 confirmed COVID-19 cases, 22,471 recoveries, and 200 deaths from COVID-19. Batangas with a total population of 2,694,335 has 13,319 confirmed cases, 12,570 recoveries, and 218 deaths. Rizal with a total population of 2,884,227 has 20,247 confirmed cases, 18,815 cases, and 382 deaths. Lastly, Quezon province with a total population of 2,122,830 has 7,357 confirmed cases, 6,785 recoveries, and 101 deaths. (covid19stats.ph)

The purpose of this study is to evaluate the acceptance and hesitancy of healthcare providers to the COVID-19 vaccine. Collected data will help researchers understand the probable consternation to ensure proper uptake concerning these groups and allow healthcare providers a better way to enlighten others and provide vaccine recommendations as well as educate vaccine-hesitant patients. Survey forms were used to gather information and data from the target population.

MATERIALS AND METHODS

Study Design. A quantitative approach was employed to explore the acceptance and hesitancy to COVID-19 vaccine among healthcare professionals in Region IV-A CALABARZON. A cross-sectional research design was used to investigate the information provided by the participants. Through this design, the researchers were able to explore the knowledge, perception, attitude, and recommendations of the participants to COVID-19 vaccine.

Participants of the Study. To investigate the acceptance and hesitancy of the COVID-19 vaccine data were taken from the healthcare professionals in Region IV-A CALABARZON. The data were collected from February 1 to February 28, 2021, through a google form link distributed via Facebook messenger. Cluster sampling was done to survey participants living and working as healthcare professionals in five provinces located in Region IV-A. In stratified sampling, the healthcare professionals were grouped depending on their fields (doctors, nurses, dentists, medical technologists, and pharmacists). The researcher needs to ensure that the participants meet the qualifying criteria considered in the research study. Participants may refer other participants to help the researchers find and recruit participants that may otherwise be hard to reach.

The Subjects. To be eligible, the participants must be healthcare professionals belonging to one of the doctors, nurses, dentists, medical technologists, and pharmacists living and working in Region IV-A CALABARZON. A total of 386 sample sizes should be collected. To calculate the sample size per as seen in table 1, Slovin's formula was used. Percentage proportion was used to calculate the sample size per province.

Slovin's formula:

$$n = N/(1+Ne^2)$$

where;

n = number of sample

N = total population N = 10,917

e = margin of error e = .05

Solution:

$$\begin{aligned} n &= N/(1+Ne^2) \\ n &= 10,917/(1+(10,917)(.05)^2) \\ n &= 10,917/(1+(10,917)(.0025)) \\ n &= 10,917/(1+27.2925) \\ n &= 10,917/28.2925 \\ n &= 385.8619775558894 \approx \mathbf{386} \end{aligned}$$

Percentage proportion sample computation:

where;

Cavite Province / occupation: doctor

nspo = number of sample per occupation (doctor)

n = population **per occupation**

N = total population

ns = total number of sample

N = 10917

ns = 386

solution:

$$nspo = (n/N) (ns)$$

$$nspo = (529 / 10917) (386)$$

$$nspo = 0.04846$$

$$nspo = 18.71 \approx 19$$

number of sample doctor in Cavite

	CAVITE		LAGUNA		BATANGAS		RIZAL		QUEZON		OVERALL	
	POPULATION	SAMPLE	POPULATION	SAMPLE	POPULATION	SAMPLE	POPULATION	SAMPLE	POPULATION	SAMPLE	POPULATION	SAMPLE
Doctors	529	19	685	24	568	20	369	13	200	7	2351	83
Dentists	14	0	29	1	29	1	14	0	38	2	124	4
Pharmacists	76	3	90	3	101	4	41	1	38	1	346	12
Medtech	136	5	204	7	231	8	76	3	78	3	725	26
Nurse	1697	60	2114	75	1993	70	591	21	976	35	7371	261
TOTAL		87		110		103		38		48	10917	386

Procedure. The survey questionnaire was assessed by 30 professional participants and was validated using Cronbach's Alpha. The validation of the survey was based on (1) Clarity and Directions of Items, (2) Presentation and Organization of Items, (3) Time, (4) Suitability of Items, (5) Adequateness of The Content, (6) Data, (7) Attainment of Purpose, (8) Objectives, (9) Scale and Evaluation Rating to serve unbiased and accurate questions for the healthcare professionals and to answer the objectives of this research study. Cronbach's alpha shows that the survey

questionnaire has good reliability since alpha is greater than 0.8. The questionnaire could be considered as reliable. The sample size of CALABARZON's healthcare professionals was calculated using Slovin's formula. Three hundred eighty-six total samples were computed based on updated data as of December 2020 provided by FOI-DOH.

Four hundred thirty-eight CALABARZON healthcare professionals who went beyond the alleged target of this research study participated to answer the online survey questions using Google Form from February 1 to February 28, 2021.

The researcher established a baseline 15 to 20-minute survey questions, sent through a google form link via Facebook and messenger. Including a consent form from the World Health Organization (WHO) and a letter for participants. Their participation was voluntary and was guaranteed anonymity.

The survey contains questions that evaluate the following:

1) *Demographic background*, 2) *Personal Experience with COVID-19*, 3) *Current knowledge and interest about COVID-19 vaccine*, 4) *Attitude towards the vaccine*, and 5) *Perception of COVID-19 vaccine and other vaccines*.

The participant's demographic background was determined and described using frequencies and percentages. Nominal, categorical variables and 3-point Likert scales were also identified by using frequencies and percentages. The rating of acceptance and hesitancy among

healthcare professionals approaches with mean and standard deviation. The statistical correlation analysis was calculated using Pearson r.

Ethical Consideration. Ethics approval was given by the Institutional Ethics Review Board (IERB) of the Emilio Aguinaldo College-Cavite prior to the start of the study. All healthcare professional respondents were informed about the aims of the study and approved and accepted a consent form prior to participation. The confidentiality of information has been secured.

RESULTS

Profile and Personal Experience of the Respondents. The demographic characteristics of the healthcare professionals are presented in Table 1.A. Four hundred thirty-eight participated in the research survey which is beyond the supposed target of this research study which is 386 respondents. Greater than half of the participants are 259 (59.1%) female and 179 (40.9%) males. Half of the participants are at the age range of 21-30 years old 233 (53.2%), 31-40 years old 110 (25.1%), 41 – 50 years old 67 (15.3%), and 51-60 years old 28 (6.4%). Also, 246 (56.2%) are single, 157 (35.8%) are married, 23 (5.3%) are separated, 10 (2.3%) are widowed and 2 (0.5%) with no answer. The data shows that respondents without children are 200 (45.7%), with 1 – 2 children 159 (36.3%), with 3 – 4 children 68 (15.5%), with 5 – 6 children 9 (2.1%), with 7 and up children 2 (0.5%).

Laguna has 125 (28.5%) respondents followed by Cavite and Batangas have 108 (24.7%) respondents while Quezon and Rizal have 50 (11.4%) and 47 (10.7%) respondents, respectively. Half of the respondents are nurses 281 (64.2%), followed by doctors 92 (21%), medical technologists 33(7.5%), pharmacist 21 (4.8%), and dentists 11 (2.5%). The entire sample target was achieved using Slovin's formula sample target was based on the data provided by the Freedom of Information Department of Health.

Almost half of the respondents 191 (43.6%) are just starting on their field of work with a range of 1-5 years length of service, 120 (27.4%) with 6 – 10 years, 57 (13.0%) with 11 – 15 years, 46 (10.5%) with 16 – 20 years, 17 (3.9%) with 21 – 25 years and 7 (1.6%) with 26 – 30 years of service.

DEMOGRAPHIC CHARACTERISTICS	FREQUENCY	PERCENTAGE
Gender		
MALE	179	40.9%
FEMALE	259	59.1%
Age		
21 – 30 years old	233	53.2%
31 – 40 years old	110	25.1%
41 – 50 years old	67	15.3%
51 – 60 years old	28	6.4%
Civil Status		
SINGLE	246	56.2%
MARRIED	157	35.8%
SEPARATED	23	5.3%
WIDOWED	10	2.3%
NO ANSWER	2	0.5%
Children		
NONE	200	45.7%
1 – 2	159	36.3%
3 – 4	68	15.5%
5 – 6	9	2.1%
7 AND UP	2	0.5%
Location		
BATANGAS	108	24.7%
CAVITE	108	24.7%
LAGUNA	125	28.5%
QUEZON	50	11.4%
RIZAL	47	10.7%
Occupation		
DENTIST	11	2.5%
DOCTOR	92	21.0%
MEDICAL	33	7.5%
TECHNOLOGIST	281	64.2%
NURSE	21	4.8%
PHARMACIST		
Length of Service		
1 – 5 years	191	43.6%
6 – 10 years	120	27.4%
11 – 15 years	57	13.0%
16 – 20 years	46	10.5%
21 – 25 years	17	3.9%
26 – 30 years	7	1.6%
Monthly Household Income		
Less than 15,000	33	7.5%
15,000 – 20,000	132	30.1%
Greater than 20,000	273	62.3%
Health Insurance		
YES	275	62.8%
NO	163	37.2%

Table1.A Demographic Characteristics

The data shows that 273 (62.3%) with greater than 20,000 monthly household income, 132 (30.1%) with 15,000-20,000, and 33 (7.5%) have less than 15,000 monthly household income. Half of the respondents 275 (62.8) answered yes, having health insurance, and 163 (37.2%) answered no, they do not have health insurance.

The Acceptance and Hesitancy of the Respondents and Their Demographic Profile. The table shows the significant relationship between the acceptance

and hesitancy of the respondents and their demographic profile using Pearson-r correlation. The tables below show the correlation coefficient presented as r-value in which determined the strength of the relationship. Parameters are provided below for the value of r and the strength of the relationship. The p-value shows the significant level less than or equal to 0.05 then, it will be considered significant.

	r value	Strength	p-value	Sig
Gender	-.080	VERY WEAK	p = 0.094 > 0.05	NS
Age	.305	MODERATE	p = 0.000 < 0.05	S
Status	.201	WEAK	p = 0.000 < 0.05	S
Offspring	.164	WEAK	p = 0.001 < 0.05	S
Location	.056	VERY WEAK	p = 0.241 > 0.05	NS
Occupation	-.214	WEAK	p = 0.000 < 0.05	S
Length of Service	.267	WEAK	p = 0.000 < 0.05	S
Income	.421	MODERATE	p = 0.000 < 0.05	S
Insurance	-.352	MODERATE	p = 0.000 < 0.05	S

Table 2.A Relationship between demographic characteristics and acceptance and hesitancy of COVID-19 vaccine among healthcare professionals.

Gender and Location show a very weak relationship which therefore is not significant among the acceptance and hesitancy of the respondents. Status, Offspring, Occupation, and Length of Service shows a weak relationship but still significant and demographic profiles which show a moderate strength of relationship are Age, Income, and Insurance which therefore are significant among the acceptance and hesitancy of the respondents. These data show that the demographic profiles of the respondents have

a significant relationship with the COVID-19 vaccine acceptance and hesitancy.

Personal Experience	YES		NO	
	FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
Have you been diagnosed with COVID-19?	40	9.1%	398	90.9%
Have you been in contact with patients diagnosed with COVID-19?	228	52.1%	210	47.9%
Do you personally know someone who has/had COVID-19?	256	58.4%	182	41.6%
Do you remember any events in the past that would have discouraged you from getting a vaccine(s) for yourself/your children?	137	31.3%	301	68.7%

Table 2.B Personal experience of healthcare professionals in Region IV-A with COVID-19.

Forty (9.1%) of respondents were diagnosed with COVID-19, 398 (90.9%) were undiagnosed by COVID-19. Half of the respondents have been in contact with patients diagnosed with COVID-19 228 (52.1%) and 210 (47.9%) have no contact with diagnosed patients. There are 256 (58.4%) respondents who know someone who has or had COVID-19 and 182 (41.6%) who do not. From the question “Do you remember any events in the past that would have discouraged you from getting a vaccine(s) for yourself/your children?” 137 (31.3%) of respondents answered “yes” and 301 (68.7%) answered “no”.

The personal experience of healthcare providers cannot be correlated with the acceptance and hesitancy since the survey questions and the answers provided in the questionnaire cannot be measured for the specific

correlation. This should be recommended for future research.

Knowledge and Interest of Healthcare Professionals in Region IV-A CALABARZON. Respondents considered the COVID-19 vaccination seriously. To assess their knowledge and interest, we asked them five different questions.

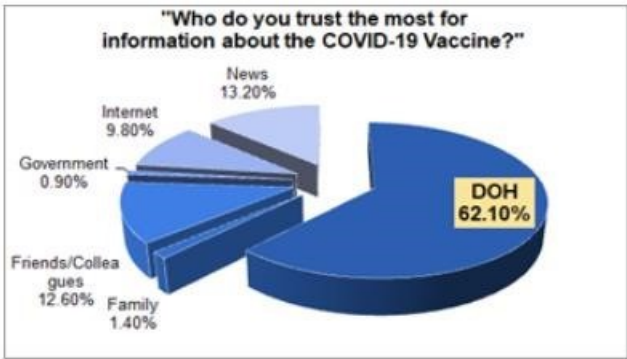


Figure 3.A Trusted Source of Information

In this figure, when participants asked, “Who do you trust the most for information about the COVID-19 vaccines”, it is shown that 272 (62.1%) out of 438 respondents trusted the Department of Health as the source of information, followed by 58 (13.2%) trusted news, 55 (12.6%) friends/colleagues, 43 (9.8%) internet, 6 (1.4%) family while only 4 (0.9%) trusted the government.

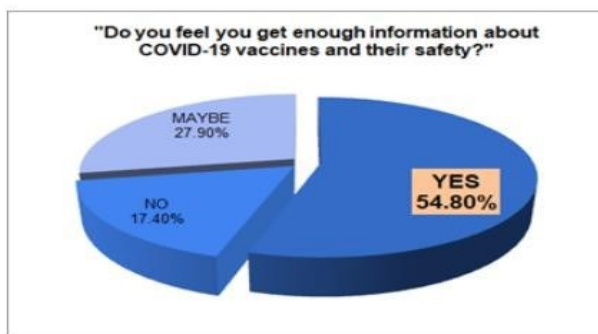


Figure 3.B Information about COVID 19 vaccines and safety

This figure represents if participants feel that they have enough information about COVID-19 vaccines and their safety. Approximately more than half 240 participants (54.8%) answered “yes” thus, believing that they have enough information. Only 76 participants (17.4%) answered “no” while 122 participants (27.9%) were not sure whether they had enough COVID-19 vaccine information.

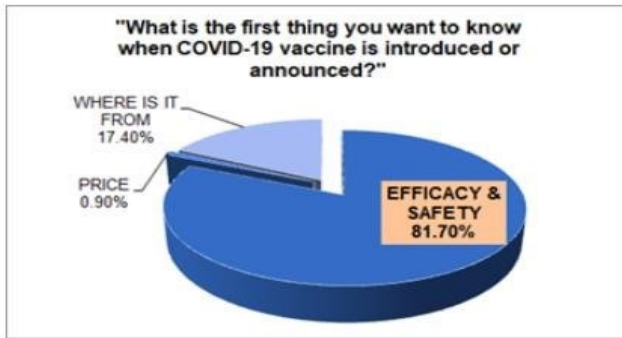


Figure 3.C First thing to know about the COVID-19 vaccines.

The first thing they want to know when the COVID19 vaccine is introduced or announced is in the figure above. It illustrated that almost the majority 358 (81.7%) of the respondents want to know first the efficacy and safety of the COVID-19 vaccine, 76 (17.4%) where it is from while only 4 (0.9%) want to know the price of the COVID-19 vaccine.

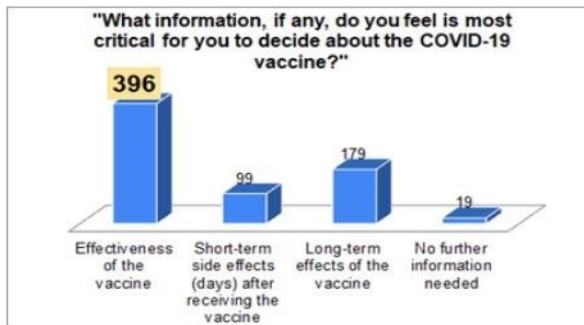


Figure 3.D Critical information about COVID-19 vaccine

The figure above indicates the most critical decision about the COVID-19 vaccine information. It illustrated that the most critical (396) was the effectiveness of the vaccine, followed by (179) long-term effects of the vaccine, and the least critical was (99) short term side effects (days) after receiving the vaccine while only (9) participants believe that no further information needed in COVID-19 vaccine.

Figures 3.C and **3.D** indicate that healthcare professionals are concerned about the safety and effectiveness of the COVID-19 vaccine, regardless of whether they approve, hesitate, or have no plans to get it. These two figures also supported **Figure 6.B** which is the concerns about the COVID19 vaccine.

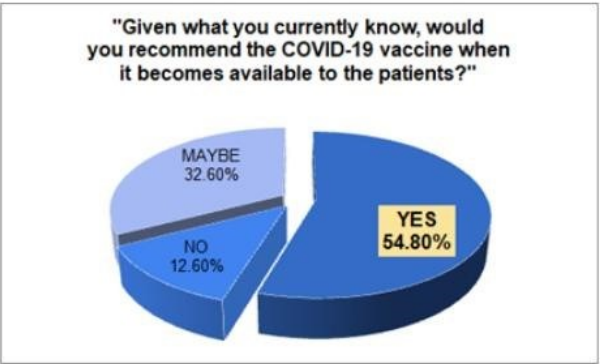


Figure 3.E COVID-15 vaccine recommendation to patients

In response to the question, “Given what you currently know, would you recommend the COVID- 19 vaccine when it becomes available to the patients?” it showed that more than half 240 (54.8%) of the respondents would recommend the vaccine to the patients,

only 55 (32.6%) would not recommend the vaccine while 143 (32.6%) were undecided if they would recommend the vaccine.

Attitude Towards Covid-19 Vaccine. It is essential to know the attitude of healthcare professionals towards the COVID-19 vaccine. Therefore, the researchers gave them questions that show in the table. Seven questions have been asked in this category to evaluate their attitude.

QUESTIONS	YES	NO	MAYBE
Do you feel any social pressure to get the vaccine?	29.50%	60.70%	9.80%
When the COVID-19 vaccine is introduced, do you want to be the first to get it?	29.50%	48.40%	22.10%
Would the cost of a vaccine prevent you from getting it, even if you felt you or your child needed it?	16%	70.50%	13.50%
Would you recommend getting a COVID-19 vaccine to your friends and relatives?	51.10%	13.90%	34.90%
Do you feel that you are having excess fear and concern on COVID-19 vaccine for your own health and the health of your patients?	67.60%	20.80%	11.60%

QUESTIONS	AGREE	NOT SURE	DISAGREE
It is better for me/my child to develop immunity by getting sick than to get a vaccine.	18.50%	13%	68.50%
It is my role as a healthcare provider to learn about vaccines for myself and my patients.	97%	2.70%	0.30%

Table 4.A The attitude towards the COVID-19 vaccine

The questions in table IV.A, demonstrate the attitude towards the COVID-19 vaccine, which was answered by the healthcare professionals in Region IV-A CALABARZON. When asked, "Do you feel any social

pressure to get the vaccine?" 266 (60.7%) out of 438 did not feel any pressure, which means they are willing to get a vaccine without encouragement from other people and not mandated by the government, while 129 (29.5%) out of 438 were under pressure, and 43 (9.8%) out of 438 were uncertain. Out of 438, 212 (48.4%) were not ready to be the first to get a vaccine, while 129 (29.5%) said they were able to be the first, and the remaining 97 (22.1%) respondents were uncertain. It shows here that even if they accepted the vaccine, they do not want to be vaccinated first if it is introduced in the Philippines. As for the cost of the vaccination, 309 (70.5%) out of 438 healthcare professionals said that it would not prevent them from getting it, although 70 (16%) out of 438 maybe ward off, and 59 (13.5%) were uncertain. When asked if they will recommend the vaccine to their friends and relatives, 224 (51.1%) out of 438 healthcare professionals would prescribe the COVID-19 vaccine to their friends and families, while 61 (13.9%) out of 438 do not want to, and 153 (34.9%) were uncertain. However, out of 438 respondents, 296 (67.6%) were having excess fear and concern about the COVID-19 vaccine, 51 (11.6%) were uncertain, and 91 (20.8%) were not. It shows that they are still concerned even if they accept the vaccine. Just like the previous outcomes, this also supports other results above.

In the statement "It is better for me/my child to develop immunity by getting sick than to get a vaccine", 300 (68.5%) out of 438 disagreed, while 81 (18.5%) agreed, and 57 (13%) out of 438 were unsure. Also, in the

statement "It is my role as a healthcare provider to learn about vaccines for myself and my patients", 425 (97%) out of 438 agreed, while 12 (2.7%) were unsure, and 1 (0.3%) out of 438 disagreed. It shows that they know about their role as healthcare professionals, and they may advise their vaccine-hesitant patients.

		r value	Strength	p-value	Sig
Acceptance and Hesitancy	Attitude	.170	WEAK	$p = 0.000 < 0.05$	S

Table 4.B the relationship of the attitude of healthcare professionals in Region IV-A regarding the acceptance and hesitancy of the COVID-19 vaccine

The table above indicates a weak ($r=0.170$) but significant relationship ($p=0.000<0.05$) of the attitude of healthcare workers regarding the acceptance and hesitancy of the COVID-19 vaccine. It shows that the attitude towards the acceptance of vaccines is important.

Perception to COVID-19 Vaccine and Other Vaccine. It is important to understand the perception of healthcare professionals to COVID-19 vaccine and other vaccines. To evaluate them, we asked for responses to seven different statements.

Healthcare professionals play an important role in the public hesitancy of vaccines, as they are credible sources of knowledge. With regards to the statement “I believe healthcare providers should be role models that encourage vaccination”, 383 (87.4%) of the respondents

agree to the statement. Only 11 (2.6%) disagree while 44 (10%) were not sure whether healthcare providers should be role models to the vaccination. Some researchers and pharmaceutical companies have already made significant public assurances that they will give priority to vaccine safety and efficacy. To further understand this, the researchers asked a response from the participants if they trust the COVID-19 researchers and pharmaceutical company. Of the 438 respondents, 264 (60.3%) agree that they trust the researcher and the pharmaceutical companies who made the COVID-19 vaccine, 23 (5.2%) disagree while 151 (34.5%) are not sure whether they trust the COVID-19 researchers and pharmaceutical company.

STATEMENT	AGREE	DISAGREE	NOT SURE
I believe healthcare providers should be role models that encourage vaccination.	87.4%	2.6%	10%
I trust the researcher and the pharmaceutical companies who made the COVID-19 vaccine.	60.3%	34.5%	5.2%
I believe COVID-19 vaccines are safe for myself, my child(ren) and my community.	51.6%	40.4%	8%
I trust the other vaccines but not the COVID-19 vaccine.	33.6%	43.6%	22.6%
I do not trust vaccines in general.	1.8%	91.8%	6.4%
I agree with the choice of vaccine or vaccination recommendation provided by the government.	19.7%	34.2%	46.1%
With multiple COVID-19 vaccines becoming available, I am concerned about knowing which one is best for me.	84.5%	5.6%	9.4%

Table 5.A Healthcare professional’s perception to COVID-19 vaccine and other vaccine

In response to “I believe COVID-19 vaccines are safe for myself, my child(ren) and my community”, more than half 264 (51.6%) of the respondents agree with the statement, 35 (8%) disagree and nearly half 177 (40.4%) were undecided. Study participants were also asked an answer in the statement “I trust the other vaccines but not the COVID-19 vaccine”, approximately one third 148 (33.8%) said that they agree with the statement. In contrast, 191 (43.6%) disagree while 99 (22.6%) are not sure whether they trust the other vaccine but not the COVID-19 vaccine. The researchers asked the participants if they do not trust the vaccine in general. It illustrated in the table V.A that the majority 402 (91.8%) disagree with the statement, 28 (6.4%) were undecided. The remaining 8 participants (1.8%) agreed that they do not trust the vaccine in general.

Only (19.7%) participants agree with the government choice of vaccine, nearly half of the participants 150 (34.2%) disagree and 202 (46.1%) answered maybe. Survey respondents also wanted to know which vaccine is the best for them. Overall, 370 (84.5%) agree with the statement, 23 (5.6%) disagree and 41 (9.4%) unsure whether they are concerned about knowing the best COVID-29 vaccine while 4 (0.9%) participants refused to answer the statement.

		r value	Strength	p-value	Sig
Acceptance and Hesitancy	Perception	.415	MODERATE	$p = 0.000 < 0.05$	S

Table 5.B Relationship of perception of healthcare professionals and the acceptance and hesitancy of the COVID-19 vaccine

The participants perception's in COVID-19 vaccine showed moderate strength ($r=0.415$) regarding the acceptance and hesitancy of the COVID-19 vaccine in Region IV-A CALABARZON. Moreover, there is a significant relationship ($p = 0.000 < 0.05$) between the perception of healthcare professionals in Region IV-A CALABARZON and the acceptance and hesitancy of the COVID-19 vaccine.

Covid-19 Vaccine Levels of Acceptance and Hesitancy. The researchers aimed to hold a grasp on what our healthcare providers think about the vaccine that is currently available in the country. Now, it is necessary to know their level of acceptance regarding the whole vaccination process as they will provide the vaccine details and administer the vaccine itself to their patients.

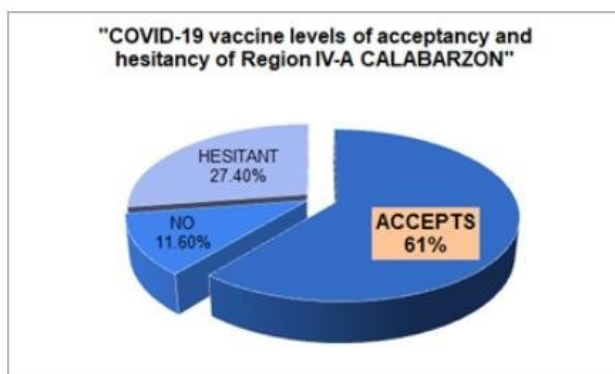


Figure 6.A COVID-19 vaccine level of acceptance and hesitancy.

A total of 438 respondents were asked about their plans on getting COVID-19 vaccines that are newly available in the country. 61% of the respondents agree on getting the vaccine, 27% of the respondents were hesitant on getting the vaccine since the vaccine is newly introduced to the public, while the remaining 12% of the respondents were firm on their plan not to get the vaccine. These results showed that even some healthcare providers themselves are still hesitant and do not want to be vaccinated. Hence, the options were prepared to understand the reason for their hesitancy.

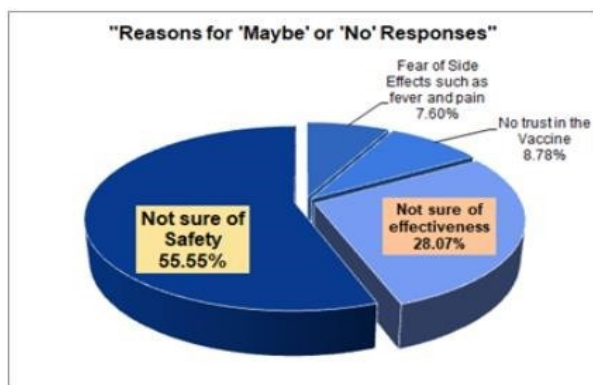


Figure 6.B Provided reasons of participants responding “maybe” or “no” regarding their plans on getting vaccinated.

Concerns about the COVID-19 vaccine led the 171 participants to answer “maybe” or “no” regarding the question about their plans on getting the vaccine. Most of them accumulate almost half of the answers (55.55%) answering that they are not sure about its safety. Next to it is the 28.07% of participants who are unsure about its effectiveness, while 8.78% of it says that they do not trust the vaccine itself. Lastly, the remaining 7.6% that are having a fear of the vaccine’s side effects such as fever and pain. The results indicate that the safety of the vaccine is still the primary concern of our healthcare providers.

Healthcare Professionals: Acceptance and Hesitancy of COVID-19 Vaccine. Healthcare professionals might provide the highest rate of being infected by the COVID-19 because they are the most

exposed. Researchers then questioned if they would consider a COVID-19 vaccine when it becomes available in the Philippines. It is essential to know whether they will approve, hesitant or refuse to receive the COVID-19 vaccine.

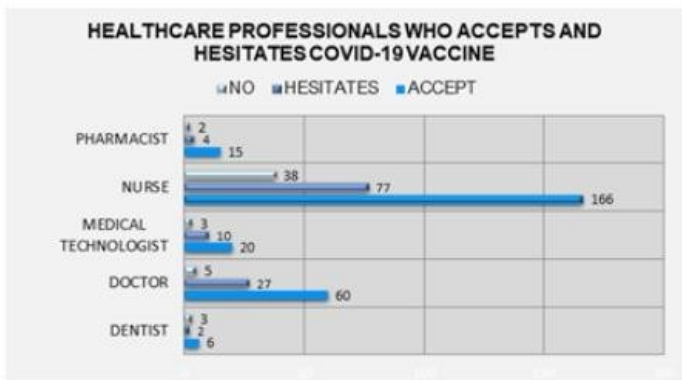


Figure 7.A Acceptance and hesitancy of COVID-19 vaccine among healthcare professionals

The figure above indicates that the respondents who are healthcare professionals offered the highest proportion of those who accepted the COVID-19 vaccine (267 out of 438, 61%); 2% are Dentists, 22% are Doctors, 8% are Medical Technologists, 62% are Nurse, and 6% are Pharmacists; and the lowest proportion of those who hesitates the COVID-19 vaccine (120 out of 438, 27.4%); 2% are Dentists, 23% are Doctors, 8% are Medical Technologists, 64% are Nurse, and 3% are Pharmacists when asked if they were planning to get the COVID-19 vaccine while the remaining respondents (51 out of 438,

11.6%) do not want to get a vaccine; 6% are Dentists, 10% are Doctors, 6% are Medical Technologists, 74% are Nurse, and 4% are Pharmacists.

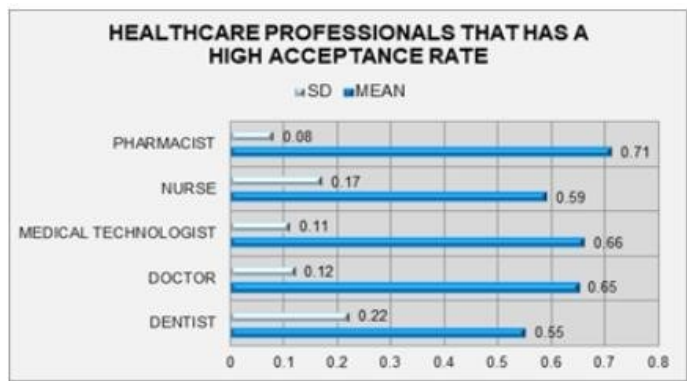


Figure 7. B Healthcare professionals’ acceptance rate

This graph depicts the highest and lowest rates of acceptance of the COVID-19 vaccine among healthcare professionals in Region IV-A CALABARZON. They were still hesitant, even though they were the ones most at risk of contracting the disease.

According to the mean and standard deviation stated above, Pharmacists were at the highest rate among healthcare professionals in Region IV-A CALABARZON who accepted the COVID-19 vaccine, followed by Medical Technologists, Doctors, Nurses, and Dentists.

Acceptance Rate in Provinces of Region IV-A

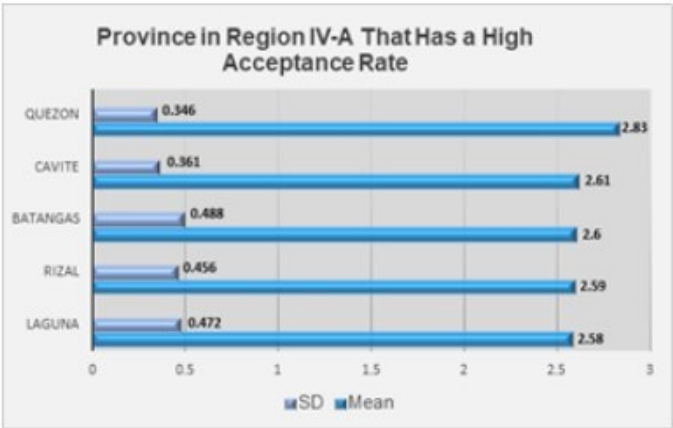


Figure 7.A Acceptance rate per province in Region IV-A

By looking into the healthcare providers’ level of acceptance to COVID-19 vaccine per province in Region IV-A, we can notice which of these provinces has the highest or lowest acceptance rate.

Based on the mean and standard deviation results gathered from the collected data, Quezon leads to be the province with the highest acceptance rate among healthcare workers regarding the COVID-19 vaccination, followed by Cavite, Batangas, Rizal, and Laguna, respectively.

As of January 2021, Quezon province, with the lowest confirmed cases, ranked first for the level of acceptance of healthcare professionals regarding the COVID-19 vaccine. Cavite, with the highest number of confirmed cases, ranked second for the healthcare

professionals' level of acceptance regarding the vaccine. Batangas, with the second to the least number of confirmed cases, ranked third. Rizal province, with the third-highest number of confirmed cases, ranked fourth.

And lastly, Laguna, with the second-largest number of confirmed cases, ranked fifth based on its level of acceptance regarding the vaccine.

DISCUSSION

High rates of COVID-19 cases were a problem in different countries. Healthcare professionals as a frontline against this disease were highly exposed, which is why an effective vaccine is essential for them. The Philippines started distributing the COVID-19 vaccine to healthcare professionals who are more exposed and at risk of COVID-19. Healthcare providers are role models in terms of health, it is important to achieve a high acceptance rate in this group because they are the ones providing the vaccine recommendation and counseling to the vaccine-hesitant patient. Investigating the acceptance rate of the healthcare professionals in getting COVID-19 vaccines could solve this COVID-19 vaccine hesitancy.

Demographics and Acceptance Rate of COVID-19 Vaccine. Data were collected from four hundred thirty-eight respondents in one month from February 1 to February 28, 2021. It is beyond the supposed minimum sample target required. Most healthcare providers who

participated in the survey are single and new in their field. The province of Laguna has the most participants while Rizal has the least of participants. Most respondents have health insurance and have a greater than 20,000 household monthly salary. However, gender and location do not have significance with acceptance and hesitancy among healthcare providers. Other demographic profiles such as age, offspring, civil status, occupation, length of service, monthly household income, health insurance are significant variables in the study.

Age and income were not significant variables in the COVID-19 vaccine acceptance in a study in the Middle East (9). However, in this study, the income in the Philippines' setup for the healthcare professionals in getting vaccines was significant because of the low salary grade. Age can be biased among the young because they are online from time to time having 233 (53.2%) respondents belong to 21-30 years old of respondents.

The personal experience of healthcare providers cannot be correlated with the acceptance and hesitancy since the survey questions and the answers provided in the questionnaire cannot be measured for the specific correlation. This should be recommended for future research.

Knowledge, Attitude and Perception of Healthcare Professionals to COVID-19 Vaccine

More than half of the healthcare professionals who participated in the study agreed to the COVID- 19 vaccine. Having the knowledge and correct information builds trust in getting vaccines. Addressing the hesitancy of vaccines among healthcare professionals is highly relevant. Not only will they be among the first to be offered vaccinations, but they will also play an important role in combating the public hesitancy of vaccines, as they are seen as credible sources of knowledge. Pointed out by individuals who interact with patients should be confident about the safety and efficacy of the vaccine (10).

Respondents believed that they have enough knowledge; therefore, COVID-19 vaccine recommendation to the patients has a high percentage. The willingness of health professionals to use and recommend the vaccine to their patients is determined by their knowledge and interest in vaccines. However, according to a study conducted in the community of Bangladesh, the information received by the citizens is low, which explains why the rate of acceptance is also low (11). Hence, in this study, the acceptance rate of the COVID-19 vaccine was high because the participants also believed that they had enough information about the said vaccine. Patients also trust healthcare professionals for knowledge on vaccines and vaccine-preventable diseases, as well as on the clinical and public health benefits associated with immunization.

Healthcare professionals felt no pressure from anyone or the government in getting vaccinated. However, some healthcare workers are still worried about the vaccine, and they did not want to be the first to get vaccinated. As a healthcare professional (68.50%) believe it is more important to get vaccinated than to be immune by getting infected. They are aware of their responsibilities as healthcare providers and will continue to advise their patients about the COVID-19 vaccine.

Based on studies, a minimal change in healthcare workers' attitude concerning the COVID-19 vaccine may have a substantial effect. That is why it is necessary to regularly monitor their attitude towards the vaccine, not only because they are advising their patients about the vaccine but also because they are involved in patient care.

The healthcare professionals trust the vaccines in general and (87.4%) trust the pharmaceutical companies. However, several healthcare providers who are skeptical of the COVID-19 vaccine (33.6%) agreed that they trust the vaccines and not the COVID-19 vaccine. This represents that respondent do trust various vaccines available in the Philippines, but they are concerned about the newly made COVID- 19 vaccine.

Other concerns regarding COVID-19 vaccines are the Government's choice of vaccine, (46.1%) of the respondents are not sure if they agree, and (34.2%) disagree with the statement if they agree with the Government's choice of the vaccine. Respondents were

concerned with the chosen vaccine or vaccination recommendation provided by the government. Thus, it illustrated that the lack of trust can affect the acceptance rate of COVID-19 vaccines. It is equally necessary for the government to be accountable if it wants to ensure public confidence in its vaccination program. Also, many COVID-19 vaccines are now available; respondents have concerns about what is the best vaccine for them. As a result, the respondents want to know first the safety and efficacy of the COVID-19 vaccine.

According to the study made by Nguyen, this kind of perception can occur because health care providers are at the frontline, treating patients with COVID-19 while also dealing with other non-COVID patients regularly (12). The chances of reporting a positive COVID-19 test were higher for the frontline health workers compared with the general population.

Some studies and the respondents of this study provide several approaches to overcome hesitancy and refusal of vaccination. Transparency, providing correct information, and educating people for vaccine awareness can overcome these problems. The government's collaboration with healthcare sectors and professionals may increase the confidence in COVID-19 vaccine.

Knowledge, attitude, and perception of healthcare providers to COVID-19 vaccines are significant factors in vaccine acceptance. This could help in campaign awareness to increase vaccine acceptance.

Healthcare Professionals' Acceptance Rate of COVID-19 Vaccine

Almost 40% of the respondents were COVID-19 vaccine hesitant and refused vaccine. Hence, the options prepared helped the researchers understand the reasons for their hesitancy. The results indicate that the safety of the vaccine is still the primary concern of our healthcare providers. This problem is observed globally based on different studies in the USA and Southeast Asia by Fisher (13) and Amwar (14). Several trials about the COVID-19 vaccine made by international pharmaceutical companies were discontinued due to found side effects and negative news circulated the world. These are the reasons why there are vaccine-hesitant patients and patients who refuse to take the vaccines.

COVID-19 vaccines that are approved with Emergency Use Authorization (EUA) by the Food and Drug Administration (FDA) are considered safe and effective based on given evidence. A major development in the Coronavirus pandemic is the availability of safe and effective COVID-19 vaccines.

Nurses top the most survey respondents based on Slovin's formula acquired from their population provided by the FOI-DOH. As a result, they have the highest number of individuals who accept the COVID-19 vaccine. Because of unequal distribution, the researcher obtained the mean and standard deviation from the data of healthcare professionals' field of work to get the rate of COVID-19 vaccine acceptance. Pharmacists top the rank of acceptance

rate of the COVID-19 vaccine while dentists ranked the least.

Healthcare professionals are at risk of getting infected by different diseases encountered in their line of work.

Acceptance rates of healthcare professionals are important for they are the sector of health and provide immunization to the community. They are the ones who provide recommendations and counselling. It is important that the acceptance rate among healthcare professionals is high.

Study by Vasilevska states that healthcare professionals have this desire to protect their family, friends, and patients (15). This desire drives them to get vaccinated since healthcare professionals are more knowledgeable about the disease and the vaccines. This awareness leads to protecting themselves and not passing it on to their family members. This leads to a high acceptance rate among healthcare professionals compared to the non-healthcare professionals.

Acceptance Rate of COVID-19 Vaccine in Provinces of Region IV-A

As of January 2021, Region IV-A CALABARZON has the second-highest case following the National Capital Region (NCR). Quezon province, with the lowest confirmed cases, ranked first, and Laguna, with the second-largest number of

confirmed cases, ranked fifth based on its level of acceptance regarding the vaccine.

However, this data is not significant in the acceptance and hesitancy of the COVID-19 vaccine among healthcare professionals in Region IV-A. The gap between acceptance rates of the provinces in Region IV-A is small.

Based on the study in China by Lin, location is a significant variable based on the proportion of the COVID-19 cases (16). However, the data gathered from a nationwide online survey while this study is for healthcare providers who are role models for vaccination programs.

CONCLUSION

The healthcare professionals played a prime role in this study by asking them their thoughts about the potential COVID-19 vaccine introduced in their respective provinces. Google form link provided a convenient way for the researcher to reach the healthcare professionals in Region IV-A. Demographic characteristics described and shown significance, gender and location are insignificant in the acceptance and hesitancy among healthcare professionals. COVID-19 vaccines have a high acceptance rate among healthcare professionals. The main reasons for respondents' hesitancy are concerns about the safety and efficacy of the COVID-19 vaccine. Pharmacists and Quezon province have the highest acceptance rates,

dentists and Laguna rank the least. The healthcare professionals' viewpoint is essential to convince the large-scale public. Having enough information will help to increase the acceptance rate of vaccines. Health sectors with healthcare professionals should conduct programs for the community to understand and learn more about vaccines.

Obtaining information about the vaccine is a human right, particularly when it comes to health. It allows the public to have a clear and direct understanding of issues that have a significant impact on their lives. In vaccination programs, this will also help manage expectations, build trust in government, and uncover misinformation.

LIMITATION

This group (dentists, doctors, medical technologists, nurses, and pharmacists) of healthcare professionals in Region IV-A were the chosen sample for this study. The sample size was obtained using the data provided by the FOI-DOH. The results of this study do not reflect the acceptance rate of the whole community in the Philippines.

Google form link was used as a medium and distributed in social media such as Facebook and messenger. The results may be biased among the younger age because they are online from time to time.

Since the study has conducted in a cross-sectional manner, the results may fluctuate with time.

RECOMMENDATION

For further exploration of the study conduct surveys among healthcare professionals in the Philippines that better represents the whole healthcare community. Conduct surveys among Filipino people to better understand the acceptance and hesitancy of vaccines in the Philippines. This will provide deeper understanding and knowledge in acceptance and hesitancy of COVID-19 vaccine.

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A Phenomenological Study of Cyber- Schooling in Emilio Aguinaldo College-Cavite Radiologic Technology Amidst the COVID-19 Pandemic

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KEYWORDS:

COVID-19

**Online-
Learning
Education**

**Phenomeno-
logical**

Abstract. The repercussions of COVID-19 resulted in the lockdown of educational institutions leading to the closing of colleges, and universities. According to Schleicher (2020), this crisis has exposed the many inadequacies and inequities in our education systems – from access to the broadband and computers needed for online education, and the supportive environments needed to focus on learning, up to the misalignment between resources and needs. This study aims to progressively understand the hindrance and perception of medical students of Radiologic Technology courses through the in-depth impact of COVID-19 to study the field with the help of online schooling than real time learning. Phenomenological research was utilized to determine and understand the lived experience of the participants and to focus on the student's experience about the phenomena of cyber schooling in the current pandemic caused by COVID-19. Individual in-depth, semi-structured interviews were performed to the Third year Radiologic Technology students who were purposively selected based on the several factors of inclusion criteria of the study. Data from the transcriptions and observations from the interviews, and document reviews were analyzed using coding, categorizing, and thematic analysis. Results drawn that Third-Year radiologic technology students relies on technological resources used to access online classes. Results also discussed the barriers and learning strategies of the participants to focus on the learning itself. While other contributing factors are the other factors

that could have affected the student's learning. Data interpreted the final themes, thus arises the impact of online learning to students were indicated.

INTRODUCTION

People are most likely aware of the current changes happening in the midst of COVID-19 pandemic. The current pandemic caused by COVID-19 has changed the viewpoint of the world. Everyone distance themselves to avoid being infected by carefully not touching and interact with each other so that the virus will not spread. This pandemic change people's way of living from daily routines, it has an impact on socioeconomic, and one of the dilemmas brought by this crisis is the massive adjustments on the educational system. The repercussions of COVID-19 resulted in the lockdown of educational institutions leading to the closing of schools, colleges, and universities. The society faced a new normal wherein many institutional sectors are having a tough time to formulate a solution that may best suit to make everything go back to normal and stable lives. Schools and universities are still struggling to implement a proper memorandum to adhere to satisfactory standards needed for the students to learn even the pandemic hits.

The outbreak of Coronavirus negatively affected educational activities worldwide.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) monitoring, over 100 countries implemented nationwide closures, impacting over half of the world's student population (UNESCO, 2020a). Even Britain, where Prime Minister Boris Johnson - one of those who earlier opposed the move, later admitted that "closing down schools could place further downward pressure on the upward curve of the Coronavirus outbreak" (ABC News, 2020). Some of the countries that closed down schools due to COVID-19 include, Nigeria, Ghana, Senegal, South Africa, China, Kazakhstan, Ethiopia, Honduras, India, Japan, Iran, USA, France, Spain, Italy, North and South Korea, Lebanon, Vietnam, Thailand, Germany, and South Korea just to mention but a few. School closures carry high social, educational, and economic costs, and the disruptions they cause touch people across communities, but their impact is particularly severe for disadvantaged persons and their families (UNESCO, 2020b). The pandemic engraved a devastated situation where the school institution cannot escape by the fact that this shouldn't be undone without proper treatment.

As terrifying as it sounds, the country is still looking for a solution to eradicate the Coronavirus pandemic until the schools and universities went inconvenient. UNESCO Director-General, Audrey Azoulay cited by VOA News (2020), warned that "the global scale and speed of the educational disruption due to coronavirus is unparalleled and, if prolonged, could threaten the right to education". No doubt, the major problem of the educational institution

could pessimistically affect the academic interest, mastery of the course, and performance of the students.

Adding to the fact that many schools and universities are continuing the learning outcome of the students, it may be with the help of technology, the consequences are arising and could lead to an inevitable mark of lack of mastery and practical learning of the students at hand. According to Schleicher (2020), this crisis has exposed the many inadequacies and inequities in our education systems – from access to the broadband and computers needed for online education, and the supportive environments needed to focus on learning, up to the misalignment between resources and needs. On the other hand, responses like community lockdown and community quarantine of several countries have led students and teachers to study and work from home which led to the delivery of online learning platforms (Crawford et al., 2020). However, the implementation of online learning posed different risks, problems and challenges to both the teachers and students, especially in the higher education institutions (HEIs) (Bao, 2020).

According to Mian, A., Khan, S. (2020), numerous medical schools have suspended all clinical placements and classes with the hopes of mitigating viral transmission. As a result, there are difficulties on how students can access quality education through limited platforms. Some institutions in our country are not prepared on the sudden shift of physical learning to virtual learning. This unexpected change from long-established type of learning

to an online learning setup has modified the procedures of different learning institutions in providing education for their students. The institution and its faculty are challenged to take part in students in online classes. They have been guided with guidelines and procedures to carry out online learning to students. Various technologies and platforms have been developed to enrich the learning, participation of each student, and their evaluation for the purpose of setting the sight on the enrichment of the quality of the education provided.

According to Lucey and Johnston (2020), a particularly challenging aspect of education during the pandemic was the substantial restriction of clinical learning experiences for medical students. Given the shortage of personal protective equipment, limited COVID-19 testing abilities, and uncertainty about how easily the virus could be spread, medical schools were reluctant to engage learners in care of patients with or suspected of having COVID-19. Other factors that make online learning difficult include limited non-verbal communication, student's and professor's interactions, accessibility of educational materials, time management, and even the schedule of the subjects can influence different opinions of students that will engage in online learning. Educational institutions must also observe how students react and engage in online classes to assess any difficulties that can be a hindrance on students' way of learning in this new type of platform.

As the COVID-19 cases increased, the alarming situation could be doubted, and the negative impact of continuous learning online is seen. For the Radiologic Technology students at New York City College of Technology (NYCCT), it was the beginning of how the medical education, the acquiring knowledge and psychological/motoric skills of radiological sciences (Masic, 2008), would change not just their lives as students but as future radiographers. A claim that indeed would tell the people from raising their awareness on how much of these can affect their professional service in the future.

In this study, the researchers aim to address the gaps by providing thorough description of perception of the lived experiences of radiologic technology students in a way that the online learning they acquire in the midst of pandemic could impact the practical mastery of the course.

Statement of the Problem and Research Objectives

This study aims to progressively understand the hindrance and perception of medical students particularly to Radiologic Technology courses through the in-depth impact of COVID-19 to study the field with the help of online schooling than real time learning. The researchers take into account addressing the phenomenon as an arising issue and one of the major problems in the community. The researchers would like to discover, explore, and to provide thorough study to this kind of problem and also to answer the following question:

Main Research Question/ Central Question:

- How would radiologic technology students learn their field through online learning amidst the COVID-19 pandemic?

Sub-Questions:

- In the absence of face-to-face education, how would students acquire mastery of instruction in their chosen course?
- Can students understand the concept in online class compared to face-to-face class?
- How do students describe the experiences through online schooling amidst COVID-19 to be applied in the future?
- With the parameters and solutions set by the institution, how would students describe that the competency of studying online can be applied in real life situations?

Also, the researchers would like to provide an in-depth analysis from the lived experiences of the radiologic technology students through online schooling.

Specifically, it aims the following:

- To discover the lived experiences of radiologic technology students during COVID-19 with the absence of face-to-face education through online schooling.

- To describe the phenomenon of the students in the setting of online schooling to master the field without face-to-face interactions.
- To describe the effects of institutional measures on the competency of students to face real life situations.

CONCEPTUAL FRAMEWORK

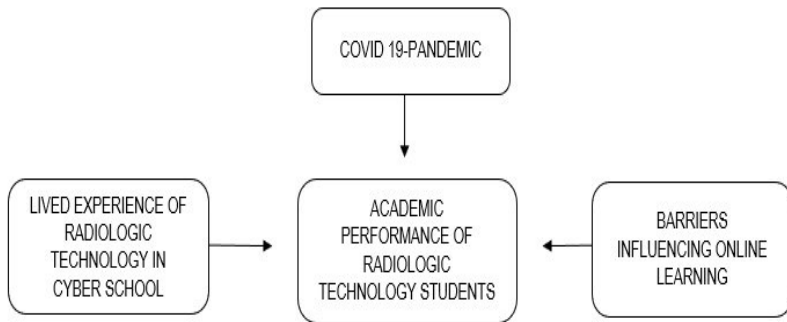


Fig. 1 Conceptual Framework

Shown in **Figure 1**, was the overall flow and concept in order to achieve the aims and objective of this study. As being clearly stated, the independent variable – COVID-19 created abundant barriers with regards to the course of Radiologic Technology. Moreover, the students learning and practical knowledge about the course will give them the perspective and prejudice towards their lived experience in cyber schooling. All of which is a contributory factor that highly influenced the dependent

variable which is the academic performance of the radiologic technology students.

SIGNIFICANCE OF THE STUDY

The findings in this study will redound to the benefit of the following:

Students. The result of the study will enable the students to learn an insight about the context of cyber-schooling amidst the COVID-19 pandemic. This study will also help the students to have a deeper understanding of the effect of COVID-19 in the academic and professional setting.

Professors/Academic Institutions. Findings may help the professors to reflect on their way of teaching amidst an unprecedented event in such a way that they could be able to enhance their way of teaching by coping up a strategic plan that the researchers might come up further in this study. The findings in this study can be a tool for the betterment of their teaching strategy especially in teaching the course. In this case, the professors will know what aspects can still be improved or added to students' study learning. They will come up with alternatives on how their Radiologic Students of Emilio Aguinaldo College – Cavite learn their field through online learning amidst an unprecedented event. They will also know how their students could achieve success throughout their online classes.

Administrator. The administrators will be aware of the current system of teaching online amidst the pandemic in the Philippines and other countries. The findings of this study will enable them to find the flaws in the system of teaching online and later use this study as a basis for the revision of their programs. In addition to that, this study may be the key to start the improvement of the system of teaching in the Philippines.

Parents/Guardians. This study would give perception for the parents/guardians in guiding their children in the middle of a pandemic to deal with the emotional and physical support for the students and know the outcomes of the effect of COVID-19 pandemic in the performance of students in class and society in the future.

Curriculum Developer. The curriculum developer will be aware of the different methods and approaches those different countries use in order to improve their educational system amidst the pandemic or any unprecedented event. The findings in the study will make them aware of certain flaws and problems when it comes to the system of online teaching in the Philippines. And with that, this study may be the key in beginning to find more ways, methods and techniques that may be used to reflect for an effective and efficient teaching even if an unprecedented event occurs.

Researchers. This study may be used as a basis for future research, for providing more methods or approaches in understanding and improving the academic curriculum in

the Philippines. This may serve as a source of information about how the radiologic technology students can cope up with the new normal.

SCOPE AND LIMITATION

The scope of this study will mainly focus on the perspective and lived experiences of the Emilio Aguinaldo College- Cavite Radiologic Technology Students, particularly the 3rd year students. The researchers believed that these main participants could be of help in finding the results to be discussed in-lined with the research study because of the fact that they are the most affected students in terms of mastering the skills and practical learnings in the course of radiologic technology. Moreover, the researcher's will not study the area on the status of students' general weighted average grades compared with their previous grades before and after the pandemic hits the educational environment.

RESEARCH DESIGN

Research is defined as the process of collecting, analyzing, and interpreting data in order to understand a phenomenon. According to Godwin Colibao (n.d.), the definition of research is the gathering of data, information and facts for the advancement of knowledge. Research starts with an inquisitive mind of a researcher that seeks answers or solutions to a problem or phenomenon. In order to address these questions and to have advancement of

knowledge, a researcher uses a scientific method which is the systematic investigation of a phenomenon for acquiring knowledge and advancement of previous knowledge. In order to have the best results, the researcher must determine the type of research approach he or she is conducting. This would lead the researchers to use the appropriate method, instruments, samples and sampling procedure, approach, data and information and the procedure for collecting and analyzing data.

In this manuscript, the researchers utilized a qualitative phenomenological study design. The researchers employed a phenomenological research method for this study to determine and understand the lived experience of the participants and to focus on the student's experience about the phenomena of cyber schooling in the current pandemic caused by COVID-19. Therefore, in a phenomenological study, participants should have experience with the same phenomenon. Individuals selected to participate in the phenomenological study should have significant and meaningful experiences of the phenomenon being investigated (Cresswell, 2007; Moustakas, 1994).

A research design is an essential element in every research study. The research design is the blueprint that helps in the fulfillment of objectives and gives answers to particular research problems. This section of the paper had shown the overall strategy to integrate different components of the study in a logical way. Phenomenology is an approach to qualitative research that focuses on the commonality of a lived experience within a particular

group. This research was phenomenological in a sense that the data obtained have narrowed, transcribed and analyzed. This study design also encompasses the formulation of the best and reliable questions for interview with connection to the themes and patterns that was analyzed and evaluated at the latter part of the research.

In this study, the researcher aims to address the gaps by providing thorough description of perception of the lived experiences of radiologic technology students in a way that the online learning they acquire in the midst of pandemic could impact the practical mastery of the course.

RESEARCH LOCALE

The research locale presents the reader the settings where the study and data collection were conducted. In this research, the researchers utilized the most target place for the study, and for the reason that this research was dedicated in the school of the researchers, that said, the Emilio Aguinaldo College- Cavite Radiologic Technology. The study was conducted at Emilio Aguinaldo College- Cavite, an ISO 9001:2015 certified college school, top 1 in the college category with the greatest number of accredited programs. This school comprised Biomedical Sciences Institute, Engineering Sciences and Technological Institute, Institute of Management, and Humanities and Social Sciences Institute. It was located at Congressional East Ave., Burol Main City of Dasmarinas, Cavite 4114, Philippines and the write up was done at Malinta, Dasmarinas, Cavite.

RESEARCH PARTICIPANTS

This portion of the methodology presents the participants involved with specific criteria. Moustakas (1994) defined all research participants as co-researchers because the essence of the phenomena is derived from participants' perceptions and experiences, regardless of the interpretation of the researcher. The researchers engaged three (3) third year (3rd Year) Radiologic Technology students of the Emilio Aguinaldo College-Cavite composed of one (1) academic scholar male/female students (a student with good standing but hired with academic scholarship, have obtained under consideration of general weighted average of at least 1.50 equivalent to 91%-93% and no grade below 2.0 which is equivalent to 85%-87%), a one (1) male/female regular students (a student with good standing but not hired with academic scholarship, the standard passing grade for all subject is 3.0 which is equivalent to 75%), and one (1) male/female irregular students (who marked as one who is unable to follow the subject sequence of the subjects outlined in the program curriculum, due to reasons of failure, dropping, leave of absence, and/or shifting,). Moreover, the researchers had acknowledged the problem brought by physical data gathering restrictions. Consequently, it was vital to emphasize that the study was performed only among students who were assessed to have a degree of stability of internet connection (i.e., very stable, intermittently stable, and unstable) with available technological and communication tools (i.e., cellphone, laptop, computer) that

was employed in online learning/schooling. Hence, the aforementioned criteria were distinguished in order to specify their academic standing and virtual capacities which was increased vindication of objectivity and impartiality throughout the study.

Furthermore, the participants were chosen because of their availability and for the reason that they were the target purpose of the manuscript. The participants' narratives of experience provide the meaning of the phenomena. It was the role of the researchers to create the textural, structural, and textural-structural narratives without including their subjectivity. This means the transcendental analysis requires no interpretation by the researchers. The co-researchers were not involved in the study in terms of investigations, which the researcher conducted. However, the researcher informs the co-researchers about their positions in a phenomenological research that answers the research questions based on the co-researcher's experience and their narratives. (Creswell, 2016)

SAMPLING TECHNIQUE

In this portion of the manuscript, the researchers explained the sampling technique utilized in the study. Sampling technique is the method used in drawing samples from a population usually in such a manner that the sample will facilitate determination of some hypothesis concerning the population. According to the United States Bureau of

the Census (1998), a sampling technique is the name or other documentation of the precise procedure by which the sample of the given population has been selected. According to Explorable (2009), the research population is generally a large collection of individuals or objects that is the main focus of a scientific query. It is for the benefit of the population that research is done. It is also known as a well-defined collection of individuals or objects known to have similar characteristics. All individuals or objects within a certain population usually have a common, binding characteristic or trait.

Conversely, the researchers utilized a non-Probability purposive sampling technique to specifically gather the data information that precluded other factors in the study. In non-probability sampling, the sample was selected based on non-random criteria, and not every member of the population had a chance of being involved.

Purposive sampling is commonly used in qualitative studies. This technique was used by the researchers to recruit the participants who can give and provide in-depth and detailed information and data by meeting the criteria each participant must meet to be considered for the research study. Creswell (2009) explained that the purposeful sampling strategy involves the researcher selecting the participants purposefully since they can understand the phenomenon; thus, the researcher can decide whether participants share significant and meaningful experience concerning the phenomenon under the investigation.

To specifically identify the criterion for this research, the researchers enlisted the inclusion and exclusion criteria in the study. The inclusion criteria identified the study population in a consistent, reliable, uniform, and objective manner. The exclusion criteria included factors or characteristics that made the recruited population ineligible for the study. These factors may be confounders for the outcome parameter. (Anaesth, 2016)

On the other hand, the following criteria were presented by the researchers in the study in terms of gathering the participants compromising of:

INCLUSION CRITERIA:

1. Third Year (3rd year) Radiologic Technology male/female students of Emilio Aguinaldo College- Cavite
2. Lived experiences of the sample thru online schooling in Emilio Aguinaldo College-Cavite radiologic technology amidst of COVID-19 pandemic.
3. Academic Scholars students, Regular or students with good standing, and Irregulars' students of Emilio Aguinaldo College-Cavite Radiologic Technology
4. Availability of Technological devices/ resources that are utilized during online classes such as:

- a) Laptop or Personal Computer (PC)
 - b) Tablet
 - c) Mobile Phones
5. Degree of stability of internet connection of the sample
- a) Very Stable
 - b) Intermittently Stable
 - c) Unstable

EXCLUSION CRITERIA:

- 1. Dropouts Radiologic Technology students on the halfway of online schooling in Emilio Aguinaldo College-Cavite amidst the COVID-19 pandemic.
- 2. First year (1st year) and Second year (2nd year) students of Emilio Aguinaldo College- Cavite radiologic technology who are also experiencing continuous online schooling amidst the COVID-19 pandemic.
- 3. Fourth Year (4th Year) students of Emilio Aguinaldo College- Cavite radiologic technology as the batch had already graduated during the study.

However, in this research, the researchers utilized a data saturation method as basis for number of participants, a basis whether to stop sampling or add more participants. Data saturation is reached when there is enough information to replicate the study (O'Reilly & Parker, 2012; Walker, 2012), when the ability to obtain additional new information has been attained (Guest et al., 2006), and when further coding is no longer feasible (Guest et al., 2006). Data saturation refers to the point in the research process when no new information is discovered in data analysis, and this redundancy signals to researchers that data collection may cease. Saturation means that a researcher can be reasonably assured that further data collection would yield similar results and serve to confirm emerging themes and conclusions. When researchers can claim that they have collected enough data to achieve their research purpose, they should report how, when, and to what degree they achieved data saturation (Faulkner, 2017). In this way, the researchers were able to assess clearly the result of the study.

Furthermore, this study was conducted in EAC-C School of Radiologic Technology, different characteristics of participants were highlighted to be able to differentiate each status in online classes. The table below has shown the sample characteristics:

Characteristics	Margaret	Justin	Cassie
Course & Year Level	BSRT 3 rd Year	BSRT 3 rd Year	BSRT 3 rd Year
Batch	Regular	Regular	Irregular
Academic Standing	Academic Scholar	Regular	Irregular
No. of Months into Online Classes	13 months	13 months	13 months
Degree of Stability of Internet Connection	Intermittently stable	Unstable	Very stable
Technological Tools Used in Online Classes	Mixed devices i.e., laptop, PC, cellphone	Mixed devices i.e., laptop, PC, cellphone	Mixed devices i.e., laptop, PC, cellphone

Table 1, shown each student characteristics in online classes, by the execution of data saturation three participants were Included in the study. Characteristics were listed from course & year level of participants to technological tools used in online classes.

DATA GATHERING

Data gathering procedure or data collection is the part of research where the researchers will systematically collect data from the respondents that will help create a picture of the area of interest and answer the research problem. (Data collection, n.d.). The aim of the gathering procedure is to provide primary and secondary reliable sources to substantiate the summary of data provided. The process of data collection follows the identification of the sample. Data collection can take the form of ‘direct data’ or ‘indirect data’. Thus, the researchers will follow a direct data that will include recordable spoken or written words and also observable body language, actions and

interactions. Here, the interactions may be human-to-human or human responses to inanimate objects—such as a hemodialysis machine. Whatever that will be observed or communicated will be considered to be potential or actual data (Issacs, 2014). This will occur when considering the thoughts, feelings, experiences, meaning of experience, responses, actions, interactions, language and processes of individuals and groups within their social and/or cultural setting (Babbie 2014).

Furthermore, the next step was data gathering. The process begins with the submission of a letter of permission from the researchers which was addressed to the institution. It encapsulated the request for approval of the interview content, the research project proposal which was beneficial in informing the panel about the main purpose of the study, the researchers 'statement of ethical responsibility, benevolence and confidentiality among the selected participants and the data collection tool which was specified thru Google mails (Gmail) for exchanging information with the co-researchers. Thus, on the succeeding process, the researchers submitted another letter which includes the study's prime objectives, informed consent with detailed descriptions about the study, Gantt chart and budget for the research. These mentioned documents were delivered on Google mail (Gmail) prior to the interview proper.

In the former part of this manuscript, the researchers first noticed the School of Radiologic technology faculty

Adviser/Professor to recommend participants needed in the manuscript, this was done to decrease bias in selection. The professor chose accordingly on whoever meets the qualified standards suited in the criterion proper mentioned previously. In the later part, the researchers had stringently abided on the scheduled date when they obtained the full permission from the institution, and they proceeded to conduct the interview as per the convenience of the participants.

Prior to the day of the scheduled availability of the participants, the researchers had allowed the participants to view the questions so they could formulate substantial answers on the actual Google meet online interview. Nonetheless, the questions' framework was already supplicated in the informed consent. They were also reminded to respond with holistic integrity and honesty for the benefit of the study. To ensure focalization, they were interviewed individually through the use of semi-structured questionnaire, which served as a guide for the researchers. Some questions were organized for the researcher to lead the interview on the way to the fulfillment of research objectives, but supplementary queries were meant made to appear throughout the conferences. The interview questionnaires were composed of open-ended questions that assessed the level of influence and perception of cyber schooling in the level of the academic performance of the chosen participants. The researchers also managed the research instruments to the participants.

Each of the participants were given 30 minutes to an hour in answering the given interview questions. Their responses were ethically recorded which are ought to allow and permitted by the participants themselves. The recorded videos were assured to be used only for validation and evaluation of credibility for the study and not for other purposes.

In precedent alignment to research approach, the researchers gathered the necessary notes, documents, and co-researchers' point of view for the overall collection, analysis and validation of data. This was also comprised a pilot test before the process of narrowing down, transcribing, and coding the data. Pilot testing is a rehearsal of your research study, allowing you to test your research approach with a one sample participant before you conduct your main study (Wright, 2020). The result of the interview for all the participants were tabularized and organized as to triangulate the themes and patterns that was presented on the data presentation of the manuscript.

RESEARCH INSTRUMENT

Instrument is the generic term that researchers use for a measurement device (survey, test, questionnaire, etc.). According to Neil J. Salkind (2010), this refers to the tools or means by which investigators attempt to measure variables or items of interest in the data-collection process. It is related not only to instrument design, selection, construction, and assessment, but also to the conditions

under which the designated instruments are administered. To help distinguish between instrument and instrumentation, consider that the instrument is the device and instrumentation is the course of action (the process of developing, testing, and using the device). Without it, data would be impossible to put in hand. But before the researchers can collect any data from the chosen participants, designing the instruments must be first done according to the nature of the research.

To promptly gather the data the researchers employed an instrument by the help of questionnaires and semi-structured interview for the participants. A very common and useful research method in various qualitative research methodologies has been the open and deep interview, carried out in a dialogical manner (Akerlind, 2005) - interviewing of individuals as research participants. Interviews are regarded as the prime method for qualitative data collection; also representing the most common method for gathering qualitative data in nursing-related research (Issacs 2014). Spoken 'narrative' is the basis of most qualitative data, where that narrative is most often gained through a direct encounter between the researcher and participant (or several participants) using in-depth interviews or focus group interviews. Interviews can be conducted by telephone, email and, more recently, through social media conversations and micro-blogging (e.g. Twitter, Facebook, Tumblr). Hence, Semi-structured interviews use an interview guide to provide a set of questions for discussion. The questions are set to ensure the research aims/questions are covered. The questions were

non-directive and mainly open-ended and were designed to trigger and stimulate open discussion. (Whitehead, 2016)

In collecting data, the researchers utilized semi-structured interview as the main method for data collection. This data gathering technique afforded the researcher data for transcript analysis. It has variations that can be used for specific qualitative research needs (Cohen et al 2007). According to Creswell (2007), in-depth interviews as the primary means of collecting information for a phenomenological study, with a selection of individuals; ten, perhaps, and that the important point is to describe the meaning of a phenomenon for a small number of individuals who have experienced the phenomenon. Cilesiz (2006) stated that collecting data from two sources from the same participants enables the researcher to compare the information from both data sources and to eliminate any inconsistencies, which would indicate untruthful data. In the same perspective, Manen (1997) suggests that there are many means of data gathering for the analysis of lived experience, of which phenomenological study is an obvious type, but he seems to favor interviewing of individuals when gathering their reflective recollections. He states that reflective interview transcripts require interpretive analysis by the researcher in order to produce a human science (phenomenological) description of the experience of the interviewee.

On the latter, questionnaires were also a part of the instruments that was utilized by the researchers in gathering the data of the manuscript and interviewing the participants

respectively. A '*questionnaire*' is the instrument for collecting the primary data (Cohen, 2013). '*Primary data*' by extension is data that would not otherwise exist if it were not for the research process and is collected through both questionnaires and interviews (O'Leary, 2014). Questionnaire type of instrument is defined by Godwin V. Ong'anya and Dr Harry O. Ododa (2009) as a set of systematically structured questions used by a researcher to get needed information from respondents. Questionnaires have been termed differently, including surveys, schedules, indexes/indicators, profiles, studies, opinionnaires, batteries, tests, checklists, scales, inventories, forms, inter alia. They are any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers. As an important research instrument and a tool for data collection, a questionnaire has its main function as measurement (Ododa, 2009). In the preparation of the research instrument, requirements that will be used in designing data collection instruments will be considered and highlighted. Statements telling the issues was measured to accommodate the preparedness of the participants to obtain valid response. To address the emerging issue, validity and reliability were used in order for the study to take into account in the future.

VALIDITY AND RELIABILITY

The data that were gathered was assumed to be valid and reliably stated in this section. The Validity of

qualitative research is defined as the trustworthiness of the data interpretation. It ensures that the findings provide valuable information in correspondence to the appropriacy of the implemented research method. For the validity of the research, the researchers used measurements to increase the validity of the study through interview transcripts, observations of body language, and document review of graded reports. These steps are known as the triangulation process in data analysis which is essentially conducted to holistically synthesize the obtained data and to eliminate the irrelevant statements for a more comprehensible data exposition.

On the other hand, reliability is the consistency of the information gathered in a study which is measured by a correlation coefficient (Roberts & Priest, 2006). External reliability refers to the extent to which a measure varies from one use to another (McDonald et al., 2019). On the first hand, the analysis of data by the researchers will be utilized as a foundation of reliability measure of the manuscript. The validation process includes member check (Merriam, 1995). It is a procedure where members will evaluate, assess and speculate the credibility, coherence and relevance of the obtained information based upon participants' gathered interview transcription. Thereafter, the researchers sent the compendium of the verbatim responses back to the co-researchers and participants so they could crosscheck the truthfulness and substantiality of their elicited responses. If there will be modifications to be done on the original transcript, the researchers can also send the improved and revised format back to the

participants for their content approval. Despite the low reliability of qualitative researches across populations, contexts, and time (Johnson, 1997), it can be advantageous in expounding phenomenological researches as it can support the aptness of the expositing in-depth description and lived experiences of a specific group. Through imploring the validity and reliability measures, the findings can be warranted with high objective accuracy and low biases and presuppositions—which is vital for the study’s probable replication in the future (Cilesiz, 2009).

DATA ANALYSIS PROCEDURE

After collecting data through phenomenological interviews with co-researchers who had experienced the phenomenon. This section describes the procedure of preparing and analyzing the data.

The general procedures include preparing data for the analyses, reducing the data phenomenologically, engaging in imaginative variation, and uncovering the essence of the experience. Qualitative data analysis is referring to non-numeric information such as interview transcripts, notes, video and audio recordings, images and text documents. (Dudovskiy, 2018)

In order to analyze the data that were gathered from the participants and to form thematic explanation and patterns, the researchers encompassed Thematic Analysis as part of the data analysis of the manuscript. According to

Braun & Clarke (2012), this method involves an accessible, flexible, and increasingly popular method of qualitative data analysis. Learning to do it provides the qualitative researcher with a foundation in the basic skills needed to engage with other approaches to qualitative data analysis. This type of analyses extremely benefitted the overall data scrutiny because it takes into account the specificities of the participants' unique experiences and synergistically deliberated it in a comprehensive flow of results. Furthermore, the researchers chose to manually transcribe the data and place codes that are vital for its conceptual connotation.

Manual coding will be used in the study. According to Dudovskiy (2018), when using manual coding you can use folders, filing cabinets, wallets etc. to gather together materials that are examples of similar themes or analytic ideas. Coding can be explained as categorization of data. A 'code' can be a word or a short phrase that represents a theme or an idea. All codes need to be assigned meaningful titles. A wide range of nonquantifiable elements such as events, behaviors, activities, meanings etc. can be coded. It is also essential to clarify that although the code representations are to be depicted in English language, the original transcript will retain the exact word, language used and verbatim responses of the participants. In totality, these methods were viable for a proficient thematic analysis and although it is considered as labor-intensive and time consuming, the researchers believed that it was the most efficient style employed.

SYNTHESIS

This chapter contains the process that the researchers used in collecting and analyzing data and information needed in the study. This includes the strategy that the researchers used in addressing the research problem. This chapter also deals with the research design, research locale, research participants, sampling technique, research instrument, data gathering and analysis procedure that the researchers used in investigating and studying the topics under this study.

According to Godwin Colibao (n.d.), the definition of research is the gathering of data, information and facts for the advancement of knowledge. In this manuscript, the researchers used a qualitative phenomenological study design. In this study, the researchers aim to address the gaps by providing thorough description of perception of the lived experiences of radiologic technology students in a way that the online learning they acquire in the midst of pandemic could impact the practical mastery of the course.

A research design is an essential element in every research study. In this manuscript, the researchers utilized a qualitative phenomenological study design. The general purpose of the phenomenological study is to understand and describe a specific phenomenon in- depth and reach at the essence of participants' lived experience of the phenomenon. Phenomenology as a methodological framework has evolved into a process that seeks reality in

individuals' narratives of their lived experiences of phenomena (Cilesiz, 2009).

The research locale presents the reader the settings where the study and data collection were conducted. In this research, the researchers used the most target place for the study.

The study was conducted at Emilio Aguinaldo College- Cavite Radiologic Technology. The researchers used three (3) third year (3rd Year) Radiologic Technology students of the Emilio Aguinaldo College-Cavite composed of one (1) academic scholar male/female students, one (1) Regular students, and one (1) male/female irregular students with given inclusion and exclusion criteria.

The researchers explained the sampling technique used in the study. Conversely, the researchers utilized a Non-Probability purposive sampling technique to specifically gather the data information that precluded other factors in the study. In non-probability sampling, the sample is selected based on non-random criteria, and not every member of the population has a chance of being included. However, in this research, the researchers utilized a data saturation method as basis for number of participants, a basis whether to stop sampling or add more participants. Saturation means that a researcher can be reasonably assured that further data collection would yield similar results and serve to confirm emerging themes and conclusions. (Faulkner. 2017)

Furthermore, the next step was data gathering. Prior to the day of the scheduled availability of the participants, the researchers allowed the participants to view the questions so they could formulate substantial answers on the actual Google meet online interview. To ensure focalization, they were interviewed individually through the use of semi-structured questionnaire, which served as a guide for the researcher. The interview questionnaires were composed of open-ended questions that assessed the level of influence and perception of cyber schooling in the level of the academic performance of the chosen participants. Each of the participants were given 30 minutes to an hour in answering the given interview questions. In precedent alignment to research approach, the researchers gathered the necessary notes, documents, and co-researchers' point of view for the overall collection, analysis and validation of data. The result of the interview for all the participants were tabularized and organized as to triangulate the themes and patterns presented on the data presentation of the manuscript.

To promptly gather the data the researchers employed an instrument by the help of questionnaires and semi-structured interview for the participants. A very common and useful research method in various qualitative research methodologies has been the open and deep interview, carried out in a dialogical manner (Akerlind, 2005) - interviewing of individuals as research participants.

The data gathered was assumed valid and reliably stated in this section. For the validity of the research, the

researchers used measurements to increase the validity of the study through interview transcripts, observations of body language, and document review of graded reports. On the other hand, reliability is the consistency of the information gathered in a study which is measured by a correlation coefficient (Roberts & Priest, 2006). On the first hand, the analysis of data by the researchers will be utilized as a foundation of reliability measure of the manuscript. The validation process includes member check (Merriam, 1995). It is a procedure where members will evaluate, assess and speculate the credibility, coherence and relevance of the obtained information based upon participants' gathered interview transcription.

In order to analyze the data gathered from the participants and to form thematic explanation and patterns, the researchers utilized Thematic Analysis as part of the data analysis of the manuscript. According to Braun & Clarke (2012), this method involves an accessible, flexible, and increasingly popular method of qualitative data analysis. Manual coding will be used in the study. According to Dudovskiy (2018), when using manual coding you can use folders, filing cabinets, wallets etc. to gather together materials that are examples of similar themes or analytic ideas.

RESULTS

Theme 1: Students' technological resources

This theme was established by the Third Year Radiologic Technology of EAC-C in terms of accessibility to connect online, and it helps to determine the differences in connectivity and gadgets used by them during online classes.

When participant was asked about her internet status during online class, she shared:

“Sa internet naman... Okay lang... mabilis naman”
– Cassie

Whilst the student experienced a fast internet connection, but some of them were experiencing data internet connectivity issues. One of the students shared his experience about the internet problems he encountered during online classes:

“Yung mga factors ‘din internet service, well minsan mabagal, nag-ano, nagcchoppy yung sinasabi ng Professor” – Justin

“Moderate lang... kasi minsan meron times na, medyo mabagal, minsan meron din namang times na ano mabilis. Depende rin naman kasi sa ano eh... sa internet communicator”

– Justin

Internet data service was seen by the student as a problem during online classes, thus, when occur, unstable internet connection arises. However, this issue may be controlled when a student extends their internet access thru

data load. Another statement shared by the student when internet connectivity problem occurs:

“May time pa ako, uhhh nagpapaload na kaagad ako then [from laptop], magswitch ako sa phone para mag-data” – Margaret

The students pertained that they switch to data load when sudden internet problem occurs to join the class, and mentioned to switch from laptop to cellphone used to access in online classes. These may also highlight the devices utilized by the students online.

When students were interviewed about their device’s accessibility, they shared:

“Uhhh...yung sa amin, sa phase ko meron kaming ano-- family computer, Kaso minsan, ginagamit talaga to ng kapatid ko, so halos madalas nasa phone ako” - Justin

“Minsan mixed... pero most of the time, laptop” - Margaret

Based on the students their device’s accessibility was either personal computers and/or mixed devices i.e., phones and laptops to be able to access in online classes.

Theme 2: Barriers to achieving learning goals

In this theme denotes the hindrances that were interpreted by the Third Year Radiologic Technology students of EAC-C in the context of online classes. One of the barriers gathered in the study was interaction difficulty. According to the students, the delayed feedback from the instructor and classmates was mentioned as one of the problems encountered by students on online learning:

“Mahirap yung interaction kasi, online hindi kayo nagkikita. Kumbaga out of class hours, hirap nilang i-approach” – Margaret

“Mga classmates naman, minsan mahirap sila hagilapin, parang pag-hanap ng presence nila. Sa mga prof, especially kapag teachers, hindi mo alam kung busy sila”
– Margaret

“Sa mga Prof, most of the time hindi naman talaga sila agad-agad nag-rerespond, patiently waiting sa respond nila then mas tina-try magreach-out” – Margaret
“While in online class eh...mahirap kasi umm... different yung time frame nyo, minsan online sila minsan hindi, so... after ng class, hindi”
– Justin

Another barrier stated by the students was the stress they have experienced in online classes. Two of the students during the interview mentioned stress that they have experienced during online classes:

“Sa akin, online class, hmmm... unang rinig pa lang medyo mahirap eh” – Justin

“Yung na experience ko so far is mahirap na medyo nakakastress” – Margaret

Another issue that arises during the interview that contributed to the barriers in achieving learning goals was the drawbacks of e-learning as perceived and experienced by the students.

One of the students mentioned about the eye strain that he usually experiences in a prolonged period of utilizing electronic devices during online classes:

“Medyo nakaka-apekto yun sa mata, medyo masakit kaya... kaya medyo nahihirapan kapag napatagal na yung class” – Justin

Another statement mentioned by the student that contributes problems in elearning were the lack of performance monitoring and absence of laboratory equipment in their homes.

“Hindi ka naman nakikita kung paano ka nag-peperform lalo nasa atin mga med student” – Justin

One of the students shared his experience about absence of laboratory equipment in online classes:

“Laboratory, hindi naman tayo nakakapag-laboratory sa online class. Wala tayong ano machinery, since radtech tayo” – Justin

Another factor that are defined as barriers in achieving learning goals by the students was that they experienced boredom while participating in online class and panic due to disconnection to the internet:

“Yung connectivity ng internet namin, minsan hours before na ang mismong class nagloloko... mas natataranta ako” – Margaret

“Parang wala akong gana lagi, syempre dito lang ako nakatunganga, pinapakinggan ko lang siya” – Cassie

“Yung sa una talaga mahirap, nahihirapan ako kasi sa akin naman kasi syempre puno ng gamit ko, nasa kwarto lang ako, nakaupo lang sa bed, hindi mo naman maiiwasan na antukin eh. Kasi nasa bahay ka lang eh, nasa--- nakaupo ka lang sa higaan, hindi mo maiiwasan antukin” – Justin

Lastly, the final barrier stated by the students as problems they have encountered in online class was the environmental factors. The students mentioned house chores and background noises in their respective houses as other barriers in online class.

In the data, two of the students have problems with outdoor noises through an online class which can affect on how they perform during classes.

“Pero yung panlabas mismo, minsan nakakadistract, like yung sa labas ng bahay yung ingay” – Margaret

“Yung kwarto hindi soundproof so yung mga ingay ng aso nakakadisturb,” – Justin

House chores were another problem encountered by the students. Unintentional house chores can cause distractions on the student’s focus especially during class hours. One student shared common house chore that he experienced during class:

“Yung responsibilities example yung mga utos-utos, chores natin na kunyari maghanda ng pagkain ganon” – Justin

Another reason stated by the student described that coping up with online class for a year was still not enough to compensate proper academic adjustment:

“For me...nahihirapan ako kahit parang year na tayong nago-online class... nahihirapan ako mag-adjust kasi hindi ako sanay sa ganito eh,parang ang hirap niyang i-cope up” – Cassie

Theme 3: Effective learning strategies

The Third Year Radiologic Technology students of EAC-C mentioned the factors that influences their effective learning strategies such as future applications and preferential learning. The students mentioned time management and cognizance in online class as the skills and realizations that they can apply in the future especially during internship or possible continuation of online classes:

“Time management sa internship so hindi pa rin mawawala sa atin yung time management na yan, kailangan natin maging flexible, so... maa-apply natin sa...real life sa.. Internship face to face mga ganon” – Justin

“Kasi meron na tayo mga based sa online class. Ayun magagamit natin. Gamit na gamit ko na. So, I think yung mga knowledge and experience ko sa online class is ma-aapply ko in the future especially mga positioning.” – Cassie

However, one of the students shared about her uncertainty in the future application of experiences and knowledge gained through online classes:

“50/50 ako ngayon, papasok tayo sa intern hindi tayo ka-skilled tapos sa board exam pwede naman siguro kung nagbabasa naman tayo”- Cassie

The data collected also tell the experience of one of the participants pointing out about the adjustment in the transition of face-to-face class to online class.

The participants talked about being accustomed in online class for the past and current semesters:

*“Compared the prior sems nakapag-adjust na ko”
– Cassie*

“Habang patagal ng patagal nakapagadjust na rin ako na kailangan yung mindset ko is... yung kailangan ko gumaraduate. Na hindi ako pwedeng pa-- ano ba to, patamad tamad na tuwing class is patulog-tulog, kailangan pa rin, na nandun pa rin yung... yung mindset mo na kailangan mo gumaraduate, kailangan mo makapagtapos” - Justin

According to one of the students, she highlighted that face-to-face and online class has identical learning that can be received by a student:

“Wala naman pinagkaiba yung learning na natututuhan mo from face-to-face pati online class, so lahat naman ng learnings na na-rereceive ko, whatever the scenario, na-apply ko naman and I think ma-apply ko yung iba” – Margaret

The students also shared their preferential learning styles that includes their activity preference in online class such as essays, researches, and quizzes:

“Sa akin ano, mas preferred ko yung research, tsaka yung ano pa ba yung pinapa assignment. Yung mga paragraph form ganon – mga essay” – Cassie

“Yung essay din, then yung mga quizzes. Kasi sa essay, parang mas naiintindihan mo yung topic na tinatanong sayo. Mas na-eexplain mo siya based on your own understanding, and yung pag sa mga quizzes naman and yung seat works” – Margaret

“Sakin mas preferred ko yung research no... kasi yung sa ano... kasi sa research talagang habang, habang nag-rere-research ka, natututo kana rin eh, syempre binabasa mo kung ano yung ni-rere-research mo hindi ka naman basta basta copy paste eh...”- Justin

In relations to the activity preference of the students during online class, the students shared their different study habits and references that they used in online class:

“Nanonood sa youtube ng mga positioning na-ano... na may video o kaya nag babasa ako kasi meron akong book na binili” – Cassie

“After magbigay ng assignment tinatapos ko na para wala nakong proplemahin, so after non mga gabi, then after natin magclass mga gabi, magreview ako kung may quiz, then matutulog na lang” – Justin

“Kapag may tinatanong ako sa prof pag may ‘di ako naintindihan,,syempre uhm...magtatanong ako sa prof then pag ‘di niya pa sinasagot syempre magrerere-research ako” – Justin

“Self-learning manonood ako ng videos sa youtube ng positioning. Then research syempre... then books ... Kailangan mo talaga turuan yung sarili mo paano ka... paano gumalawsa laboratory kasi hindi ka mahahands on ng online class” – Justin

“Yung technique ko ngayon pag may magdidiscuss... nirerecord ko yung ano... yung mga

classes, tapos tsaka ko siya babalikan, tapos lahat ng nahihirapan ako, ninonotes ko siya”

– Cassie

One of the participants shared on how she managed house noise especially when she was attending online classes.

“Most of the time nasasabihan ko yung kapatid ko na wag mag-ingay” – Margaret

Theme 4: Contributing factors to online learning

This theme was defined through the experiences of the Third Year Radiologic Technology students of EAC-C. According to the students, online classes contributed to several factors that the researchers categorize into four sub-themes: 1) social connection, 2) departmental approach 3) learning acquisition, and 4) learning environment Sub-theme 1: Social connection

The students established this sub-theme in terms of connecting in their intrapersonal and interpersonal relationships in online classes. In online learning, one of the students said that:

“Self-learning manonood ako ng videos sa youtube ng positioning. Then research syempre... then books ... Kailangan mo talaga turuan yung sarili mo

paano ka... paano gumalaw sa laboratory kasi hindi ka maha-hands on ng online class” – Justin

“Yung technique ko ngayon pag may magdi-discuss... nire-record ko yung ano... yung mga classes, tapos tsaka ko siya babalikan, tapos lahat ng nahihirapan ako, ninonotes ko siya at aaralin” – Cassie

According to the students, learning to oneself by books and research, and utilizing the internet was established to learn the subject online. Self-notetaking was also seen by the student as a way to learn. Thus, if answers could not be handled by their own, one of the students says:

“Kapag hindi nasagot ng Professor yung inquiries or tanong ko, parang naga-ask na agad ako sa mga classmates ko, like before pasahan ng assignment alam ko na yung gagawin kapag natanong ko na sa classmates ko”

– Justin

The student pertained that he communicated with his classmates if inquiries from Professors could not be answered in the meantime. However, one of the students also pointed out that there were some professors who were responsive if such inquiry and problems in academics happened:

“Nakakausap ko naman sila ng maayos pati Prof natin if may problem ganon, nakakausap ko naman sila. Usually, kapag may inquiries ang mga

students, nagpo-post agad ng announcement yung mga Professors sa g-class and chat sa messenger para malinawan yung student, tas minsan automatic na sila na yung nagcha-chat sa students”
- Cassie

Sub-theme 2: Teaching learning approach

In this sub-theme, students were able to express their notion regarding the faculty teaching style implemented in the course of Radiologic Technology. Two of the students shared their experiences:

“So ayun, nagpapa-video presentation, essays, quizzes, uhmm recitation, oral ganon, tapos yung—yun... parang retdem na din naman yung sa posi diba, and yung mga video presentation” – Margaret

“Puro research lang, puro research lang kami. So may positioning lab rin kami, so practical don” – Justin

Whilst some were experienced the teaching learning style implemented by the faculty, however, one of the students claimed that she struggles to visualize the lesson:

“Sinasabi lang nila yung paano gagawing ganito, paano yung position. Nahihirapan ako i-ano siya... i-imagine ganon” – Cassie

Sub-theme 3: Learning acquisition

This sub-theme expressed by the students were the type of learning they acquired in online classes. Students shared their skills thought by online learning:

“Meron parin naman tayong critical thinking sa online class kasi sa mga exam natin, meron tayong mga... may mga panggulo eh, may mga panggulo sa multiple choice” – Justin

“Oo, kasi mas naffocus ako na aralin ko yung mga lesson, for example, video presentation, mas naaral ko siya, dumadagdag siya dun sa mga learnings”
– Margaret

According to the students, they acquired critical thinking skills and focused to learn the subject more in online class. While another student learned to study with a group online:

“Sa mga classmate, nakakatulong naman din sila in terms sa pag-aaral kasi minsan sabay-sabay din mag-aaral” – Margaret

While, some relies on the video demonstration given to them and taking notes of the discussion to learn the subject:

“Mayroon kasi kaming retdem, so meron kaming ano, recording video na pinapakita namin sa positioning, kung ano yung position ng patient”
– Justin

“Tapos lahat ng naiintidihan ko sinusulat ko, kasi mas nagre-retain yun sa akin” – Cassie

Sub-theme 4: Learning environment

The students stated their virtual learning experience. Two of the students during the interview mentioned stress that they have experienced during online classes:

“Sa akin, online class, hmmm... unang rinig pa lang medyo mahirap eh”

– Justin

“Yung na experience ko so far is mahirap na medyo nakakastress” – Margaret

The stress-free and hassle-free learning environment was another worth noting positive experience according to the students. The students mentioned their experience in the accessibility of the internet that contributes to their virtual learning experience: *“Mas pinadali buhay natin kasi ngayon...isang click mo lang meron agad tayo mga assignment, sa isang ganto mo lang may napapasa agad tayo” – Cassie*

“Mas easy access ka sa harapan ng gadgets. So kapag may hindi ako naintindihan agad sa lesson, uhmm magne-new tab lang ako sa google tapos

mas-search ko agad kung ano gusto kong hanapin”
– Margaret

Theme 5: Effects of online learning

This theme denotes the effects of online learning according to the ThirdYear students of Radiologic Technology of EAC-C, they mentioned mostly the positive effects and outcome of their performance in online classes. According to the students, they were also able to gain constructive effects in the process of e-learning. Two of the students mentioned:

“Most of the time nili-list ko yung mga need kong gawin, ganyan. Tulad ng—parang nags-scheduling ako, naglalagay ako ng mga to do list” - Margaret

“Since, online mas-- mas ano, mas handle mo yung time” – Justin

The students pertained that online classes brings them to manage their time and was able to also manage their academic tasks. Thus, this does not only limit them from what they do in online learning. According to one of the students, she also experienced to adapt in online learning in terms of self-acceptance of the context:

“Nung una nalungkot ako kasi ayon nga may bagsak ako pero iniisip ko rin naman na kasalanan, kaya okay lang din sakin” - Cassie

Based on the student, in the first phase of online class, she experienced grade failure but accepted the process in the latter. Hence, in this process of adaptability, the student was able to improve themselves:

“So, nag-improve lang siguro yung confidence, kasi ikaw lang mag-isa eh”

– Justin

“Kung ano ginawa ko nung face to face dinoble ko sa online class, then syempre more effort”- Justin

The students stated that self-improvement in confidence was the factor that brings them to progress and double the effort on what they do from face-to-face classes to online classes.

According to the students they were able to match their studies and make the most out of online classes. Two of the students mentioned:

“Humahanap ako ng ibang video na same dun sa pinapanood ko, tsaka ko pa lang siya gagawin” - Cassie

“Pinilit ko na siyang i-match [yung pag-study] para mas magka-gain pa ako ng knowledge through online” – Margaret

When two of the students were asked about the outcome of their academic performance, they were able to express:

“Sa first sem ng online class, is pasado naman ako, wala naman akong bagsak eh, kailangan mo lang i-comply, i-comply lahat at pass on time, bibigyan ka ng mataas na grade” – Justin And student Justin added:

...good grades sabihin natin good grades pasado, umm... like 2 not 1 but 2, so... mga average, average grades ‘di naman sa pumapatak ng ano... tres so ganon parin... okay pa rin” – Justin

“Especially pag alam ko naman na nagtry hard ako. minsan nakikita ko naman yung achievement, and yung result [like may flat 1]” – Margaret

According to the students, when put effort even in online classes like academic compliance on the subject they could saw the result of hard-work. However, this does not guarantee the performance per student. According to one of the students she had also a grade failure:

“1st sem ata yon nung 3rd year bumagsak ako sa 3 subjects” - Cassie

According to the student she failed the subject in the process of e-learning. However, in another student, to pass the subject, he mentioned:

“Nakapag-adjust na rin ako na kailangan yung mindset ko is... yung kailangan ko gumradyate” - Justin

According to the student, that to adjust in online classes, mindset for academic requirement must present.

DISCUSSION

Theme 1: Students' technological resources

Technological resources mainly contribute to the online classes of the students, whereas the variations of connectivity and devices accessibility were highlighted. Internet access is the process of connecting to the internet using personal computers, laptops or mobile devices by users or enterprises. Internet access is subject to data signaling rates and users could be connected at different internet speeds. Internet access enables individuals or organizations to avail internet services/web-based services (Techopedia, 2021).

The students were experiencing internet connectivity problem during online classes. Internet data provider affects the learning capability of the students online. This was similar to a study made by Trillanes (2021) in his paper entitled, “Barriers and Challenges of Computing Students in an Online Learning Environment: *Insights from One Private University in the Philippines*”, in his paper he discusses the percentage of students who had internet connectivity problem in online classes, sixty (60) or 20% are experiencing relatively fast internet connection but is not always available. It often happens as there are times when the internet connection is strong and would then subside in some occasions. In terms of the poor connection, one-hundred thirteen (113) or 37% is experiencing slow connection but sufficient to meet the

requirement for their online activities. Overall, it can be interpreted that two hundred eleven (211) or 70% of the respondents can somehow meet their internet requirements for online learning. Only seventy-seven (77) or 26% are experiencing slow connection and are not able to meet their online requirements. Thus, when occur, students quickly find alternative that was to be reliant to data load in order to fix the problem. Trouble shooting of the internet can also be caused by the unforeseen problem in e-learning. While, there is somehow has good internet connection in the latter.

Device's accessibility was also highlighted in the theme of technological resources. Students identified their technological devices used in online classes such as personal computers and mixed devices used i.e., laptops and cellphones to secure an alternative way to access their online class. A similar finding of a study, Barriers to Online Learning in the Time of COVID-19: A National Survey of Medical Students in the Philippines conducted by Baticulon (2021) among 3670 medical students, 93% owned a smartphone and 83% had a laptop or desktop computer. To access online resources, 79% had a postpaid internet subscription while 19% used prepaid mobile data.

Theme 2: Barriers to achieving learning goals

E-learning has the potential to be seen as an impersonal mode of delivery and assessment, which can potentially be isolating for the learner (Bell, 2007) and such concerns have led to consideration of social presence in e-learning (Hall and Herrington, 2010; Kreijns et al, 2011). Medical students in the Philippines confronted several

interrelated barriers as they tried to adapt to online learning. Most frequently encountered were difficulty adjusting learning styles, having to perform responsibilities at home, and poor communication between educators and learners.

One of the barriers gathered in the study is interaction difficulty. According to the students, the delayed feedback from the instructor and classmates was visualized as the main reason which shaped students' pessimistic experience on the quality of online learning. Students look forward to receive sensible response from both instructors and classmates on discussion postings, exam or tests, submitted assignments, and other class inquiries. Within the education communication and understanding each others of participants are very necessary. Also, the communication between teacher and student is a vital element of successful distance education as well. For a successful learning and understanding of the students or instructors, there should be no barriers between sender, receiver and in a message. Therefore, all strategies of learning, teaching during the instruction should not reflect the barriers limitations (Nasseh, 1997). Often students reported feeling confused, anxious or frustrated and wanted quicker feedback from the teacher regarding course content, assignments or management of the online class. (Hara and King, 2000)

Another issue that arises during the interview that contributed to the barriers in achieving learning goals is the drawbacks of e-learning as perceived and experienced by the students.

One of the students mentioned about the eye strain that he usually experiences during prolonged period of using electronic devices during online classes.

One key point learned during the interview is that students can experience eye strain from too much concentrating on laptops and tablets for prolonged periods of time. The discomfort can be a distraction to the student to lose focus during period of classes. According to Gowrisankaran (2012) eye fatigue consists of subjective complaints that cause discomfort in the eye. Asthenopia manifests itself with complaints such as eye discomfort, tearing, dryness, blurred vision, inability to focus, foreign body sensation (Neugebauer, Fricke & Russmann, 1992). This is an important condition that affects attention and academic performance. In our age, the use of digital devices is increasing, depending on the technological developments. In addition, this period of use is increasing in the new generation. As a result, the risk of eye strain increases especially in young people. Considering the previous literature, it has been stated that asthenopia may be associated with various psychosocial and environmental factors. Prolonged near work, increased cognitive load, using computer/screen can affect the eye fatigue complaints (Agarwal, Goel & Sharma, 2013; Ostrovsky, Ribak, Pereg & Gatton, 2012).

Another statement said by the student that contributes to the negative experience in e-learning are the lack of performance monitoring and absence of laboratory equipment in their homes. Laboratory-based courses

typically require specialized equipment and supplies, making them among the most difficult types of courses to transition into an online format. Some studies favor traditional classroom instruction, stating “online learners will quit more easily” and “online learning can lack feedback for both students and instructors” (Atchley, 2013). Because of these shortcomings, student retention, satisfaction, and performance can be compromised (Paul, 2016).

Other factors that were defined as barriers in achieving learning goals by the students is that they experienced boredom while participating in online class and panic due to disconnection to the internet. Internet disconnection can cause panicking to students especially in times of examinations and presentations. Panic can cause students anxiety when engaging in online class and thus can result to a negative experience in elearning.

Longer hours used up adjusting to a fresh method of virtual learning and making sure that students will be motivated adequately to pursue all the way through with online classes is just of the many challenges of e-learning. Boredom is a result of loss of motivation of the student to incline with online class. Many factors contribute to boredom, the data collected emphasizes the boredom of one of the students due to the reason of lack of engagement and participation during online classes. (Coconut Manila, 2020).

House chores are another problem encountered by students. Unintentional house chores can cause distract on

the student's focus especially during class hours. More than one in three students could not study at home as they were engaged in households' chores during the pandemic, a regional study has found.

Of the 396 who participated in the UNICEF's U-Report South Asia poll, the biggest concern for more than 100 Bhutanese youth was about not having time to study at home due to household work during the Covid-19 pandemic (Rinzin, 2020). Since Filipinos value their family, their sense of obligation (Fuligni, Tseng, & Lam, 1999) might cause them to perform well in school. Filipinos are family-oriented (Sanchez & Gaw, 2007). This characteristic leads to the development of family obligation (Fuligni, Tseng, & Lam, 1999). Filipinos are known for their close family-ties. They have a tendency to always put the family first when it comes to decision making. Studies conducted on DE in Ghana reveal that students face problems such as combining full time work and family demands with studies. Since many distance students are adults, there are a lot of responsibilities to meet while meeting the academic demands of their learning institutions. Most distance education students are matured, married and working. Additionally, distance education students have the problem of combining work, family demands, and other commitments with packed academic work (Panchabakesan, 2011; Torto, 2009). DE students encounter numerous challenges such as increased responsibilities from both nuclear and extended families and other social responsibilities.

Theme 3: Effective learning strategies

The participants mentioned the factors that influence their effective learning strategies. It is worth noting that both future applications such as time management and preferential learning are highlighted as an effective learning strategy for the students. Future application refers to the skills, experiences, and learning. The students mentioned time management and cognizance in online class as the skills and realizations that they can apply in the future especially during internship or possible continuation of online class. Empirical evidence suggests that effective time management is associated with greater academic achievement (McKenzie & Gow, 2004; Trueman & Hartley, 1996) as students learn coping strategies that allow them to negotiate competing demands. A number of studies have identified the positive impact of time management. Time management skills have been shown to have a positive impact on student learning and student outcomes (Kearns & Gardiner, 2007; Kelly, 2002; McKenzie & Gow, 2004) and Krause and Coates (2008) report that the capacity to successfully manage their time is the foundation of students developing good study habits and strategies for success. These aspects become the motives of the participants in achieving an effective learning strategy during the course of online class. Their sense of their own abilities in this area influenced their experiences. The students had full control of when to study the required knowledge content by instructor and cognizance for future classes.

The data collected also tell the experience of one of the participants pointing out about the adjustment in the transition of face-to-face class to online class. Indeed, the emergence of the COVID-19 pandemic brought unprecedented disruptions in the lives of people all over the world, it came unexpectedly where no one was ready enough to brace its impact to society. The Philippines in particular, faced a critical situation due to the rise of the said health crisis. For higher education, institutions, avoiding and limiting the risks of infection of the academic community has become a primordial concern. Hence, with the implementation of community quarantine, conduct of classes needed to be immediately suspended.

The herculean challenge then was how to continue teaching and learning beyond the usual face-to-face instruction. Thus, it has become an urgent need to explore other innovative learning modalities that will facilitate migration from traditional to flexible teaching and learning options. As learners are differently situated in terms of time, pace, and place, these options allow customization of delivery modes responsive to students' need for access to quality education. This shall also give students the option to choose the delivery mode most convenient to them as early as the time of their enrollment. The paradigm shifts therefore in the teaching and learning process in Philippine higher education necessitates collaboration among stakeholders and strengthening the culture of sharing knowledge, resources, and best practices. Everyone is

called to be part of this transition and transformation towards the new normal (CHED, 2020).

The data that has been gathered also emphasizes the perception of the student on the differences of the learning gained in face-to-face class and in online class. More and more students are transitioning from a traditional classroom to an online learning environment. "In fall 2013, there were 5,522,194 students enrolled in any distance education courses at degree-granting post-secondary institutions". (U.S. Department of Education, National Center for Education Statistics, 2016) When it comes to face-to-face in the traditional learning environment and online learning there are both similarities and differences.

Similarities between online learning and traditional learning environments are:

- Both online learning and traditional learning require a great amount of work.
- Giving and receiving feedback is important in both environments.
- Assignments are a huge part of the learning experience.
- The challenges and rewards are the same in each environment.
- Both require that students manage their time wisely.

- "While some studies show online students slightly outperforming their traditional classroom counterparts, most indicate that there is little difference in overall performance between the two formats, according to the American Sociology Association". (Morgan, 2016, para. 6)

In relation to adjustment changes, student used strategies in the face of online setting, it was noted in the reference that some strategies are applicable to both while some is applicable only to online learning.

Determining students' preferential learning presents information about their particular preference in learning. Understanding learning styles can create it easier to generate, adjust, and extend more proficient program and educational curriculum. It can also give confidence to students' partaking in these programs and encourage them to achieve professional knowledge and understanding. A number of previous studies have investigated the relationship between college students' learning styles and academic performance, in fact, Moeinikia and Zahed-Babelan (2010) and Williams, Brown and Etherington (2013) confirm that there is a positive link between learning styles and academic performance in the university settings. Learning style is defined as the characteristics, strengths, and preferences in the way how people receive and process information (Hsieh, Jang, Hwang & Chen, 2011). It also refers to the fact that every person has his or her own method or set of strategies when learning (Gokalp, 2013). Likewise, James and Gardner (1995) as cited by Dung and

Florea (2012) defined learning styles as a complex process for individual learner to effectively acquire information. Consequently, Reid (1987) as cited by Ghaedi and Jam (2014) defines learning styles as the changes among learners in using one or more senses to understand, organize, and, retain experiences. Another variable being investigated is the study habits and skills of students enrolled in applied science courses. The literature further suggests that study habits are a predictive factor of academic performance. Ebele and Olofu (2017) found out that there is a significant relationship between study habits and students' academic performance.

Looyeh, Fazelpour, Masoule, Chehrzad and Leili (2017) investigated the relationship between the Study habits and the Academic performance of Medical Sciences Students found out the significant relationship between the study habits of students and their academic performance. Similarly, Siahi and Maiyo (2015) studied study habits and academic achievement of students also found out that a positive relationship of 0.66 between study habits and academic achievement. The results implied that the study habits need a significant attention if we are to improve performance. Furthermore, Chilca (2017) studied on the study habits and academic performance among university students in Peru concluded that study habits do influence academic performance.

In the data gathered, the students mentioned the type of activities they preferred in online class. Research has shown that individuals exhibit different approaches in

the learning process and a single strategy or approach was unable to provide optimal learning conditions for all individuals (Brown T. et al, 2009). This may be related to students' different backgrounds, strengths, weaknesses, interests, ambitions, levels of motivation, and approaches to studying (Felder RM et al, 2005). Activities might have positive and negative consequences. If teachers are able to make use of appropriate activities in the classroom, these activities could be the mediator to increase students' motivation and to decrease their anxiety. On the contrary, they might also bring consequences such as demotivation, increasing anxiety, boredom, absenteeism, or even dropping out of class:

The boredom listed above was also related to one of the participants experience during online classes, she said that:

“Parang wala akong gana lagi, syempre dito lang ako nakatunganga, pinapakinggan ko lang siya” – Cassie

In the other hand, statement below will emphasize the absenteeism according to the student:

“Mga classmates naman, minsan mahirap sila hagilapin, parang paghanap ng presence nila. Sa mga prof, especially kapag teachers, hindi mo alam kung busy sila” – Margaret

Nikolov (2009) showed that when activities were not motivating for students, it had a negative effect on

learners' motivation. Renninger (2009) explains that it is possible for students to develop and deepen an interest in a topic over time, and that a person's environment (classroom, teachers, peers, texts, activities, etc.) contributes to this interest.

In general, activities play an important role in the process of learning in the classroom. However, it is necessary to define the term activity. Nunan (1991) defines the term "activities" as the elements of the task that specifies what the students will actually perform with the input; for instance, listening to recordings, writing a sentence, answering questions, etc. Coughlan and Duff (1994) define activity as the behavior that actually takes place when an individual performs a task. Similarly, Brown (2000) defines activity as "a reasonably unified set of student behaviors, limited in time, preceded by some direction from the teacher with a particular objective" (p. 159). Zhu (2012) found that interesting activities for students such as classroom games, for instance, guessing games, picture games, miming, debates, jigsaw activities, and role plays can improve students' communicative ability. In the same vein, Chanseawrassamee (2012) demonstrated that adult learners could have positive attitudes towards appealing activities. In the same way, Dörnyei and Csizer (1998) proposed a list of activities which stimulate students' interests as one important factor for motivating language learners. Including a wide variety of activities and tasks in the classroom that learners prefer can create a more interactive environment in which students will be more willing to participate. In this sense, both teachers and

students can enjoy the learning experience. While in online classes, a research finding conducted by Nguyen (2017) showed that online learning activities blended learning course impacts on student learning outcomes. Each type of interaction with different levels of impact on learning outcomes through learning activities is carried out in the course. It also poses a challenge for the design and implementation of learning activities blended learning course when the interaction depends on the learning activities are designed without an available prototype.

Nguyen (2017) have carried out to implement the common learning activities to demonstrate the types of interactions are the most popular: student- teacher, student-content, and student-student. Assuming that, if the course does not have some learning activities, such as wikis, forums, the results of assessing the impact of learning activities to learning outcomes will be different. According to findings, student-student interaction, has the greatest impact on learning outcomes, this can be considered as suggestions for the construction of the course activities support more interactive styles. When analyzing the types of interaction in distance education, Bernard (Bernard et al., 2009) also pointed out that student - student interaction is the highest percentages in other interactions. Those findings also showed that student-teacher and student-content interaction not significantly impact on learning results. It revealed that student-centered in the blended learning model, lecturer role as orientation and

guidance instead of imparting knowledge in the traditional teaching model.

In relations to the activity preference of the students during online class, it is worth noting that the students shared their different study habits or approach on how they engage in online class. The students also mentioned different references they used in online class ranging from books to online applications. Learners remember and understand better when they see, hear and do. The level of a students' understanding of a subject when they see, hear and produce materials during instruction is higher (75%) compared to students who only see during instruction (20%), and see and hear only (40%) (Lindstorm, 1994). Learning with multimedia elements, such as videos, has been shown to be effective for learning activities (Krauskopf, Zahn & Hesse, 2012; Zahn, Pea, Hesse, & Rosen, 2010). Learners are able to see, hear and produce the required behaviors. There is a variety of online media, including videos which enable these elements to be available. YouTube, TeacherTube and Vimeo are online video repositories in which videos are made available (Norlidah Alias, DeWitt, Saedah Siraj, 2013). Users are able to download, view and share video clips on an extensive variety of content which includes film clips, television shows, music and instructional videos, vlogs or videoblogs, as well as amateur video.

The YouTube becomes social media when the videos are shared and comments and other forms of interaction occur on the site. Reference materials are one of

the essential information resources of modern libraries. Their value is inestimable in the hands of a user, who requires quality information to meet a need. Nwogu and Obiagwu (1991) stated that “reference materials are the gold mines of knowledge”. There are different types of reference materials and each of them contain diverse information ranging from simple definition of words and concepts to detailed explanation of ideas and events. Reference materials are generally classified into two categories, the source and the access types. The source type of reference materials (books) is those that contain the information needed by the users while the access type of reference books is those that refer the user to the source of information required. Also, reference books are either general or specific in scope of their subject. What is important about reference books is that the subjects they contain have been well researched and proven to be of high intellectual standard by subject experts. Thus, a scholarly work without consultation of good reference books is deemed to be shallow. Igwe (2004) rightly observed this by asserting that “A search for literature in research work will not be complete without examining some relevant reference materials necessary for exploring the topic”.

Study habits may be useful to help both the students and educators in understanding how to improve the approach they study and instruct, correspondingly. The study habits among the students are different even in the same educational environment and learning does not occur in all students at the same level and quality.

Various online learning approaches could result in different consequences for student success (Porter, 2015). In his study, Hung (2012) has examined the effect of various learning methods in program design course of the students who learn with special learning styles in online learning systems.

Theme 4: Contributing factors to online learning

Online classes contributed to several factors that the researchers categorize into four sub-themes: 1) social connection, 2) departmental approach 3) learning acquisition, and 4) learning environment.

Sub-theme 1: Social connection

In online classes, students were able to explore their capabilities to communicate more to themselves as a person and on interpersonal perspective. Students were able to emphasize their personal routine to learn about their course. In an online class setting, self-learning such as utilizing the internet and physical books plays a role to advance the learning of the students on particular subject. Self-effort of the student was also stated as a responsibility to do academic task to avoid coming of negative impact. Study strategy to oneself in the means of online classes arise as an effect of the online learning. Student maximizes their studies in flexible learning, it was seen as a response to manifestation of adaptability to online class. Efficiency in an online course can for example be gained through the use of carefully produced and organized online learning

resources such as lecture video modules and other multimedia learning tools, as well as efficiencies in gaining on-demand online access to instructors and tutors. These resources enable online students to benefit from just-in-time learning and immediate access to specific elements of the course relevant to their learning needs. This allows online students to engage with the course content at a time that is most convenient to them, and can improve their effective use of study time to maximize learning (Dowell, 2014)

In the study, it was also visible that in online class, student find ways to interact to their classmates and instructors. With the use of the internet, this leads them to understand each other's inquiries and build a harmonious relationship even distance learning is present during the pandemic. Sustained interactions between students and instructors are the cornerstone of effective online learning. Social interaction in online learning allows students to share their ideas on various subjects with each other.

Student-led online discussions typically motivate deeper understanding as well as yield interesting personal applications of course concepts and theories. A student could also share struggles or triumphs with the course work on discussion board forums to obtain feedback, suggestions, or praise from fellow classmates (Kwaske, 2020).

Subtheme 2: Teaching learning approach

With the proper execution on the type of learnings that was administered online by the faculty, the based learning-outcome to guide students further to acquire knowledge was seen as a tool to keep the students on-track of what they do. In spite of the fact that without physical interaction, the traditional faculty teaching style applied by the instructors were also maximized in online classes. Teaching learning material and strategy for the students to gain more knowledge even its distance learning was implemented to adapt to online class, and thus, developed competencies of learning of the students. The instructor may interact with students on different course-related discussion forums, periodic live (and recorded) webinar sessions, instant messaging within the course, instructor podcasts, and other learning activities. In addition, instructors provide students with written and/or voice/video thread feedback on all student course work submissions. Students participate in the learning process by contributing to online discussions, requesting and sharing course materials, and sending course-related questions to the instructor. Accordingly, students have sustained opportunities to interact with the instructor throughout the semester to develop a community of inquiry. In addition, through e-mailed announcements and messages, students receive all of the needed updates and reminders necessary to stay focused on their course work (Kwaske, 2020).

Sub-theme 3: Learning acquisition

Even in the phase of online classes, students were able to apply the Bloom's Taxonomy: domain of learning.

Based on the result, students showed different types of skills that helped them cope in the context of online classes. Even in online classes it was visible to student's way of learning the application of understanding their field. Based on Blooms Taxonomy, and further revised by Anderson (2001), the **cognitive domain** is focused on intellectual skills such as critical thinking, problem solving, and creating a knowledge base. It was the first domain created by the original group of Bloom's researchers. In this domain, learners are expected to progress linearly through the hierarchy, beginning at "remember" and ending at "create." In the results of the study, students acquired critical thinking skills even in the phase of online learning, thus it can relate the cognitive domain. The **affective domain** focuses on the attitudes, values, interests, and appreciation of learners. The hierarchy associated with it begins with receiving and listening to information, and extends to characterization, or internalizing values and consistently acting upon them. It focuses on allowing learners to understand what their own values are and how they have developed. In the other hand, one of the students was attached to improve her learnings with the help of a group study, thus it can affect her values and appreciation as a learner. The **psychomotor domain** encompasses the ability of learners to physically accomplish tasks and perform movement and skills. There are several different versions including different hierarchies – the examples here fall into Harrow's (1972) theory of the psychomotor domain. One of the students also mentioned that he was able to adopt the video given to them by his professors and

reenact it the way how it was presented, this concludes that even though in online classes they can be able to adopt the psychomotor domain. The hierarchy of domain of learning ranges from reflexes and basic movement to non-discursive communication and meaningfully expressive activity (Krathwohl, 2001). Hence, the presence of knowing their field without physical interaction is noted in a way that when distance education is implemented.

Sub-theme 4: Learning environment

Another important aspect of the online experience was the design of the online environment itself. According to the data gathered, students have different perception on the learning environment they experienced during e-learning settings. Each student shared their virtual learning experiences. Classroom environment is one of the most important factors affecting student learning. Simply put, students learn better when they view the learning environment as positive and supportive (Dorman, Aldridge, & Fraser, 2006).

Research evidence suggest that students experience some kind of stress in one way or the other, therefore stress is part of students' existence and can have effect on how students cope with the demands of university life (Ramos, 2011; Rourke et al., 2010). Other studies have consequently attributed many emotional and physical symptoms among tertiary students such as fatigue, headaches, depression to stress (Abdullah & Dan Mohd, 2011; Dusselier, Dunn,

Wang, Shelley, & Whalen, 2010; Soliman, 2014). Some form of stress is experienced by most students and distance education students are no exception especially adjusting to new situations in their learning environment. Ghanaian distance education and sandwich students are faced with writing assignments, preparing for quizzes and end of semester examinations. Furthermore, meeting deadlines for submission of assignments coupled with work and other social demands demand a lot of efforts to handle these multiple roles (Abdullah & Dan Mohd, 2011; EsiaDonkoh, 2014).

The stress-free and hassle-free learning environment is another worth noting positive experience found in the study. The easy access to computer and the internet encourages the students' welfare to access their online courses regularly. Since they have access at home or at the dorm, they didn't need to drive to campus or school to access their online class. The well-designed and ease of access of online course made it easy for students to navigate and find the information that the students were seeking. The online environment allows platforms for students to communicate 24/7 with online forums and efficient information sharing systems, utilizing other students as resources and thus allowing the class to excel together through cooperation. And lastly, students can utilize a number of devices to complete their studies instead of needing to rely on the often-outdated technology universities and colleges provide. Even without a device, students can utilize the computers at their local library or even use their own phones to complete units of study in

some cases (Rana, 2016). In a face-to-face setting the students can use the library but in certain restrictions either internet café is closed as students are not available to get out of their homes because of the lockdown.

Theme 5: Effects of online learning

Consequently, major positive effects and performance outcome of the students were highlighted in this former discussion. Students were able to gain constructive effects in the process of e-learning. Due to online classes, it was observable that they were being more proactive in terms of planning ahead and managing the task given to them and considering the time as a prominent factor to be on tracked of what they do. It was also noticeable that the students were able to express of gripping most of their time in flexible learning during the pandemic than face-to-face. Students can achieve or gain maximum learning by managing their time skills properly and effectively. If a student manage time effectively then his/her educational achievements are improved successfully. Thus, time management is very important for each student especially for distance learners. If they manage time then they can achieve achievements successfully and perform better in academic world. Time is a strong weapon of students. By managing it effectively every student can compete in academic filed easily and efficiently (Ahmad, 2019).

Thus, the sudden transformation from face-to-face to online class also affects their outlook in changing them

to self-acceptance. Development of the student's character in terms of self-acceptance due to online classes was seen as a positive effect, this change reveals the factor of awareness to their performance during the process. Hence, it leads to self-improvement to keep follow the adjustment of learning in the process.

Students were able to accept the importance of independence that shows a major factor to develop and improve their self-confidence. And this independence attained to establish their resourcefulness to learn in the context of online schooling. According to the study entitled *Examining Students' Confidence to Learn Online, Self-Regulation Skills and Perceptions of Satisfaction and Usefulness of Online Classes* conducted by Landrum (2020), the results indicate that exploring students' purpose and reasons for taking online classes, beyond a students' skill set and learning strategies, are fruitful directions to pursue when assessing evaluations of online classes. Students with high Internet self-efficacy outperformed those with low Internet self-efficacy on the final exam and were more confident in their ability to complete an online course (Chang, 2014).

The ability of the students to make the most out of online classes was established, their adaptability to e-learning was developed and bring extra learnings even online. As more and more students move to online learning, experts say those who have a greater ability to adapt to novel situations and uncertainty are better able to learn online. Postsecondary students who feel like they belong,

and have a sense of mattering, are better able to adapt to online learning during the COVID-19 pandemic. Adaptability as defined by the study is the capability of being able to adjust effectively to novel, uncertain and potentially threatening circumstances (Flett, 2020). The internet plays a key role to gain students more knowledge on what's in their field, a probable result to positive effect on their academic performance.

It was observed that the adapted online class setting gives a view of identical result to student's performance equal to traditional class. The majority of research studies to date indicate that distance education and traditional face-to-face teaching can yield equivalent learning outcomes (Arbaugh, Desai, Rau and Sidhar 2010; Hansen 2008; Rosa and Amaral 2014). An early study by Leasure, Davis and Theivon (2000) showed that online students have average test scores which are statistically equal to that of students taking identical courses in face-to-face format.

In comparative to traditional learning, distance education also gives an identical perspective to students' academic requirement in different subjects as a product of getting a good grade. When it comes to traditional and online learning it depends upon the student and how they prefer to learn. If the student is aware of all the aspects that come with online learning and are willing to put forth the effort to take online courses then it can be very beneficial (USNCES, 2016). Consequently, bearing a mindset that

brings them to comply for every subject to finish the course even if it's online.

CONCLUSION

The researchers were given a chance to look the students lived experiences of online learning and gain insights as well as knowledge that helped gain meaning in their life's journey. Each of the transcripts stated the experience of the students in the devices they used when engaged in online classes, the variations of internet connection experienced by the students, and their interaction with their classmates and professors. Family obligations, interaction difficulties, and environmental factors are part of the barriers experienced by the students that contribute on how they handle and engage themselves during online classes. Lastly, it is described on the study how the student responds and adjusts themselves in the transition from face to face to online classes.

Such factors like these contribute to the students' positive and negative experiences in online classes.

The researchers also came up with the findings on how the students acquire mastery of their chosen course in online classes. The findings stated the study habits and learning strategies incorporated by the students that helped them to achieve their academic goals such as getting good grades and compliance of academic requirements. The

findings also stated how the different approaches of the professors in teaching and giving activities such as essays, quizzes, and return demo helped the students to identify the learning styles that suits them.

Based on the findings of the study, the institutional measures set in online class helped the students to integrate their experience and knowledge to become competent when facing real life situations specifically during internship and possible continuation of online classes. The findings stated values and skills developed by the students in the course of online class such as time management and resourcefulness that can contribute on how they can employ these on their future endeavors.

RECOMMENDATIONS

Students. The researchers recommend students engaging in online class to develop values like time management, technical resourcefulness, and task management to help them attain better academic achievement. Also, the study found out that interaction from co-students, professors, and family is important, thus this study suggest to students to build a harmonious relationship in interpersonal perspective. The researchers also recommend the students to make use of alternative learning resources such educational apps, YouTube, and books to provide additional learning information during online class. The researchers also recommend the students

to explore other learning styles that can become beneficial to them during online class.

Professors/Academic Institutions. The results of the study may help the professors to assess and evaluate their teaching style during online class so that they could enhance and adapt their teaching style based on the experience and feedbacks shared by the students. The professors could adjust their activities such as quizzes, essays, and return demo according to the activity preference of the students. The researchers also recommend improvement of interactions and feedback to students through implementation of consultation hours to avoid delayed responses and provide timely feedback to student inquiries. This research also recommends that providing students additional learning materials to attain better learning engagement with the course is important in the learning process of the student. The researchers also recommend professors to give break during class hours to lessen eye fatigue during class hours and provide engaging activities to students to avoid boredom or to prevent short span of focus of the students. Lastly, the study would like to recommend professors for better performance monitoring especially during laboratory-based courses to meet satisfactory learning of the students even in online classes.

Administrator. The administrators will be aware of the current system of teaching online amidst the pandemic in the Philippines and other countries. The findings of this study will enable them to find the flaws in the system of

teaching online and later use this study as a basis for the revision of their programs. In addition to that, this study may be the key to start the improvement of the system of teaching in the Philippines.

Parents/Guardians. This study would give perception for the parents/guardians in guiding their children to deal with the emotional and physical support for the students. The study could give parents/ guardians the idea to lessen house chores during online class hours of the students. The study would also like to recommend the parents/guardians to ensure that technological resources like laptops and other devices, internet connection, and learning spaces such as private room that are suitable for their children's' online learning engagement. The study would like to improve parent's character in providing motivation on their children that could influence how their children connect and respond to online classes especially in performance and attitudes.

Curriculum Developer. The study would like to recommend curriculum developers to do curriculum review for the assessment and evaluation of activities within the subjects taken by the students. In this way, they could provide a better learning platform where students could partake in online classes without experiencing too much difficulty while enjoying the course content of each subjects taken.

Researchers. This study may be used as a basis for future research and for better understanding of the

academic curriculum in the country. The researchers recommend for future researchers to add more participants especially other year levels and widen the scope of the study to include other medical courses in the future. The researchers also recommend the future researchers to encompass other areas not mentioned in the study such as applications used in online class or assessment of cheating during examinations or quizzes. The researchers also recommend future researchers to use the data from the results of the study and focus on specific aspects of the given data.

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A Study of Relationship of Dasmariñas North National High School High School Teachers' Demographic Profile and Their Work from Home Conditions A.Y 2020-2021

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KEYWORDS:

Work from home

Online-learning

Pandemic

Struggles

Work

Environment

Abstract. This study sought to determine the relationship of DNNHS high school teachers' demographic profile and their work from home conditions. Frequency and percentage distribution was used to determine the profile of respondents in terms of age, sex and length of service in academe industry (SOP #1). Weighted mean was used to know how would the public-school teachers assess their Work from Home conditions on the following aspects such as emotional, technology resources and work environment (SOP #2) and to discover the struggles of DNNHS High School Teachers while working from home (SOP #3). Pearson's Product-Moment Correlation Coefficient and Point-Biserial Correlation Coefficient were utilized to know the significant relationship between each of the teachers' profile variables and their Assessment of their Work-from-home conditions (SOP #4). The null hypothesis was rejected between the high school teachers' age, length of service and three work from home conditions. While the null hypothesis between the high school teachers' sex and three work from home conditions was accepted. This study utilized a descriptive research design. The sample size of this study was 183 public high school teachers of DNNHS. The results showed that the teachers from DNNHS were enjoying the new set up of learning, had a suitable workspace at home and increases the productivity when their internet has a strong connection, but even they are enjoying the new set up of learning they still had struggles in terms of emotional, technology resources and work environment. This study is important because it will provide an information about the working conditions of teachers who are currently working from home. For faculty, the researchers recommend practicing

personal emotional aid to prevent too much stress and attending seminars/webinars that will give more knowledge on navigating technological resources and other teaching methodologies.

INTRODUCTION

According to researchers, work from home is quite more challenging than face-to-face teaching. It is has been stressful for both teachers and students to cope up with this kind of new setup. The researchers developed this topic to provide relevant information and efficient knowledge to the next generation about the teacher's challenges in this pandemic, specifically regarding their productivity.

Work from home is a modern work approach enabled through the internet and mobility wherein the workers can do tasks irrespective of the individual work's physical location. Work from home is also known as working remotely or telecommuting, which implies that the employee works from a remote location, usually home (MBA Skool Team, 2020).

Most people must work from home (WFH) due to stay-at-home orders of the government in response to the COVID-19 pandemic. The shifting of the work environment from a regular office to home has caused changes in workload and productivity. COVID-19 has challenged society, especially in education. The new normal has been challenging the teachers or any faculty/school personnel to teach and deliver their lessons through an online platform. To help contain COVID19, many schools moved children to online learning at home. These forms of social distancing help slow the spread of the

virus and prevent overloading the health care system. (Corrin, 2020)

The study aimed to answer the following questions: What is the profile of the respondents with regards to their age, sex, and length of service. How would the public-school teachers assess their Work from home conditions on the following aspects: emotional, technological resources and work environment. What are the struggles of a public high school teacher while working at home? And lastly, is there a significant relationship between each of the teachers' profile variables and their assessment of their Work-from-home conditions?

The conceptual framework consists of the following independent and dependent variables. For the independent variable 1, it consists of age with the dependent variable of emotional states, technology resources and work environment. For independent variable 2 it consists of sex with the dependent variable of emotional states, technology resources and work environment. And lastly, for independent variable 3 it consists of length of service with the dependent variable of emotional states, technology resources and work environment.

METHODOLOGY

Research Design

This study utilized descriptive research design. It answered by what, where, when and how questions, but not why questions. This study designed to describe a

population, situation or phenomenon accurately and systematically.

Research Locale

The study was conducted at Dasmariñas North National High School.

Research Respondents

The research respondents are the public high school teachers from Dasmariñas North National High School. This study used the total population of 183 public high school teachers.

Sampling Techniques

The researchers used total enumeration of public high school teacher at Dasmariñas North National High School. Total enumeration sampling is a type of purposive sampling technique that involves examining the entire population that contains particular set of characteristics.

Data Gathering Procedure

The researchers prepared a survey questionnaire to be answered by the respondents of this study through an online survey platform. The researchers were used Google form to gather significant information from the respondents. After answering the questionnaires, the gathered data were tallied, tabulated and analyzed.

Research Instrument

The researchers used self-made survey instruments to gather significant information from the respondents. The questionnaire was divided into three (3) parts:

The first part was composed of the demographic profile of the respondents, the second part contained relevant information of the three work from home conditions of the respondents, and the third part was composed of questions designed to determine the struggles of public high school teachers while working from home.

Validation of the research instrument was made by the research adviser and statistician. For reliability of the research instrument, pilot testing was done. Cronbach Apha was used to determine the internal consistency of the instrument.

Data Analysis Frequency and Percentage Distribution

This formula was used to answer SOP #1 which is determining the profile of respondents.

Weighted Mean (WM) and Ranking

Weighted mean was used to compute the average of responses of each participant per item in the question and dimension. This formula was used to answer SOP #2, and 3.

Pearson's Product-Moment Correlation Coefficient

It is the measure of the linear association between two variables that are measured on interval or ratio scales. This formula was used to determine if there is a significant relationship between the teachers' age, length of service variables and their assessment of their work-from-home conditions. This formula was used to answer SOP #4

Point-Biserial Correlation Coefficient

A point-biserial correlation was used to measure the strength and direction of the association that exists between one continuous variable and one dichotomous variable. This formula was used to determine if there is a significant relationship between the teachers' sex variable and their assessment of their work-from-home conditions. This formula was used to answer SOP #4.

RESULTS

After face validation, the self-made research instrument was pilot tested to similar respondents. The raw data were tested for internal consistency using Cronbach Alpha. The overall result yielded a result of .78 which is good. The actual survey was administered to the actual respondents.

Table 1.

Profile of respondents according to their age

Age	f	%
25-35 years old	106	57.92%
36-45 years old	46	25.14%
46-55 years old	23	12.57%
56-60 years old	6	3.28%
61 years old and above	2	1.09%

Table 1 above shows the frequency and percentage distribution of the respondents according to their age. Out of 183 respondents, 106 or 57.92 percent of respondents ranked first that belonged to 25-35 years old while 2 or 1.09 percent of respondents ranked lowest that belonged to 61 years old and above.

Table 2.

Profile of respondents according to their sex

Sex	f	%
Female	140	76.50%
Male	43	23.50%

Table 2 shows frequency and percentage distribution. 140 or 76.50 percent of respondents ranked first that belonged to female. While 43 or 23.50 percent of respondents ranked second that belonged to male.

Table 3.

Profile of respondents according to their length of service

Length of service	f	%
Below 1 year	8	4.37%
1 – 10 years	114	62.30%
11 – 20 years	36	19.67%
21 – 30 years	18	9.84%
31 years and above	7	3.83%

Table 3 shows frequency and percentage distribution. 114 or 62.30 percent of respondents ranked highest that have 1-10 years experienced in the academe industry. While 7 or 3.83 percent of respondents ranked lowest that have 31 years and above experienced in the academe industry.

Table 4.

Assessment of respondents to Emotional State

Statement	N	Weighted Mean	Std. Deviation	Interpretation
1. I enjoy teaching my students online.	183	3.01	0.687	Agree
2. I feel more comfortable while communicating with my students online	183	2.78	0.716	Agree
3. I feel more comfortable to deliver all my lessons in an online class	183	2.73	0.687	Agree
4. I feel more stressed working at home	183	2.84	0.835	Agree
5. Working from home makes me feel less tired	183	2.63	0.832	Agree

Table 4 above shows the level of agreement towards the working from home conditions of public high school teachers in terms of emotional state. The result shows that the highest rank is “I enjoy teaching my students online” with the highest weighted mean of 3.01 and interpreted as “Agree” while the lowest rank is “Working from home makes me feel less tired” with the weighted mean of 2.63 and interpreted as “Agree”.

Table 5

Assessment of respondents to Technology Resources

Statement	N	Weighted Mean	Std. Deviation	Interpretation
I am computer literate.	183	3.18	0.786	Agree
I have enough resources to teach online.	183	183	0.679	Agree
The strong network connection increases	183	183	0.734	Agree

my productivity to work.				
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Table 5 shows the level of agreement towards the working from home conditions of public high school teachers in terms of technology resources. The result shows that the highest rank is “The strong network connection increases my productivity to work” with the highest weighted mean of 3.21 and interpreted as “Agree” while the lowest ranked is “I have enough resources to teach online” with the weighted mean of 3.00 and interpreted as “Agree”.

Table 6

Assessment of respondents to Work Environment

Statement	N	Weighted Mean	Std. Deviation	Interpretation
1. I have a peaceful environment at home while teaching	183	2.81	0.753	Agree
2. I have suitable workspace at home	183	2.89	0.731	Agree

3. I feel comfortable in WFH setup compared to work at school.	183	2.60	0.734	Agree
4. I achieve a much better work-life balance when I work at home.	183	2.58	0.750	Agree
5. Working from home has a negative effect on my teaching performance	183	2.54	0.823	Agree

Table 6 shows the level of agreement towards working from home condition of public high school teachers in terms of work environment. The result shows that the highest rank is “I have suitable workspace at home” with the highest weighted mean of 2.89 and interpreted as “Agree” while the lowest rank is “Working from home has a negative effect on my teaching performance” with the weighted mean of 2.54 and interpreted as “Agree”.

Table 7

Emotional Struggles

Statement	N	Weighted Mean	Std. Deviation	Interpretation
1.Staying motivated every day in online class.	183	2.93	0.626	Agree
2. Once I sit down to work, I have trouble getting started.	183	2.36	0.711	Agree
3.Forgetting online activities/seat works for my students.	183	2.23	0.722	Agree
Total Average		2.51		Agree

Table 7 shows the level of agreement towards to struggles faced while working at home in terms of emotional struggles. The result shows that the highest rank is “Staying motivated every day in online class” with the highest weighted mean of 2.93 and interpreted as “Agree” while the lowest ranked is “Forgetting online activities/seat works for my students” with the weighted mean of 2.23 and interpreted as “Agree”.

Table 8

Technical Struggles

Statement	N	Weighted Mean	Std. Deviation	Interpretation
Unstable internet connection every time I have a class.	183	2.81	0.795	Strongly Agree
Intermittent connection of my students	183	3.63	0.566	Agree
I didn't know how to navigate computer/laptop properly.	183	2.11	0.773	Agree
Technical difficulties with online teaching tools.	183	2.61	0.798	Disagree
Total Average		2.85		Agree

Table 8 shows the level of agreement towards to struggles faced while working at home in terms of technical struggles. The result shows that the highest rank is “Intermittent connection of my students” with the highest

weighted mean of 3.63 and interpreted as “Strongly Agree” while the lowest rank is “I didn’t know how to navigate computer/laptop properly” with the weighted mean of 2.11 and interpreted as “Disagree”.

Table 9

Work Environment Struggles

Statement	N	Weighted Mean	Std. Deviation	Interpretation
1. Can’t focus because of the distraction at home	183	2.97	0.710	Agree
2. It’s hard to communicate with my students online.	183	2.96	0.695	Agree
3. Schedule regular checkins with students	183	2.97	0.610	Agree
Total Average		2.97		Agree

Table 9 shows the level of agreement towards to struggles faced while working at home in terms of work environment struggles. The result shows that the highest rank is “Can’t focus because of the distraction at home” and

“Schedule regular check-ins with students” with the highest weighted mean of 2.97 and interpreted as “Agree” while the lowest ranked is “It’s hard to communicate with my students online” with the weighted mean of 2.96 and interpreted as “Agree”.

Table 10.

Significant relationship between age and emotional state

Level of Significance	Degree of Freedom	Critical value	Relationship	Computed Value (t)	Pearson Value (r)	Interpretation
5%	181	1.96	<	2.04	0.15	Negligible (+) Correlation

Based on table 10 result, null hypothesis one ($H_0 1$) is rejected because the critical value of 1.96 is less than the computed value of 2.04. Therefore, there is a significant relationship between the public-school teachers’ age and their assessment of their emotional state under a work from home conditions.

Table 11

Significant relationship between age and technology resources

Level of Significance	Degree of Freedom	Critical value	Relationship	Computed Value (t)	Pearson Value (r)	Interpretation
5%	181	1.96	<	3.92	0.28	Negligible (+) Correlation

Based on the result, Ho2 is rejected because the critical value of 1.96 is less than the computed value of 3.92. Therefore, there is a significant relationship between the public-school teachers' age and their assessment of their technology resources under a Work from Home conditions.

Table 12

Significant relationship between age and work environment

Level of Significance	Degree of Freedom	Critical value	Relationship	Computed Value (t)	Pearson Value (r)	Interpretation
5%	181	1.96	<	2.75	0.20	Negligible (+) Correlation

Based on the result, Ho3 is rejected because the critical value of 1.96 is less than the computed value of 2.75. Therefore, there is a significant relationship between the public-school teachers' age and their assessment of their work environment under a Work from Home conditions.

Table 13

Significant relationship between sex and emotional state

Significant Relationship	p - value	"r" value	Interpretation
0.6308>	0.05	0.03586	Not Significant

Based on the result, Ho4 is accepted because the significant of 0.6308 is greater than the p-value of 0.05. Therefore, there is no significant relationship between the public-school teachers' sex and their assessment of their emotional state under a work from home conditions.

Table 14

Significant relationship between sex and technology resources

Significant	Relationship	p - value	"r" value	Interpretation
0.96361	>	0.05	.0034	Not Significant

Based on the result, Ho5 is accepted because the significant of 0.96361 is greater than the p-value of 0.05. Therefore, there is no significant relationship between the

public-school teachers’ sex and their assessment of their technology resources under a Work from Home conditions.

Table 15

Significant relationship between sex and work environment

Significant	Relationship	p - value	"r" value	Interpretation
0.89849	>	0.05	0.00952	Not Significant

Based on the result, Ho6 is accepted because the significant of 0.89849 is greater than the p-value of 0.05. Therefore, there is a significant relationship between the public-school teachers’ sex and their assessment of their work environment under a Work from Home conditions.

Table 16

Significant relationship between length of service and emotional state

Significant	Degree of Critic	p - value	Relationship	"r" value	l value p d Value
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	al				(t) (r) n
5%	181	1.96	<	2.32	Negligible (+) Correlation

Based on the result, Ho7 is rejected because the critical value of 1.96 is less than the computed value of 2.32. Therefore, there is a significant relationship between the public-school teachers' length of service and their assessment of their emotional state under a work from home conditions.

Table 17

Significant relationship between length of service and technology resources

Level of Significance	Degree of Freedom	Critical value	Relationship	Computed Value (t)	Pearson Value (r)	Interpretation
5%	181	1.96	<	4.23	0.30	Negligible (+) Correlation

Based on the result, Ho8 is rejected because the critical value of 1.96 is less than the computed value of 4.23. Therefore, there is a significant relationship between the public-school teachers' length of service and their assessment of their technology resources under a Work from Home conditions.

Table 18

Significant relationship between length of service and work environment

Level of Significance	Degree of Freedom	Critical value	Relationship	Computed Value (t)	Pearson Value (r)	Interpretation
5%	181	1.96	<	2.89	0.21	Negligible (+) Correlation

Based on the result, Ho9 is rejected because the critical value of 1.96 is less than the computed value of 2.89. Therefore, there is a significant relationship between the public-school teachers' length of service and their assessment of their work environment under a Work from Home conditions.

DISCUSSIONS

Interpretation of the data

For SOP #1, what is the profile of the respondents with regard to age, gender, and length of service?

For table 1, based on the results, most of the respondents are range between 25-35 years of age. It means that ages of 25-35 years of age are the most affected due to changes of the new set up of teaching which is online learning, and it has a significantly positive and negative effect on their productivity while working from home. (Rupietta & Beckmann, 2016)

For table 2, based on the results, most of the respondents are female. It means that females are more commonly experienced working from home and considerably over-represented in the teaching profession. COVID-19 disruptions will disproportionately affect the careers of female academics given that women, on average, take on more household and child-rearing duties than men. (Flaherty, 2020)

For table 3, based on the results, the majority of public teachers at DNNHS had 1-10 years of experience in the academic industry. It means that 1-10 years experience in the academe industry are most productive to work from home and proves that working from home significantly increased productivity, although this may be a worrying change for some. (Bloom, 2017)

For SOP #2, how would the public-school teachers assess their Work from Home conditions on the following aspects; emotional, technology resources, and work environment? For table 4 emotional, based on the results, the majority of the respondents answered “I enjoy teaching my students online” while some of the respondents answered “I feel more stressed working at home”. Therefore, the teachers from DNNHS are enjoying teaching online but at the same time they feel stress while working from home. Online teachers enjoy the flexibility and convenience of the online class because teachers can teach from the comfort of their own homes and do not need to be at a specific place at a specific time to teach or to interact with their students. (Utep, 2021) but stressors in work environment like heavy workloads could lead to emotional exhaustion, affecting teachers’ motivation towards the profession. (Gonzales, et.al, 2020)

For table 5 technology resources, based on the results, the majority of the respondents answered “The strong network connection increases my productivity to work” it means that teachers increase productivity when they have strong network connections because it easy for them to teach their students online. While the lowest response of the result was “I have enough resources to teach online” it means that some of the respondents do not have enough resources to teach online. Therefore, if the network connection is weak it may affect the productivity of the respondents and some of the respondents do not have enough resources to teach online that also affect their

productivity to work. Having a strong network connection helps the employees to improved morale, increased satisfaction level, intrinsic work motivation, and enhanced employee engagement. (Jiang et al., 2020)

For table 6 work environment, based on the results, the majority of the respondents have a suitable workspace at home while some of the respondents were affected negatively while working from home. Therefore, most of the respondents had a suitable workplace but at the same time work from home has a negative effect on their working performance. Having a suitable workspace at home may increase the productivity of a teacher and it can avoid procrastination and reduce distractions, a small bit of self-discipline is required. (Zakrajsek, 2020)

For SOP #3, what are the struggles of a public high school teacher while working at home? For table 7 emotional struggles, based on the results, most of the respondents answered, “Staying motivated every day in online class”. Staying motivated is the most emotional struggle of the teachers while working from home. Staying focused and motivated are the two main challenges of teachers and students that are experiencing ever since they had to switch from face-to-face learning to the virtual and remote method due to the Covid-19 pandemic. (Sani, 2020)

For table 8 technical struggles, based on the results, most of the respondents answered, “Intermittent connection of my students”. It means that having an intermittent connection is the most technical struggles of the teachers

while working from home. Teachers say they are having trouble reaching all of their students online, that many aren't finishing their work, and that it's difficult to hold students accountable and their students were less likely to have a reliable internet connection at home. (Klein, 2020)

For table 9 work environment struggles, based on the results, the majority of the respondents answered, “Can’t focus because of the distraction at home” and “Schedule regular check-ins with students”. It means that the most work environment struggles for teachers are they cannot focus on work from home because there are too many distractions such as noise, kids, and pets. It also has temptations that appear more attractive than actual work. (Haelle, 2020) and schedule regular check-in with students because when schools shift to remote learning courses, certain teachers who would normally do well in person end up struggling to manage their time and get started on their teaching. (Spencer, 2020)

For SOP #4, is there a significant relationship between each of the teachers’ profile variables and their assessment of their Work-from-home conditions? Based on the results of Pearson’s Product-Moment Correlation Coefficient, table 10 shows the significant relationship between the public-school teachers’ age and their assessment of their emotional state under a work from home conditions. The result shows 5% level of significance with 181 degrees of freedom, the critical value of 1.96 is less than the computed value of 2.04. It is interpreted as negligible (+) correlation between the public-school

teachers' age and their assessment of their emotional state under a work from home conditions. The Ho1 is rejected because the critical value of 1.96 is less than the computed value of 2.04. Therefore, there is a significant relationship between the public-school teachers' age and their assessment of their emotional state under work from home conditions. Emotional experiences become more positive and less negative with age because of changes in one's environment. It also includes how teachers interact with older adults, as well as in the behaviors and cognitive emotion regulation strategies that become more prominent with their productivity. (Luong, 2018)

Table 11 shows the significant relationship between the public-school teachers' age and their assessment of their technology resources under a Work from Home conditions. The result shows 5% level of significance with 181 degrees of freedom, the critical value of 1.96 is less than the computed value of 3.92. It is interpreted as negligible (+) correlation between the public-school teachers' age and their assessment of their technology resources under a Work from Home conditions. Ho2 is rejected because the critical value of 1.96 is less than the computed value of 3.92. Therefore, there is a significant relationship between the public-school teachers' age and their assessment of their technology resources under Work from Home conditions. According to the respondent, a 54-year-old teacher has tried to apply in a school, but the principal rejected her application due to her age. Also, one of the

factors that the principal considered was her computer literacy.

Table 12 shows significant relationship between the public-school teachers' age and their assessment of their work environment under a work from home conditions. The results show 5% level of significance with 181 degrees of freedom, the critical value of 1.96 is less than the computed value of 2.75. It is interpreted as negligible (+) correlation between the public-school teachers' age and their assessment of their work environment under a Work from Home conditions. Ho3 is rejected because the critical value of 1.96 is less than the computed value of 2.75. Therefore, there is a significant relationship between the public-school teachers' age and their assessment of their work environment under work from home conditions. Age discrimination creates a negative working environment and age discrimination causes distrust within a school. If a school promotes ageism in the workplace, they are likely to see a loss in productivity and an increase in turnovers. (MT, 2021)

Table 13 shows significant relationship between the public-school teachers' sex and their assessment of their emotional state under a Work from Home conditions. The result shows the significant of 0.6308 is greater than the p-value of 0.05 and interpreted as not significant. Therefore, Ho4 is accepted and there is no significant relationship between the public-school teachers' sex and their assessment of their emotional state under a Work from Home conditions.

Table 14 shows significant relationship between the public-school teachers' sex and their assessment of their technology resources under a Work from Home conditions. The result shows the significant of 0.96361 is greater than the p-value of 0.05 and interpreted as not significant. Therefore, Ho5 is accepted and there is no significant relationship between the public-school teachers' sex and their assessment of their technology resources under a Work from Home conditions.

Table 15 shows significant relationship between the public-school teachers' sex and their assessment of their work environment under a Work from Home conditions. The result shows the significant of 0.89849 is greater than the p-value of 0.05 and interpreted as not significant. Therefore, Ho5 is accepted and there is no significant relationship between the public-school teachers' sex and their assessment of their technology resources under a Work from Home conditions.

Table 16 shows significant relationship between the public-school teachers' length of service and their assessment of their emotional state under a work from home conditions. The result shows 5% level of significance with 181 degrees of freedom, the critical value of 1.96 is less than the computed value of 2.32. It is interpreted as negligible (+) correlation between the public-school teachers' length of service and their assessment of their emotional state under a work from home conditions. Ho7 is rejected because the critical value of 1.96 is less than the computed value of 2.32. Therefore, there is a significant

relationship between the public-school teachers' length of service and their assessment of their emotional state under Work from Home conditions. For the growth of school, it should have an emotional intelligent teacher that they should develop. The short period of time is not enough for the teachers to train and learn but a long duration is important to have the right kind of training. (Dham, 2019)

Table 17 shows significant relationship between the public-school teachers' length of service and their assessment of their technology resources under a Work from Home conditions. The result shows 5% level of significance with 181 degrees of freedom, the critical value of 1.96 is less than the computed value of 4.23. It is interpreted as negligible (+) correlation between the public-school teachers' length of service and their assessment of their technology resources under a Work from Home conditions. Ho8 is rejected because the critical value of 1.96 is less than the computed value of 4.23. Therefore, there is a significant relationship between the public-school teachers' length of service and their assessment of their technology resources under Work from Home conditions. Teachers want to improve student performance, and technology can help them to accomplish this aim. Unlike to the veteran teachers, the mid-career teachers are more experienced with the use of technology. Additionally, technology in the classroom should make teachers' jobs easier without adding extra time to their day. (AU, 2020)

Table 18 shows significant relationship between the public-school teachers' length of service and their

assessment of their work environment under a Work from Home conditions. The result shows 5% level of significance with 181 degrees of freedom, the critical value of 1.96 is less than the computed value of 2.89. It is interpreted as negligible (+) correlation between the public-school teachers' length of service and their assessment of their work environment under a work from home conditions. H_0 is rejected because the critical value of 1.96 is less than the computed value of 2.89. Therefore, there is a significant relationship between the public-school teachers' length of service and their assessment of their work environment under Work from Home conditions. Workplace environment influences employees' skill and motivation which in turn determines their output, level of innovation, and rate of absenteeism and length of service. (Allan, 2019)

CONCLUSION

Teachers have been teaching in the new normal through working from home. Work from home is significant in this time of pandemic to prevent the high risk of virus transmission. As a result of this study, the researchers, therefore, conclude that teachers with good working conditions increased their productivity to teach their students by having such factors as strong internet connection, suitable workspace at home, and delightful teaching. It is important to have those factors to be more productive and to fulfill all their duties even in this time of

the pandemic. Work from home is beneficial for both teachers and students because it enhances their communication and understanding skills.

Furthermore, working conditions have a positive effect on the teaching methodology, and productivity of teachers but some struggles can arise anytime such as teachers cannot stay motivated, intermittent internet connections of both students and teachers, distractions at home, and schedule regular check-ins with students. All things considered, achieving a good balance between work and family commitments is a growing concern for the teachers and other employees, because there is a gap between working from home and on-site teaching. Teachers may still be productive in this sense of working environment.

RECOMMENDATION

For students, the researchers recommend that a positive attitude towards the teachers is the best way to motivate them in online learning. Students should coordinate online group activities so that it will lessen the stress of the teachers. In addition, the researchers recommend giving prompt and sensitive feedback to their teachers so that they are aware of what they need to improve on their online teaching performance.

For faculty, the researchers recommend practicing personal emotional aid to prevent too much stress and to focus on their goal. The faculty should take a two-minute

break to refocus their mind to deliver all activities well to their students. Teachers should invest in technology resources that will make their work easier. In addition, the researchers recommend maintaining a positive mindset by learning to turn their negative thoughts into positive ones because teaching is not easy, it is very normal to feel overwhelmed, frustrated or upset. Furthermore, the researchers recommend having good planning and organization will motivate them on teaching their students. Lastly, the researchers recommend attending seminars and webinars that will give more knowledge on navigating technological resources and other teaching methodologies.

For school, the researchers recommend providing seminars or webinars from time to time to further enhance the teaching methodologies and technological navigation, especially to the veterans' teachers who does not have enough knowledge on modern technology. The school should provide enough teaching resources and equipment for online learning to have a better outcome of teaching. Furthermore, the researchers recommend providing incentives to their faculty for them to motivate, to have a good performance, and to increase their productivity on working from home.

For future researchers, they may conduct further research to gather information aligned with studies from other secondary public/private schools.

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Impact of Covid-19 Pandemic to the anxiety level of Filipino Psychology Students of Emilio Aguinaldo College-Cavite during Home Quarantine

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KEYWORDS:

Pandemic

Anxiety

Filipino

Psychology

Home

Quarantine

Abstract. The new coronavirus, 2019-nCoV, is identified from a throat swab of a patient in Wuhan City, Hubei Province, China on December 29, 2019. The virus was later then named SARS-CoV-2 or Severe Acute Respiratory Syndrome Coronavirus 2 and eventually named COVID-19 by World Health Association (Harapan et. al, 2020). This virus originated from the local Huanan South China Seafood Market in Wuhan, Hubei Province, China (Adhikari et. al, 2020) The rapid spread of the virus to different countries including the Philippines led to the announcement of WHO that it is now pandemic. According to World Health Organization, this is an infectious disease that is newly discovered and is transmitted from person to person through respiratory droplets that are released upon coughing, sneezing, or speaking. It is important to stay at least a meter away from another person and therefore social distancing was advised to prevent it from further spreading (World Health Organization, 2020). We cannot deny that this pandemic has given us a big impact on our daily basis of living. From going to work, suspension of classes, cancellation of public transportations and running errands, all of it changes by the way how we used to do it before. Every time we go outside, it seems that one of our foot is already in the grave because of the risk that we might get infected outside with the Corona Virus Disease 2019 or the COVID-19. The said virus already took a lot of lives here in the Philippines, and many new cases are discovered or being diagnosed as days goes by. It is very alarming because some people

carry the virus in their bodies with no symptoms at all or what we call asymptomatic. They will be able to transmit the virus silently and can spread it to other people.

INTRODUCTION

The new coronavirus, 2019-nCoV, is identified from a throat swab of a patient in Wuhan City, Hubei Province, China on December 29, 2019. The virus was later then named SARS-CoV-2 or Severe Acute Respiratory Syndrome Coronavirus 2 and eventually named COVID-19 by World Health Association (Harapan et. al, 2020). This virus originated from the local Huanan South China Seafood Market in Wuhan, Hubei Province, China (Adhikari et. al, 2020) The rapid spread of the virus to different countries including the Philippines led to the announcement of WHO that it is now pandemic. According to World Health Organization, this is an infectious disease that is newly discovered and is transmitted from person to person through respiratory droplets that are released upon coughing, sneezing, or speaking. It is important to stay at least a meter away from another person and therefore social distancing was advised to prevent it from further spreading (World Health Organization, 2020).

We cannot deny that this pandemic has given us a big impact on our daily basis of living. From going to work, suspension of classes, cancellation of public transportations and running errands, all of it changes by the way how we used to do it before. Every time we go outside, it seems that one of our foot is already in the grave because of the risk that we might get infected outside with the Corona

Virus Disease 2019 or the COVID-19. The said virus already took a lot of lives here in the Philippines, and many new cases are discovered or being diagnosed as days goes by. It is very alarming because some people carry the virus in their bodies with no symptoms at all or what we call asymptomatic. They will be able to transmit the virus silently and can spread it to other people.

The Government orders to have an Enhanced Community Quarantine or ECQ in entire Luzon and some provinces in Visayas and Mindanao. Cavite has increasing cases of COVID 19, and as of May 1, 2020, the whole province was placed in a very strict ECQ that those without quarantine pass cannot go out of the house. Many establishments were closed, people are asked to stay at home and military officials and policemen were asked to maintain the security measures. By this, they are trying to contain the situation by restricting people to go outside without any valid reason. Some are against with this order from the government, but this is to prevent people from being infected by the virus.

The most common impacts reported psychological impacts were anxiety and depression. The common risk factors of psychological problem include having high risks in acquiring the disease, low socioeconomic status, and social isolation (Luo et al. 2020).

Coping on the other hand refers on how people deal or respond to problematic situations. There are also different types of coping mechanisms involved during problematic situations such as Problem-focused that targets

the problem or the stressful situation that is causing stress and Emotion-focused that involves reduction of negative emotional response such as fear anxiety aggression and depression as a response to stressors (Baqutayan, 2015).

Coping is defined as the process of changing ones cognitive and behavioral efforts to meet the demands that are appraised as exceeding the resources of the person. These are strategies used by individuals to reduce and tolerate stressful situations. There are two broad categories under the coping style which is problem-focused, and emotion focused. Problem-focused strategy includes seeking social support, and problem focused coping while emotion focused strategy involves focusing on the positive, self-blame, wishful thinking, keep to self, detachment, and tension reduction (Govender et. al 2015).

This study aims to study the relationship between the impact of Home quarantine to the anxiety level and coping mechanism acquired by Filipino Psychology Students of Emilio Aguinaldo College-Cavite during COVID-19 Crisis.

STATEMENT OF THE PROBLEM

The study generally aims to answer the following statements on how the home Quarantine affects the Psychological impact in relation to anxiety level and what coping mechanism does the Filipino Psychology students at Emilio Aguinaldo College-Cavite acquire during

COVID-19 Crisis. In particular, the researcher aims to answer the following specific questions.

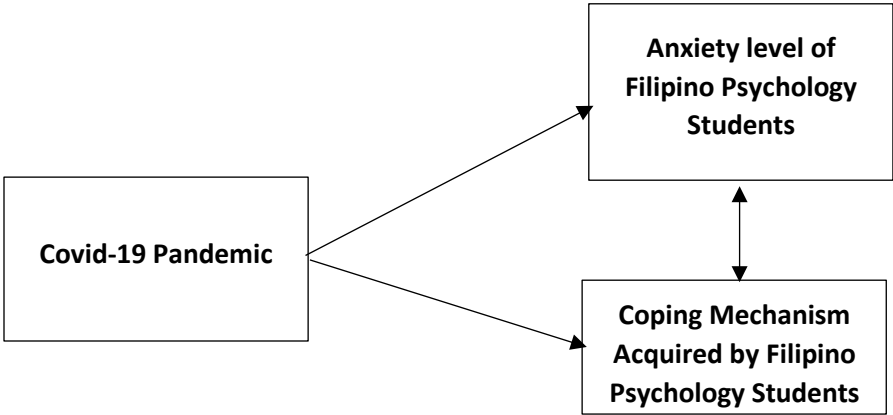
1. What is the impact of home quarantine to the anxiety level Filipino Psychology students of Emilio Aguinaldo College-Cavite?
2. What ~~is the~~ type of coping mechanism does the respondents acquire during home quarantine?
 - 2.1 Problem-focused
 - 2.2 Emotion focused
 - 2.3 Dysfunctional Strategies
3. Is there a significant relationship between the anxiety level and coping mechanisms among the participants during home quarantine?

HYPOTHESIS

There is no significant relationship between the anxiety level and coping mechanisms among the participants during home quarantine.

CONCEPTUAL FRAMEWORK

The figure presented below shows the variables of this study such as the dependent variable which is the anxiety level and coping mechanism of the students and the independent variable which is COVID 19 pandemic.



SCOPE AND LIMITATION

This study is limited the Psychological impact in relation to anxiety levels and the coping mechanism of the Filipino Psychology Students of Emilio Aguinaldo College Cavite. The participants that were included in the study are First year to fourth year Filipino Psychology Students of

Emilio Aguinaldo College-Cavite with no gender preferences and no specific age range who are enrolled in second semester of school year 2019-2020. The researcher provided questionnaires to the participants through Facebook messenger using Google Forms due to Enhance Community Quarantine where there is no possibility to go outside.

SIGNIFICANCE OF THE STUDY

Students. Students will benefit on this study as they will be able to know the impacts of home quarantine. Also, it will allow them to have intervention for negative impacts.

Parents. All parents will benefit in this study because they will be more aware about the effects of the home quarantine to their children. Having awareness to the negative effects of home quarantine will have a big impact for parents when checking on their children and guide them as well.

Government Officials. As Government Officials will be able to know the effects of Home Quarantine from their Citizens, they will know how they will respond and cater during these situations.

Filipino Citizens. Filipinos will benefit in this study as they will be informed on the effects of quarantine among

them. Having enough knowledge for them will lead to interventions in such crisis.

Future Researchers. Future Researchers will benefit on this study when conducting a similar study in the future. This study will serve as their reference and they may consider exploring more about the relationship of other psychological disorders with different coping mechanisms.

DEFINITION OF TERMS

Anxiety. A feeling of worry, unease, or nervousness about an event with uncertain outcome.

Coping Mechanism. These are ways to which external and internal stress is managed, adapted or acted upon.

Covid-19. An infectious disease caused by a newly discovered strain of Coronavirus.

Dysfunctional Coping Strategies. A coping mechanism that includes denial, self-blame, self-distraction, behavioral disengagement, venting and substance use.

Emotion-Focused Coping. A coping mechanism that includes the use of emotional support, positive reframing, humor, acceptance, and religion.

Pandemic. An outbreak of a disease over the whole country or world.

Problem-focused Coping. A coping mechanism that includes the use of instrumental support, active coping and planning.

Quarantine. A strict isolation imposed to prevent the spread of disease.

REVIEW OF RELATED LITERATURE

COVID 19 pandemic have affected the economy due to the occurrence of social distancing and enhanced community quarantine that led to closing of the businesses, offices and event that has mass gatherings. As the virus is spreading, and as the lockdown days are increasing, the level of economic activity has been severely affected by monetary policy decisions and international travel restrictions. (Ozili, 2020).

We are all experiencing the same situation, but we react from it differently. During this COVID 19 pandemic, psychological effects such as anxiety, depression and sensitivity to social risks are increased. It is also mentioned that people tend to be concerned about their health and family. This study may help and inform the medical practitioners as well as the policy makers about the mental health of the people for them to provide proper services. (Li et.al, 2020).

The spread of Coronavirus Disease 2019 (COVID 19) has also affected the schools, faculties and students and their

way of education. All the schools in the affected areas has cancelled their classes as well as all the events and other activities. The faculties and students had transitioned into online teaching platforms to overcome the cancellation of physical classes. (Sahu, 2020).

The enhanced community quarantine that happened in the different parts of the country, particularly in Luzon has a wide impact since Luzon accounts for

73.0 percent of the country's GDP. As estimated by National Economic and Development Authority, the month-long enhanced community quarantine can result into a loss of gross value of PHP298 billion to PHP1.1 trillion thus reduction of employment by 61,000 to 1 million. (National Economic and Development Authority, 2020).

The major mental health disturbance experienced by most of the people are anxiety and depression that led to disturbance of sleep. Subsyndromal mental health problems have been the common response of people to COVID 19 pandemic. This study suggests that further studies are needed to assess the impact on children and students about the impact of COVID 19 to their mental health and so interventions can be developed. (Rajkumar, 2020).

Sudden outbreak of COVID 19 pandemic has impacts on the infected patients, people under quarantine, and healthcare professionals. Infected persons tend to establish fear of complications and death. Some people also experienced fear due to fever or common flue that it may be linked to COVID 19. Quarantined people on the other hand

can also be frightened, sad, depressed because of being away from their loved ones. Healthcare workers are also not exempted to mental health problems that may affect their way of fighting the disease. (Joseph, 2020).

COVID 19 pandemic has led to closure of different institutions to prevent the spread of the virus. COVID 19 has a negative impact on the performance of the students. Sudden usage of technologies may also be difficult in areas with poor connection and economy. Result of this study shows that the pass percentage of secondary school students is likely to drop considering that the school calendar was disturbed. (Sintema, 2020).

According to the study made by Luo et al. (2020), the most common impacts reported psychological impacts were anxiety and depression. The common risk factors of psychological problem include having high risks in acquiring the disease, low socioeconomic status, and social isolation.

Coronavirus has been emerging fast and became a pandemic disease. This study shows that COVID 19 has a negative impact on employees' mental health. There are different stressors that affect their mental health such as their perception of safety, threat, and risk of acquiring the disease, quarantine and isolation, stigma and social exclusion and financial loss or job insecurity. (Hamouche, 2020)

Coronavirus Disease 2019 outbreak has led to implementation of home quarantine and isolation to prevent

the transmission of the virus. This study reported that home quarantine has negative mental health effects such as posttraumatic stress symptoms, stress, confusion, and anger. The stressors are the longer quarantine duration, fear of infection, frustration, boredom, inadequate supplies, financial loss and stigma. (Brooks, et. al, 2020)

Prevention of spread of the Coronavirus Disease 2019 led to implementation of quarantine and isolation. This aims to restrict social interactions and mobility of individuals. Quarantine and isolation show burden on mental health among patients, caregivers, and healthcare providers. This aims to have a further study about how the pandemic affects the other sector of the community. (Hossain et. al, 2020)

Adaptive behavior is the behavior that is learned to meet the expectation across home, school, work and community settings. This study states that there are three skills involved in adaptive behavior such as conceptual skills that involves communication skills, social skills that involves interpersonal skills and social responsibility and practical skills that involves personal care skills and work skills (Tasse, 2017).

Coping refers on how people deal or respond to problematic situations. There are also different types of coping mechanisms involved during problematic situations such as Problem-focused that targets the causes of stress and

Emotion-focused that involves reduction of negative emotional response (Baqutayan, 2015).

Coping is defined as the process of changing ones cognitive and behavioral efforts to meet the demands that are appraised as exceeding the resources of the person. These are strategies used by individuals to reduce and tolerate stressful situations. There are two broad categories under the coping style which is problem-focused and emotion focused (Govender et. al 2015).

METHODOLOGY

Research Design

The research design is the structure of the study that puts the research together. This provides the logical basis in deciding how the data collection will be carried out, how the analysis will proceed and how the data will be interpreted (Akhtar, 2016). A descriptive correlational study is a design used to describe the relationships among the different variables to predict the future events from present knowledge (Walinga et. al, 2010). This research design was used in this study to determine the relationship between the psychological impact of home quarantine and COVID-19 Crisis to the behavior and coping up of College students of Emilio Aguinaldo College-Cavite. This will be conducted for the sole purpose of answering the statement of the problem, to determine the relationship between anxiety level of the students and the type of coping mechanism they use.

Research Locale

The study is conducted within the whole province of Cavite that is greatly affected by the COVID 19 crisis. Cavite is a province in Region 4A (CALABARZON) where Emilio Aguinaldo College-Cavite is located. Emilio Aguinaldo College-Cavite is a private, non-sectarian academic institution that offers different program cluster such as Allied Health, Arts and Humanities, Education and Business, Information and Communication Technology, Hotel Management and Law. The Filipino Psychology students of Emilio Aguinaldo College-Cavite will be asked few questions to determine how the pandemic affects them.

Research Participants

The participants that were included in the study are First year to fourth year Filipino Psychology Students of Emilio Aguinaldo College-Cavite with no gender preferences and no specific age range who are enrolled in second semester of school year 2019-2020. The researcher provided questionnaires to the participants online through Facebook Messenger with the use of Google Forms due to Enhance Community Quarantine where there is no possibility to go outside.

Sampling Technique

The study used stratified random sampling technique in which the subject in the population were sampled randomly using a random number generator which gives everyone the same probability of being selected. This assumes that the individuals to be sampled are included in a list known as sampling frame (Frerichs, 2008). This method will use Slovin's formula to determine the sample size needed for the study (Israel, 1992). $n = \frac{N}{1 + Ne^2}$ where n is the population size and e will be the margin of error.

$$1 + Ne^2$$

This sampling technique is efficient due to the nationwide community quarantine since the only medium that will be used is Facebook Messenger.

Data Gathering Procedure

The researcher has conducted an online survey through Facebook messenger as a medium. The participants will be randomly picked using a random number generator to make sure that everyone has the same probability of being picked. The participants will be asked to answer the survey and will be asked to send it to the researcher right after they answer all the questions in the survey form. All answers will be tallied for data analysis.

Research Instrument

A self-designed demographic part of a questionnaire was designed to collect participants' demographic information. This information included name (optional), age, gender, civil status, and year level.

The researcher also adapted a questionnaire from the study of Petersen et. al Outcomes of a health and safety assessment simulation with entry-level nursing students: Anxiety, student satisfaction, and self-confidence to assess the participant's psychological impact in relation to anxiety level. The survey will be conducted online through Facebook messenger and the questionnaire will be composed sociodemographic characteristics of the participant and the second part will be about the measurement of the anxiety level. The instrument to be used is the State Anxiety Inventory is a 20 item set of questions that measures the current state of anxiety that is responded through the scale of 1-not at all, 2-somewhat, 3-moderately so and 4-very much so.

The researcher also used another instrument for measuring the coping mechanism of the participants and was adapted from the study of Yealonda Johnson entitled Soldier with physical injuries from combat: Differential coping mechanisms. The instrument to be used is Brief COPE survey that is consists of 28 questions that were divided into 14 scales and each scale has 2 questions. This is to assess how each participant cope up during this

pandemic season. The questions are answerable by 1- I haven't been doing this at all, 2- I've been doing this a little bit, 3- I've been doing this a medium amount, and 4-I've been doing this a lot. All the 14 scales are divided into 3 categories, which are problemfocused, emotional-focused and dysfunctional strategies. Each scale has a scoring of 2(minimum) to 8(maximum) and the scores from all the scales under each category will be added and the category with the highest score is most likely the most used coping mechanism (Johnson, 2013).

A summary of the survey items comprising the survey instrument is presented in Table 1.

Scale	Question Numbers
Problem-focused	
Use of instrumental support	10,23
Active Coping	2,7
Planning Items	14,25
Dysfunctional Strategies	
Denial	3,8
Substance use	4,11
Self-Distractio	1,19

Self-blame	13,26
Behavioral Disengagement	6,16
Venting items	9,21
Emotion-focused	
Use of Emotional Support	5,15
Positive reframing	12,17
Humor	18,28
Acceptance	20,24
Religion	22,27

Table 1. Brief COPE Survey scales

Data Analysis

Data analysis describes how the researcher will reduce the data to its interpretation. This is a process of reducing the amount of the collected data for better interpretation (Kawulich, 2015). The researcher will interpret the data by using different descriptive statistical method such as charts, histogram, frequency tables and mean. The researcher will analyze the data gathered by using

Pearson's product moment correlation coefficient or Pearson's r to determine the significant relationship between the psychological impact and coping mechanisms among the participants during home quarantine.

Frequency Distribution Table

This table will show the different categories and their corresponding number of observations. It is an organized tabular representation of the number of individuals in each category on the scale of measurement. Frequency distribution shows a picture of how the individual observations are distributed in the measurement scale (Manikandaan, 2016).

Formula:

$$\% = \frac{f}{n} \cdot 100\%$$

n

Where f is the frequency of the class and n is the total number of values

Mean

This is also known as the arithmetic mean and is obtained by adding all the values in the data and will be

divided by the number of observations (Manikandaan, 2016). The formula used in computing for the mean is:

$$\text{Mean} = \frac{\sum x}{n}$$

Where \sum refers to summation and x refers to individual value and n is the sample size.

Pearson's Product Moment Correlation Coefficient - Pearson's r

This is a measure of the linear relationship between the variables, and it can also estimate the relationship between the outcome and the predictor variable

(Chee, 2015). Pearson's r assesses the association between two variables and if the relationship is positive or negative (Chee, 2015).

Formula:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Where r is Pearson's correlation coefficient, n is the number of paired scores, x is the score of the first variable, y is the score of the second variable and xy is the product of two paired scores.

RESULTS

This chapter presents the data gathered in this study for analysis and interpretation. This is a correlational study that measures the relationships between the psychological impact in terms of anxiety level and coping mechanisms among the participants during home quarantine. The research problems enumerated in Chapter 1 serves as the guide for the presentation. The researcher conducted a pilot test that consists of 20 participants to test the reliability of the questionnaire. This was computed using Cronbach alpha and the reliability value is 0.9 for anxiety and 0.7 for coping mechanism. The sample size computed is 147 which only includes first year to third year Psychology students. The participants consist of thirty-seven (37) males and one hundred ten (110) females. Fourth year student are excluded from the actual test for there are only one enrolled fourth year student for this semester and was already included in the pilot test.

Anxiety Level

What is the impact of home quarantine to the anxiety level Filipino Psychology students of Emilio Aguinaldo College-Cavite?

Anxiety Level	Frequency
Mild Anxiety	16
High Anxiety	131

Total	147
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Table 2 Anxiety Level of the Participants

The sample size of the study is One hundred forty seven (147) and among these participants, there are 16 participants who scored between 0-39 thus exhibiting mild anxiety symptoms and there are 131 participants who scored between 40-80 and are exhibiting high anxiety symptoms. This parallels to the study of Savitsky et al 2020 entitled Anxiety and coping strategies among nursing students during the covid-19 pandemic, those students who were concerned with the future continuation of the academic year showed high level of anxiety. Alongside with the study of Huang et al 2020 entitled, Emotional responses and coping strategies in nurses and nursing students during Covid-19 outbreak: A comparative study, it states that women have higher anxiety level than men and participants from urban areas experience higher anxiety than those in rural areas.

Type of Coping Mechanism

What is the type of coping mechanism does the respondents acquire during home quarantine?

Table 3.Result on Type of Coping Mechanism Used

Type of coping mechanism	Mean
Problem Focused Coping	17
Emotion Focused Coping	27
Dysfunctional Strategies	27

There are three types of coping mechanism mentioned named problem focused coping, emotion focused coping and dysfunctional coping. Problem focused coping consists of use of instrumental support, active coping, and planning scales. Emotion focused coping consists of use of emotional support, positive reframing, humor, acceptance, and religion scales. Dysfunctional coping strategies on the other hand consists of denial, substance use, self-distraction, self-blame, behavioral disengagement, and venting scales. The mean of the total scores per type of coping was calculated and as seen in table 3, among the three types of coping mechanisms, both Emotion focused coping and Dysfunctional coping strategies have the highest mean score of 27 while the least used is Problem Focused coping which has a mean score of 17. This is in parallel with the study of Taylor et al. 2020 which showed that the most commonly used coping strategies are watching tv or movies and cleaning up which is under dysfunctional coping strategies and maintaining social contact with family or friends and

reminding oneself about the reality which is under emotion focused coping mechanism.

Relationship between Anxiety and Coping Mechanism (Pearson’s Coefficient)

Is there a significant relationship anxiety level and coping mechanisms among the participants during home quarantine?

Data were entered into SPSS Version 20 for analysis. The level of significance was set at a p-value of < 0.01 for correlation of anxiety and problem focused and dysfunctional strategies coping and < 0.05 for correlation of anxiety level and emotion focused coping. Pearson’s Correlation Coefficient was used to determine the relationship of anxiety level with the different coping mechanisms such as problem focused, emotion focused and dysfunctional strategies.

Anxiety level and Problem Focused Coping

Table 4. Anxiety level and Problem Focused Coping

Relationship	Pearson Correlation (r)	Sig (2-tailed)	P value
Anxiety level and	-0.334	.000	<0.01

Problem focused coping			
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The problem focused coping consists of the scale with their corresponding items: use of instrumental support (10,23), active coping (2,7) and planning items (14,25). This is correlated to the anxiety level of the participants. Based on Pearson's correlation coefficient with <0.01 level of significance and a sig 2 tailed of .000 listed in table 3, there is a negative correlation between anxiety level and problem focused coping among the participants. This means that as anxiety increases, the use of problem focused coping mechanisms of participants decrease. This coordinates with the study of Tamannaefar (2017) that there is a negative correlation between anxiety and problem focused coping. The researcher stated that people who are using problem focused coping experience problems and this coping strategy reduces their anxiety. More so, people that use problem focused coping is associated with lower levels of depression and anxiety (Parenteau 2019).

State Anxiety level and Emotion Focused coping

Table 5. State Anxiety level and Emotion Focused coping

Relationship	Pearson Correlation (r)	Sig (2tailed)	P value
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Anxiety level and Emotion focused coping	-0.187	.024	<0.05
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The Emotion focused coping consists of the scale with their corresponding items: use of emotional support (5,15), positive reframing (12,17), humor (18,28), acceptance (20,24) and religion (22,27). This is correlated to the anxiety level of the participants. Based on Pearson's correlation coefficient with <0.05 level of significance and a sig 2 tailed of .024 listed in table 4, there is a negative correlation between anxiety level and emotion focused coping among the participants. This means that as anxiety level increases, the emotion focused coping mechanisms of participants decreases as stated by Tuncay et al, 2008. Furthermore, Tuncay et al, 2008 mentioned that higher level of anxiety is associated with lower problem focused and emotion focused coping strategies and is known to have negative correlation with each other.

State Anxiety level and Dysfunctional Strategies Coping

Table 6. State Anxiety level and Dysfunctional Strategies Coping

Relationship	Pearson Correlation (r)	Sig (2tailed)	P value
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Anxiety level and	0.286	.000	<0.01
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The dysfunctional focused coping consists of the scale with their corresponding items: Denial (3,8), Substance use (4,11), Self-Destruction (1,19), Self-Blame (13,26), Behavioral Disengagement (6,16), and Venting (9,21). This is correlated to the anxiety level of the participants. Based on Pearson's correlation coefficient with <0.01 level of significance and a sig 2 tailed of .000 listed in table 5, there is a positive correlation between anxiety level and Dysfunctional strategies coping among the participants. This means that as anxiety level increases, the use of dysfunctional strategies coping mechanisms of participants also increases as stated in the study of Tuncay et al, 2008. In addition to this, Dysfunctional coping strategies such as self-blame, behavioral disengagement and substance abuse are positively correlated to anxiety. High anxiety levels increase association with dysfunctional coping (Tuncay et al, 2008).

The summary of all correlation is shown in Table 7. This shows that problem focused coping and emotion focused coping is in negative correlation with anxiety level of the participant and that Dysfunctional strategies coping is in positive correlation with anxiety level.

Table 7. Summary of the correlation of anxiety level to the different coping mechanisms

Coping mechanism	Sig 2 tailed	P Value	Correlation	Interpretation
Problem Focused	0.000	<0.01	-0.334	As anxiety level increases, use of problem focused decreases
Emotion Focused	0.024	<0.05	-0.187	As anxiety level increases, use of emotion focused decreases
Dysfunctional Strategies	0.000	<0.01	0.286	As anxiety level increases, use of dysfunctional strategies increases

DISCUSSION

The researcher showed that most of the participants have experienced high levels of anxiety and the most used types of coping mechanism are emotion focused coping and dysfunctional coping strategies. Anxiety of the participants showed correlation in all types of coping mechanism. Problem-focused and emotion-focused coping is negatively correlated dysfunctional strategy is positively correlated to anxiety levels.

CONCLUSION

Based on the results, the following conclusions were drawn:

Anxiety level – The Students who continued the academic year during home quarantine have higher anxiety concerning with the future continuation of the academic year than those who are not enrolled.

Type of coping mechanism – The type of coping mechanism used by these students are Emotion focused coping and dysfunctional coping strategies. The word suggests that participants depend on their family and friends for support as well as they distract themselves by doing different chores since the most used scale under dysfunctional strategy is self-distraction.

Relationship of Anxiety level and Coping mechanism – All types of coping mechanism have a significant correlation with anxiety level of the participants. Problem focused and emotion focused coping have a negative correlation with anxiety level which indicates that the higher anxiety level, the least likely they use these types of coping mechanisms and dysfunctional strategies on the other hand is positively correlated to anxiety level in which higher anxiety level leads to the use of this coping mechanism.

RECOMMENDATION

The current study provided insights about the various mechanisms used by Filipino Psychology students to cope during this COVID-19 pandemic especially during home quarantine. The study also provided the relationships of each type of coping mechanisms with anxiety levels and how the former affects the latter. Additional research could build upon the results of the current study. The following recommendations below might provide educators, students, and researcher's information to consider using this area as part of their researches.

Students. Students who suffer from anxiety during this pandemic should know how to properly use the different types of coping mechanisms by doing gratitude journaling, or just journaling, as well as vlogging. Student can also make use of their time to learn

new things such as arts and crafts and music instrument. They can also read or watch motivational videos and materials. Anxiety in times of crisis is normal but we must focus on things that we can control such as our attitude.

Parents. Parents should check on their children to know if they are experiencing anxiety and if they are using the coping mechanisms in a negative way. Parents can talk to their children and ask them about how they feel and how their day was. Parents can also educate their children about anxiety, its effects and how to deal with it.

Teachers and Professors. Teachers and professors should also check on their students who might be having anxiety attacks. They can provide a counselling session for students who needs someone to talk to. Teachers and professors should also be aware of their attitude towards their students as well as the workload that they are giving their students.

Guidance Office. The guidance office should conduct online seminars and forums for the students on how to deal with anxiety in this time of crisis. Guidance office can also make a Facebook page that will be their platform in disseminating information and awareness and to let the students know that they are not alone. They can also encourage students to go talk to them and that it is okay to seek help or assistance. The guidance may have information dissemination for staff and faculties for proper referral of students who need counselling.

Future Researchers. Future researchers may conduct a study similar to this, to a different population and type of psychological disorder. Future researchers can consider foreign subjects and from different course and year level. It is also recommended that they should provide additional statements or information to thoroughly discuss and how to prevent and how to deal with anxiety. Future researchers can also do a qualitative research about the anxiety experiences of students during this pandemic. Future researchers can use other research design, sampling technique and other data gathering procedure that was not one due to some considerations.

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Pagsusuri sa Persepsyon at Pagtanggap sa Makabagong Anyo ng Tula ng mga Piling Mag-aaral ng Edukasyon ng Emilio Aguinaldo College- Cavite

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KEYWORDS:

Tula

Spoken Word Poetry

Persepsyon

Abstrak. Tinututukan ng pananaliksik na ito ang layuning matukoy sa pamamagitan ng isang pagsusuri sa Persepsyon at Pagtanggap ng mga Piling Mag-aaral ng Edukasyon ng Emilio Aguinaldo College- Cavite sa Makabagong Anyo ng Tula. Nilayon ring tukuyin ang dulot ng makabagong anyo ng tula sa mga mag-aaral at sa kanilang pag-aaral, at maging ang dahilan kung bakit mas nagiging katanggap-tanggap ito kaysa sa tradisyunal na anyo ng tula. Ang disenyo o uri ng pananaliksik na ito batay sa pakay o layon ay Batayang Pananaliksik dahil ito ay patungkol sa konsepto, kaisipan o isang penomena na hindi maunawaan na siyang akma sa pananaliksik na ito dahil ito ay may kinalaman sa persepsyon. Sa pagkalap ng mga datos, ang mananaliksik ay gumawa ng talatanungan na siyang ginamit sa panayam upang malaman ang persepsyon at pagtanggap ng mag-aaral sa makabagong anyo ng tula. Sa Pagtutuos naman ng mga datos gumamit ang mananaliksik ng Multiple Analysis. Ang lumabas sa resulta ay nagagawa ng mga piling mag-aaral na tukuyin at bigyan ng sariling pagpapakahulugan ang tradisyunal at makabagong anyo ng tula, natukoy rin na ang tula ay katangki-tangkilik dahil sa ito ay kanilang paraan ng pagpapahayag, naipakita rin na ang pagpili nila sa tula tradisyunal man o makabago ay bumabatay sa gamit

at panahon, at ang huli ay ang persepsyon at pagtanggap ng mga piling mag-aaral sa makabagong anyo ng tula, kung saan tinatangap nila ang pagbabagong anyo ng tula dahil tayo raw ay nasa makabagong panahon at sila ay bukas pa sa mga pagbibihis anyo ng tula sa mga susunod pang panahon.

INTRODUKSYON

Ayon kay Llenn, (2011) na makikita sa artikulo ni Martial (2011) "Ang tula ay isang anyo ng panitikan na nagpapahayag ng damdamin ng isang tao. Ito ay binubuo ng mga saknong at ang mga saknong ay binubuo ng mga taludtod." Binigyan pagpapakahulugan ni Julian Cruz Balmaceda ang tula bilang isang kaisipang naglalarawan ng kagandahan, ng kariktan, ng kadakilaan- ang tatlong bagay na magkakatiyon-tipon sa isang kaisipan upang mag-angkin ng karapatang matawag na tula. Ayon naman kay Inigo Ed Regalado na ang "Tula ay isang kagandahan, dula, katas at larawan at kabuuan ng tanang kariktang nakikita sa silong ng alin mang langit." Tula ang isa sa mga uri ng akdang pampanitikan na masasabi nating buhay at patuloy pang yumayabong. Tula ang isang paraan ng pagpapahayag ng ating nararamdaman, naiisip, likhang isip o batay sa tunay na karanasan. Ang tula ay malaya o kaya nama'y may sukat at tugmaan. Hindi madali ang makalimbag ng tula lalo na kung hindi nagagawa ng isang manunulat na laruin ang kanyang imahinasyon, emosyon pati na rin ang gamit ng mga salitang lalapatan ng intonasyon.

Sa paglipas ng panahon, hindi lamang kultura, paniniwala, pananamit at kung ano-ano pang mga nakasanayan ang nagbabago kundi maging ang ating panitikan. Isa sa halimbawa ng panitikan na nagkaroon ng bagong anyo ay ang Tula. Ang Spoken Word Poetry o SPW ay isang sangay ng malikhaing pagsulat na ginagamitan ng malayang taludturan upang maihayag ang punto de vista ng isang makata. Ang punto de vista ay maaaring ituring na pagbibigay pananaw ng manunulat at

interpretasyon. (Daiute, 1998) Batay sa isang pang pananaliksik, Inilarawan ni Christa Penning ang Spoken Word Poetry (makabagong anyo ng tula) bilang isang porma daw ng panulaan kung saan isinasaad ng may gawa ang kanyang sariling mga pananaw at mga karanasan sa kanyang obra.

Ang spoken poetry ay sumikat sa pamamagitan ng pag-ikot at paglaganap ng gamit nito sa mga social media networking sites. Kadalasan itong tinatangkilik ng mga kabataan dahil na rin sa mga paksang napapaloob sa mga tulang ito. Spoken word is a broad designation for poetry intended for performance. Though some spoken word poetry may also be published on the page, the genre has its roots in oral traditions and performance. Spoken word can encompass or contain elements of rap, hip-hop, storytelling, theater, and jazz, rock, blues, and folk music. Mula sa pagpapakahulugang ito ni Guyleigh Johnson (2019), ang spoken word poetry ay isang uri ng makabagong tula na may malaya at walang sinusunod na istruktura sa pagsusulat nito. Naging bahagi na ito ng kultura ng mga kabataan ngayon at isa sa maituturing na halimbawa ng Kulturang Popular.

Sa pag-aaral naman nina Weinstein at West noong 2012, kung inilahad nila dito na ang Spoken Word Poetry daw ay hindi lamang tungkol sa sining ngunit ito'y tungkol sa paghasa ng indibidwal na sining na kabilang ang kapaligiran o ang pang araw araw na pamumuhay ng isang indibidwal at ang tunay na paglalahad niya ng kanyang mga sariling karanasan. Isa pang pag-aaral ang nabanggit na mayroong kaugnayan sa spoken word poetry na

isinagawa ni Escoto noong 2013, inilarawan niya ang uri ng panulaang ito bilang “a means to heal oneself.” Ibinase niya ang kanyang paglalarawang ito sa kanyang naging pakikipanayam sa isang binata na nanggaling sa isang juvenile detention center. Nalaman niya ang spoken word poetry ay nagsilbi bilang isang paraan ng paglalabas ng tension o upang ipahayag ng mga kabataan ang kanilang mga nararamdaman sa kanilang mga magiging karanasan. Ayon rin sa awtor ng librong Journal of Popular Culture na si Rebecca Ingalls, inilarawan niya ang uri ng panulaang ito bilang isang mahusay na pagtatanghal kung saan hindi lamang ito nakabubuti para sa manonood ngunit pati na rin sa nagtatanghal.

LAYUNIN NG PAG-AARAL

Ang pangkalahatang layunin ng pananaliksik na ito ay ang malaman o matukoy sa pamamagitan ng isang pagsusuri sa Persepsyon at Pagtanggap sa Makabagong Anyo ng Tula ng mga Piling Mag-aaral ng Edukasyon ng Emilio Aguinaldo College- Cavite

Ang mga Tiyak na layunin ay matukoy kung:

1. Pamilyar ba ang mga mag-aaral sa Tradisyunal at Makabagong anyo ng tula?
2. Ano ang mas katanggap-tanggap sa kanila ang Tradisyunal ba o Spoken Word Poetry?
3. Ano ang epekto ng Spoken Word Poetry sa kabataan o sa mga mag-aaral?

BALANGKAS KONSEPTWAL

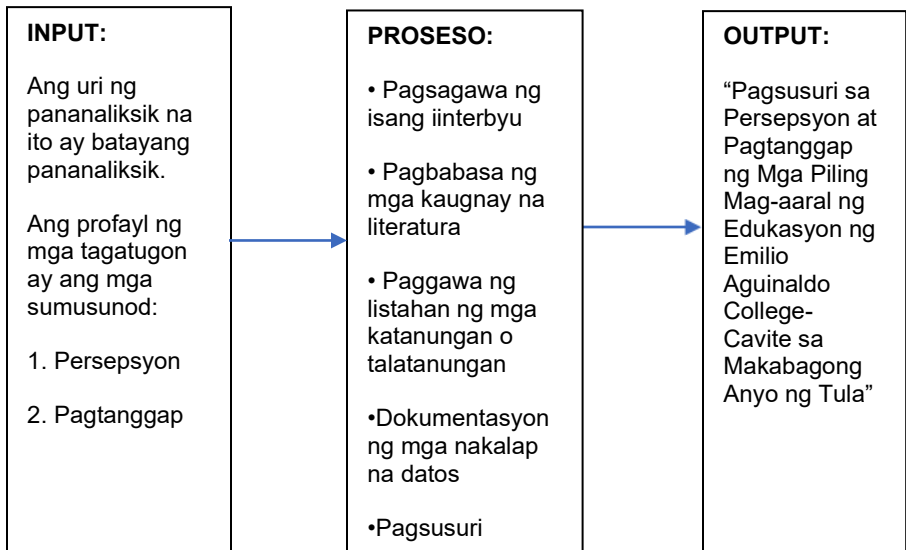


Figure 1. Balangkas Konseptwal

Ang pananaliksik na ito na may paksang, “Pagsusuri sa Persepsyon at Pagtanggap ng Mga Piling Mag-aaral ng Edukasyon ng Emilio Aguinaldo College-Cavite sa Makabagong Anyo ng Tula” ay ginamitan ng input-process-output model. Inilalahad ng input frame kung anong uri ito ng pananaliksik, ang persepsyon at pagtanggap ng mga mag-aaral.

Ang uri ng pananaliksik na ito ay batayang pananaliksik. Ang process frame ay tumutukoy sa mga

hakbang na gagawin ng mananaliksik ukol sa pagkuha ng mga datos, saklaw ang pagsasagawa ng panayam, pagbabasa ng mga kaugnay na literatura, paggawa ng listahan ng mga katanungan o talatanungan, dokumentasyon ng mga nakalap na datos at pagsusuri habang ang output frame naman ay sumasaklaw sa implikasyon ng mga nakalap na datos at ang epekto o resulta ng pag aaral alinsunod sa paksa na persepsyon ng mga piling mag aaral. Nagsisilbi ang balangkas konseptwal sa pananaliksik na ito upang higit na maintindihan at malaman ang tutunguhin ng pag aaral na ito.

KAHALAGAHAN NG PAG-AARAL

Ang pag-aaral na ito at ang kabuuang nilalaman nito ay makatutulong upang malaman ang persepsyon ng mga mag-aaral sa makabagong anyo ng tula. Makapagbibigay ito ng dagdag kaalaman sa kung paano at bakit tinatanggap sa makabagong panahon ang pagbabago sa anyo ng tula. Lubos na magiging kapaki-pakinabang ang pananaliksik na ito sa mga sumusunod:

Mag-aaral

Magsisilbing instrumento ang pananaliksik na ito upang malaman kung bakit at dapat tanggapin ang mga pagbabago sa tradisyunal na anyo ng tula. Makatutulong din ang papel na ito sa mga mag-aaral para malaman ang epekto ng SPW o Spoken Word Poetry sa mga katulad nilang mag-aaral o kabataang tumatanggap dito.

Guro

Makatutulong ang pananaliksik na ito upang malaman ng mga guro kung katanggap-tanggap ba at katangki-tangkilik sa mga mag-aaral ang makabagong anyo ng tula. Magagawa ring bigyan ideya ng pananaliksik na ito ang mga guro na hikayatin ang mga mag-aaral na maging bukas ang pagtanggap sa mga pagbabagong anyo ng ating panitikan partikular na sa Panulaan.

Magulang

Maging sa mga magulang ay magiging kapakipakibang ang papel na ito dahil dito mababatid ang mga salik o sanhi ng pagkahumaling ng ibang kabataan sa Spoken Word Poetry at kung paano nga ba ito niyayakap ng mga kabataan.

Mananaliksik

Sa mga magsasagawa ng pananaliksik partikular sa mga makaiisip ng paksa na tulad ng papel na ito, makatutulong ito upang magsilbing gabay, at batayan na kanilang magagamit sa pananaliksik. Maaring magsilbing basehan ang papel na ito sa kung ano pa ba ang mga pagbabagong magaganap sa anyo ng tula o anumang panitikan sa susunod pang mga panahon.

MGA KAUGNAY NA PAG-AARAL AT LITERATURA

Ang bahaging ito ay naglalaman ng akademiko at propesyonal na mga babasahin na may kaugnayan sa ginagawang pag-aaral. Nagbibigay rin ng higit na malinaw na kaalaman ang mga literatura at pag-aaral na inilakip sa pananaliksik na ang motibo ay madagdagan ang kaalaman ng mga mambabasa.

Mga Kaugnay na Pag-aaral

Ayon sa pag-aaral ni Seigal (2015), ang mga mag-aaral na nagsilbing respondente sa kanyang pananaliksik ay binigyang pagpapakahulugan ang tula bilang isang “boring”, kumplikado at may kahirapan na inihalalintulad sa isang palaisipan. Kaugnay nito ang sinabi ni (QCA 2005: 21), na “ang persepsyon ng mga mag-aaral sa sekondarya sa tula ay negatibo.” . Dagdag ni Seigal (2015), “Ngunit matapos magsagawa ng mga aktibidad sa pagsulat ng tula at pagsasanay sa kung paano ito sinusulat ay nagkaroon ng pagbabago sa persepsyon ng mga mag-aaral na nagkaroon na ng interes lalo sa makabagong anyo ng tula kung saan ito ay itinatanghal.” Nahahalintulad ito sa pag-aaral na ito dahil iba ang pagtingin ng mga mag-aaral sa tradisyunal na tula at sa makabagong anyo ng tula. Higit na pasok sa kanilang interes ang nabihisang anyo ng tula kumpara sa tradisyunal na tanging nakasulat lamang.

Mga Kaugnay na Literatura

Ayon kay Collins (2019), siya ay naniniwala na ang proyektong Poetry Slam ay may kakayahang ilapit ang mag-aaral sa pagtula habang hinahanap ang kanilang sariling tinig. "Sa pamamagitan ng paglikha ng isang puwang para sa pagbigkas ng tula, ang kumpiyansa at pagtitiwala sa sarili ay nabubuo," wika ni Collins (2019). Dagdag pa ng espesyalista, "Sa aking karanasan, kahit na ang pinakatahimik na mga mag-aaral ay makikibahagi sa paghihikayat at suporta sa mga kamag-aral." Collins (2019). Nahahalintulad ito sa pag-aaral na ito dahil may kinalaman sa kung ano ang epekto o maidudulot ng Spoken Word Poetry sa isang mag-aaral na siyang isa sa dahilan kung bakit tinatanggap ng mga mag-aaral ang makabagong anyo ng tula.

Ayon kay Escoto (2013), inilarawan niya ang uri ng panulaang ito bilang "a means to heal oneself." Ibinase niya ang kanyang paglalarawang ito sa kanyang naging pakikipanayam sa isang binata na nanggaling sa isang juvenile detention center. Nalaman niya ang spoken word poetry ay nagsilbi bilang isang paraan ng paglalabas ng tension o upang ipahayag ng mga kabataan ang kanilang mga nararamdaman sa kanilang mga magiging karanasan. Gaya ng mga nabanggit, ang pag-aaral na ito rin ay may ugnayan dahil sa ito ay naglalayong matukoy ang mga dahilan kung bakit tinatanggap ang spoken word poetry at dahil na rin sa natutulungan ng makabagong anyo ng tula na ang isang indibidwal na ibahagi at ipahayag ang

kanyang karanasan, nararamdaman sa pamamagitan ng sining.

METODOLOHIYA

Disenyo ng Pananaliksik

Ang pag-aaral na ito ay gumamit ng disenyo na Deskriptibo o Kwalitatibo na naglalayong malalimang maunawaan ang pag-uugali at ugnayan ng mga tao at ang dahilan na gumagabay rito. Ito ay anyo ng pag-aaral na itinuturing na "nonnumerical" o "hindi nabibilang". Ang mga datos ay itinatala at binibigyang-interpretasyon gamit ang "nonnumerical" na pamamaraan gaya ng open-ended surveys, panayam, at mga detalyadong deskripsiyon na kalimitang ginagawa sa iba't ibang disiplinaryang nabibilang sa Agham Panlipunan (Trochim, Donnelly, at Arora (2014).

Ang uri naman ng pananaliksik na ito batay sa pakay o layon ay Batayang Pananaliksik dahil ito ay patungkol sa konsepto, kaisipan o isang penomena na hindi maunawaan na siyang akma sa pananaliksik na ito dahil ito ay may kinalaman sa persepsyon. Sa uri naman ng pananaliksik na batay sa proseso o metodolohiya, ang pananaliksik na ito ay papasok sa Palarawang Pananaliksik dahil naglalarawan ito ng pangyayari, diskurso o penomenon ayon sa pananaw o persepsyon ng kalahok sa makabagong anyo ng tula o kung sa paano at bakit nila ito tinatanggap.

Kalahok

Ang mga napiling respondente sa pag-aaral na ito ay ang mga piling mag-aaral ng Edukasyon sa Emilio Aguinaldo College-Cavite Walang partikular na taon basta ito ay napapabilang sa departamento na nabanggit. Isinaalang-alang ng mananaliksik na piliin ang mga kalahok na mula sa Dalubhasaan ng Edukasyon dahil ang tradisyunal at makabagong anyo ng tula ay tiyak na may ugnayan sa kanilang propesyong tinatahak.

Instrumento ng Pananaliksik

Ang mananaliksik ay gumawa ng talatanungan na siyang ginamit sa panayam upang malaman ang persepsyon at pagtanggap ng mag-aaral sa makabagong anyo ng tula. Nangalap din ng mga impormasyon at batayan ang mananaliksik sa mga libro, dyornal, internet iba pa upang mas patibayin ang ginawang pananaliksik.

Pamamaraan ng pagkalap ng datos

Ang mananaliksik ang nangalap ng mga impormasyon upang lubos na maunawaan ang mga saklaw at mga posibilidad sa pag-aaral upang matiyak ang kalidad ng ipipresentang datos.

Ginamit ang talatanungan at panayam sa pagkolekta ng mga datos upang mas mapadali sa mananaliksik, maging sa mga tagasagot. Ang mananaliksik ay nagsagawa ng maikling oryentasyon sa mga mag-aaral na respondente ng pananaliksik na ito at siniguradong ang pagiging kompidensyal ng mga nakalap na datos bago ang

pagsisimula ng interbyu upang mas makapagpahayag ang mga sasagot ng tanong.

Paghahanda ng Talatanungan

Naghanda ang mananaliksik ng mga katanungan na mayroong koneksyon sa kaniyang pag-aaral. Ito ay mga open-ended questions na idinisenyo upang mahikayat ang isang buo at makabuluhang sagot ng mga kalahok. Ang mananaliksik ay naghanda lamang ng limang (5) mga katanungan.

Paghingi ng Pahintulot

Nagpadala ng liham at pormularyo ng pahintulot ang mananaliksik sa mga kalahok upang humingi ng pahintulot sa gagawin nilang pakikipanayam. Sinigurado ng mananaliksik na hindi sapilitan at may pahintulot sa kanilang mga kalahok ang ginawang pakikipanayam.

MGA ISTATISTIKAL NA KAGAMITAN SA PAGTUTUOS NG DATOS

Ang proseso ng pagtutuos ng mga datos ay nakatuon at kinikilala ang kakayahan ng mananaliksik sa paghubog ng mga nakalap na datos at kung paano ito iaanalisa. (Jirojwong et al, 2011). Ang pag-aanalisa ng mga datos sa isang kwalitatibong pag-aaral pasaklaw at

kaugnay nito ay ang pagsusuri ng mga salita, paglalarawan at proseso (Borbasi and Jackson, 2012).

Ang mananaliksik ay gumamit ng *Multiple Analysis* sa balidasyon, kung saan ang mananaliksik ay isasalin o ita-*transcribe* ang panayam at ipagkukumpara sa iba pang panayam at pagbabahagi ng persepsyon. Ang pag-aanalisa ng mga datos ay dadaan sa tatlong yugto.

Unang Yugto: Record ng Awdyo at Transkripsyon

Ang yugtong ito ay **binibigyan pagpapakahulugan bilang literal na pagsasalin o transkripsyon kung saan salita-sa-salita** ang pagkakagawa, o kung ano ang mga sinabi ng respondente sa panayam ay siyang nilalaman ng transkripsyon.

Ikalawang Yugto: Tugon o Komento ng Respondente sa Transkripsyon ng Panayam

Ang mananaliksik ay babalik sa mga kalahok matapos maisalin o ma-*transcribe* ng mga datos ng piling respondente para ikumpirma ang nilalaman ay angkop sa naging panayam. Ang respondente ay may karapatan na dagdagan o bawasan ang pahayag bilang bahagi ng dokumento. Pagkatapos basahin at mapagkasunduan ang naging Transkripsyon, sila ay pipirma sa dokumento, patunay na ang kanilang salaysay ay balido at totoong persepsyon sa makabagong anyo ng tula.

Ikatlong Yugto: Pagsusuri ng Salaysay ng mga Kinapanayam

Sa yugtong ito sisimulang suriin ng mananaliksik ang mga datos na nakalap sa mga naging respondente. At tatangkahing tukuyin ang kabuaang persepsyon at pagtanggap ng mga mag-aaral sa makabagong anyo ng tula.

Ang mananaliksik ay inayos ang mga nakalap na datos at impormasyon sa pamamagitan ng thematic analysis. Ang thematic analysis ay nagbigay diin sa pagtukoy, pagsuri, at pag-tala ng mga tema sa loob ng datos

RESULTA

Ang kabanatang ito ay naglalaman ng mga resulta na nakuha mula sa pagtitipon ng datos. Ang mga resulta ay iniharap ayon sa mga sumusunod: kaalaman ng mga piling mag-aaral sa dalawang anyo ng tula, kung ano ang mas katanggap-tanggap o tinatangkilik nila na anyo ng tula, epekto ng makabagong anyo ng tula, kapakinabangan o gamit ng spoken word poetry sa pag-aaral, at ang persepsyon at pagtanggap ng mga piling mag-aaral sa pagbabagong anyo ng tula.

Ang talahanayan 1 ay nagpapakita ng kaalaman at sariling pagpapakahulugan ng mga piling mag-aaral ng edukasyon sa Emilio Aguinaldo College- Cavite sa dalawang anyo ng tula

Mga Tema	Halimbawa ng mga Pahayag
<p>May elemento ang</p>	<p><i>“Oo, pamilyar ako dito at ahm ito ‘yung ah poetry na walang, parang <u>wala siyang limitation.</u>” “At sa tradisyunal naman meron siyang <u>elements.</u>” (kalahok 1)</i></p> <p><i>“Oo, may alam ako at para sa akin yung tradisyunal na tula ay ‘yung mga pahayag na <u>may sukat at tugma sa taludtod,</u> tsaka kadalasan ‘yung mga tradisyunal na tula ay <u>matayutay.</u> Kapag naman sinabing makabagong anyo ng tula, para sa akin, iyon yung tula na <u>hindi kinakailangan na may sukat at tugma.</u> Depende du’n sa susulat tsaka sa magsasalita kung ano yung gusto nilang i-topic” (kalahok 2)</i></p>

<p>tradisyunal na anyo ng tula at ang makabago ay walang limitasyon</p>	<p><i>“Ang tradisyunal ayun ‘yung <u>may sukat, may tugma</u>. May dalawang uri nung sa tradisyunal, malaya.. <u>malayang taludturan at yung may sukat, iyong tradisyunal ay may sukat, may tugma</u>, may saknong pero yung sa makabagong anyo ng tula kasi ngayon, ahm hindi mo na mapapansin yung mga saknong-saknong kasi katulad ngayon sa spoken word poetry, napapansin ko sa makabagong anyo ng tula <u>deretso siya</u>. Kung may free verse sa tradisyunal noon, <u>mas malaya</u> pa siya kasi wala nang tugma, wala nang sukat ganu’n, basta dere-deretso lang.”</i> (kalahok 4)</p> <p><i>Ito ‘yung mga may <u>elemento at pamantayan</u>. Halos pareho lang naman, ahm nagkaroon lang ng pagbabago sa makabago dahil ahm.. di’ba sa tradisyunal ay may sinusunod na pamanatayan</i></p>
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	<p><i>like <u>sukat, tugma at mga talinghaga</u> pero kasi, sa <u>makabago hindi na siya limitado</u> ‘kumbaga kahit anong gawin mo, malaya ka eh.’ (kalahok 5)</i></p>
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Ang talahanayan 2 ay nagpapakita ng kung ano ang mas katanggap-tanggap o tinatangkilik na anyo ng tula ng mga piling mag-aaral ng Emilio Aguinaldo College-Cavite

Mga Tema	Halimbawa ng mga Pahayag
	<p><i>“<u>Para sa akin, lalo na sa aking pinagkakadalubhasaan</u> ahmm mas matimbang sa akin yung tradisyunal” (kalahok 1)</i></p> <p><i>“Ah, siguro katanggap-tanggap pa rin naman ‘yung tradisyunal na tula pero kasi dahil <u>nagbabago din yung salitang ginagamit, yung panahon ngayon,</u> sa palagay ko mas katanggap-tanggap na yung makabagong anyo..” (kalahok 2)</i></p>

<p>Bumabatay sa gamit at panahon</p>	<p><i><u>“Ah, parehas kasi para sa akin, ayun yung pinagmulan yung tradisyunal di’ba? So dapat pahalagahan pa rin natin siya. Dito naman sa may makabagong anyo ng tula, <u>sumusunod tayo sa makabago pero hindi natin kakalimutan kung saan siya nagmula.”</u></u></i> (kalahok 3)</p> <p><i><u>“Kung for formality naman, mas prefer ko ang tradisyunal kasi kung titignan mo meron ngang may mga saknong, mas maganda tignan kasi may pattern kumpara ngayon. <u>Pero bilang isang parte ng ano.. modernong kabataan, katanggap-tanggap naman ‘yung makabagong anyo ng tula ngayon, ‘yun nga lang sa formality nga lang.”</u></u></i> (kalahok 4)</p> <p><i><u>“Sa edad ko, tradisyunal pero</u></i></p>
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	<p><i>dahil sa <u>modernisasyon</u>, <u>makabagong henerasyon</u> na rin, mas katanggap-tanggap ang makabago dahil ito ‘yung madaling nauunawaan eh, unlike noong tradisyunal na akala mo ‘yun na mensahe eh ‘di naman pala.” (kalahok 5)</i></p>
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Ang talahanayan 3 ay nagpapakita ng kung ano ang epekto ng makabagong anyo ng tula sa mga piling mag-aaral ng Emilio Aguinaldo College-Cavite

Mga Tema	Halimbawa ng mga Pahayag
	<p><i>“mas nagiging <u>bukas ako sa mga nararamdaman</u> ko sa tuwing nagsusulat ako.” (kalahok 2)</i></p> <p><i>“Yung epekto nu’n? siguro kasi dati mas malalim, mas mahirap intindihin. Ngayon, ambilis mo lang <u>maka-connect..</u>” “..yung mga salitang ginagamit kasi ngayon sa mga tulang</i></p>

Nagiging paraan ng pagpapahayag	<p><i>ginagawa, lalo na sa mga spoken word ‘yung mga <u>mabababaw na salita lang, yung maiintindihan talaga ng mga kabataan o kasing age nila.</u>” (kalahok 4)</i></p> <p><i>“..yung way nila para <u>mag-express ng sarili</u> nila. Sa akin ganun din naman kapag nagsusulat ako nasasabi ko ng malaya at <u>nagagamit ko mga gusto kong gamiting salita.</u>” (kalahok 5)</i></p>
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Ang talahanayan 4 ay nagpapakita ng kapakinabangan o gamit ng spoken word poetry sa pag-aaral ng mga piling mag-aaral ng edukasyon sa Emilio Aguinaldo College-Cavite sa dalawang anyo ng tula

Mga Tema	Halimbawa ng mga Pahayag
	<p><i>“Oo, sobra kasi yung spoken word poetry ahh, dahil nga ito ay makabagong form ng</i></p>

<p>Nagamit o naiugnay sa pag-aaral</p>	<p><i>poetry, ito <u>yung way ko kung paano ko iaaddress yung learnings.</u>” “..<u>nirerelate</u> ko siya sa pang araw-araw na gawain lalo na doon <u>sa academic na aspeto</u>” (kalahok 1)</i></p> <p><i>“Sa natatandaan ko, <u>nagamit ko na siya doon sa subject namin kay Ms. Lorna Salcedo na masining na pagpapahayag. Mayroon kasi kaming <u>activity sa kanya na kailangan naming gumawa ng tula,</u> so ako dahil nga nagsusulat naman ako, ang ginawa ko ay <u>spoken word poetry</u>” (kalahok 2)</u></i></p> <p><i>“<u>Nagamit ko siya sa isang activity</u> pero the rest, hindi na. Nagamit ko siya sa paraan na nakapag express ako freely at creatively kumbaga malikhain na pahayag, ay masining na pagpapahayag.” (kalahok 5)</i></p>
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Ang talahanayan 5 ay nagpapakita ng persepsyon at pagtanggap ng mga piling mag-aaral sa pagbabagong anyo ng tula.

Mga Tema	Halimbawa ng mga Pahayag
Pagyapos sa pagbabago at paniniwalang ang pagbabago ay mabuti	<p><i>“nakikita ko yung mga kabataan na <u>na-aadapt yung spoken word poetry</u> kasi mas nakakapagpahayag sila ng damdamin nila.” (kalahok 1)</i></p> <p><i>“Sa akin ha, opinyon ko lang, okay lang siya katanggap-tanggap yung pagbabagong nangyayari kasi <u>nagbabago yung panahon, nagbabago yung salitang ginagamit, nagbabago yung isip ng tao, di’ba?</u>”“<i>.yung pagbabago ng anyo ng tula, mabilis akong <u>nakapag-adjust</u> kung paano ko gagamitin ‘yung mga</i></i></p>

	<p><i>salitang naiisip ko..” (kalahok 2)</i></p> <p><i>“Para sa akin, <u>wala namang masama kung tatanggapin mo ‘yung kung ano ‘yung pagbabago.</u> As long as na <u>makabubuti</u> siya.”</i></p> <p><i>“...<u>wala naman masama kung tatanggapin natin kung ano ‘yung ibinibigay sa atin ng makabagong panahon..</u>” (kalahok 3)</i></p> <p><i>“<u>Hindi naman kasi masama ‘yung pagbabago eh, change is constant..</u>” “At kung <u>paano ko ‘yun tinatanggap,</u> kasi di’ba kasama naman ako doon sa modernong kabataan na ‘yun” (kalahok 4)</i></p> <p><i>“Sa akin lang ha, <u>wala namang masama sa pagbabago</u> ng anyo ng tula,</i></p>
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	<p><i>kasi hindi naman siya tuluyang binago eh kumbaga nagbabagong anyo nga..”</i></p> <p><i>“Tsaka ang <u>pagbabago nga daw ay maaaring pag-unlad..”</u></i></p> <p><i>“Sa <u>pagtanggap naman, madali siyang i-adapt</u> kasi madali na nga siya unawain kumpara sa tradisyunal.”</i></p> <p>(kalahok 5)</p>
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DISKUSYON

Ang kabanatang ito ay nagpapakita ng talakayan ng mga resulta sa pag aaral na ito. Ito ay naglalaman ng mga tema tungkol sa kaalaman ng mga piling mag-aaral ng Edukasyon sa Emilio Aguinaldo College-Cavite sa dalawang anyo ng tula, kung ano ang mas katanggap-tanggap o tinatangkilik nila na anyo ng tula, epekto ng makabagong anyo ng tula, kapakinabangan o gamit ng spoken word poetry sa pag-aaral, at ang persepsyon at pagtanggap ng mga piling mag-aaral sa pagbabagong anyo ng tula.

Ang mga resulta ay nagpapakita na ang mga kalahok ay pamilyar sa pagpapakahulugan ng tradisyunal na anyo ng tula. Makikita sa Talahanayan 1 ang mga pagpapakahulugan na kanilang ibinigay na siya namang sinusuportahan ng pagpapakahulugan ni Llenn (2011) na "Ang tula ay isang anyo ng panitikan na nagpapahayag ng damdamin ng isang tao. Ito ay binubuo ng mga saknong at ang mga saknong ay binubuo ng mga taludtod." Habang ang pagpapakahulugan naman ng mga kalahok sa Spoken Word Poetry o makabagong anyo ng tula ay maiuugnay sa pagpapakahulugan ni Guyleigh Johnson (2019) na "ang spoken word poetry ay isang uri ng makabagong tula na may malaya at walang sinusunod na istruktura sa pagsusulat nito"

Sa Talahanayan 2 naman, ito ay nagpapakita ng kung ano ang mas katanggap-tanggap o tinatangkilik na anyo ng tula. Makikita sa talahanayan na binatay ng mga kalahok sa gamit at panahon ang pagpili ng mas katanggap-tanggap na anyo para sa kanila. Kung ang usapin ay kasalukuyang panahon, tatlo sa limang kalahok ang pinili ang makabagong anyo ng tula na siyang indikasyon na ang Spoken Word Poetry ay tinatangkilik dahil tayo ay nasa modernong panahon at ito ay isang paraan ng pagpapahayag na mas madali mong maihahayag ang iyong sarili at mas madali kang mauunawaan ng iyong mga nasa paligid o madali ang bumuo ng ugnayan. Ito ay pinagtibay ng pahayag nina Herndon at Weiss (2001) na ang Spoken Word Poetry ay isang paraan ng pagpapahayag ng wika na ibinabahagi sa madla at siyang bumubuo ng isang ugnayan

sa pagitan ng makata at ng mga manonood na may kinalaman sa kanilang persepsyon sa lipunan.

Sa Talahanayan 3 naman ay ipinakita ng kung ano ang epekto ng makabagong anyo ng tula sa mga piling mag-aaral ng Emilio Aguinaldo College-Cavite. Ang mga kalahok ay itinuturing na ang epekto sa kanila ng makabagong anyo ay nagsisilbi itong paraan ng kanilang pagpapahayag na siyang sinusupportahan ng sinabi ni Nina Sparks and Grochowski (2002) sa isang kaugnay na pag-aaral na binigyan pagpapakahulugan ang Spoken Word Poetry na “ang tula bilang isang wika ng pagpapahayag ng mga kabataan sa kanilang sarili at ito ay nagsisilbing testimonya ng kanilang pamumuhay at mga karanasan sa realidad.”

Sa Talahanayan 4 ipinakita na ang kapakinabangan o gamit ng spoken word poetry sa pag-aaral ng mga piling mag-aaral ng edukasyon sa Emilio Aguinaldo College-Cavite ay nagagamit nila ang makabagong anyo ng tula o spoken word poetry sa kanilang pag-aaral at naiuugnay nila ito sa mga aktibidad sa loob ng paaralan. Ito ay maiuugnay sa pag-aaral ni Collins (2019) na siya ay naniniwala na ang proyektong Poetry Slam ay may kakayahang ilapit ang mag-aaral sa pagtula habang hinahanap ang kanilang sariling tinig.

At sa Talahanayan 5 ipinakita ang persepsyon at pagtanggap ng mga piling mag-aaral sa pagbabagong anyo ng tula. Ang limang kalahok ay niyapos ang pagbabagong anyo ng tula dahil na rin sa paniniwalang kasabay ng

pagbabago ng panahon ang pagbabago ng wika na siyang maiuugnay sa sinabi ni Almario (2017) sa isang panayam na araw-araw na nagbabago ang buhay na wika at ang pagbabago ay isang katotohanang kailangang tanggapin.

KONGKLUSYON

1. Pamilyar ba ang mga mag-aaral sa Tradisyunal at Makabagong anyo ng tula?

- May sapat na kaalaman at nagawa ng mga kalahok na mag-aaral na tukuyin at bigyan ng sariling pagpapakahulugan ang Tradisyunal at Makabagong anyo ng tula.

2. Ano ang mas katanggap-tanggap sa kanila ang Tradisyunal ba o Spoken Word Poetry?

- Parehong katanggap-tanggap sa mga kalahok ang dalawang anyo ngunit kung sa kasalukuyang panahon ay mas pinili nila ang Makabago dahil ayon sa kanila, tayo ay napabibilang na sa makabagong panahon.

3. Ano ang epekto ng Spoken Word Poetry sa kabataan o sa mga mag-aaral?

- Nagsisilbing epekto ng Spoken Word Poetry sa mga kalahok ay napapadali ang kanilang pag-unawa sa tula na kanilang napakikinggan at napapadali ang sariling pagpapahayag.

REKOMENDASYON

Ang seksyon na ito ay nagpapakita ng mga rekomendasyon ng mananaliksik sa mga sumusunod:

Guro

Inirerekomenda ng mananaliksik na ituro ang Tradisyunal at Makabagong Anyo ng Tula at hikayatin sila bumuo at bigyan pagpapahalaga ang ating panitikan. Hinihikayat rin na magsagawa ng mga seminar o worksyap sa pagsulat ng tula upang patuloy na magamit at maipakilala ang tula at ang pagbabagong anyo nito sa paglipas ng panahon.

Sa mga mag-aaral

Inirerekomenda ng mananaliksik na kilalanin, pahalagahan, pagyamanin at paunlarin ang makabagong anyo ng tula dahil ito ay makatutulong sa masining na pagpapahayag ng inyong mga nararamdaman. Makatutulong rin ang pagtula sa inyong pagsulat, pagpapahayag at pagkakaroon ng tiwala sa sarili na magbahagi sa harap ng maraming tao.

Sa mga magulang

Inirerekomenda ng mananaliksik na inyong suportahan ang kagustuhan ng inyong mga anak lalo na kung ang anak ay nahihilig sa tula dahil ito ay maaaring kanilang talent at paraan ng pagpapahayag ng sarili.

Sa mga susunod pang mga mananaliksik

Inirerekomenda ang pananaliksik na ito sa mga susunod pang mananaliksik upang matukoy pa ang persepsyon ng mga mag-aaral sa mga magbabago pang anyo ng tula at inirerekomenda ko rin na maaari ring bigyan pansin ng mga susunod na mananaliksik na lawakan ang saklaw at talakayin ang iba pang anyo ng tula tulad ng balagtasang at iba pa.

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The Mechanical Properties of Concrete using Brown and White Coconut Fiber

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KEYWORDS:

Physical Properties of Concrete

Compressive Strength

Coconut Fiber

Workability

Percentage of fibers

Abstract. Incorporating fibers in concrete is an innovative way to increase the tensile strength of a concrete mixture when reinforcing rebars are not applicable. Using natural fibers in Fiber-reinforced concrete gives advantage not only to the property of concrete but also to the waste management of natural waste. The fibers that can be harvested from a coconut fruit has two variations, white fiber from young coconut and brown fiber from matured coconut. The property of the fibers such as the density, water absorption ability and strength were tested to differentiate both brown and white fibers. To test the effect of the fibers on concrete, theoretical approach was the means of concluding the plausible outcome of the study. Standards were used to determine the physical properties of concrete when coconut fibers were added. The workability of concrete was also based on the ASTM standards. Six different previous studies which focuses on the effect of coconut fiber in concrete were used as a basis on the compressive strength and percentage of fiber. Previous studies have different approach on using coconut fiber in concrete, which tends to have different results. With the accumulated data from the experimentation and

other studies, it concluded that the aspect ratio of the fibers was needed to deeply understand the effect of coconut fiber in concrete. The range of the fiber content was 0.5% to 2% to produce a better concrete.

INTRODUCTION

The development of concrete using organic or natural waste is a staple practice in managing natural waste disposal. There are varying kinds of natural waste products that being studied with concrete to produce a more efficient product. Natural fiber reinforcement is among the products being utilized, specifically coconut fibers, sugarcanes, bamboos, wood, skin from a tree trunk, and among others. Developing concrete with the use of natural fibers is a disadvantage not only to the construction Industry but also to natural waste management.

Concrete comes along with the construction industry. It is widely used not only in the Philippines but in the world. Even up to this day, multiple studies develop concrete to produce a much tougher and efficient product. Concrete is commonly composed of coarse aggregate; the filler of the mixture, fine aggregate; the filler for the voids that cannot be covered by the coarse aggregate, cement; acts as a binder, and water; the activating agent for the binder. Concrete being produced with these materials is a stone-like structure with high compressive strength but lacks tensile strength. Reinforcing materials are being optimized to compensate for the lack of tensile strength Of concrete. In large construction industries, reinforcement steel bars are being used. In small-scale constructions in which reinforcement steel bars maybe not suitable for use, natural and synthetic fibers are being applied. Natural fibers come from waste from agricultural products.

The Philippines is composed of large agricultural areas that make up 47 percent of the total mass area. A large agricultural area produces a large mass of agricultural products which also means a large mass of agricultural waste is being made. One of which agricultural waste being produced is coconut by-products, coconut husk, shells, and fibers. The Philippines is among the top producers of coconut products. Mass production of coconut also comes with a large coconut waste. These wastes are being recycled but the rate is too low. Decomposition is a natural waste management procedure being used in this kind of waste product, but with a large mass of waste, it will also take time to decompose, which allows using and utilizing in other industries.

Multiple data shows that the addition of natural fibers in concrete has a limitation. The higher percentage of natural fiber, the lower the compressive strength is. Which means that there are different optimal proportion for each kind of natural fiber being used. The geometry of the fiber also affects the yielded strength of concrete. There are multiple factors that affects the resulting strength of concrete which gives more focus and time to be studied to be able to understand more.

The researchers will conduct a study on the by-product of coconut, specifically the coconut fibers. The study focuses on the effect of varying kinds of coconut fiber that can be harvested, brown and white coconut fiber. Also, white coconut fiber is being dried to determine if there is a difference among the two. Two types of coconut

fiber will be mixed in concrete separately, brown coconut fiber and white coconut fiber.

Statement of the Problem

The increase in natural agricultural waste with low utilization rate is a problem not only certain to a single country. The use and utilization of agricultural waste into different industries will result not only in the solution for waste management but also gives advantage to the industries that utilized it. The use of reinforcement rebars in concrete is a well-known practiced. The reinforcement rebars gives tensile strength to the concrete that only has compressive strength. Using natural fibers, coconut fiber in specific, will enhance the concrete mixture when the reinforcement rebars are not suitable for the concrete to be made. The use of synthetic fibers to produce a fiber reinforced concrete incorporates higher cost and large production. Readily available Fibers such as natural fibers are relatively cheaper than synthetic or manmade fibers.

The main objective of this study is to identify the effect of varying types of coconut fiber in concrete. Specifically, it will address the following concerns: 1.

Differentiate the properties of White Coconut Fiber to Brown Coconut Fiber 2. Investigate the effect of White Coconut Fiber and Brown Coconut Fiber on the physical properties of concrete. 3. Hypothesizing the effect of coconut fiber in the workability of concrete. 4. Identify the possible effect of the coconut fibers in the compressive strength of concrete. 5. Determining the feasible

percentage of fibers that will yield the highest strength on concrete.

Significance of the Study

The study will provide a better understanding on the use of coconut fibers in concrete. The use of natural fibers is more efficient to be used when the reinforcement rebars are not applicable. The tensile strength of coconut fiber is an efficient property which concrete lacks. The utilization of natural fibers in construction will not only be a solution for the waste management but also for the economical aspect on which the production of it is cheaper than manufacturing manmade fibers. The in-depth understanding on this fiber can increase the knowledge and information on which the concrete can be improved.

Scope and Limitations of the Study

The study will further understand the effects of using fibers in concrete as an admixture. Due to the pandemic present today, the study takes advantage of previous articles and studies on formulating the plausible result based on the information gathered by other researchers. The study tackles about the mechanical and physical properties of coconut fibers. These properties can be used in theorizing the possible effect of coconut fiber in concrete. The coconut fibers that are being used in the study is locally and commercially available on the vicinity

of the researchers. Pretreatment to improve the property of the fibers is done only by using potable water. The instruments that are being used are calibrated and the results of which is tabulated. The resulting data of the experiment is correlated to the previous studies to further support the claims and to Produce a more realistic and Coconut is denoted as the “tree of life”, starting from its roots up to its different parts, each are having distinct uses. Even waste that is produced by it is being utilized to be used in other industries. Utilization of the coconut wastes is not being practiced such that every single bit of coconut product is being used. There is a massive coconut waste that is being produced on which the recycling rate is too low and end up causing waste management problems. Salman Zafar (2020) indicates on his article that there are 500 million coconut trees in our country. A huge number of trees producing coconut products will result to enormous amount of waste. 4.1 million tonnes of coconut husk is being produced annually. It is ranks as second alongside coconut frond which reaches 4.5 million tonnes and coconut shell in 1.8 million tonnes. A record was written on which the Philippines is among the top contributors of coconut production in the world. The Philippines ranked as second among Indonesia and India which is first and third respectively.

There are two kinds of fiber produced by coconut, white coconut fiber and brown coconut fiber. White coconut fiber is being harvested from coconuts before ripening while brown coconut fibers where being harvested when the coconuts are fully ripened. The coconut fiber can

be extracted from the husk of a coconut fruit. A single coconut fruit is composed of 20 to 30 percent fibers. Lengths of fibers are varying Depending on the size of coconut.

Coconut fiber being a useful material is being studied by different researchers to deeply understand the properties it has. Majid Ali (2010) experiments about different characteristics of the coconut fiber. Tabulation of different characteristics accumulated from different studies is tabulated on his paper. The thickness of the fibers has a range of 0.1 up to 0.45 mm. The density of the fibers is also given on the study. 145 to 1370 kg/m³ is the stated density of the fibers. Due to the fact that the natural fibers tend to vary depending on the location and climate in the area, the range for the thickness and density is large.

White Coconut Fiber

White coconut fiber is not commonly used in any other industries. Cause of which is that white coconut fiber tends to be weaker than its counterpart, the brown coconut fiber. White coconut fiber can be easily gathered from coconut waste from areas where raw coconut juice is being sold commercially. White coconut fiber is more often ending in compost pits where it is being left to decompose naturally. Small amount of the white coconut fiber is ended up to being used in other industries. White coconut fiber is used in rope manufacturing industries. White coconut fiber is much smoother and finer than brown coconut fiber.

Brown Coconut Fiber

Brown coconut fiber is a by-product of coconuts that is being used in copra or coconut oil production. Coconut husk is where the brown coconut fiber can be Harvested. More often these fibers are being use as a fire starter in indigenous areas.

Brown coconut fibers are dried and has less water content than white coconut fiber. The Coir Board of India also lists the uses and applications of both kinds of coconut fiber. Brown coconut fibers are more often used in brushes, doormats, mattresses and sacking. Brown coconut fibers is also used as a filler to upholsteries. Brown coconut fiber is being utilized more than white coconut fiber.

Concrete

Concrete is the result of mixing different materials like cement, water, coarse, and fine aggregates. Often times, concrete is added with admixtures which further develop the properties of the produced concrete. The aim of the mixing of these said materials with right measurement is to obtain a concrete that is easy to transport, place, compact and finish as stated in “A Guide to Concrete Practice” (2010). The amount of each material is relatively affecting the properties of the hardened concrete. There are different kinds of proportion of these materials for each purpose of the concrete structure to be used.

Concrete has three distinct states, these are plastic state, setting state, and hardened state. Plastic state is the condition of concrete mixture where it is workable. It is described as “bread dough” and can be molded in to different shapes. Setting state is when the concrete starts to stiffen and no longer soft. Lastly, hardened state is where the concrete starts to gain strength and durability. Concrete is mainly composed of cement, sand, and gravel. Other times, admixtures were added to concrete, but it is an optional material.

ASTM C138 also known as the Standard Test Method for Density (Unit Weight), Yield, Air Content (Gravimetric) of Concrete is used to determine the physical properties of concrete. Using the standard devised by American Society for Testing and Materials, the density along with the yield and air content of a concrete can be accumulated. The density of concrete attributes from the materials that composes it. Cement, sand, gravel, water and admixtures are the most common components. To determine the property of the concrete mixture, the components must be tested beforehand. The quality of the components affects the outcome of the strength of the Concrete.

Cement

Cement is the binding agent on which the coarse and fine aggregates bonds together. Cement comes with different types and uses. There are over ten different types

of cement that are being utilized in construction industry according to S.P. Dunuweera and R. M. G. Rajapakse (2018). These are the following.

1. Rapid-hardening cement (RHC),
2. Quick-setting cement (QSC),
3. Lowheat cement (LHC),
4. Sulphate-resisting cement (SRC),
5. Blast furnace slag cement (BFSC),
6. High-alumina cement (HAC),
7. White cement (WC),
8. Coloured cement (CC),
9. Pozzolanic cement (PzC),

In the Philippines, the most commonly used type of cement is Portland cement. Most of the time, Portland cement is used in small scale constructions throughout the country. It is readily and commercially available on every hardware.

Aggregates

Aggregate is a rock which is being used in construction. Aggregates is split into two kinds, coarse and fine aggregates. Aggregates is a filler substance to accommodate the area of concrete to be made. Coarse aggregates have varying shapes and sizes on which it creates voids, which is why fine aggregates are needed to fill the small voids made by the coarse aggregate. In construction, different sizes of coarse and fine Aggregates are being used depending on the structural member being made.

Haseeb Jamal (2017) states that there are distinct sizes in which a rock can be classified as coarse or fine aggregate. By using sieve analysis, rocks can be classified by their size. A rock that will not pass through a sieve with an opening of 4.75mm or Sieve No.4 will be classified as coarse aggregate. Coarse aggregate is also the material which mainly carries the load. Coarse aggregate must have distinct properties to be able to produce a concrete that can withstands its intended load to carry. Fine aggregates on the other hand are smaller than coarse aggregate and has a range size of 4.75mm to 75 micrometer.

Fiber in Concrete

Coconut fiber being used in concrete is not a pioneer concept to construction industry. Coconut fiber is not the only natural fiber that being studied and analyzed in the concrete industries. Fibers, natural or synthetic, are being observed and practiced producing a more economical and stronger concrete. Multiple studies show the progression on determining the optimum percentage and preferable type of fiber that is suitable to be use commercially in construction sites. R. Sethunarayanan, S. Chockalingam, And R. Ramanathan (1989) uses different Variations of natural fibers. The natural fibers are not only limited to plant types but also from animals. The study stated that the natural fibers were split into two categories, vegetable origin and animal origin. Under vegetable origins were wood fibers, hast fibers, leaf fibers, and seed and fruit fibers. Animal origin on the other hand are wool and hair fibers, and silk and other filaments. The variations of fibers with different origin clearly shows that each have distinct effects on concrete mixture. The resulting strength of concrete will be affected by geometry, form and surface of the fiber to be used. The study was conducted to find the most suitable type of natural fiber to be used in concrete. It is recommended by the researchers that more investigations are needed to study the behavior of fibers to be used in structural elements.

The researchers Indicates that the vegetable fibers should not be fully dried and moisture content must be retained.

Ashraf Mohamed Heniegal, Fawkia Fahim El-Habiby, Radwa Defalla Abdel Hafez (2015) also uses fiber on concrete, but unlike the first two studies being mentioned, the researcher uses industrial and agricultural textile wastes. The study utilized sisal, flax, glass fiber and carpet waste fibers. The percentage that is being used if 0.5%, 1% and 2% by the volume of concrete. The density of the said fibers is higher than the natural fibers which clearly shows the effect on the density of concrete. The compressive strength of concrete with added fibers were significantly increasing in the 0.5% proportion when the cement content that is added is 350 kg/m³ and 400 kg/m³.

The use of natural fibers in coconut fiber is a subject to discuss not only to economical aspect and construction industry but also to waste management. Natural waste fibers were being utilized than the synthetic waste fibers to minimize the production of the latter. If the latter found efficient, the production of synthetic materials will increase because of the solution on the waste management of it is present. It will cause another problem which also needed another solution. The utilization of natural fibers such as coconut fibers are being left out because of its natural waste solution, the decomposition of natural materials. The problem of it is that too much waste is made that the decomposition is being overwhelmed and it resulted on slow rate of decomposition and land acquisition for the housing of such wastes. The utilization posts no visible problems to be fix on the long run.

The utilization of fibers in concrete is well being used for on which a standard has been made, specifically ASTM C1116. The C1116 or also known as Standard Specification for Fiber-Reinforced Concrete is a standard devised by American Society for Testing and Materials (ASTM). There are multiple types of fibers being discussed in the standard. Steel fibers, Glass fiber and Synthetic fibers are the fibers being mention on it. The natural fibers are not amongst it with the cause of the fibers are too varying. Steel, Glass and Synthetic fibers can be manufactured and the properties of each can be manipulated or adjust. The variation of each can be reduce to create a more consistent product. The natural fibers, even having the same type can still have different variations. The use of natural fibers can be more efficient when dealing with waste management and economical aspect. More studies and findings are needed to fully understand the behavior of natural fibers. Fibers are well known to affect the workability of the concrete.

American Society for Testing and Materials devised a standard for mixing concrete with fibers. ASTM C1116 commonly known as Standard Specification for Fiber-Reinforced Concrete. The standard tackles about the production, usage and classification of fibers being used in fiber-reinforced concrete. Most common types of fibers administered by the standard is Steel fiber-reinforced concrete, glass fiber reinforced concrete and synthetic fiber-reinforced concrete. Stating different kinds of Fiber in

the standards excludes the natural fiber. Natural fibers such as fibers that came

From vegetation and animals has too much variation. Producing a fiber that can be adjusted and manipulated for the benefit of the users is a more practical way than using natural fibers that is varying. The standards also suggest the common problem of using fiber in concrete which is the formation of fiber balls. The workability of the concrete is also being stated that it tends to have low operability due to the presence of fibers. The use of synthetic compared to natural fibers can be beneficial in one way. The use of natural fibers can be more beneficial if being understood deeply and thoroughly.

American Concrete Institute (ACI) devised a standard about the properties of fiber reinforce concrete namely ACI 544.2R-89. Stated in the standard where the different properties of fiber reinforce concrete which is the compressive strength and flexural strength to name a few. The fiber properties were also mentioned in the standard. The smallest dimension of the specimen or the concrete must be at least three times larger than the length of the fibers. The alignment of the fiber is also important on which it can affect the test results. The fibers must be placed appropriately and mixed thoroughly to prevent the formation of fiber balls.

Coconut Fiber in Concrete

Kshitija Nadgouda (2014) shows the result on mixing coconut fiber on concrete mixture. 3%, 5% and 7% of coconut fiber were used (by weight of cement). The produced concrete was tested for splitting tensile strength, flexural strength and compressive strength. The researcher presumes that the increase in the percentage of Coconut fiber, the strength of concrete will dramatically decrease, on which the assumption strongly shows in the results. The mixture being used in the study is grade M20 which is 1:1.5:3. The addition of fiber is also being practiced increasing the flexural strength of concrete with the absence of reinforce rebars. In this study, the concrete mixture being produce clearly shows that the coconut fiber helps and increases the flexural capability of concrete. It also stated that the percentage that gives the highest flexural strength is in 3%, which also gives the impression of that there is a limitation on how many fibers can be added to concrete mixture to produce a better concrete. The study of Kshitija Nadgouda (2014) uses a source that shows that 1% and 2% of coconut fiber were used and that the said proportion shows the increase in tensile strength of concrete. Kshitija Nadgouda (2014) tested 3%, 5% and 7%, which clearly shows a decreasing of strength throughout all the said proportions. The researcher also concludes that the coconut fiber has low density which reduces the weight of concrete that will be produced. The workability and hand mixing of concrete with the addition of coconut fiber

shows a difficulty and such needed to be addressed. The researcher also indicates that the addition of coconut fiber beyond 5% will result into a failure and the strength of concrete that is added with coconut fiber lies between the range of 0% and 3%.

Different studies are approaching the use of natural fibers such as coconut fibers in mixing with concrete. The concept of adding coconut fiber most of the time tackles about the percentage of fibers being used. V. Sai Uday and B. Ajitha (2017) studies the concrete with addition of fibers with varying percentage such as 1%, 2%, 3%, 4% and 5%. They produce cubes which then be tested in Compressive Testing Machine (CTM). Their conclusion shows that the 1% coconut fiber addition to the concrete yields the highest strength among all of the mixes even the concrete mixture without fibers on it. The study concluded that the addition of coconut fibers must not exceed 1%.

The study of V.A. Dhandhanian and S. Sawant (2014) uses 0.25% and 1% of fibers in concrete. Three cubes having no fibers, three cubes having 0.25% coconut fiber and three cubes having 1% fiber has been produced. The resulting data for the crushing load shows that the 0.25% coconut fibers added attains the highest value. In their study, they explain the help of the addition of coconut fibers in concrete not only for waste management but also for economical aspect. The coconut fibers are being contrast with steel on which the latter is with high-cost, non-recyclability and corrosive. They clearly state that it is wise to use coconut fiber as an admixture to concrete

whenever steel is Not applicable. Coconut fiber does not also corrode unlike steel.

Habibunnisa Syed, Ruben Nerella and Sri Rama Chand Madduru (2020) studies different aspects when it comes with coconut fiber as reinforcement for concrete. In their study, they used processed coconut fibers, which are fibers that undergoes pretreatment. The coconut fibers were extracted from the coconut fruit free from any dust and other particles from the coconut fruit besides the fiber. The fiber is then tied into a yarn, the fibers are continuously and repeatedly cleaned and being brushed using steel brush. The fibers will then undergo drying stage, to make the procedure quicker, the fibers are placed in an oven and to completely remove the moisture content, the fibers will then be sun dried after being placed in the oven. The coconut fibers will then be cut into desired lengths and to be soaked in oil for 15 to 20 minutes. The fibers will then be sun dried again for 24 hours before being used in concrete mixture. The percentage of coconut fibers being used in the study is 0.6% and 1.2%. The concrete with 0.6% coconut fibers yields the highest strength. The water cement ratio has also been studied; the water absorption ability of the coconut fibers has been eliminated by coating the fibers with oil. Eliminating the said factor is efficient to determine the right Amount of water-cement ratio.

Waqas Ahmad (2020) deals with the use of coconut fibers to high strength concrete. The study deals with the percentage of fiber added to the concrete and the length of fibers. The study uses 25mm, 50mm and 75mm lengths

and a fiber percentage of 0.5, 1, 1.5 and 2. The length of 50mm gives a remarkable result when being tested for its slump. The study also finds that the higher the percentage of fiber the lower the slump is. In the subject of compressive, the study shows the illustration of the stress strain curve of each mix design with varying percentage of fibers. The addition of fibers shows greater strength and strain value than concrete without fibers. The 50mm length Of fiber peaked the highest stress and maximum strain? Shreeshail Heggond (2014) uses coconut fibers with aspect ratios of 75 and 125. The study uses three percentage of fiber namely 1%, 2% and 3%. With the addition of the control mix, the total mix design is 4 per aspect ratio. The average thickness of fibers was determined to be 0.0226 using a vernier caliper. The length of the fibers being used is 1.7 cm and 2.8 cm, on which the aspect ratio of 75 and 125 were determined Respectively. The concrete with coconut fibers were tested for its compressive strength. For aspect ratio of 75 and 125, the yielded compressive strength attains the highest for 2% fiber. The concrete was tested for its curing period of 7 and 28 days.

Workability

The workability of concrete is administered by the moisture in the concrete mixture. The addition of right amount of water is needed to produce a concrete with preferrable slump. The slump of the concrete can be

determined using the slump test. ASTM C143 known as Standard Test Method for Slump of Hydraulic-Cement Concrete stated the standards when testing for the slump of concrete. Multiple apparatus is needed in conducting a slump test. Namely, the mold, tampering rod, measuring device and a scoop. The mold used in slump test is called a slump cone. When the mold is removed and the concrete starts to slump, the difference on the slump of cone will be the recorded slump of the concrete.

As stated in the standard C1116 of American Society for Testing and Materials (ASTM), the workability of the concrete is highly affected by the addition of fibers in concrete. The workability of concrete is measured by the slump based on the slump test or the time of flow based on the rate of flow of the concrete. It also specifies that the presence of fiber balls must always be non-existent. The fiber balls may cause larger Voids than the voids made by the fibers that are not intertwined to each other. The larger Percentage of voids to its total volume will cause the concrete to fail, thus, preparation of the admixtures must be done properly and with accordance to the standards.

CONCEPTUAL FRAMEWORK

On the basis of the previous concepts, theories and findings of the related readings and literatures, conceptual framework is established as shown in the Figure 1.

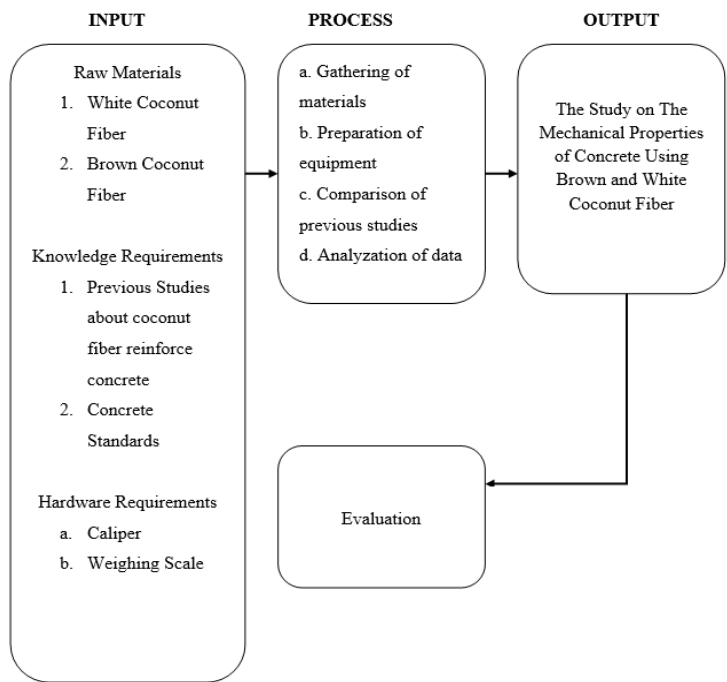


Figure 1: Conceptual Framework of The Study on the Mechanical Properties of Concrete Using Brown and White Coconut Fiber

METHODOLOGY

Research Design

Brown Coconut Fiber

Brown coconut fibers were harvested from ripped coconut fruits. The fibers being harvested were air-dried to eliminate the moisture content on it and to be prepared for the experimentation.

White Coconut Fiber

White coconut fiber has been gathered from the young coconut fruits. The white coconut fiber also undergoes the same treatment with the brown coconut fiber. The fibers harvested from the young coconut fruits were lighter in color than fibers harvested in ripped coconut fruits. The white fibers have moisture content which air drying was needed to determine the specific mass of it.

Water Absorption

The coconut fibers were tested for its size and water absorption capacity. The acquired data for the properties of each kind of coconut fiber helps determine the pros and cons of each other when being used in concrete mixture. The size of the fibers, in terms of its thickness has been taken by using a calibrated digital caliper. The tabulation of

thickness of fibers were used as a supporting data along with the information taken from the previous studies.

The water absorption capacity of the fibers was taken by weighing the fibers before and after the drying stage. The steps are as follows:

1. Shredding of fibers from the coconut fruit.
2. Cutting of fibers based on its desired lengths.
3. Weighing of fibers before air-drying.
4. Weighing the fibers every 24 hours of air-drying.

After the fibers reached its point where the water content was mostly gone, the fibers was submerged in water for 24 hours to regain its water content and then after submerging, the fibers has been air-dried to control the water content of each type of fiber. This experiment can enable the researchers to fully understand the capacity of the fibers to hold water. Water on which is a factor in the concrete mixture. The addition of water except from the given water-cement ratio will highly affect the workability, density and strength of the concrete. The ambient temperature of the whole process has also taken down to correlate the rate of water dispersion per type of fiber. The weight of the fibers was accumulated from the experimentation of the water absorption of fibers. The volume on the other hand has been accumulated by submerging the fibers in water. The difference in height of surface water when the fibers was added and when the fibers

are not yet submerged was the volume of the fibers. The volume of the fibers helps determine the effect of the fibers to the density of concrete.

Fiber Strength

The difference on the stage of the coconut fruit affects the properties of its fiber. To determine the strength capability of each kind of fibers, the fibers has been under stressed. By using a bucket and water, the strength of the fiber has been determined. The water was slowly poured in the bucket, which was attached to a single fiber. When the fiber breaks, the total weight of the bucket along with the water has been written down. Multiple testing has done to lessen the margin of error due to unforeseen factors.

Workability, Compressive Strength and Percentage of Fiber

Along with the data from the experimentation, the study came up with a conclusive result based on the previous studies, articles and research. The data accumulated on each study has been interpolated to theorize the plausible workability, compressive strength and optimum percentage of fiber. The location of experimentation and acquisition of raw materials such as coconut fiber is at Dasmariñas, Cavite. Information gathering, analyzation of data and observation of raw materials was also done at Dasmariñas, Cavite.

Sampling Technique

The thickness of the fiber varies depending on the classification of the coconut fruit. The researchers randomly picked ten fibers per type of coconut fiber. The resulting data gives the range of the thickness of the fibers that has been gathered by the researchers. For the experimentation on the strength of the fibers, three trials were done per type of fiber. This technique enables the researchers to accurately determine the appropriate result.

DATA GATHERING

Due to limitation on human interaction and gatherings, the researchers rely on the following information and data:

1. Related articles, research and study from previous researchers that is connected and correlated to the study of coconut fibers as admixture in concrete mix.
2. Standards formed by ASTM (American Society for Testing and Materials) and ACI (American Concrete Institute) to have better knowledge and guidelines on the standard procedures in producing concrete.
3. Current events and news posted in internet that is related to the study.

Research Instrument

The experimentation used digital weighing scale and the data for acquiring the thickness of the fiber were done by using a digital caliper. The ambient temperature in the drying stage of the fibers was taken by using a digital thermometer. On the data interpolation, the research have taken advantage of using e-books, researches, articles and studies.

RESULTS

Physical Properties of Concrete

Concrete Density

ASTM C138 stated that the National Ready Mixed Concrete Association found that the density of concrete ranges from 1842 to 2483 kg/m³. This data was the basis for the computation of the theoretical density of concrete when coconut fibers was added.

Volume of Fibers

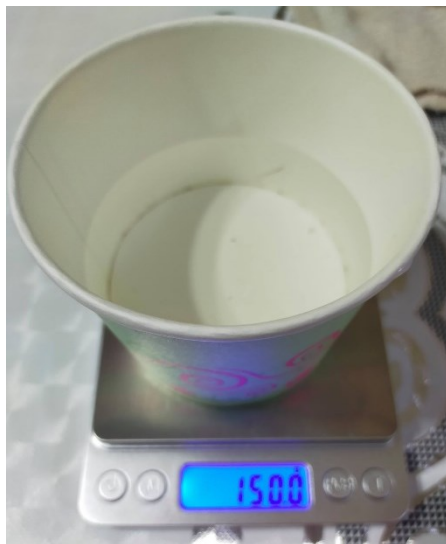


Figure 2: Weight of the water before adding the fibers

The volume of the fibers cannot be computed by taking the thickness and length then multiplied by the number of fibers. The process of it will result into longer period of time and has higher chance of making error. The researchers used the principle of water displacement. The water poured into the cup were measured, which is given in the figure above. When the fibers were added, the water surface rises and it is marked. When the new water surface was marked, the fibers were then removed along with the water. The cup was filled again along its marked line. The former weight of water which was 150 grams has been

subtracted from the new weight accumulated by filling the cup with the new water surface.

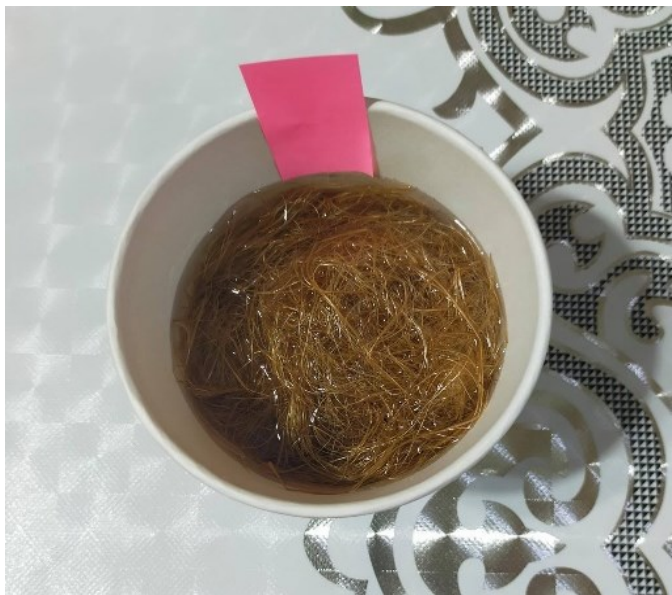


Figure 3: Marked new water surface

The two types of fiber undergo the same experimentation and the resulting data is shown in the table as follows.

	Weight of water before adding	Weight of water using the new	Difference	Volume
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	the fibers	water surface line		
Brown Fiber	150 g	163.1 g	13.1 g	13.1 cm ³
White Fiber	150 g	154 g	4 g	4 cm ³

Table 1: *Tabulation of data for the volume of the fibers*

The density of water is 1000 kg/m³ or 1 g/cm³, based on the data accumulated from the experimentation, the difference in weight for the brown fiber is 13.1 grams and 4 grams for white fiber. The difference in weight along with the known density of water, the volume of the of the fibers can be determined.

$$\text{Volume of water} = \frac{\text{Mass of water}}{\text{Density of water}}$$

Figure 4: *Formula for acquiring the volume of the fibers based on the formula Density = Mass / Volume*

The volume is the amount of space occupied by a certain object. The volume of the fibers was also the same

as the volume of water added when the water surface changes. The computed volume of water is 13.1 cm^3 and 4 cm^3 for brown and white fiber respectively.

Weight of Fibers

The fibers have the ability to absorb and retain the water inside of it. To determine its accurate weight, the fibers were air dried for three days, the fibers being measured with weight was also the fibers being tested on the volume experimentation. Accumulating both the volume and the weight can result into determining the density of the fibers. The weight of the fibers is given on the figure below.



Figure 5: *The weights of white (left) and brown (right) coconut fiber after air drying*

The weight of the fibers was both 5 grams before air drying. Because of the property of the white coconut fiber having moisture content on it, the weight of the fiber decreases to 3.1 grams. Brown coconut fiber being dried at the first place makes the weight of it the same before and after air drying.

Density of Fibers

The previous experimentation and data accumulation gives way to determine the density of the fibers. The density of fibers has been used to determine how the fibers affects the density of the concrete when being mixed with fibers. The table below shows the accumulated data for the volume and mass of the fibers along with the computed density

$$Density = \frac{Mass}{Volume}$$

Figure 6: *Formula used to determine the density of the fibers using their mass and volume*

	Weight	Volume	Density
Brown Fiber	5 g	13.1 cm ³	382 kg/m ³
White Fiber	3.1 g	4 cm ³	775 kg/m ³

Table 2: *Data for determining the density of the fibers*

Given the density of the fibers being lowered than the density of the concrete, theoretically, the amount of cement removed by replacing with fibers will make the concrete lighter. The difference in density of the concrete and the fibers ranges from 1067 to 2102 kg/m³. If a concrete slab is made with a volume of 1 m³ and a fiber content of 1% by weight of cement is used. The resulting mass of the concrete became less than the concrete without fibers. The computation for the theoretical mass of the fiber reinforced concrete is shown in the figures below.

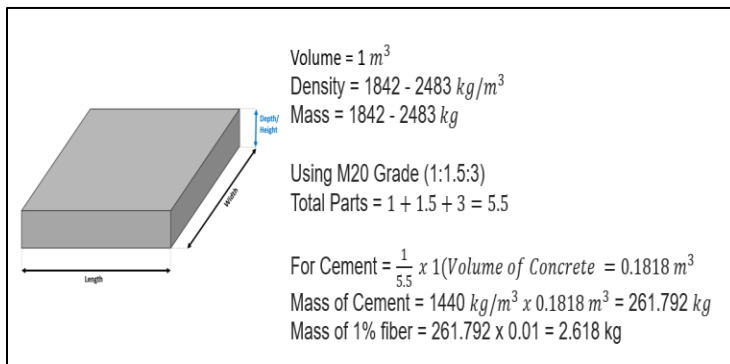


Figure 7: Computation for the amount of cement and fibers

Given the volume and the density of the concrete, the mass was accumulated using the formula Density = Mass / Volume. The concrete grade used as an example was M20 Grade which was 1:1.5:3. Using volumetric calculation. The amount of cement can be calculated, which was essential to determine the number of fibers to be used

in the example. The calculated value for the mass of cement is 261.793 kg. Calculating the 1% of the weight of cement, the result gives the weight of the fibers needed which is 2.618 kg.

	Mass	Density	Volume
Brown	2.618 kg	382 kg/m ³	6.85 x 10 ⁻³ m ³
White	2.618 kg	775 kg/m ³	3.38 x 10 ⁻³ m ³

Table 3: Data for the 1% fiber content of concrete

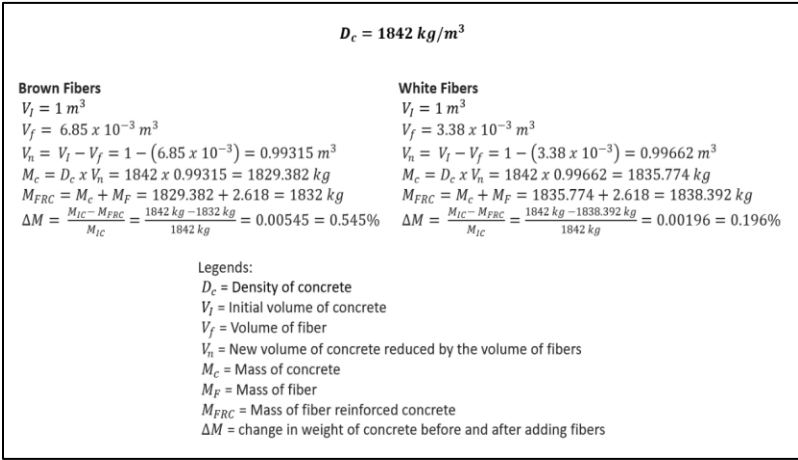


Figure 8: Computation for the weight of fiber reinforce concrete using the density of concrete as 1842 kg/m³

$D_c = 2483 \text{ kg/m}^3$	
<p>Brown Fibers</p> $V_i = 1 \text{ m}^3$ $V_f = 6.85 \times 10^{-3} \text{ m}^3$ $V_n = V_i - V_f = 1 - (6.85 \times 10^{-3}) = 0.99315 \text{ m}^3$ $M_c = D_c \times V_n = 2483 \times 0.99315 = 2465.991 \text{ kg}$ $M_{FRC} = M_c + M_f = 2465.991 + 2.618 = 2468.609 \text{ kg}$ $\Delta M = \frac{M_{IC} - M_{FRC}}{M_{IC}} = \frac{2483 \text{ kg} - 2468.609 \text{ kg}}{2483 \text{ kg}} = 0.00580 = 0.58\%$	<p>White Fibers</p> $V_i = 1 \text{ m}^3$ $V_f = 3.38 \times 10^{-3} \text{ m}^3$ $V_n = V_i - V_f = 1 - (3.38 \times 10^{-3}) = 0.99662 \text{ m}^3$ $M_c = D_c \times V_n = 2483 \times 0.99662 = 2474.607 \text{ kg}$ $M_{FRC} = M_c + M_f = 2474.607 + 2.618 = 2477.226 \text{ kg}$ $\Delta M = \frac{M_{IC} - M_{FRC}}{M_{IC}} = \frac{2483 \text{ kg} - 2477.226 \text{ kg}}{2483 \text{ kg}} = 0.00233 = 0.233\%$
<p>Legends:</p> <p>D_c = Density of concrete</p> <p>V_i = Initial volume of concrete</p> <p>V_f = Volume of fiber</p> <p>V_n = New volume of concrete reduced by the volume of fibers</p> <p>M_c = Mass of concrete</p> <p>M_f = Mass of fiber</p> <p>M_{FRC} = Mass of fiber reinforced concrete</p> <p>ΔM = change in weight of concrete before and after adding fibers</p>	

Figure 9: Computation for the weight of fiber reinforce concrete using the density of concrete as 2483 kg/m^3

The computed mass of fiber which was the 1% of the cement given in the Figure 7 was used to determine the space that the fibers will occupy when it is mixed in concrete. The computed volume for the brown fiber was $6.85 \times 10^{-3} \text{ m}^3$ and $3.38 \times 10^{-3} \text{ m}^3$ for white fiber. The volume and mass of the fibers was a substantial information in determining the theoretical weight of concrete when added with fibers.

Figure 8 and 9 shows the computed mass of concrete when added with brown or white coconut fibers. Concrete reinforced with brown fiber shows a decrease of 0.58% – 0.545% in weight while concrete reinforced with

white fiber shows a decrease of 0.223% to 0.196%. White fiber tends to have lower value since the density of the white fiber is larger than the brown fiber. The computation shows that the coconut fiber will make the concrete lighter even with a small percentage. For a concrete with a volume of 1 m^3 , using brown fiber will reduce its weight by 10 kg to 14 kg, given the fact that the 1 m^3 weighs 1842 to 2483 kg. if white fiber were used in the concrete, the weight will be reduced to 3.6 to 5.7 kg.

Water Absorption and Strength of Fibers

The water absorption ability of the fibers can contribute to the workability of concrete. The addition of water other than the given water-cement ratio can increase the workability of the concrete being mixed. The amount of water being absorbed by the fibers depends on the type of it. The fibers being freshly shredded from the coconut fruit was weighed and recorded. Air drying for days until the weight remains the same. After the fibers being fully dried, the fibers were submerged in water for 24 hours and then air dried again for 24 hours. The recorded data for it was compared to the weight of the fully dried fibers.

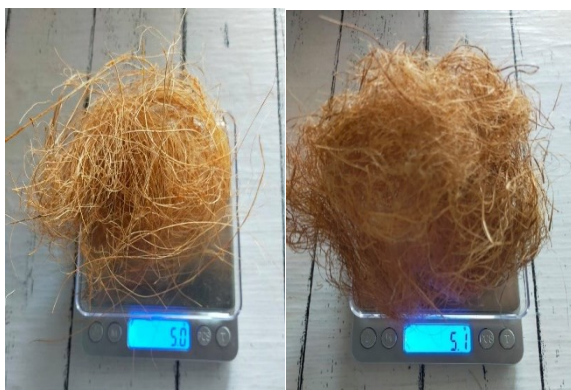


Figure 10: The weights of white (left) and brown (right) coconut fiber before treatment

The figures above show the initial weight of the fibers after being removed from the coconut fruits. It then underwent air drying for couple of days. The ambient temperature was recorded in the table as follows

Time of the Day	Temp for 1 st day (°C)	Temp for 2 nd Day (°C)	Temp for 3 rd day (°C)
8 AM	32.6	32.4	33.1
10 AM	33.1	33.2	33.4
12 PM	33.6	33.8	33.5
2 PM	31.2	32.0	31.6

4 PM	31.1	31.8	31.4
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Table 4: Ambient temperature in the location of the experimentation



Figure 11: The weights of white (left) and brown (right) coconut fiber after air drying for 24 hours

The figure above shows the change in weight of the fibers after being air dried for 24 hours. The fibers have been dried for a total of three days. The weight remains the same for the 24 hours, 48 hours and 72 hours drying period. The experimentation shows that most of the water content of the fibers has been evaporated by air drying the fibers for 24 hours. The tabulated weight of the fibers along with the time of drying is illustrated below.

	Initial	24 hours	48 hours	72 hours
Brown Fiber	5.1 g	5.0 g	5.0 g	5.0 g
White Fiber	5.0 g	3.1 g	3.1 g	3.1 g

Table 5: *Tabulated weights of fibers after air drying for certain periods*

Due to the fact that the fibers harvested from a fresh young coconut fruit was moist, the weight of it decreases. Using the data above as the basis, the water content of the white fiber was calculated to be 38% while the brown fiber being dried beforehand has no change in weight. The difference of 0.1 grams can be acquitted due to the variance of the weighing scale.



Figure 12: *White (left) and brown (right) coconut fibers being submerged in water*



Figure 13: White (left) and brown (right) coconut fibers after being removed from the water

After drying for couple of days, the fibers were submerged in water as presented in the figure 12. The fibers were left for 24 hours before being removed. The fibers were pat dried and weighed after the removal from the water. The excess water from the surface of the fibers is being wiped out before drying it again for 24 hours.

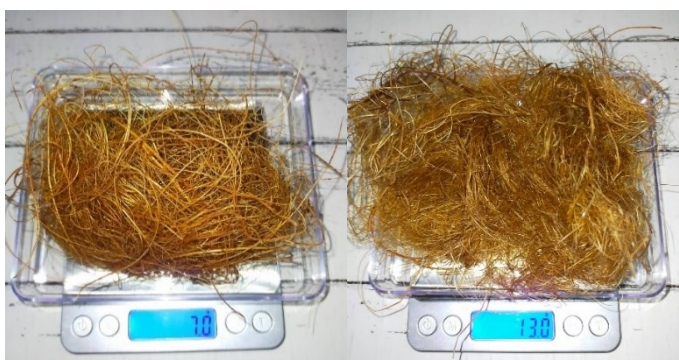


Figure 14: Weights of the white (left) and brown (right) coconut fibers after being submerged in water



Figure 15: Weight of the white (left) and brown (right) coconut fibers after drying for 24 hours

	After Submerging	After Drying	Difference
Brown Fiber	13.0 g	5.1 g	7.9 g
White Fiber	7.0 g	2.8 g	4.2 g

Table 6: Tabulation for the difference of weights of fibers.

The data shows the recorded weights of the fibers after submerging in water and after drying for 24 hours. The data clearly shows that the brown fiber when wet has a moisture content of 60.7% while the white fiber has 60%. The calculated moisture content of the white fiber before

which was 38% can be explained by the fact that the young coconut fruit was in the stage of drying. The experimentation clearly shows that both the dried fibers gain almost the same amount of moisture when being submerged in water for 24 hours.

<p>Brown Fiber</p> $\Delta W = \frac{W_I - W_F}{W_I} = \frac{13.0 \text{ g} - 5.1 \text{ g}}{13.0 \text{ g}} = 0.6077 = 60.77\%$ <p>White Fiber</p> $\Delta W = \frac{W_I - W_F}{W_I} = \frac{7.0 \text{ g} - 2.8 \text{ g}}{7.0 \text{ g}} = 0.60 = 60. \%$ <p>Legends</p> <p>ΔW = change in weight of the fibers</p> <p>W_I = weight of fiber after submerging in water</p> <p>W_F = weight of the fiber after drying</p>

Figure 16: Computation for the change in weight of the fibers

The figure below shows the experimentation being done to accumulate the data for the strength of the fibers.



Figure 17: *The setup for the experimentation on the strength of the fibers*

The strength of a single fiber was tested by how much weight can it carry before breaking. Fibers tend to have elastic property on them on which it stretches when carrying a load. The elasticity of the fiber has a limit, and moving forward to that limit shows the breaking point of the material, where the fiber snaps and tears into two. To determine the amount of force the fiber can carry, the fibers were tied to a steel rod on the other end while the other was tied on a bucket. The bucket was slowly poured with water. The more water added the higher the amount of force being carried by the fiber. The amount of water has continuously added up to the point where the fiber breaks. After

breaking, the water and bucket has been weighed to determine how much weight it carries.

The fibers were tied on the steel rod and the bucket using the overhand knot technique but when the pouring of water started, the fiber does not snap and tears into two, the fiber was only being untangled from its knot. To strengthen the knot and to break the fiber from its line, the overhand knot was doubled. The figure shows the breaking points of the fibers.

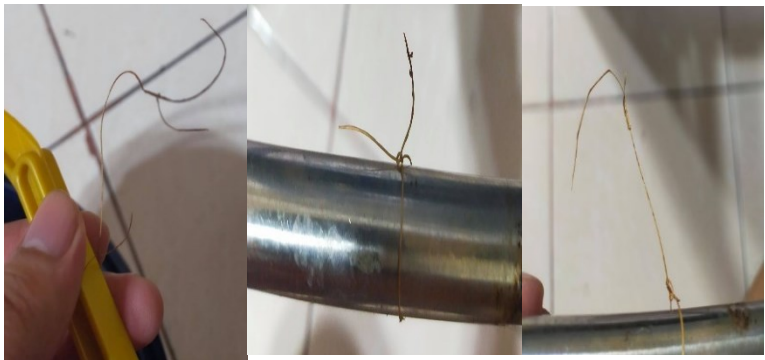


Figure 18: Breaking point of fibers

For the most part, the fiber’s breaking points were at the both ends. Each type of fiber was tested three times. The accumulated data of the weight that the fibers can carry is shown in the table below.

		Weight
Brown Fiber	1 st Fiber	0.5 kg

White Fiber	2 nd Fiber	0.55 kg
	3 rd Fiber	0.55 kg
	1 st Fiber	0.75 kg
White Fiber	2 nd Fiber	1 kg
	3 rd Fiber	0.8 kg

Table 7: Data for the strength of the fibers

Three white fiber and three brown fibers were tested on this experimentation. The experimentation shows that a single coconut fiber has the ability to carry 500 to 1000 grams of water. The addition of more fibers increases the capability of carrying load by much more. The brown fibers as observed before testing has thinner fibers than the white fibers. The white fibers carried almost twice the weight than the brown fibers. It may be due to the fact that the thickness of the fibers, it was the primary contributor to the strength of the fibers. The fibers being tested on this experimentation were the fibers with no moisture content. The length of the fibers being used were random and does not have distinct value. Even having variations on the length of the fibers, the range of the result shows that the length has minimal effect on ability of the fibers to carry load. The thickness of the fibers was also being measured to give contrast to the accumulated strength of the fibers.

Ten fibers for each type were randomly picked and measured. The following data is listed below.

	Thickness		Thickness
Brown Fibers	<0.01 mm	White Fibers	0.01 mm
	<0.01 mm		<0.01 mm
	<0.01 mm		0.02 mm
	<0.01 mm		0.01 mm
	<0.01 mm		0.01 mm
	<0.01 mm		0.01 mm
	<0.01 mm		<0.01 mm
	<0.01 mm		0.01 mm
	0.01 mm		0.01 mm
	<0.01 mm		<0.01 mm

Table 8: *Thickness of fibers*

Based on the data accumulated when measuring the thickness of the fibers, brown fibers has less than 0.01 mm in thickness. The digital caliper being used gives a result of 0.00 mm when measuring most of the brown fibers which makes the digital caliper incapacitated to measure the said fibers. The thickness of the white fibers can be measured and most of it was 0.01 mm and few fibers has a thickness of 0.02 mm. The thickness of the fibers has been

incorporated to the fact that it can carry more the thicker the fiber.

Workability

The workability of concrete is attributed by the slump test. Using a slump cone and the produced concrete, the slump of the concrete after removing the slump cone can determine the workability of concrete. There are different slump ranges for different kinds of concrete. There was a standard devised for each kind of mixture of concrete but the addition of admixtures such as fibers can deeply affect the workability of concrete.

As stated in ASTM C1116, the slump of a fiber reinforced concrete tends to be low due to the presence of fibers. The basis for the density of concrete as mentioned by National Ready Mix Concrete Association in ASTM C138 was 1842 to 2483 kg/m³, it also stated that the slump range of the concrete was between 75 to 150 mm (3 to 6 inches). Being stated that the slump of the fiber reinforced concrete is lower than normal concrete, the ranges decrease to 50 mm or below.

The workability of concrete is also attributed by the amount of water present in the concrete mixture. Using the data from the result of water absorption of fibers, the amount of water that the fibers hold increases the water present in the mixture. If the fibers being used in concrete was pretreated with water and not dry, the workability of

the concrete can be manageable and the slump can theoretically increase.

Compressive Strength

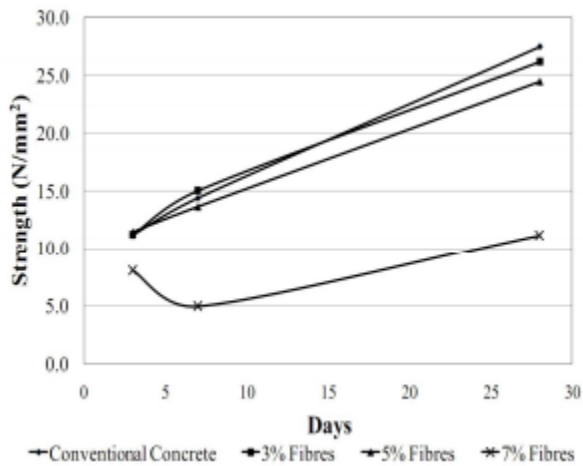


Figure 19: *Graph of the compressive strength accumulated in the study “Coconut Fibre Reinforced Concrete” by Kshitija Nadgouda*

Kshitija Nadgouda (2014) uses 3%, 5% and 7% fibers by weight of cement, the resulting strength of the produced concrete is shown in the figure above. The concrete mixture proportion used in the study was M20 (1:1.5:3). The strength of the conventional concrete reaches the highest when the 7 days curing periods passes. After the 28-day curing period, the conventional concrete along with the concrete with 3% fiber small difference in terms of

strength. The conclusion in the study states that the concrete with fiber fails due to improper mixing caused by high fiber content, reduction of water due to absorption and formation of voids. It also stated that the percentage of fiber must not exceed to 3% because the finding shows that the concrete does not exert increase in strength.

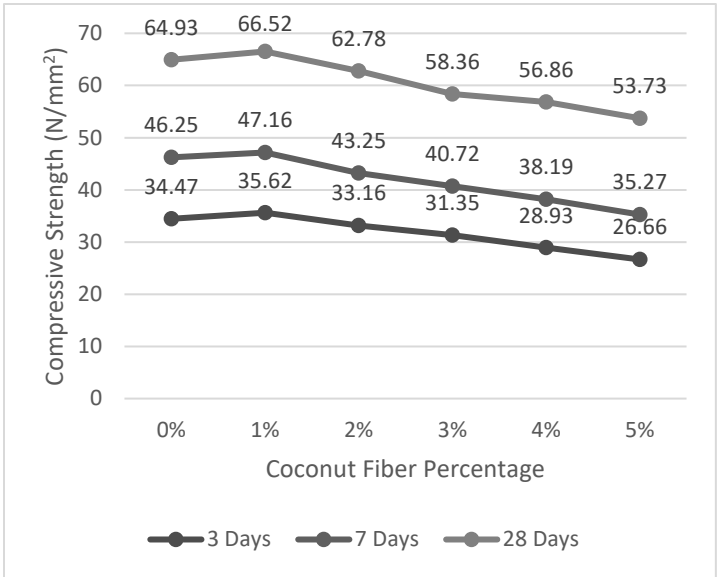


Figure 20: Graph of the compressive strength accumulated in the study “Concrete Reinforced with Coconut Fibers” by V. Sai Uday and B. Ajitha

V. Sai Uday and B. Ajitha (2017) uses more variety of percentage to fully understand the effect of coconut fiber in concrete. As shown in the figure, the concrete with 1% fiber yields the highest strength for all the duration of the

curing stage. As the amount of fiber increases, the strength of the concrete decreases. The addition of too much fiber can cause a larger void than usual which makes the concrete fail at a larger percentage of fibers. The study also indicates that the fiber content of the concrete must not exceed 1%. The slope of the strength of concrete with the addition of fiber clearly shows a downward line.

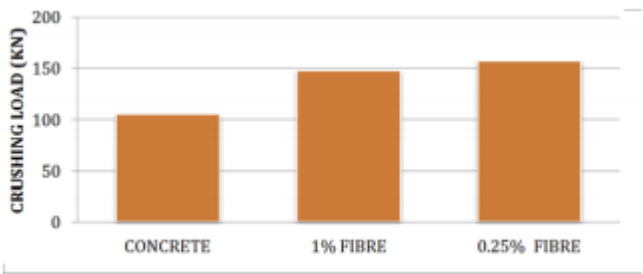


Figure 21: *Graph of the crushing load accumulated in the study “Coir Fiber Reinforced Concrete” by V.A. Dhandhanania and S. Sawant*

V.A. Dhandhanania and S. Sawant (2014) incorporates 0.25% and 1% of fiber in concrete. The graph shows that the crushing load of concrete has the highest when the fiber being added is 0.25%. 6 by 6 inches concrete cubes are produced to test the strength of concrete with and without coconut fibers. Three specimens are made per mix design and the resulting crushing load is shown in the graph above. The study focuses on the advantage of using coconut fiber than steel reinforcement. The cost effectiveness of the fibers is much more profitable than using steel reinforcement. The use of steel reinforcement is

highly applicable for structural concrete members. There are cases that steel is not applicable and suitable to use. To compensate for the lack of tensile strength for concrete, the addition of fibers can be advantageous.

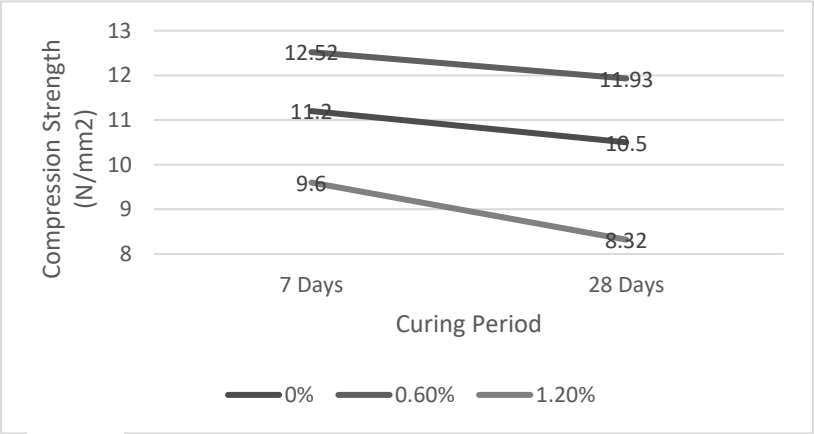


Figure 22: *Compressive strength of concrete using raw coconut fiber in the study “Role of Coconut Fiber in Concrete” by H. Syed, R. Nerella and S. R. C. Madduru*

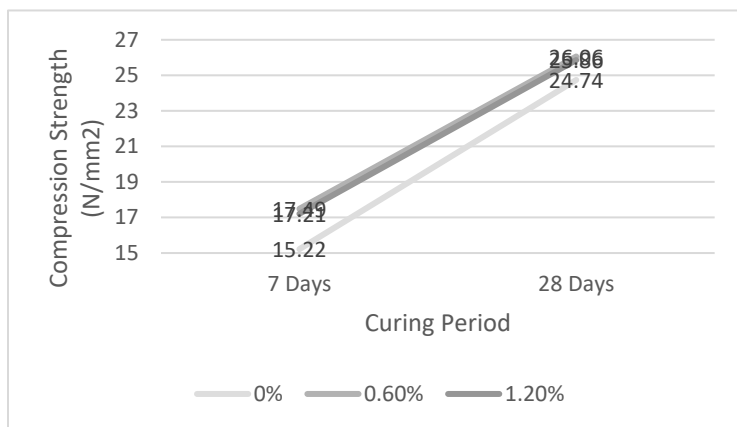


Figure 23: Compressive strength of concrete using processed coconut fiber in the study “Role of Coconut Fiber in Concrete” by H. Syed, R. Nerella and S. R. C. Madduru

H. Syed, R. Nerella and S. R. C. Madduru (2020) used two kinds of coconut fiber, processed and raw coconut fiber. The resulting strength for each type of fiber with varying percentage is shown in the two graphs. The addition of raw coconut fiber shows a downward fall when starting from 7-day to 28-day curing period. The use of processed coconut fiber shows an increase in strength from 7-day to 28-day curing period. The addition of fiber in concrete shows low operability. Plasticizer is used in the concrete mixture to compensate for the workability and manageability of concrete. The addition of more fibers tends to create weak transition zones, which makes the entire sample fail.

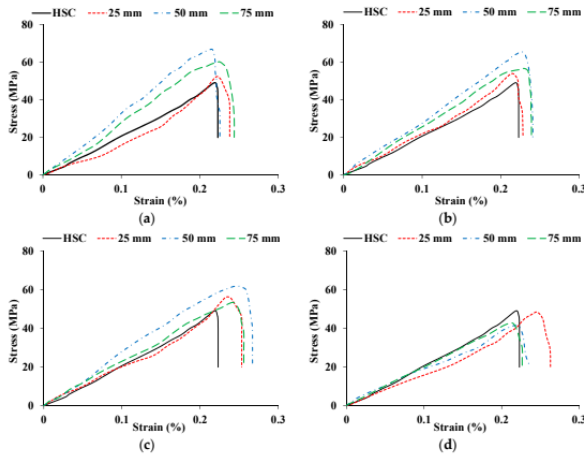


Figure 24: *Stress-Strain Curve from the study “Effect of Coconut Fiber Length and Content on Properties of High Strength Concrete” by Waqas Ahmad*

Waqas Ahmad (2020) varies not only the percentage of fiber in concrete but also the length of the fiber being used. 25 mm, 50 mm and 75 mm fiber lengths are used in the study while the percentage is 0.5%, 1%, 1.5% and 2%. The concrete being used in the study is high strength concrete. The data in the figure above shows the stress strain curve of the concrete produced. Graphs A, B, C and D are the concrete having 0.5%, 1%, 1.5% and 2% fibers respectively. The findings shows that the concrete with coconut fiber has more strength and strain value than concrete without fibers. The use of 50 mm length of fibers shows the highest compressive strength among the 25 mm and 75 mm lengths along with conventional concrete. The

percentage of fiber that yield the highest compressive strength using 50 mm length of fiber is 0.5%. Even though the 1% has a small decrease in strength, the decreasing of strength starts on it. The coconut fiber added with 50 mm length of fiber yields the highest strength in 0.5% fiber and starts to fail up to 2% fiber. The fibers having length of 25 mm starts to increase its compressive strength from 0.5% up to 1.5%. After reaching the highest compressive strength in 1.5% of fiber, the strength of concrete starts to decrease. The 75 mm length of fiber is the same scenario as the 50 mm length of fiber. The highest compressive strength when it is the length being used attains in the 0.5% and starts to decrease as the fiber content increases. The length of the fiber is being tackled in the study but the thickness of the fibers is non-existent. The aspect ratio of the fibers can have a big role on the compressive strength of the concretes.

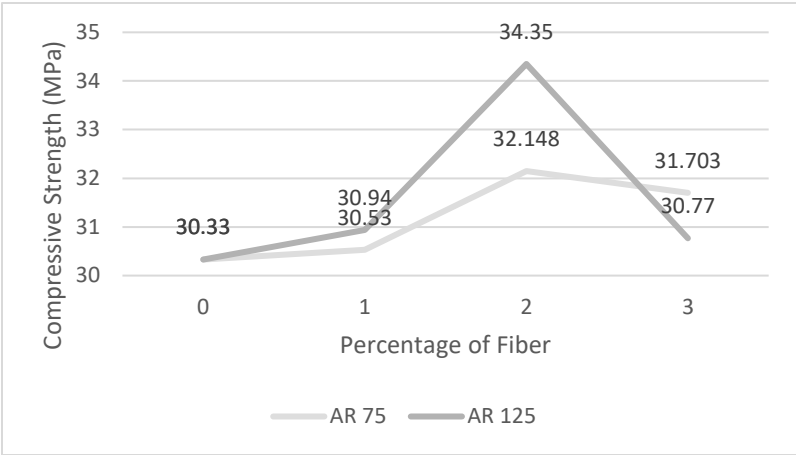


Figure 25: *Compressive strength for 7 days curing period from the study “Effects of Coconut Fibers on the Properties of Concrete” by Shreeshail Heggond*

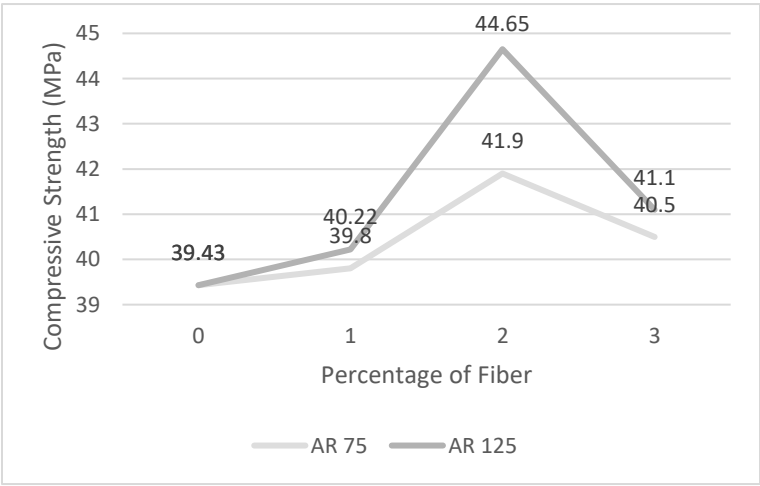


Figure 26: *Compressive strength for 28 days curing period from the study “Effects of Coconut Fibers on the Properties of Concrete” by Shreeshail Heggond*

Shrees hail Heggond (2014) shows the results for the use of fibers with the percentage of 0%, 1%, 2% and 3% for 7 and 28 days. The compressive strength for the 7-day curing period shows an increase in 2% fiber for both fibers with aspect ratio of 75 and 125. For the 28-day curing period, the graph is almost same as the first graph. Both having the highest compressive strength in 2% fiber with aspect ratio of 125. The aspect ratio is the length of the fibers being divided by its thickness. The average thickness of the fibers being used in the study is 0.0226 cm which is accumulated by using vernier caliper. to come up with an aspect ratio of 75 and 125, the fibers were cut to lengths of 1.7 cm and 2.8 cm respectively. As stated in the experimentation for the strength of the fibers, the thickness of fiber plays a major role. The thickness in this case is constant but the length is varying. The length of the fiber has a limit along with the aspect ratio. Too much value for the both of them can result into much less strength.

The compressive strength of fibers as shown in figure 26, the difference from 1% fiber to 2% fiber for both the AR75 and AR125 has a huge gap between them. Observing the difference from 0% fiber to 1% fiber, the increase in compressive strength is only 1 N/mm². The 3% fiber gains a little strength compare to 1% fiber.

Percentage of Fiber

Study	Percentage of fiber
<i>Coconut Fibre Reinforced</i>	3 %

<i>Concrete</i>	
<i>Concrete Reinforced with Coconut Fibers</i>	1%
<i>Coir Fiber Reinforced Concrete</i>	0.25%
<i>Role of Coconut Fiber in Concrete</i>	0.6 %
<i>Effect of Coconut Fiber Length and Content on Properties of High Strength Concrete</i>	0.5%
<i>Effects of Coconut Fibers on the Properties of Concrete</i>	2%

Table 9: Percentage of fibers that yield the highest strength per study

The percentage of fibers that yields the highest strength per study was tabulated in the table above. 0.25% is the minimum and the maximum percentage is 3%. By the given finding and results from the previous studies mentioned. The 3% of fiber content yields approximately 26 N/mm², 1% of fiber content yields 66.52 N/mm² and 0.6% of fiber content yields approximately 26N/mm². The result shown by the study of V.A. Dhandhanian and S.

Sawant shows only the crushing load. By using the cross-sectional area of a 6-inch cube, the resulting compressive strength computed is approximately 6.88 N/mm². Waqas Ahmad having no table for data and only graph, by approximation, the 0.5% fiber content yields around 70 N/mm². The study of Shreeshail Heggond using 2% fiber and an aspect ratio of 125 yields on up to 44.65 MPa of compressive strength.

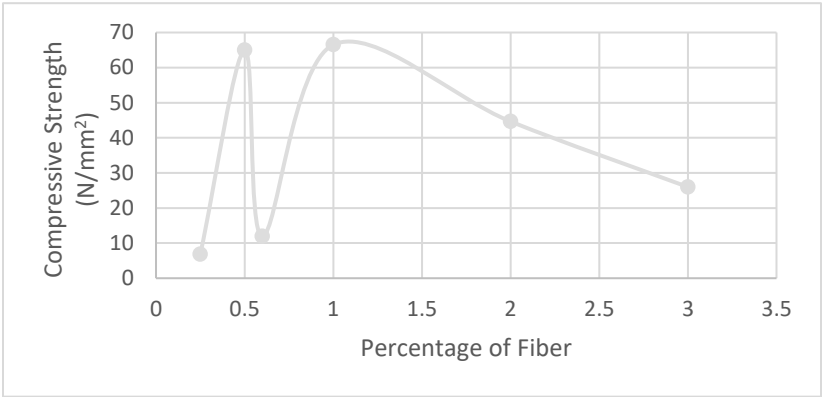


Figure 27: *The comparison in accumulated strengths per percentage of fiber*

The graph shows the percentage of fibers along with the accumulated compressive strengths. The data is accumulated from the studies compiled. The graph shows a spike in strength in 0.5% of fiber content. It is due to the fact that the concrete being made is HSC (High Strength Concrete). disregarding the 0.5% of fiber, the graph starting beyond 0.5% shows a definitive curve. The curve starts to

rise up to 1% fiber and starts to decrease when the fiber content increases.

DISCUSSION

White Fiber and Brown Fiber

As the experimentation on the water absorption and strength of the fibers, the difference of the two fibers is minimal. The computed water content of the moist brown fiber is 60.7 while the moist white fiber is 60%. The difference of the two is too small that it can be disregarded and can be attributed to different factors. The density of the white fiber is recorded to be higher than the brown fiber. Along with the strength to carry load, the white fiber carries the larger load before breaking. The difference on the density and strength can be acquitted from the fact that the brown fibers have thinner fibers than white fibers. The accumulation for the thickness of the fibers shows that <0.01 mm is the thickness of the brown fibers while 0.01 to 0.02 mm are recorded from the white fibers.

Physical Properties of Concrete

By computation, the concrete when added with fibers, will make it lighter. The space that the fibers can take will also be the space on which the concrete will be reduced at. The computation shown in the Figure 7 – 9

describes the concrete weight before and after adding fibers. The weight of the concrete when added with brown fiber will decrease its mass for up to 0.54% to 0.58% and when white fibers were added, the concrete mass will be reduced by 0.19% to 0.23%. The percentage of the brown fiber is larger than the white fiber due to the fact that the density of the brown fiber is smaller than the white fiber.

Workability

The concrete when mixed along with fibers tends to have low operability. The fibers are also susceptible in forming fiber balls on which it can contribute to the failure of the concrete when being tested. The preparation of the fibers, which is submerging them in water for 24 hours and drying for another 24 hours can help eliminate the factor on which the fibers lessening the moisture of concrete while mixing.

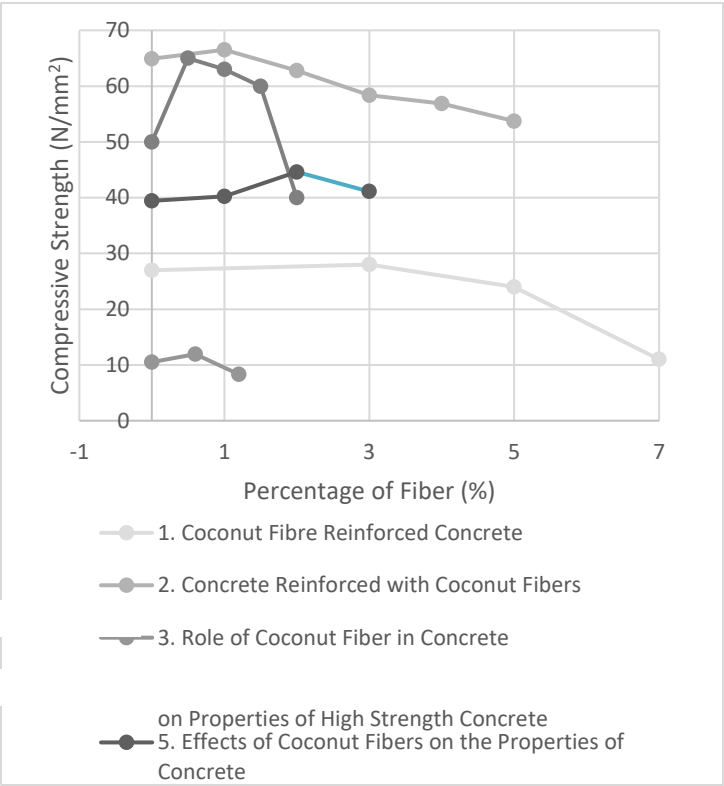


Figure 28: Comparison of all the data from the previous studies

Stu dy	Strength of Fiber (N/mm ²)										
	0%	0.5 %	0.6 %	1%	1.2 %	1.5 %	2%	3%	4%	5%	7 %
1	27							28		24	1 1
2	64. 93			66. 52			62. 78	58. 36	56. 86	53. 73	
3	10. 5		11. 93		8.3 2						

4	50	65		63		60	40				
5	39. 43			40. 22			44. 62	41. 1			

Table 10: Table of the strengths of the concrete with their percentage

Study	Fiber Length
<i>Coconut Fibre Reinforced Concrete</i>	N/A
<i>Concrete Reinforced with Coconut Fibers</i>	60 mm
<i>Role of Coconut Fiber in Concrete</i>	50 mm
<i>Effect of Coconut Fiber Length and Content on Properties of High Strength Concrete</i>	50 mm
<i>Effects of Coconut Fibers on the Properties of Concrete</i>	28 mm

Table 11: Fiber lengths used per study

Compressive Strength and Percentage of Fiber

Figure 29 shows the compressive strength of all the mix design for the 5 studies excluding the study of V.A. Dhandhanian and S. Sawant, on which the result shown were in crushing load. The graph presents the idea that the compressive strength of concrete will start to fail the higher the percentage of fiber is present. The percentage of fiber on which the compressive strength increases are in the range of 0.5% to 2%.

The compressive strength can be contributed by the percentage of fiber, but another factor can be used to determine the optimum percentage of fiber when used in concrete, which is the aspect ratio of the fibers. The length of the fibers along with the thickness play major role on the strength of the fibers. The greater the strength of the fibers, the greater the contribution it can give to the concrete. Determining the aspect ratio can deeply understand the behavior of the coconut fiber when mixed with concrete.

Table 10 tabulates the fiber lengths used per study. Most of the study uses 50 or 60 mm in length but only a single study uses aspect ratio. The study no. 2 uses 60 mm in diameter and the percentage of fiber that yields the highest compressive strength is at 1%. Even using high strength concrete in study no. 4, the compressive of the fibers with length of 60 mm and 1% fiber yields higher. The thickness of the fibers does not mention on the study from no. 1 to 4 while aspect ratio is used in study no. 5.

CONCLUSION

Based on the result, data and information from previous studies and from the experiment being conducted, the following conclusions are being devised;

1. White and Brown Coconut fiber do not have distinct difference. Both fibers when submerged in water and air dried for 24 hours has the same percentage of moisture content. The difference in strength and density of the fibers can be acquitted from the difference in thickness.
2. The addition of coconut fiber can make the concrete lighter by 0.19% up to 0.58%.
3. The workability of concrete when added with fiber tends to have low operability, the pretreatment of the fibers by submerging in water will help eliminate the sipping of water by the fibers from the given water-cement ratio.
4. The addition of coconut fiber can increase the strength of concrete. Optimum percentage and preferrable aspect ratio are needed to achieve a desirable concrete.
5. Along with the percentage of fiber which is concluded to be 0.5% to 2%, the aspect ratio of the fibers must also be included to pin point the exact percentage of fiber that will yield the highest compressive strength.

RECOMMENDATION

Based on the findings and conclusions, the researchers came up with the following recommendations;

1. Experimenting on the percentage of fiber ranging from 0.5% to 2% along with a distinct aspect ratio.
2. The use of calibrated and more precise instruments to accumulate accurate data.
3. Produce a rope like fiber composed of multiple coconut fibers if it can increase the strength of concrete.
4. Use of pretreatment techniques in improving the property of coconut fibers.

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