



Emilio Aguinaldo College-Cavite

# Journal of Multidisciplinary Research

ISSN 2651 - 7779    Volume 3    No. 1    December 2019

## FACULTY RESEARCH JOURNAL

Emilio Aguinaldo College-Cavite

**FACULTY RESEARCH JOURNAL**

**EMILIO AGUINALDO EDUCATIONAL  
CORPORATION**

**BOARD OF DIRECTORS**

**DANILO L. DOLOR**

*Chairman of the Board  
Director*

**JOSE PAULO E. CAMPOS, Ed.D**

*President, Emilio Aguinaldo College  
Director*

**ATTY. PAULO E. CAMPOS, JR.**

*Treasurer/ Corporate Secretary  
Director*

**ENRIQUE E. CAMPOS, M.D.**

*Director*

**MA. SOLEDAD D.S. DE LEON**

*Director*

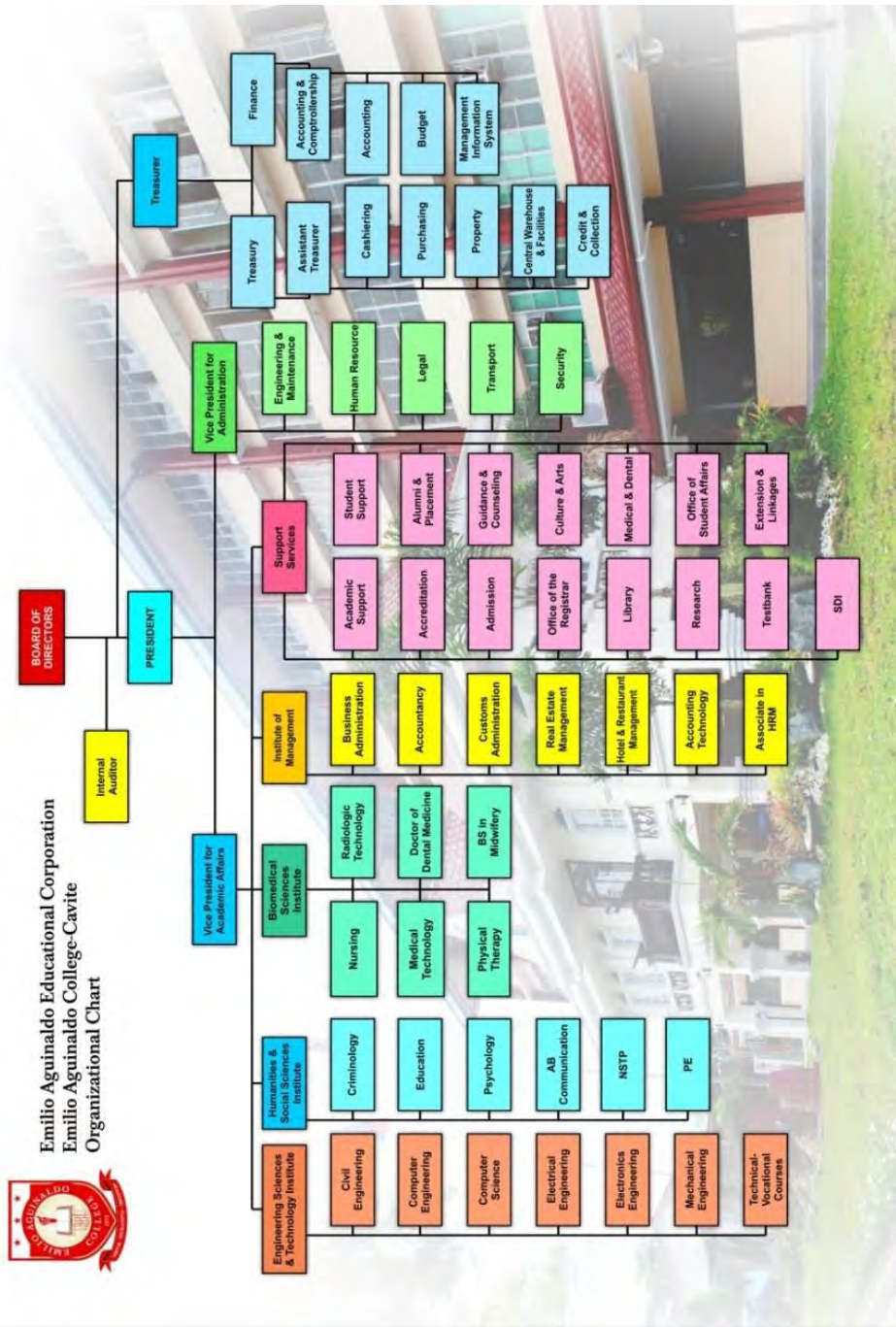
**LEANDRO M. DE LEON, M.D.**

*Director*

**ASUNCION L. ABAYA-MORIDO, M.D.**

*Director*

# EAC ORGANIZATIONAL CHART



## 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.

## TABLE OF CONTENTS

Title	Page
<p>Heterotrophic Plate Count Reduction of <i>Klebsiella pneumonia</i> by Putative Lytic Bacteriophage: Implication for Wastewater Treatment</p> <p style="padding-left: 40px;"><i>Supachai A. Basit, Patrick Jumar S. Buenaflor, Charmaine P. Peralta and Lizette F. Francisco</i></p>	1
<p>Exploring the Grassroots: Predictors for Choosing the In-House Medical Technology Program among the Students of Science, Technology, Engineering and Mathematics Strand at Emilio Aguinaldo College - Cavite</p> <p style="padding-left: 40px;"><i>Pamela R. Bremner, Mark Jorell D. Conde and Laurence Ralph V. Estrella</i></p>	14
<p>Lifestyle Diseases and Risk Factors among Employees of Emilio Aguinaldo College – Cavite: Basis for Program Development</p> <p style="padding-left: 40px;"><i>Obdulia M. Almarez, Giovannah H. Castillo and James Lee F. Ambojia</i></p>	31
<p>Politeness and Impoliteness in Newspaper Editorials</p> <p style="padding-left: 40px;"><i>Maribel T. Leocario and Aira Marie P. Quijano</i></p>	41
<p>Coaching Styles of Coaches and Level of Motivation of Para-athletes in selected institutions for persons with disabilities: an enhancement program</p> <p style="padding-left: 40px;"><i>Juno C. Bautista, Zharmine D. Agravante and Darwin R. Palado</i></p>	56
<p>Analysis of the Three-Year Exit Survey Data as Basis for Institutional Development Plan of EAC-Cavite</p> <p style="padding-left: 40px;"><i>Herman L. Briñas, Ericka R. Riano and Marny C. Batusin</i></p>	68

---

# Heterotrophic Plate Count Reduction of *Klebsiella pneumoniae* by Putative Lytic Bacteriophage: Implication for Wastewater Treatment

Patrick Jumar S. Buenaflor, Charmaine P. Peralta,  
Lizette F. Francisco and Supachai A. Basit

School of Medical Technology

\*corresponding author: [eacc.medtech@eac.edu.ph](mailto:eacc.medtech@eac.edu.ph)  
contact number: 416-4341 loc. 7148

## KEYWORDS

:

Bacteriophage,  
Wastewater  
treatment,  
Fecal  
coliforms,  
*Klebsiella  
pneumoniae*

---

**Abstract.** Lytic bacteriophages are viruses capable of infecting bacteria including fecal coliforms from contaminated water. This study aims to determine the heterotrophic plate count (HPC) reduction of *Klebsiella pneumoniae* through in vitro predation of lytic bacteriophages isolated from sewage. Water sample was collected from a residential community. The fecal coliform was identified as *K. pneumoniae* and this purified culture was used to bait bacteriophages. The mean HPC of the untreated and bacteriophage treated water samples were determined. Results showed that there is a significant difference in the mean HPC of *K. pneumoniae* when treated with bacteriophage suspension,  $F(3,8)=9.548$ ,  $p=.005$ . There is also a significant inverse relationship between the mean HPC and bacteriophage concentrations,  $r(12)=-.769$ ,  $p=.003$ . This means that increasing concentrations of bacteriophage suspension is associated with the reduction of mean HPC of *K. pneumoniae*. However, among the bacteriophage concentration, only 2% suspension had caused the reduction of mean HPC to the acceptable standards for drinking water. Our findings affirmed previous literatures that bacteriophages may be potentially utilized as biocontrol for wastewater treatment.

---

© 2019 Emilio Aguinaldo College-Cavite. All Rights reserved.

---

# Heterotrophic Plate Count Reduction of *Klebsiella pneumoniae* by Putative Lytic Bacteriophage: Implication for Wastewater Treatment

## INTRODUCTION

Ensuring environmental sustainability through access to safe drinking water is one of the World Health Organization's (WHO) Millennium Development Goal (MDG). As such, accessibility to potable drinking water is considered as a major public health concern (Molina et al, 2015). Environmental pollution of water supply is brought by the preponderance of metal resistant coliforms from the genera of *Klebsiella*, *Escherichia*, *Citrobacter* and *Enterobacter*. Drinking contaminated water with these coliforms predisposed the consumers to various diarrheal diseases including cholera, amoebiasis, dysentery and shigellosis which could lead to significant loss of lives (Jacinta and Adebayo, 2015). Fecal coliform contamination is widespread in various environmental locales such as municipal sewage, river water and groundwater (Suzuki et al, 2018). Moreover, heavy resistant fecal coliforms may also be isolated from industrial, urban wastewater (Sepahy et al, 2015).

Fecal coliforms are considered as indicator of fecal contamination of water (Jacinta and Adebayo, 2015). Although *Escherichia coli* is considered as the best index of fecal contamination of water, total coliform counts may be comprised various members of Family *Enterobacteriaceae* such as *Klebsiella pneumoniae*. The presence of *K. pneumoniae* in various environmental domains does not only pose threat to human health since it may also cause animal diseases such as bovine mastitis (Podder et al, 2014). The isolation of *K. pneumoniae* alongside with *Escherichia coli* is an indicative fecal contamination. However, some of these fecal coliforms may even be antibiotic resistant due to the presence of extended spectrum beta lactamase (ESBL) producing genes especially in isolates from urban wastewater (Alouache et al, 2013). Indiscriminate disposal of

human wastes has also inadvertently led to the isolation of *K. pneumoniae* in river water (Jelic et al, 2019) and tropical estuaries (Barati et al, 2016).

Bacteriophages are viruses that have the ability to lyse bacterial cells (Nobrega et al, 2015). In recent years, bacteriophages were being utilized in treating bacterial infection such as phage therapy (Nobrega et al, 2015) and even for vaccine delivery (Haq et al, 2012).

The presence of bacterial pathogens in wastewater may also cause significant public health concerns due to its potential environmental damages, morbidity and mortality (Jassim, et al, 2016). The use of bacteriophages is indicative of water contamination particularly if host cells such as *Aeromonas*, *Enterobacter* and *Klebsiella* were utilized (Wangkahad et al, 2015). Bacteriophages may also be used as indicators of fecal pollution and enteric virus removal (McMinn et al, 2017). Bacteriophages are also being utilized as an effective novel indicator of viral pathogens in wastewater treatment systems (Dias et al, 2018). In some cases, bacteriophages have also been reported to cause lysis of known enteric pathogens such as *Salmonella* enterica. In view thereof, bacteriophages may also be used as agents in controlling pathogens in wastewaters (Jassim et al, 2016 and Wangkahad et al, 2015). The utilization of bacteriophages is deemed to be effective for wastewater treatment if their amount is spiked into large quantities (Wu et al, 2017). Bacteriophages may also be harnessed from various reservoirs for pathogen reduction in wastewater (Mulani et al, 2015).

The aim of this paper is to utilize the isolated bacteriophages using *K. pneumoniae* as host cells to reduce the heterotrophic plate counts (HPC) of water contaminated with fecal coliforms.

## **METHODOLOGY**

### **Collection of Water Sample**

A 100 ml of water sample was collected in a sterile container from a household deep well located in a residential community in the province of Cavite, Philippines. The water sample was analyzed in EAC Instrumentation in Dasmarinas, Cavite.

### **Pre-Intervention Phase Heterotrophic Plate Count (HPC)**

One ml of water sample was transferred in a melted nutrient agar (NA) tube that has been allowed to cool at 45°C. The sample was vortex-mixed before it was poured in a sterile NA plate. A sterile hockey stick was used to spread the water sample on the surface of the agar. The agar was allowed to solidify before it was inverted and incubated at 35°C for 18 to 24 hours. Colonies with 30-300 were counted using colony counter. The standard formulae for colony count was utilized in reporting the final results.

### **Identification of Bacteria from HPC Plates**

Isolated colonies from NA plate was plated to Thioglycollate broth for 35°C for 18 to 24 hours. A loopful sample from the turbid Thioglycollate broth was transferred to Mac Conkey Agar (MCA) that was also incubated 35°C for 18 to 24 hours. The colonies were transferred to a sterile normal saline solution (NSS) and its turbidity is adjusted until it is comparable to 0.5 MacFarland standard. The solution was aspirated and processed in Vitek 2 for the identification of the fecal coliform.

### **Baiting and Isolation of Bacteriophages Using Fecal Coliform as Host Cells**

Two 400 ml samples were collected from a sewage in Dasmaríñas, Cavite. The samples were placed in screw-capped sterile containers that were stored in an ice-box container during transportation. The samples were brought to the laboratory and were filtered using 0.1 mm Whatman filter paper to remove unwanted gross debris. This was followed by centrifugation at 3,877.2 g for one hour.

Pure culture isolates of the fecal coliform (*K. pneumoniae*) were used as host cells for bacteriophage isolation. Baiting of bacteriophage was made by using a one ml of a five-hour old culture of the clinical isolates in Tryptic Soy Broth (TSB). The inoculum was added to five 90-ml TSB flasks that were placed in a shaker incubator for 24 hours at room temperature. Double filtration system was utilized using both the 0.45 µm and 0.22 µm Acrodisc syringe filters. The filtration was continuously performed until a 10-ml filtrates was obtained. The said filtrates were used for the isolation of the bacteriophage.

## ***Bacteriophage Treatment of Contaminated Water***

Water with fecal coliform was treated with various concentrations of phage suspensions, i.e., 0.5%, 1.5% and 2% (v/v). Water treated with various concentrations of bacteriophage was transferred in a melted nutrient agar (NA) tube that has been allowed to cool at 45°C. The method for the HPC determination was performed as described in the pre-intervention phase.

## ***Data Analysis***

Descriptive statistics was used to determine the mean HPC of the water samples before and after the intervention. One-Way ANOVA was utilized to compare the mean HPC of the water samples across treatments with different concentration of bacteriophage suspensions. Post-hoc using the least significant difference was also employed for multiple mean comparisons. Moreover, the linear relationship between the HPC expressed in colony forming unit per milliliter (cfu/ml) and concentration of bacteriophage treatment is determined using Pearson product moment of correlation. All data were processed using IBM-SPSS version 26.

## **RESULTS**

### **Bacterial ID of the Isolated Fecal Coliforms**

The isolated pure colonies were identified by Vitek 2 as *Klebsiella pneumoniae* with 98% probability. This percentage is considered to be significant as its morphologic description in Mac Conkey agar is consistent with that of *K. pneumoniae*. The isolated colonies are lactose fermenters showing mucoid colonies.

**HPC Mean Comparisons Across Treatments**

**Table 1 HPC Mean Comparisons Treatments**

Treatments	n	Mean HPC (cfu/ ml)	df	F	p Value	Decision	Interpre- tation
Untreated	3	975	3,8	9.548	.005	Reject Ho	Significant
0.5% Bacteriophage Suspension	3	563					
1% Bacteriophage Suspension	3	541					
2% Bacteriophage Suspension	3	390					

The results tabulated in Table 1 showed that there is a significant difference in the mean HPC of the water samples across treatments,  $F(3,8)=9.548$ ,  $p=.005$ . Thus, it can be inferred that the bacteriophage suspension was able to reduce the HPC of contaminated water. Untreated water samples have the highest mean HPC at 975 cfu/ml. This level of water contamination is not acceptable for water to be used for drinking. Although there has been a reduction in the mean HPC of water samples that have been treated with 0.5% and 1% bacteriophage suspensions, its mean HPC remains unacceptable for drinking. Only the 2% bacteriophage suspension was able to reduce the mean HPC to the acceptable level for drinking.



Post Hoc Analysis of Mean HPC Reductions Across Treatments

Figure 1 showed th, 1% ( $p=.005$ ) and 2% ( $p=.001$ ) bacteriophage suspensions. Furthermore, the 2% bacteriophage suspension is not significantly d e multiple comparison of mean HPC reductions in contaminated water across treatments. The untreated water samples have the highest mean HPC at 975 cfu/ml. The 2% bacteriophage suspension treatment has the lowest mean HPC from the contaminated water samples at 390 cfu/ml. Post-hoc analysis revealed that the untreated water sample is significantly different from 0.5% ( $p=.007$ )ifferent from 0.5% ( $p=.169$ ) and 1% ( $p=.222$ ) bacteriophage suspensions. Among the bacteriophage suspensions that were used for treating contaminated water, only the 2% concentration has reduced the mean HPC to the acceptable standards of water potability, i.e. <500 cfu/ml (Basit and Juayang, 2016).

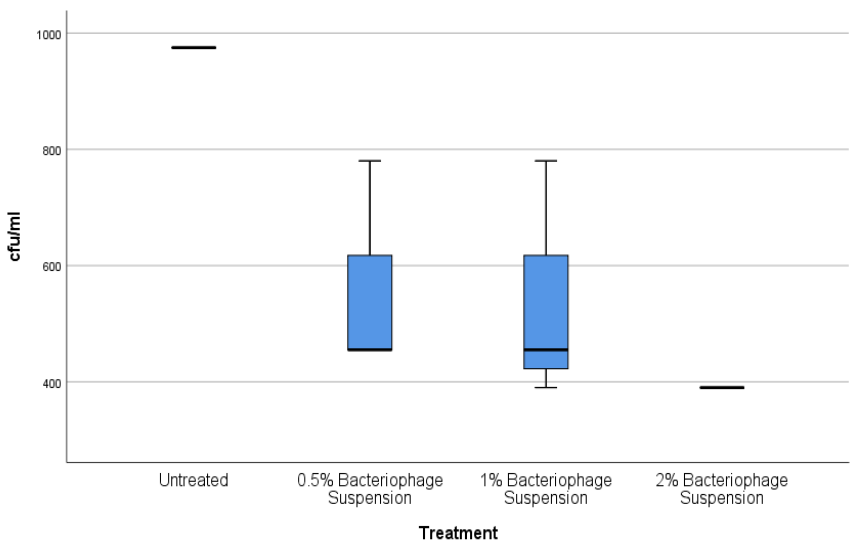


Figure 1 Multiple comparisons of mean HPC reductions across treatments

## Linear Relationship Between the mean HPC and Bacteriophage Concentrations

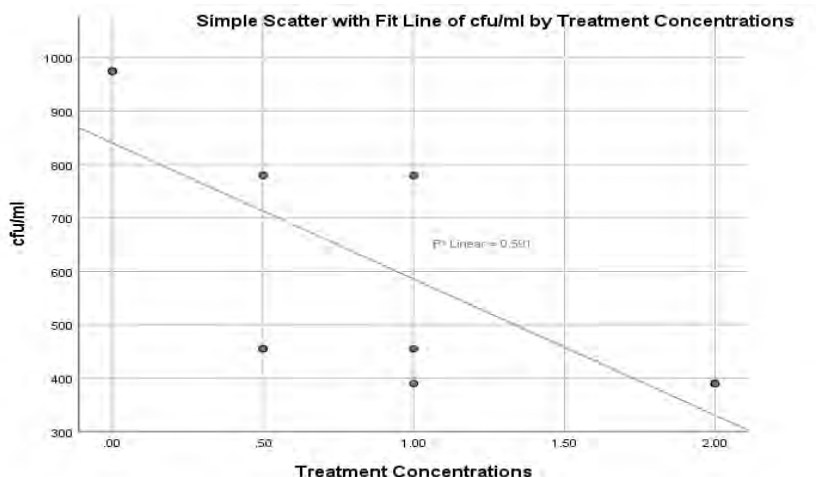


Figure 2 Scatterplot showing inverse relationships between the mean HPC and bacteriophage concentrations

Figure 2 also showed that there is a significant moderate negative linear relationship between the mean HPC and bacteriophage concentrations,  $r(12) = -.769$ ,  $p = .003$ . This implies that increasing concentrations of the bacteriophage suspensions is more efficient in reducing the mean HPC in water contaminated with fecal coliforms. Moreover, the coefficient of determination between the HPC in cfu/ml and various bacteriophage suspensions is  $R^2 = .59$ . This implies that 59% of the total variation in the mean HPC can be explained by the linear relationship between the mean HPC and various bacteriophage concentrations. This finding postulated that one of the possible challenges in using bacteriophage for wastewater treatment is determining its concentration. A minimal concentration of bacteriophages ( $<2\%$ ) may not be enough to cause significant impact in HPC reductions. Thus, the results confirmed that an increasing concentration of bacteriophage

suspensions will eventually reduce the mean HPC up to the acceptable standard for drinking water.

## DISCUSSION

The isolation of coliforms from a supposed drinking water is not aligned with the millennium development goals of the World Health Organization (WHO). Coliforms in the water samples are mostly made up of overt pathogenic bacteria from Family Enterobacteriaceae. These coliforms may be admixed with water samples intended for drinking. In our study, we isolated *K. pneumoniae* from the drinking water. These findings are consistent with the findings of Jacinta and Adebayo (2015) as they were able to isolate *K. pneumoniae* among their water samples. Isolation of *K. pneumoniae* from water sample is not a novel phenomenon. Recent studies showed that these bacteria are usual culprit whenever there is a sewage contamination. In fact, *K. pneumoniae* is inadvertently isolated from urban wastewater (Alouache, 2013). In some cases, the said bacteria may also be an indicator of fecal contamination of water samples isolated from environment that is least expected to have coliforms such as tropical estuaries (Barati et al, 2016) and river water (Jelic et al, 2019). However, the alarming phenomenon in recent years is the isolation of extended spectrum beta lactamase (ESBL) producing strains and associated Quinolone resistant *K. pneumoniae* (Alouache, 2013). Our findings assert the fact that residential water supplies may be contaminated with fecal coliforms and this may pose public health threat in the community.

Bacteriophages are viruses that are capable of lysing bacterial cells. Bacteriophages may be potentially in wastewater treatment (Wu et al, 2017). In fact, it is also being used as indicators of fecal pollution and enteric virus removal (McMinn et al, 2017). Our findings showed that the isolated bacteriophages using *K. pneumoniae* as host cells may be utilized to reduce the heterotrophic plate count. However, the concentration should be at least 2% to render the water sample acceptable.

Using bacteriophage for wastewater treatment is not yet an acceptable standard treatment. Conversely, findings from different literatures confirmed the efficacious usage of bacteriophage for

wastewater treatment. *K. pneumoniae* as host cells for bacteriophages is seen in association with contaminated water (Wangkahad et al, 2014). As such, bacteriophages are utilized as biocontrol for wastewater treatment. However, biocontrol in large scale treatments would require viruses that adaptive and aggressive (Jassim et al, 2016). Aside from *K. pneumoniae*, aside species of *Klebsiella* such as *K. oxytoca* may also be isolated from urban wastewater (Beheshti et al, 2014). Bacteriophages from these host cells have potential ability to treat contaminated wastewater from urban environment.

Although *E. coli* is considered to be as the best index of fecal contamination of water, isolation of *K. pneumoniae* is still considered as a significant indicator of unpotable water (Suzuki et al, 2017). The mean HPC reduction of *K. pneumoniae* using bacteriophages is indeed a potential indicator that wastewater treatment aside from the currently used traditional approaches may still be possible. Such usage may have versatile applications in a wide variety of fields including medical, agriculture, aquaculture and the food industry (Withey, 2005). For future directions, mean HPC reduction may be utilized alongside with other indicators for microbial potability which includes MPN index for fecal coliforms, *Enterococci* and sulphite-reducing *Clostridia* (Lucena et al, 2004). Furthermore, our findings affirmed the previous study of Shapiro et al (2009) who postulated that bacteriophage predation regulates microbial abundance and diversity in the full-scale treatment of wastewater. It is also noteworthy to mention that bacteriophages may also be efficacious in controlling other pathogens such as *Salmonella* species (Turki et al, 2012 and Akhtar et al, 2014).

## CONCLUSION

Bacteriophages that were isolated from sewage may potentially use for wastewater treatment. In this study, the isolated bacteriophages were able to significantly reduce the mean HPC of *K. pneumoniae* after it has been treated with 2% bacteriophage suspension. Moreover, it was also observed that there is a significant inverse relationship between the bacteriophage concentrations and the mean HPC of *K. pneumoniae*.

In this regard, the authors recommend determining the ultrastructural morphologic descriptions of the isolated bacteriophage

through electron microscope. Moreover, other parameters of water potability may be included in future studies such as MPN index reductions and the utilizations of other fecal indicators such as *Enterococci*.

## BIBLIOGRAPHY

- Akhtar, M., Viazis, S., & Diez-Gonzalez, F. (2014). Isolation, identification and characterization of lytic, wide host range bacteriophages from waste effluents against *Salmonella enterica* serovars. *Food Control*, 38, 67-74. doi: 10.1016/j.foodcont.2013.09.064
- Alouache, S., Estepa, V., Messai, Y., Ruiz, E., Torres, C. and Bakour, R. (2014). Characterization of ESBLs and Associated Quinolone Resistance in *Escherichia coli* and *Klebsiella pneumoniae* isolates from an Urban Wastewater Treatment Plant in Algeria. *Microbial Drug Resistance*, 20(1), pp.30-38.
- Ahavan Sepahy, A., Sharufan, S., Zolfaghari, M., Khalily dermany, M., Rashedi H. (2015). Study on Heavy Metal Resistant fecal Coliforms Isolated from Industrial, Urban Wastewater in Arak, Iran. *International Journal of Environmental Research*, 9(4), 1217-1224. doi: 10.22059/ijer.2015.2012
- Amaeze, Ngozi & Irekeola, Ahmad. (2015). Determination of Coliforms in Different Sources of Drinking Water in Gwagwalada, Abuja. Report and Opinion. 7. 1-6. 10.7537/marsroj070115.01.
- Barati, A., Ghaderpour, A., Chew, L., Bong, C., Thong, K., Chong, V. and Chai, L. (2016). Isolation and Characterization of Aquatic-Borne *Klebsiella pneumoniae* from Tropical Estuaries in Malaysia. *International Journal of Environmental Research and Public Health*, 13(4), p.426.
- Basit, S. and Juayang, A. (2016). *OBE-Laboratory Manual in Clinical Bacteriology*. Philippines: Jade Publishing Inc.
- Beheshti M, K., Soleimani, A. and Salmanizad, S. (2014). Isolation and Identification of *Klebsiella pneumoniae* and *Klebsiella oxytoca* Bacteriophages and their Application in Wastewater Treatment and Coliform's Phage Therapy. *Research Journal of Environmental Sciences*, 8(3), pp.123-133.

- Dias, E., Ebdon, J. and Taylor, H. (2018). The application of bacteriophages as novel indicators of viral pathogens in wastewater treatment systems. *Water Research*, 129, pp.172-179.
- Haq, I., Chaudhry, W., Akhtar, M., Andleeb, S., & Qadri, I. (2012). Bacteriophages and their implications on future biotechnology: a review. *Virology Journal*, 9(1). doi: 10.1186/1743-422x-9-9
- Mulani, M., Azhar, S., Azharuddin, S., and Tambe, S. (2015). Harnessing the power of bacteriophage for pathogen reduction in wastewater. *International Journal of Current Microbiology Applied Science*. 2, 152-161.
- Jassim, S., Limoges, R. and El-Cheikh, H. (2016). Bacteriophage biocontrol in wastewater treatment. *World Journal of Microbiology and Biotechnology*, 32(4).
- Jelić, M., Hrenović, J., Dekić, S., Goić-Barišić, I., & Tambić Andrašević, A. (2019). First evidence of KPC-producing ST258 *Klebsiella pneumoniae* in river water. *Journal Of Hospital Infection*, 103(2), 147-150. doi: 10.1016/j.jhin.2019.04.001
- Kotay, S., Datta, T., Choi, J., & Goel, R. (2011). Biocontrol of biomass bulking caused by *Haliscomenobacter hydrossis* using a newly isolated lytic bacteriophage. *Water Research*, 45(2), 694-704. doi: 10.1016/j.watres.2010.08.038
- Lucena, F., Duran, A., Moron, A., Calderon, E., Campos, C., & Gantzer, C. et al. (2004). Reduction of bacterial indicators and bacteriophages infecting faecal bacteria in primary and secondary wastewater treatments. *Journal Of Applied Microbiology*, 97(5), 1069-1076. doi: 10.1111/j.1365-2672.2004.02397.x
- McMinn, B., Ashbolt, N. and Korajkic, A. (2017). Bacteriophages as indicators of faecal pollution and enteric virus removal. *Letters in Applied Microbiology*, 65(1), pp.11-26.
- Molina, F., López-Acedo, E., Tabla, R., Roa, I., Gómez, A. and Rebollo, J. (2015). Improved detection of *Escherichia coli* and coliform bacteria by multiplex PCR. *BMC Biotechnology*, 15(1).

- Nobrega, F., Costa, A., Kluskens, L., & Azeredo, J. (2015). Revisiting phage therapy: new applications for old resources. *Trends In Microbiology*, 23(4), 185-191. doi: 10.1016/j.tim.2015.01.006
- Podder, M., Rogers, L., Daley, P., Keefe, G., Whitney, H. and Tahlan, K. (2014). Klebsiella Species Associated with Bovine Mastitis in Newfoundland. *PLoS ONE*, 9(9), p.e106518.
- Seman, M., Gaálová, B., Cíchová, M., Prokšová, M., Haviarová, D. and Flaková, R. (2014). The occurrence of coliform bacteria in the cave waters of Slovak Karst, Slovakia. *Folia Microbiologica*, 60(3), pp.269-278.
- Shapiro, O., Kushmaro, A., & Brenner, A. (2009). Bacteriophage predation regulates microbial abundance and diversity in a full-scale bioreactor treating industrial wastewater. *The ISME Journal*, 4(3), 327-336. doi: 10.1038/ismej.2009.118
- Suzuki, Y., Niina, K., Matsuwaki, T., Nukazawa, K. and Iguchi, A. (2017). Bacterial flora analysis of coliforms in sewage, river water, and ground water using MALDI-TOF mass spectrometry. *Journal of Environmental Science and Health, Part A*, 53(2), pp.160-173.
- Wangkahad, B., Bosup, S., Mongkolsuk, S., & Sirikanchana, K. (2015). Occurrence of bacteriophages infecting *Aeromonas*, *Enterobacter*, and *Klebsiella* in water and association with contamination sources in Thailand. *Journal Of Water And Health*, 13(2), 613-624. doi: 10.2166/wh.2014.204
- Withey, S., Cartmell, E., Avery, L., & Stephenson, T. (2005). Bacteriophages—potential for application in wastewater treatment processes. *Science Of The Total Environment*, 339(1-3), 1-18. doi: 10.1016/j.scitotenv.2004.09.021
- Wu, B., Wang, R. and Fane, A. (2017). The roles of bacteriophages in membrane-based water and wastewater treatment processes: A review. *Water Research*, 110, pp.120-132.

---

# Exploring the Grassroots: Predictors for choosing the In-House Medical Technology Program among the Students of Science, Technology, Engineering and Mathematics Strand at Emilio Aguinaldo College – Cavite

**Pamela R. Bremner, Mark Jorell D. Conde, and Laurence Ralph V. Estrella**

School of Medical Technology, Senior High School Department

*\*corresponding author:* [iammarkjorellconde@gmail.com](mailto:iammarkjorellconde@gmail.com),  
[laurenceralphestrella@gmail.com](mailto:laurenceralphestrella@gmail.com)

*contact number:* 09474262437, 09952427118

## KEYWORDS:

Grassroots  
Preference  
Semi-  
structured

---

**Abstract.** Learning is synonymous to experience. This platform suggests to ever-changing need of an individual, given that it is in the academe or in any realistic environment. One big step to learning what is supposed to grasp by someone is to enroll his/herself in the most suitable course possible. In the highest hopes to give the fullest to the students of the Philippines, the Department of Education established a new curriculum which was based from the rest of the countries which follow K to 12 curricula. This research deals with the lived experiences of selected STEM students toward their endeavor to take Medical Technology in college and as its biggest question deals with the modalities and/or predictors why students take up such course. The lived experiences of Home-grown STEM students were analyzed and purposefully written using the Qualitative method specifically Interpretative Phenomenological Analysis as the design. Interview questions were presented to construct semi structured questions. Furthermore, theories and other concepts were provided to support the ideas related to modalities in taking Medical Technology. The said course is the most productive and acknowledged one amongst other courses found in Emilio Aguinaldo College – Cavite. As the backwash of this study, the superordinate themes that served as the main answers to its general research questions are Interest, Determined, and Goal Setter. In conclusion, this research gave the most highlighted modalities that one person may have. Also, the researchers recommend this to Grade 12 SHS students, teachers/practitioners, and EAC institution.

---

© 2019 Emilio Aguinaldo College-Cavite. All Rights reserved.

---



---

# **Exploring the Grassroots: Predictors for choosing the In-House Medical Technology Program among the Students of Science, Technology, Engineering and Mathematics Strand at Emilio Aguinaldo College – Cavite**

## **INTRODUCTION**

A college degree is the key to realizing the dream, worth the sacrifice because it is supposed to open the door to a world of opportunity. (Rather, N.D.)

According to Ospina and Roser (2018), tertiary education is distinct from other forms of education. Studying in college is the game changer towards the life of an individual. Universities were established organizations free from the control of the church or other religious institutions (Roser, 2018). In the modern world, universities have two purposes: equip students with advanced skills useful in the workplace and to further human knowledge and understanding of the world (Ospina, 2018).

In the light of this topic, the researchers see this as a platform of knowing first the preferred course/s of an individual for him/her to make an impact to the society. Therefore, the researchers want to reach and study the phenomenon of choosing the right course in tertiary level. One of the reasons why the researchers want to focus more on this context is because the Department of Education had implemented since 2013 the New Curriculum which is known as K to 12 (Kindergarten to Grade 12). According to Secretary Briones (2016) "We teach them how to analyze, how to solve problems, how to respond to change and to accept change because by the time they graduate, whatever we have taught them, not all of them, will be applicable – because change is happening so fast.

The development of the K to 12 curriculums has evolved into something specific and still evolving every single year. Based from the website of the Department of Education posted in 2017, There are four tracks to choose from, (1) Academic Track, (2) Technical- Vocational-Livelihood Track, (3) Sports Track, and (4) Arts and Design Track. The researchers chose the academic track since the Institution of Emilio Aguinaldo College - Cavite only offers two given tracks, the Academic and Technical-Vocational-Livelihood.

Under Academic track, the promotion of strands is seen. It has General Academic, Humanities and Social Sciences, Science, Technology, Engineering and Mathematics and Accountancy, Business and Management. The researchers are eager to give back to the institution with the simplest effort. This research only seeks to provide descriptions to a specific strand which is the Science, Technology, Engineering and Mathematics. STEM strand has the largest count among the given strand in EAC - Cavite and most of the freshmen students who enrolled this Academic Year came from STEM strand specifically, the pioneer batch of Senior High School in 2016 (A report from the Registrar's Office of the institution).

Numerous activities focus on integrated STEM learning experiences aimed at developing conceptual scientific and mathematical knowledge with opportunities for students to show and develop skills in working with each other and actively engaging in discussion, decision making and collaborative problem solving (Dawes, 2015). Since the researchers are very much aware that the School of Medical Technology successfully produces students with quality education, the researchers see it as the gap to this study.

The researchers observe the phenomenon of why Grade 12 students under STEM strand choose Medical Technology as their preferred course in college. And, this is a great promotion for the institution to grab the students' preferences to study here in EAC – Cavite.

## **Review/Survey of Related Literature**

### **Academic Commitment of Senior High School**

Different studies introduce that the prior academic commitment has an impact on the college outcome when it comes to enrolment. Engberg and Wolniak (2013) debated that among the strongest predictors of entering a STEM discipline was academic preparation, as measured by course-taking patterns, performance, and access to a coherent math and science curriculum. This statement of Engberg and Wolniak continues to make difference from the preference of the selected students from STEM strand. Academic preparation takes the alignment of ideas to gathering self – confidence of the aspiring medical technology students.

Furthermore, several studies have revealed the important role of mathematics and science in generating academic competency and enhancing success in college by taking the medical technology.

Students' academic orientation (i.e., their interests, identity, orientation toward, and plans for life after high school) is often shaped through school and non-school experiences. While noting that integrated STEM learning experiences can support interest and identity development, the Committee

on Integrated STEM Education (2014, p. 3) argues that, to date, the research is limited by a lack of longitudinal analyses that account for the different phases of interest development.

### **Decision Empowering by the Institution**

Senior High School for the students of Science, Technology, Engineering and Mathematics Strand takes a key role in both Science and Mathematics application. It is an achievement for the students to surpass the requirements set by the standards. Villanueva & Hand, (2011) stated that the decision depends from the institution's way of processing things for the students. STEM course- taking patterns for students with LDs is limited, the little work that has been conducted is consistently grim. Whether attributable to having an LD, to the "LD" label itself (Shifrer, Callahan, & Muller, 2013).

From the journal of L. Allen Phelps, several studies have documented how post-secondary outcomes, including STEM major choice, vary by social and demographic groups. Looking only at four- year college attendees, Chen and Weko (2009) report that students choosing STEM college majors were pre-dominantly: male, Asian/Pacific Islander, foreign-born, members of families with annual incomes in the top quartile, younger, and not living independently. Roughly 13–22% of students entering four-year colleges after high school were choosing a STEM major from 1995 to 2004. Unfortunately, similar profiles of two-year college STEM entrants are not available, which points to the importance of this investigation. Examining a national sample of college freshmen, Moakler and Kim (2014) found female students throughout high school were less likely to develop outcome expectations toward a STEM major choice or career field. Other research has consistently shown that being a woman is a strong negative predictor for several STEM-related practices and factors; e.g., accessible college career options (Betz & Hackett, 1981), gatekeeping math courses (Chavez, 2001), year-long college course on career-linking strategies (Fouad, 1995), and STEM teaching and advising. Completing engineering and engineering technology (E&ET) courses in high school has the potential to advance these two goals. Two major national initiatives have advanced the inclusion of E&ET instruction in high schools. Twenty- six states have collaborated to develop the Next Generation Science Standards (NGSS), which were released in 2013. These standards elevate the importance of engineering design and make it comparable to learning the core ideas in the physical, life, and earth and space sciences (National Academies of Sciences, Engineering, and Medicine, 2017; Next Generation Science Standards, 2016). Equally important, in 2014 the National Assessment of Educational Progress introduced the Technology and Engineering Literacy assessment, designed to measure the extent to which 4th, 8th, and 12th grade students were able to apply technology and engineering skills to real-life situations (National Assessment Governing

Board, 2014). Collectively, these initiatives assert that E&ET content and skills are potentially scalable and measurable across high schools within states. Research reviews indicate that high school course-taking has an impact on students' decisions to enroll in college (Adelman, 2006; Hein, Smerdon, & Samboldt, 2013). Over the past decade several studies have examined the influence of high school math and science course completion on the choice of STEM college majors—an outcome deemed critical for achieving several national STEM work force development priorities (PCAST, 2012; U.S. Chamber of Commerce, 2017). Several studies have documented the key influence of math and science courses (Engberg & Wolniak, 2013; Gaertner, Kim, DesJardins, & McClarty, 2014; Trusty, 2002; Tyson, Lee, Borman, & Hanson, 2007; Wang, 2013) on choosing STEM majors, particularly in four-year colleges. More recently, applied STEM courses have shown a positive link to later advanced math and science course completion (Gottfried, 2015), which may also contribute, albeit indirectly, to students choosing a STEM college major pathway.

Furthermore, from the journal of the role and influence of engineering instruction have increased significantly in the past five years (Carr, Bennett, & Strobel, 2012; Community for Advancing Discovery Research in Education, 2017). While the research base on high school engineering programs is growing (Committee on Integrated STEM Education, 2014; Committee on K–12 Engineering Education, 2009; Community for Advancing Discovery Research in Education, 2017), the influence of E&ET course-taking on post-high school outcomes (e.g., college attendance, selection of STEM majors, credential completion, earnings, etc.) is under-examined in the research literature.

## **Statement of the Problem/Objective of the Study**

### **General Questions:**

1. What are the modalities concerning the preference of the in-house enrollees in taking Medical Technology in college?
2. How would these modalities influence their decision in pursuing Medical Technology?
3. How do SHS teachers assist the choices made by the STEM students?

### **Specific Questions:**

- 1.1 What are the typical aspects connecting to decision in enrolling Medical Technology at Emilio Aguinaldo College - Cavite?
- 1.2 What kind of preparation do the students engage in as an indicator of their choice?
- 2.1 How do students react in the concern regarding their course in college?

- 2.2 How do students embody their desired course in college?
- 3.1 How teachers significantly hone the interest of the students in taking their course in college?
- 3.2 What are the outcomes of honing the students' interest?

## **Theoretical Framework**

### **Holland's Theory of Career Choice**

People search for environments where they can use their skills and abilities and express their values and attitudes. For example, Investigative types search for Investigative environments; Artistic types look for Artistic environments, and so forth. (Holland N.D.)

This theory brings explicit meaning to searching the environment which is a comfortable place for the people to expound their horizon in their chosen fields. Knowing the students are so much aware of the courses they may attend to in college while they are in the process of Senior High School, participant may consider considerations of taking bio-medical courses.

### **Course Selection Theory**

A proposed adaptation of modern college choice models that can be used to 12 explain how college students determine which courses to select. Student Choice Construct An empirically tested construct or theorization that students make sequences of choices in situated contexts and these choices are influenced by diverse backgrounds, family backgrounds, and environmental variables and that policy effects should be studied across these diverse contexts. The advantage of using the student choice construct is it allows for the study of diverse college students on their own terms while incorporating the students' own unique circumstances and experiences. The creation of this theoretical framework that includes sociological and cultural theories allows researchers to emphasize the important role played by social and cultural variables and how they influence students' choices (Horvat, 2001; McDonough, 1997; Paulsen, 1990; Paulsen & St. John, 1997, 2002; Perna, 2006; Perna & Titus, 2005; Salisbur et al. 2009; Salisbury et al., 2010).

### **Year Transition Program or Seminar**

An extended orientation program or course offered during an academic term designed to assist students with the academic and social transitions to college.

Typical topics include study skills, time management, test taking strategies, motivation or goal setting, health related topics (alcohol, tobacco, stress, test anxiety, relaxation), use of campus resources

including the library, learning assistance centers and campus technology, career counseling or assistance with selecting a major, critical thinking, student life, sexuality and relationship issues, financial management, higher education and institution. Specific history, values, and culture, and the overall social integration into the larger campus community (Barefoot, 2004; Bolender, 1994; Coleman & Freedman, 1996; Engle et al., 2004; Gordon & Grites, 1984; Lipsky & Ender, 1990; Myers, 2003; Ness et al. 1989; Ryan & Glenn, 2004; Upcraft, Gardner, & Barefoot, 2005; Wilkie & Kuckuck, 1989)

### **Significance of the Study**

*This section deals with the beneficiaries of the study.*

**Senior High School Students.** This helps the graduating students to choose their course in college most especially the STEM students.

**Senior High School Teachers.** The study wants to enlighten teachers about the factors the students have to think of in pursuing Medical Technology in college.

**School of Medical Technology.** This research enlarges the horizon of the department to have enrollees to train as future medical technologist.

**Emilio Aguinaldo College Community.** The study advocates choosing the said school to the graduating batch of Senior High School and to expound the growing number of students in the institution.

### **Definition of Terms**

- Modalities – the quality or state of being.
- Grassroots – Basic things to remember to decide.
- Community – a unified body of individuals; such as state or commonwealth.
- Institution – an established organization or corporation.

### **Scope and Limitation**

The research concerns itself with the modalities concerning to the preferences of the Senior High School Students in taking Medical Technology as their course in college. The participants of this study are the Grade 12 Students under Science, Technology, Engineering and Mathematics Strand who are taking their science related subjects namely General Chemistry, General Biology and General Physics. As for the locale of the study, the research and its process would be conducted on the School grounds of Emilio Aguinaldo College – Cavite. The data gathering tool, which is interview, will prove vital and efficient in the collection of data. The duration of the study is from September 2018 to August 2019.

## **METHODOLOGY**

### ***Study Design***

This research maximized the use of Interpretative Phenomenological Analysis (IPA) under Qualitative method. This deals with the lived experiences and how the individuals give meaning to a certain situation. (Levinson, 1996)

### ***Instrumentation***

The purpose, procedures and risks will be thoroughly explained, and a written informed consent will be obtained from each of the participants under 18 years old. Upon consent, the interview questions will be given immediately to all the participants and all information will be kept anonymous and will be interpreted with confidentiality. Semi-structured interview questions are observed in the following sessions. There is no conflict of interest in this study. Moreover, the validity has checked and verified by the professional.

### ***Sampling Technique***

This study was taken out from the Selected Senior High School Students under Science, Technology, Engineering and Mathematics Strand at Emilio Aguinaldo College – Cavite using Purposive Sampling. According to Cristobal (2017), Purposive sampling involves handpicking subject, usually to suit very specific intentions. This is also called, Judgmental Sampling. The study will be conducted upon the approval of Ethics Committee of the Faculty of Biomedical Sciences at Emilio Aguinaldo College – Cavite.

### ***Data Analysis***

According to Cristobal (2017), Thematic Analysis is a process of analyzing the data by grouping them according to themes, either evolved directly from the research questions or preset, or naturally emerge from the resulting data. The researchers used thematic analysis to apply sub themes, themes, and super ordinate themes.

### ***Data Gathering Procedure***

The researchers created interview questions and let those questions be validated by the professional. Afterwards, the participants were selected based on their same characteristics using purposive sampling.

### ***Ethical Consideration***

The researchers ensured the participant's safety by keeping the confidentiality of their private practices or any other practices and must not be, disclosed to the public.

Opening up about experiences that are sensitive in nature can increase the level of anxiety –may cause distress during, and in some cases, after the interview. Thus, some ethical considerations were strictly observed.

The participants informed of the procedures, objectives, and aims of the study. In lieu of the sensitive nature of the study, strict confidentiality of the identity of the participants and other persons named during the interview will be enforced by going under a pseudonym. Ethics clearance was given by the Institutional Ethics Review Board (IERB) of the Emilio Aguinaldo College-Cavite.

RESULTS

Presentation of Data

Table 1. Participant No. 1: Work

IMPACTFUL	IN- VIVO STATEMENTS	SOURCES
INFLUENCE OF THE FAMILY	<i>“For me, my mother was a nurse at the... sa ibang bansa po, yung kuya ko, po is a student, second-year student, ah, nursing, then sabi ko, I want to be a med tech”.</i>	Pg.11, Lines 3-5
SELF-AWARENESS	<i>“I am studying po ah.. yung anatomy, physics, as ano po background para pag nag college may alam na agad”.</i>	Pg.11, Lines 8-9
SYSTEMATIC	IN- VIVO STATEMENTS	SOURCES
DYNAMIC	<i>“napaka active ko po kasi parang ang dami kong natutunan then, ang dami ko pong na eencourage na mag medtech na ibang students”.</i>	Pg.11, Lines 12-13



<b>PROCEDURAL</b>	<i>“ah yung mga hygiene po, parang mas inaano ko na dapat malinis ka, pag magmedtech ka diba dapat malinis ka then yung parang ano yung immune system mo mataas kasi para hindi ka mahawa doon sa mga inoobserbahan mo”.</i>	Pg.11, Lines 17-20
<b>INTERNAL MOTIVATION</b>	<b>IN- VIVO STATEMENTS</b>	<b>SOURCES</b>
<b>DRIVEN</b>	<i>“maganda daw yung medtech kasi mas mataas yung kapit nya pag mag dodoctor daw po ako para i-pursue talaga”.</i>	Pg.11, Lines 24-25
<b>READINESS</b>	<i>“I am ready to be a medical student. The readiness is there”.</i>	Pg.11, Line 28

The summary table shown above was the interview of participant 1 a.k.a Work. There are three themes used in the table which are Impactful, Systematic, and Internal Motivation.

The first theme is **Impactful** in which the personalities of the participant were expressed as a person who achieves significant results Under this theme, there are two sub themes, there are **Influence of the family** and **Self-awareness**.

The second theme is **Systematic**. This is where the participant grasped the essence of following procedure to be a medical student. Under this theme, there are two sub themes, **Dynamic** and **Procedural**.

The last theme is **Internal Motivation**. This is where the participant applied the possibilities of doing what it takes to become a medical technologist someday. Under this, there are two sub themes, **Driven** and **Readiness**.

**Table 2. Participant No. 2: School**

<b>OBEDIENCE</b>	<b>IN- VIVO STATEMENTS</b>	<b>SOURCE</b>
------------------	----------------------------	---------------

<b>EXPECTATION OF THE FAMILY</b>	<i>“kasi yung parang naging history ng family naming kasi parang ayun po yung expectations nila sa akin at sa course ko.”</i>	Pg.12, Lines 3-4
<b>ESSENTIAL</b>	<i>“lalo na po yung general bio, parang mas pinupursue ko po yung sarili ko sa subject nay un na mas ifocus pa po yung sarili ko sa study nay un. Mas binibigyan ko po ng time”.</i>	Pg.12, Lines 7-9
<b>GOAL ORIENTED</b>	<b>IN- VIVO STATEMENTS</b>	<b>SOURCE</b>
<b>INSPIRED</b>	<i>“parang mas inspire po ako.”</i>	Pg.12, Lines 12
<b>FASCINATED</b>	<i>“ahmm, yun nga po mas nafocus ko po yung lalo na yung science then, nafafascinate po ako sa mga turok.”</i>	Pg.12, Lines 17-18
<b>SKILLED</b>	<b>IN- VIVO STATEMENTS</b>	<b>SOURCE</b>
<b>PASSIONATE</b>	<i>“mas lalo ko pong nagugustuhan ang course na med tech. Sa taong nagbibigay ng information tungkol sa medtech”.</i>	Pg.12, Lines 25-26
<b>KNOWLEDGEABLE</b>	<i>“mas knowledgeable po ako sa course na ito at para din po mas mamaster ko po.”</i>	Pg.12, Line 29-30

The summary table shown above was the interview of participant 2 a.k.a School. There are three themes used in the table which are Obedience, Goal oriented, and Skilled.

The first theme is **Obedience** in which the personalities of the participant were expressed as a person who follows order. Under this theme, there are two sub themes, there are **Expectation of the family** and **Essential**.

The second theme is **Goal Oriented**. This is where the participant got to focus only to one end goal that is to be a medical student. Under this theme, there are two sub themes, **Inspired** and **Fascinated**.

The last theme is **Skilled**. This is where the participant showed that they need to be equipped. Under this, there are two sub themes, **Passionate** and **Knowledgeable**.

Table 3. Participant No. 3: House

ENTHUSIASM	IN- VIVO STATEMENTS	SOURCE
INTEREST	<i>“interest and ahm, yung tao sa paligid ko.”</i>	Pg.13, Lines 4
INITIATIVE	<i>“research about things related to medical technology and minsan po sa labs ako din po ang nag mamanipulate.”</i>	Pg.13, Lines 7-8
VISIONARY	IN- VIVO STATEMENTS	SOURCE
HOOKED	<i>“I feel interested po. Parang gusto ko pa pong magkaroon ng deeper knowledge about that field. And see me as one of the professionals in that particular.”</i>	Pg.13, Lines 10-12
DREAMER	<i>“as of now, I can really see myself po as a</i>	Pg.13, Lines 15-16

*medical technologist  
and ahm, that was one  
of my childhood  
dreams.”*

REALISTIC	IN- VIVO STATEMENTS	SOURCE
RELATABLE	<i>“ahm, siguro po narerelate po nila ang subject naming in real life”</i>	Pg.13, Lines 19-21
SELF-GROWTH	<i>“mas mag iimprove pa yung character ko and yung mismong desire ko and mga knowledge ko about dun po sa certain field nay un.”</i>	Pg.13, Line 24-25

The summary table shown above was the interview of participant 3 a.k.a House. There are three themes used in the table which are **Enthusiasm**, **Visionary**, and **Realistic**.

The first theme is **Enthusiasm** in which the personalities of the participant were expressed as a person who does the job with a grateful and willing heart. Under this theme, there are two sub themes, there are **Interest** and **Initiative**.

The second theme is **Visionary**. This is where the participant desired to finish the race and expect for a great result. Under this theme, there are two sub themes, **Hooked** and **Dreamer**.

The last theme is **Realistic**. This is where the participant demonstrated that the end goal needs to be true. Under this, there are two sub themes, **Relatable** and **Self-growth**.

**Table 4. Participant No. 4 Building**

LIFE STATUS	IN- VIVO STATEMENTS	SOURCE
PEER INFLUENCE	<i>“napagusapan po naming ng mga friends ko.”</i>	Pg.14, Lines 3
FINANCIAL CAPABILITY	<i>“kung ano lang po ang kaya ng budget namin.”</i>	Pg.14, Lines 8
OPTIMISTIC	IN- VIVO STATEMENTS	SOURCE
ADVANCE KNOWLEDGE	<i>“nagbabasa basa ako ng related books about med tech.”</i>	Pg.14, Lines 10
LUMINARY	<i>“nagsisimula po akong iimagine ang sarili ko”</i>	Pg.14, Lines 15
REAL	IN- VIVO STATEMENTS	SOURCE
ROLE MODEL	<i>“mga tao po silang dapat tularan”</i>	Pg.14, Lines 19
ENCOURAGER	<i>“with right amount of encouragement po, naakit kaming kayanin.”</i>	Pg.14, Line 24

The summary table shown above was the interview of participant 4 a.k.a Building. There are three themes used in the table which are **Life Status**, **Optimistic**, and **Realistic**.

The first theme is Life Status in which the level of living is seen. Under this theme, there are two sub themes, there are **Peer Influence** and **Financial Capability**.

The second theme is **Optimistic**. This is where the participants foresee the positive happenings in life. Under this theme, there are two sub themes, **Advance knowledge** and **Luminary**.

The last theme is **Real**. This is where the participants thought that the projections should be genuine. Under this, there are two sub themes, **Role model** and **encourager**.

Discussion and Summary of Findings

THEMES	PARTICIPANTS			
	1	2	3	4
INTEREST	Pg.11, Lines 4 Pg.11, Lines 7-8	Pg.12, Lines 3-4 Pg.12, Lines 7-9	Pg.13, Lines 4 Pg.13, Lines 7-8	Pg.13, Lines 4 Pg.13, Lines 7-8
DETERMINED	Pg.11, Lines 12-13 Pg.11, Lines 17-20	Pg.12, Lines 12 Pg.12, Lines 17-18	Pg.13, Lines 10-12 Pg.13, Lines 15-16	Pg.14, Lines 10 Pg.14, Lines 15
GOAL SETTER	Pg.11, Lines 24-25 Pg.11, Line 28	Pg.12, Lines 25-26 Pg.12, Line 29-30	Pg.13, Lines 19-21 Pg.13, Line 24-25	Pg.14, Lines 19 Pg.14, Line 24

Table 4. Superordinate Theme

This table showed the three superordinate themes that answer the general research questions such as Interest, Determined, and Goal Setter. As mentioned in the general research question no. 1 ***What are the modalities concerning the preference of the in-house enrollees in taking Medical Technology in college?*** Based on the answer of the participants, **INTEREST** appeared to be the most highlighted modality among the mentioned ones. In a research study the factor “match with interest” rated over job characteristics, major attributes, and psychological and social benefits in importance when students choose a major (Beggs et al., 2008). For general question no. 2, the researcher got a superordinate theme of DETERMINED to answer the question no. 2, ***How would these modalities influence their decision in pursuing Medical Technology?*** (Mihyeon, 2009) states that the confidence that a student has can determine how far a student will go with their education. Students who believe in themselves have more confidence and are more likely to go for what they want instead of settling for something that is comfortable. and as for the general research question no.3, ***How do SHS teachers assist the choices made by the STEM students?*** As mentioned above, the answer for this question is that teachers of SHS department tend to teach the student on how to become a **GOAL SETTER**. (Wildman and Torres, 2002) state that teachers and coaches can help a student to do better in school, to get into college or to get on a better path. The impact that these adults have on young students can have a major influence on their career path.

## Conclusion

Based on the findings of this present research, the researchers were able to determine and identify the conclusions that answered the general research questions.

1. **INTEREST** appeared to be the most highlighted modality among the mentioned ones.
2. Interest can enhance their confidence to be **DETERMINED** in pursuing their desired course in college.
3. Teachers play a pivotal role in **SETTING THE GOAL** of the students as early as possible. And to make sure they are to conquer the correct path going to their success.

## RECOMMENDATION

**Senior High School Students.** to prepare them for their future desired course not just in medical field but to other professions as well.

**Senior High School Teachers.** to serve as the bridging personnel from the students' goal going to their success.

**School of Medical Technology.** to consider the true to life experiences and preferences of the students in getting Medical Technology in college.

**Emilio Aguinaldo College Community.** To boost the population of medical students inside the institution, people inside EAC-C should consider vivid analogy of human experiences.

## References

1. L. Allen; Camburn, Eric M.; and Min, Sookweon (2018) "Choosing STEM College Majors:  
Exploring the Role of Pre-College Engineering Courses,"  
Journal of Pre-College  
Engineering Education Research (J-PEER): Vol. 8: Iss. 1,  
Article 1.  
<https://doi.org/10.7771/2157-9288.1146>
2. Vilorio, D. (2014). STEM 101: Intro to tomorrow's jobs. Retrieved from  
<http://www.bls.gov/careeroutlook2014/>
3. Wimberly, G. L., & Noeth, R. J. (2005). College readiness begins in middle school. Iowa City, IA:  
American College Testing.
4. Yamauchi, C., & Leigh, A. (2011). Which children benefit from non-parental care? Economics of  
Education Review, 30(6), 1468–1490. Retrieved from  
<http://doi.org/10.1016/j.econ-educrev>



---

# Lifestyle diseases and risk factors among employees of EAC – Cavite: Basis for Program Development

Obdulia M. Almarez, Giovannah H. Castillo and,  
James Lee F. Ambojia

School of Nursing, Senior High School Department

\*corresponding author: [dollyhmojica@gmail.com](mailto:dollyhmojica@gmail.com),  
[jamesfragaambojia@gmail.com](mailto:jamesfragaambojia@gmail.com),  
contact number: 09258866687

## KEYWORDS:

Lifestyle  
Diseases  
Risk  
factors

**Abstract.** Lifestyle diseases are medical condition or disorder regarded as being associated with the way in which a person lives, such as heart disease or obesity. These diseases are affected by several factors that put individuals at risk. This study focused on the lifestyle diseases and risk factors among employees of Emilio Aguinaldo College, Cavite that would serve as basis for program development. An analysis of lifestyle pattern and risk factors was done to a total of 15 participants who have been diagnosed with lifestyle diseases. Another 15 participants were randomly selected from a list of personnel who have not been diagnosed with lifestyle disease. Non-experimental correlational and retrospective case control design were used and responses were analyzed through t test and Pearson's correlation. Results show that hypertension, increased serum level of cholesterol and other cardiovascular conditions are the diseases that affect the participants while their previous medical history include diabetes, anemia and asthma. Familial predisposition to hypertension, diabetes, increased cholesterol level and heart disease were also found among the participants. The leading risk factors among the participants from both groups are consumption of diet high in salt content and alcoholic beverages. Further findings show that there is no significant difference on the present medical history ( $p = 0.45$ ); past medical history ( $p = 0.13$ ); and familial disease ( $p = 0.43$ ) among the participants from both groups of those who have been diagnosed and those who were not. There is a significant correlation between present history and risk factors (Pearson's  $r = .0518$ ) while there is no significant correlation found between the past history (Pearson's  $r = 0.310$ ) and familial disease (Pearson's  $r = 0.425$ ) of participants who have not been diagnosed with lifestyle disease and their risk factors. On the other hand, there is no significant correlation among the present history (Pearson's  $r = 0.297$ ); past history (Pearson's  $r = .139$ ); and familial disease (Pearson's  $r = 0.142$ ) of participants who have been diagnosed with lifestyle disease and their risk factors. The participants whether they have been diagnosed or not with lifestyle diseases generally engage in unhealthy and risky behaviors. Thus, a program to address this issue is highly recommended to the school administration focusing on prevention of lifestyle diseases and behavioral change among the employees.

2019 Emilio Aguinaldo College-Cavite. All Rights reserved.

---

# **Lifestyle diseases and risk factors among employees of EAC – Cavite: Basis for Program Development**

## **INTRODUCTION**

Non - communicable diseases (NCDs) kill around 40 million people each year accounting for around 70 per cent of all deaths globally. The main type of NCDs are cardiovascular and chronic respiratory diseases in addition to cancer. NCDs such as cardiovascular diseases, stroke, diabetes and certain forms of cancer are heavily linked to lifestyle and hence are called lifestyle diseases. These are diseases that result from a combination of factors including genetics, physiology, environment and behaviors. Cardiovascular diseases that include heart attacks and stroke account for 17.7 million deaths every year making it the most lethal disease globally. Cancer kills around 8.8 million people each year, respiratory diseases claim around 3.9 million lives and diabetes has an annual morbidity rate of 1.6 million (Tabish, S.A., 2017).

Lifestyle is a term to describe the way individuals, family circles, and societies live and which behavior they manifest in coping with their physical, psychological, social, and economic environments on a day-to-day basis. (Ezzati M, et al., 2002)

Lifestyle is expressed by daily work and leisure profiles, including activities, attitudes, interests, opinions, values, and allocation of income. From a psychological point of view lifestyle derives from people's self - image or self - concept, including self-esteem and self-efficacy. Lifestyle is a composite of motivations, needs, and wants and is influenced by factors such as culture, family, reference groups, and social class. (Ezzati M, et al., 2002)

Lifestyle diseases are diseases that appear to increase in frequency as countries become more industrialized and people live longer. Lifestyle diseases share risk factors similar to prolonged exposure to three main modifiable lifestyle behaviors--smoking, unhealthy diet including alcohol abuse, and physical inactivity--and result in the development of non-communicable and chronic diseases. (Ezzati M, et al., 2002)

These conditions imply loss of independence, years of disability, or death, and impose a considerable economic burden on health services. However, despite the well - known benefits of a healthy lifestyle, only part of adults follows changes toward healthier lifestyles (Trovato, G.M. 2012)

The combination of the main healthy lifestyle factors--maintaining a healthy weight, exercising regularly, following a healthy diet, and not smoking--seem to be associated with as much as an 80% reduction in the risk of developing the most common and deadly chronic diseases. This reinforces the current public health recommendations for the observance of healthy lifestyle habits. Although healthy habits originate during the formative years, it is never too late to modify one's lifestyle to maintain health and well – being and help reduce the number of those afflicted with lifestyle diseases among the population.

This study was to investigate the lifestyle pattern of employees of Emilio Aguinaldo College and determine whether these habits put them at risk for chronic and deadly disease in the future.

The results of this study may provide detailed information on the lifestyle pattern of the employees and how this can be improved. A program or project for a healthy lifestyle towards health promotion and disease prevention can be formulated based on the findings of this study.

## **METHODOLOGY**

### ***Study Design***

Non-experimental correlational design was utilized in this study. Retrospective case control design will be used to describe occurring outcome in the present and link it to the factors that have caused it. Sample of participants with lifestyle diseases will be identified and those who do not and the researchers will then look for differences between the groups in antecedent conditions, such as risk factors.

### ***Research Locale and Population***

This study was conducted in Emilio Aguinaldo College- Cavite campus. Employees are the target participants of the research and initial profile were secured from the school clinic. Criteria will be set accordingly based on the final data on hand in order to set equal chance for each individual to be included in the sample. The employees are screened into two groups, fifteen (15) employees that does not have present diseases and fifteen (15) employees that are identified that have present diseases.

## ***Procedure***

Upon approval of the research committee and data privacy review board for validity and reliability of the research instrument, data were collected from the study participants. A signed consent form is attached to ensure that they understand and voluntarily submit themselves to participate in the study. Participants were assured of the confidentiality of each data provided.

Almost all answered survey instruments were retrieved from the study participants. Sample of participants with lifestyle disease were identified from the group and data were encoded and tallied in preparation for statistical treatment and data analysis. The participants were screened using an adapted medical screening test.

## ***Ethical Consideration***

The researchers ensured the participant's safety by keeping the confidentiality of their private practices or any other practices and must not be disclosed to the public.

Opening up about experiences that are sensitive in nature can increase the level of anxiety –may cause distress during, and in some cases, after the interview. Thus, some ethical considerations were strictly observed.

The participants informed of the procedures, objectives, and aims of the study. In lieu of the sensitive nature of the study, strict confidentiality of the identity of the participants and other persons named during the interview will be enforced by going under a pseudonym. Ethics clearance was given by the Institutional Ethics Review Board (IERB) of the Emilio Aguinaldo College-Cavite.

RESULTS

Table 1

*The present, past medical history and familial diseases among employees of EAC – Cavite.*

Conditions/Diseases		Witho ut Disea se	With Disea se
Present Medical History	Has a doctor ever said your blood pressure was too high?	3	11
	Do you ever have pain in chest or heart?	6	5
	Are you often bothered by a thumping of the heart?	1	1
	Does your heart often race?	0	1
	Do you ever notice extra heartbeats or skipped beats?	1	3
	Are your ankles often badly swollen?	0	1
	Has a doctor ever said that you have or have had heart trouble, an abnormal electrocardiogram (ECG or EKG), heart attack or coronary?	1	1
	Do you suffer from frequent cramps in your legs?	4	5
	Do you often have difficulty breathing?	2	4
	Do you get out of breath long before anyone else?	0	1
	Do you sometimes get out of breath when sitting still or sleeping?	1	1
	Has a doctor ever told you your cholesterol level was high?	0	5
	Increased anxiety or depression?	4	1
	Problems with recurrent fatigue, trouble sleeping or increased irritability?	4	4
	Migraine or recurrent headaches?	5	4
	Swollen or painful knees or ankles?	2	1
	Swollen, stiff or painful joints?	1	1
	Pain in your legs after walking short distances?	2	2
	Foot problems?	3	1
	Back problems?	5	2

	Stomach or intestinal problems, such as recurrent heartburn, ulcers, constipation or diarrhea?	1	5
	Significant vision or hearing problems?	3	4
	Exposure to loud noises for long periods?	1	0
	Significant unexplained weight loss?	1	0
Past Medical History	Varicose veins	1	1
	Arthritis of legs or arms	1	1
	Diabetes or abnormal blood sugar test	0	2
	Dizziness	1	1
	Stroke	0	1
	Infectious mononucleosis	0	1
	Nervous or emotional problem	2	0
	Anemia	2	2
	Thyroid problems	1	0
	Pneumonia	1	1
	Brochitis	0	2
	Asthma	0	4
	Other Lung disease	0	1
	Injuries to arms, legs or joint	0	1
Familial Diseases	Heart attacks under age 50	2	5
	Strokes under age 50	4	4
	High blood pressure	11	15
	Elevated cholesterol	3	7
	Diabetes	3	9
	Asthma	4	4
	Congenital heart disease	1	0
	Heart operations	2	0
	Glaucoma	1	0
	Obesity (20 or more pounds overweight)	0	2

The table reveals that at  $p = 0.45$ , alpha level of 0.05,  $p > 0.05$ , means that there is no significant difference between participants with and without disease regarding their present medical history. While at  $p = 0.13$ , alpha level of 0.05,  $p > 0.05$ , it shows that there is no significant difference between participants with disease and without disease regarding their past

medical history. Moreover, at  $p = 0.43$ , alpha level of 0.05,  $p > 0.05$ , the table suggests there is also no significant difference between participants with and without disease related to familial diseases. It only implies that participants whether diagnosed or undiagnosed with certain disease, both are experiencing the similar health conditions. The participants only show that whether they experience the disease or no present symptoms they still experience those conditions.

Table 2

*The Risk factors among employees of EAC – Cavite.*

Risk Factors		Without Disease	With Disease
Smoking	Have you ever smoked cigarettes, cigars or a pipe?	3	3
Alcohol Intake	Do you ever drink alcohol beverages?	9	6
	At any time in the past, were you a heavy drinker?	4	1
Diet	Do you usually use oil or margarine in place of high cholesterol shortening or butter?	10	10
	Do you usually abstain from extra sugar usage?	6	7
	Do you usually add salt in food?	6	9

It shows that at  $p = 0.72$ , alpha level of 0.05,  $p > 0.05$ , there is no significant difference between participants with disease and without disease regarding their risk factors. It means that irrespective present diagnosis or even not presently manifesting signs and symptoms of a disease they seem still engaged in unhealthy lifestyle.

Table 3

*The Correlation of Present, Past and Familial Diseases to the Risk factors among Employees of EAC – Cavite.*

	Without Disease	Interpretation	With Disease	Interpretation
Present History	0.0518	Significant	0.297	Not Significant
Past History	0.310	Not significant	0.139	Not significant

Familial Diseases	0.425	Not significant	0.142	Not significant
-------------------	-------	-----------------	-------	-----------------

Table shows that participants with present medical history but without signs and symptoms of present disease have a Pearson R coefficient of 0.518, which is significant at 0.05 level. On the other hand, participants with both present medical history and presenting signs & symptoms have no significant correlation to their present history with Pearson R coefficient of 0.297. Participants with past medical history with no present disease have a Pearson R coefficient of 0.310 likewise, participants with past medical history and diagnosed with disease have a Pearson R coefficient of 0.139, both interpreted as not significantly correlated. Familial diseases variable both participants with and without present diseases are not significantly correlated with the Pearson R coefficient 0.142 and 0.425 respectively.

This implies that regardless the participants have present & past medical history and with familial diseases whether diagnosed or not they are still engaging in unhealthy and risky habits. Despite the well-known benefits of a healthy lifestyle, only part of adults follow changes toward healthier lifestyles, and usually only for some of them (Trovato,G.2012).

## Discussion

Lifestyle-related diseases are on the rise in the country. These preventable chronic diseases are the outcome of unhealthy choices. Lifestyle diseases characterize those diseases whose occurrence is primarily based on daily habits of people and are a result of an inappropriate relationship of people with their environment (Sharma, 2009). The onset of these lifestyle diseases is insidious, they take years to develop, and once encountered do not lend themselves easily to cure. The main factors contributing to the lifestyle diseases include bad food habits, physical inactivity, wrong body posture, and disturbed biological clock. According to Tabish (2017) Lifestyle diseases are preventable, and can be lowered with changes in diet, lifestyle, and environment. An important way of controlling non-communicable diseases is by controlling the risk factors associated with it. In other words, a number of communicable diseases can be prevented by controlling the behavioral or lifestyle habits associated with those diseases. There are a number of low-cost solutions that can be implemented by the government and other involved groups to reduce the common modifiable risk factors.



## **Conclusion**

The participants are affected with lifestyle diseases like hypertension, increased serum level of cholesterol and other cardiovascular conditions. Their previous medical history includes diabetes, anemia and asthma. Hypertension, diabetes, increased cholesterol level and heart disease runs in their respective families.

The leading factors among the participants are consumption of diet high in salt and drinking alcoholic beverages. There is no significant difference on the present medical history, past medical history, and familial disease among the participants from both groups.

There is a significant correlation between present history and risk factors among the participants who have not been diagnosed with lifestyle diseases while there is no significant correlation between their past history and familial disease and risk factors. There is no significant correlation among present history, past history and familial disease and the risk factors among participants who have been diagnosed with lifestyle diseases.

## **Recommendation**

A healthy lifestyle must be adopted to combat these diseases with a proper balanced diet, physical activity and by giving due respect to biological clock. As a basis for program development the researcher proposed a series of programs to help the employees of Emilio Aguinaldo College Cavite to combat non communicable diseases.

## References

Mukesh Sharma and P. K. Majumdar (2009). *Occupational lifestyle diseases: An emerging issue.*

doi: 10.4103/0019-

5278.58912

Guglielmo M Trovato (2012). *Behavior, nutrition and lifestyle in a comprehensive health and disease*

*paradigm: skills and knowledge for a predictive, preventive and*

*personalized medicine.* doi: 10.1007/s13167-012-0141-2

Tabish, SA (2017). *Lifestyle Diseases: Consequences, Characteristics, Causes and Control*

DOI:

10.15406/jccr.2017.09.00326

Deepadarshan H.(2017). *Lifestyle factors and lifestyle diseases among rural population of Bengaluru rural*

*District* DOI: 10.18203/2394-6040.ijcmph20171763

Ezzati M, Lopez AD, Rodgers A, Vander Hoorn S, Murray CJ. *Comparative Risk Assessment Collaborating Group. Selected major risk factors and global and regional burden of disease.* Lancet. 2002;360:1347–60. doi: 10.1016/S0140-6736(02)11403-6.

Pomerleau O, Bass F, Crown V. *Role of behavior modification in preventive medicine.* N Engl J Med. 1975;292:1277–82. doi: 10.1056/NEJM197506122922406

---

# Politeness and Impoliteness in Newspaper Editorials

Maribel T. Leocario, Aira Marie P. Quijano

School of Arts and Sciences

Email address: [leocbel@yahoo.com](mailto:leocbel@yahoo.com); [aira.quijano@eac.edu.ph](mailto:aira.quijano@eac.edu.ph)  
Contact number: 09088598055; 09292614398

## KEYWORDS:

Politeness  
Impoliteness  
Strategies  
Editorials  
Opinions

---

**Abstract.** The study of politeness is a pragmatic approach where language is examined in terms of its impact to the hearer. Although politeness is culture specific, it may be defined according to standard suitable to all cultures. Brown and Levinson (1999) proposed strategies that may be appropriate to both oral and written communication such as newspaper editorials. These strategies are known as: (1) bald on record, (2) positive politeness, (3) negative politeness, and (4) off-record politeness. In this study, five (5) editorials of the top three broadsheets in the Philippines such as Manila Bulletin, Philippine Star, and Philippine Daily Inquirer were examined in terms of politeness using the Politeness Strategies by Brown and Levinson, and in terms of impoliteness using Impoliteness Strategies by Culpeper (1996). Newspaper editorials are known to contain opinions about social issues which are presented objectively. The study aims to determine the politeness and impoliteness strategies used in these editorials which may be used as basis when determining the level of politeness/ impoliteness of school paper editorials written by students. The results show that in general, newspaper editorials employ varying strategies such as politeness, positive and negative impoliteness, and bald on record impoliteness.

© 2019 Emilio Aguinaldo College-Cavite. All Rights reserved.

---

---

# Politeness and Impoliteness in Newspaper Editorials

## INTRODUCTION

Packer (2014) observes that younger generation tends to be less polite compared to their parents during their age. Partly, technology is to be blamed according to. More time in online allows them to feel the freedom to act the way they want because they are not reprimanded for misbehaving. Again, technology is just a portion of the overall influences young people get from their environment. Politeness then becomes inconceivable and irrelevant in this generation as what can be observed around.

Politeness is not simply a norm; it is regarded as a standard behavior that one must observe in dealing with people. It is taught first at home by parents and later in school by teachers, with guiding principles and practices so a young mind will embed it in his or her system. Song (2012) described politeness as an act that avoids any conflict with another person and involves consideration for other people. Vilkki (n.d.) further explained that politeness is a strategy if one wants to avoid possible conflict with others and to maintain smooth communication. Politeness is culture specific which means that the rules of one country may not be applicable to another. It is therefore important that the term politeness be viewed in light of frameworks suggested by the theory relative of one's study.

The advent of globalization has caused change that altered people's pattern of communication – globalization also affects the way people show politeness. Even in the media, politeness is expressed differently – that is, communication is made by establishing a “personal relationship” with the audiences by means of “informalization” in which according to Sifianou (2017) is considered “... a prevailing trend in mass media discourse” (p. 6). Infomalization is contrary to previous practice in Western countries where politeness is showed through positive politeness or formal communication. Informalization, a by-product of globalization, is an approach related to the observance of negative politeness which according to Bargiela, et al. (2002) as cited in Sifianou (2017) is better at making interaction with people with greater ease.

Like any mass media discourse, newspaper editorial is expected to manifest high level of politeness since it serves various publics. The measurement of politeness used for this particular media output is in

accordance to the criteria of the modern-day politeness. Politeness as a social gesture may also manifest in academic and professional purposes such as in editorials. Editorials are considered opinion writing because it expresses the point of view of the publication on vast amount of topic, which aims to influence public opinion. In doing so, writers of editorials are expected to structure the text not only of arguments but also of politeness especially when judging someone else's ideas or principles (Hart, 2014).

### Review of Related Literature

The study of politeness is a pragmatic approach in understanding a certain language. According to Fraser (2010), pragmatic competence is one aspect of communicative competence which allows the speaker to express the message clearly as intended it to be with observance of socio-cultural perspective. Grammatical competence alone will not make a person fully competent in the language he/she is using unless pragmatic competence is observed.

In like manner, Barron (2003) as cited in Abdulrahman (2012) claims that politeness "concerns how language is employed in a strategic manner to attain such goals as promoting or maintaining interpersonal relationships". For instance, politeness in Asian countries is rooted in culture where it is an important component in maintaining interpersonal relations. Gamble and Gamble (2014) stated that for these people the use of euphemisms is noticeable in their conversation to avoid the impact of their words. Euphemism according to him is "mask meaning by softening the blow of a message" (p. 129).

Furthermore, in view of Grice's cooperative principle (CP), politeness is the observance of "trust and goodwill" between each member of a group in order to have a smooth working relationship (Terkourafi, 2015). For Grice, there is a proper way of saying things or acceptable utterances aside from being relevant or being understood. He believed that meaning is captured through inferences and with that notion he would suggest the use of "indirect speech act" as politeness markers (Davies, 2000). Grice's Maxims are what constitute his Cooperative Principles as: Maxim of quantity (make your contribution as informative as is required), quality (do not say what you believe to be false), relation (be relevant), and manner (avoid obscurity of expression).

In recent studies on politeness, the use of hedging became popular in conveying thoughts with indirect approach in order to reduce the impact of words as a means to show politeness. Hedging as a politeness strategy aims to save face by avoiding being biased. Boncea (2013) explained in her study that hedging is a strategy of using vague language allowing the other person to "evaluate the truth value of their

assertion". Boncea (n.d.) quoted from Brown/Levinson the definition of hedge as "a particle, word or phrase that modifies the degree of membership of a predicate or a noun phrase in a set; it says of that membership that it is partial or true only in certain respects, or that it is more true and complete than perhaps might be expected."

Hedges were affirmed by Brown and Levinson as politeness strategy, although they are categorized as negative politeness. It makes statements that "avoid sounding too blunt or assertive" (Carter & McCarthy, 2006, as cited in Bethan et al., 2011). In addition, it also explains that hedging or negative politeness is more frequent in Western cultures than in Asian cultures in daily conversations at home or at work. Hedge as negative politeness is very essential if the purpose is to save face.

In relation to academic writing, most Asians are more careful and indirect in "expressing opinions" while Germans and Czech are more direct (Hyland, 1998). Those writers from English cultures tend to speak with clarity while Japanese writers allow their hearers to take "active role" in decoding texts (Hyland, 1998: 220). Another difference in showing politeness has been pointed out by Song as being direct or indirect in statements. Westerns tend to be direct while East Asians are indirect. For East Asians, being direct is a sign of impoliteness. Hence, politeness and impoliteness strategy are influenced by one's culture.

Politeness/impoliteness as socio-pragmatic approach may be applied to academic writing particularly argumentative articles such as editorials. Editorials are opinion papers which reflect the opinion of the newspaper on one issue. It is the reflection on important news for the day which aims to persuade the readers to take an action or to agree with the idea. It usually refutes a viewpoint or criticizes a personality. The challenge for the writers to maintain objectivity is to remain objective or use constructive or positive statements instead of negative remarks. In this regard, politeness is encouraged in order that presentation of opinion is agreeable or pleasant. Editorials written by students themselves in school papers are reflections of politeness acquired from learning the language as well as from their knowledge of and practice in school and in society.

Pariera's (2006) study determined the politeness strategies used in computer-mediated communication specifically emails. With 29 participants, the researcher found out that communication in this type of medium practice a unique set of politeness conversation but with different strategies depending on the level of intimacy.

On the other hand, the study of Burke and Kraut (2008) dealt with the impact of politeness in online communities. The researchers used inductive approach in the study and the results show that politeness increased in technical groups, but rudeness is high among political groups.

The study of Kurdghelashvili (2015) dealt with how speech acts may be used as politeness strategies in an EFL classroom in Georgia. These are the speech acts of apology, thanking, request, compliment/encouragement, command, agreeing/disagreeing, addressing and code switching. The study revealed that students have some degree of knowledge in terms of politeness rules, but they were unable to apply in their use of English language.

### *Face Threatening Act – Act Saving Face*

The term 'losing face' is derived from the word humiliation which indicates that a person will or has to maintain or defend his/her self-image during interaction, thus, suggesting that people involved in communication must soften the use of language in order to give other people consideration to protect their 'face' from humiliation. Song (2012) affirms that face is 'the public self-image that every member wants to claim for himself/herself'. He also emphasized that 'face' is viewed differently among Asians in such that it gives values on 'personality, emotions, honor, self-esteem, prestige, reputation of self and relation to others,' as Ide (2005) put it (Song, 2012).

On the other hand, the use of modality in sentences is viewed not only as "surface markers of cognitive states" (Smith, 1991 as cited in Mara, n.d.) but also used as a form of expression of the writer's attitude toward the communicative process, and one of these is politeness. Modal auxiliary has a wide spectrum in terms consisting of both communicative and pragmatic function according to Mara (n.d.). This was also stressed by Nakayasu (2009) who stated that the use of modal auxiliary verbs has an existing relationship with politeness. He stated that shall and will connote positive politeness, while should and would are examples of negative politeness. Since language is rule-based, Mara (n.d.) noted Grice's theory of implicature which explains that people use language following a set of maxims in their utterances; these utterances are what governed the use of modal verbs in the expression of their opinion, emotion, and attitude toward a discourse to utterances contain features as subjectivity and objectivity, directness and indirectness. The association of modal verbs to indirectness helps modify the imposition of threat to face.

Both face-threatening/saving acts and modality may be predicted from a written discourse through speech act analysis. Speech acts have different categories and each of these categories inherent expressions that may harm face. The notion of FTA whether negative or positive is directed toward minimizing the language use to soften its impact (Vilkkii,

L., n.d.). Brown (2015) mentioned about the three approaches that may be used as approaches in the study about politeness: politeness as social rules, politeness according to Gricean Maxim, and politeness “as strategic attention to face.” However, he emphasized that among the three, the most appropriate to use with the changing times and in different cultures is politeness as strategic attention to face.

### *Politeness and Impoliteness Strategies*

The term politeness has emerged in consideration of the “public self-image” that every member of society wants to preserve or maintain for themselves (Brown & Levinson, 1987, p. 313). To maintain or enhance one’s face, there are strategies that may be used as proposed by Brown and Levinson: positive and negative as well on- and –off record strategies.

Positive face refers to any attempt to preserve a person’s positive self-image, while negative face has something to do with the attempt to preserve the rights of someone from distraction and from imposition. Brown and Levinson suggested that FTA may be measured in three dimensions or social dimensions based on the calculated weight of speech acts such as: the social distance, relative power, and the absolute ranking.

Bald on record according to El-Samir (n.d.), is a strategy used by an interlocutor toward another person who is of equal to him. Usually the statement is most direct and least polite, and it aimed at giving straightforward statements. An example is “go out immediately” when there is an emergency. Off-record on the other hand is least direct and most polite. Usually, the interlocutor states his intention in a very subtle way making another person to guess or interpret what he really means. It contains four (4) strategies: inviting conversational implicatures, violate relevance maxim, violate quantity maxim, and violate quality maxim, and violate manner maxim. The approach is much like ‘flouting’ of the Gricean maxims.

Positive politeness strategies on the other hand are classified as (1) claiming common ground, (2) expressing cooperation, and (3) attending to the addressee’s wants. Negative politeness on the other hand is another approach to face-threatening act where the interlocutor acknowledges that the person is talking to reject imposition on himself. Here, the person tries to manifest respect toward another person using various strategies. The strategies are classified as (1) conventionally direct, (2) avoiding assumptions, (3) by not coercing with the addressee, (4) by communicating the addressee’s want of isolation, and (5) by redressing other wants of the addressee. The following illustrates the details of the strategies which the researcher will use as guide in the data



analysis, based on Brown and Levinson's theory of politeness (El-Samir, n.d.).

In like manner, determining politeness alone will not suffice in assessing the quality of a text; impoliteness creates balance that completes the analysis of the text. Culpeper's (1996) model of impoliteness is classified as inherent impoliteness and mock impoliteness. Inherent impoliteness refers to acts that innately threaten one's face while the former refers to acts that are committed without the intention to insult someone. However, in Culpeper's framework, he identified five (5) impoliteness super-strategies. These strategies are all derived from Brown and Levinson's politeness strategies; they are: bald on record impoliteness, positive impoliteness, negative impoliteness, sarcasm or mock politeness, and withhold politeness. Culpeper's (1996) model has a lot of advantages over other model as it is applicable to various types of discourses according to Hiba and Nawal (06 December 2016).

## **METHODOLOGY**

### ***Study Design***

The study used quantitative content analysis to determine the frequency of politeness and impoliteness strategies used in the editorial articles of the top circulated broadsheets in the Philippines. Content analysis is defined as "a method of analyzing written, verbal or visual communication messages" which include newspaper and magazine articles, hymns, advertisements and political speeches (Cole, 1988 in Elo & Kyngas, 2008). Its usefulness has been recognized until today in the study not only of communication messages but also in other field of discipline. Quantitative content analysis is different from qualitative in terms of approach. From the term quantitative, the study involves "tabulating the occurrences of content units" (Franzosi, n.d.), and thus the approach requires counting of frequencies, which makes it more systematic and objective.

### ***Sample***

In this study, the occurrences of frequency of politeness and impoliteness strategies were counted to determine the frequency of politeness strategies and/or impoliteness strategies used in the articles of the three leading newspapers in the country. These newspapers were selected given its massive circulation as well as its coverage of wide array of issues.

Using stratified composite samples, the researcher randomly selected the data for analysis. Five (5) newspaper editorials of Manila Bulletin, five editorials of Philippine Star and another five (5) newspaper editorials of Inquirer were the subject of analysis for three weeks. In order to differentiate the occurrences of politeness and impoliteness strategies, it was decided that the raters would focus on one newspaper per week. As scheduled, content analysis of Philippine Daily Inquirer editorials was done from June 17 to June 21, Manila Bulletin from June 24 to 28, and Philippine Star from July 1 to 5.

### ***Validity and Reliability***

To establish the validity and reliability of the coding sheet, a pre-test was conducted. The researchers used the editorial articles of Philippine Daily Inquirer from June 3 to June 6, 2019. After coding, Cohen's Kappa was used to compare the consistency in the content analysis of the two raters. Since the result yielded 0.745, it means that there is a high level of interrater reliability. However, the researchers modified some of the guidelines based on the observation from the pre-test. These include the following: (1) the raters should limit its selection of paragraphs/sentences for analysis to those that express opinion (inclusion/exclusion criteria); (2) both raters need to finalize the paragraphs/sentences for coding based on the inclusion/exclusion criteria before the actual content analysis; and (3) the strategies applied during the data analysis were limited to the general categories such as bald-on record, positive politeness, and positive and negative impoliteness.

### ***Data Analysis***

Frequency distribution and percentage was used to account for the number of occurrences of politeness and impoliteness strategies used in 'Manila Bulletin' and 'Philippine Daily Inquirer' and 'Philippine Star.' Content analysis is defined as "an observational research method that is used to systemically evaluate the actual and symbolic content of all forms of recorded communication" (Hall & Valentin, cited in Ritchie, Burns, Palmer, 2005, p. 191).

T-test was also used to determine the significant difference in the politeness and impoliteness strategies used in the three commercial newspapers – Philippine Star, Manila Bulletin and Philippine Daily Inquirer.

RESULTS AND DISCUSSION

Before identifying the politeness and impoliteness strategies utilized in the editorial articles of the newspapers, the researchers had to eliminate statements that are purely factual from opinion statements. After selecting, the remaining statements that contain opinion were the subject of analysis. There was a total of 11 opinion statements extracted from Manila Bulletin, 19 from the Philippine Star, and 28 from the Philippine Daily Inquirer. Despite the critical role that editorials play to influence the readers' views on issues, it can be observed that editorial writers are careful with the way they choose statements.

*The Politeness and Impoliteness Strategies Used in Editorials*

Table 1. Politeness/Impoliteness Strategies Used in Three Leading Newspapers

Newspaper	Politeness/Impoliteness Strategies Used
Manila Bulletin	Bald on Record
	Positive Politeness
Daily Inquirer	Bald on Record
	Positive Politeness
	Negative Impoliteness
Philippine Star	Bald on Record
	Positive Politeness
	Positive Impoliteness
	Negative Impoliteness

The table shows that the three leading newspapers with national circulation used both politeness and impoliteness strategies: Manila Bulletin used only two strategies (one politeness and one impoliteness); Philippine Daily Inquirer employed three strategies (one politeness and two for impoliteness); Philippine Star on the other hand, used four strategies (one politeness and three for impoliteness). By description, politeness is used to maintain or enhance one's face to keep the person's public self-image – its opposite is impoliteness.

It can be observed that the three newspapers used Positive Politeness as a means to express politeness and Bald on Record for impoliteness. Philippine Daily Inquirer has Positive Impoliteness as another impoliteness strategy. On the other hand, among the three, Philippine Star ventured on using both positive and negative impoliteness.

## ***The Most Frequently Used Politeness/Impoliteness Strategies***

Table 2. The Frequency and Percentage Distribution of Politeness/Impoliteness

Newspaper	Strategies Politeness/Impoliteness Strategies Used	Frequency	Percentage	Rank
Manila Bulletin	Positive Politeness	8	72.72	1
	Bald on Record	3	27.27	2
Daily Inquirer	Bald on Record	17	60.71	1
	Positive Politeness	9	32.14	2
	Negative Impoliteness	2	7.14	3
Philippine Star	Positive Politeness	14	73.68	1
	Bald on Record	3	15.79	2
	Positive Impoliteness	1	5.26	3.5
	Negative Impoliteness	1	5.26	3.5
	TOTAL	58		

Manila Bulletin and Philippine Star mostly used positive politeness (72.72% and 73.68% respectively) in expressing opinion; bald on record comprised a smaller portion (27.27% and 15.79%) in the editorials of these two newspapers. Only Philippine Daily Inquirer used impoliteness strategy in most of their editorials particularly bald on record; this is followed by positive politeness with 32.14%. The findings also show that positive and negative impoliteness strategies got the least percentage, which means they are not frequently used in the editorials.

In the concept of politeness by Brown and Levinson (1999), people do something to avoid any possible effect of conversation on the face of the hearer by means of regulating the use of language. Positive politeness strategy refers to utterances that recognize what the hearer wants to hear (he is a member of the group, traits are known and liked, etc.), which is why in some instances, the approach made toward another person is more direct and less polite because it is assumed that both speaker and hearer are of same position or rank.

BROADSHEET	TITLE	STATEMENT	POLITENESS/IMPOLITENESS STRATEGIES
Manila Bulletin	The Political Process of Impeachment	In the Philippines, as in the US, we can expect talk of impeachment to continue, for it makes a good story. In both countries, development like this are a great part of the political scene. They may not have an immediate impact but they become part of the total picture of politics and government that helps shape the public perception of their leaders.	Positive Politeness (claiming common ground)

On the other hand, impoliteness comes around when a person has an intention to attack the hearer or if the hearer feels that his face is under attack (Culpeper, 2005). Bald on Record impoliteness is an

impoliteness strategy that uses “direct, clear, unambiguous and concise way where face is not irrelevant.

As can be gleaned, positive politeness is utilized most frequently in the editorials because of its prestige being the renowned leading newspapers of the country, with national circulation. It understands that it has the capability to approach the subject in the same way that he (writer) is.

Given also that there is a consideration of a mass audience, the use of positive politeness strategy in the reviewed newspaper editorials is construed as an attempt to convey messages in a neutral, generally acceptable approach which further encourages readers to analyze texts objectively, without prior judgment on a certain issue. The suspension of judgments on the end of the writers, and the neutrality of presentation of different issues in this sense can be argued to serve the objectivity of newspapers.

BROADSHEET	TITLE	STATEMENT	POLITENESS/IMPOLITENESS STRATEGY
Philippine Daily Inquirer	In Aid of Beijing	But if it was an accident, why did the Chinese abandon the Filipino fishermen floundering on the waters? This time Cusi had no answer — the psychic connection with the Chinese failed? — and said he would defer to any future investigation.	BOR1

In contrary, newspapers as a media, takes its role as the country’s watchdog thus, it has the obligation to make people aware of the issue and contribute much to their opinion. In that sense, it does not need to be polite, rather, more direct statements are used with the intention to attack the hearer, which they believe is the most appropriate way of conveying their thoughts to serve its purpose. However, despite the attack made on people or issue, editorial writers are still careful not to use any forms of sarcasm as the most impolite strategy.

Further, as observed by the researchers, the impolite and more direct attacks in newspaper editorials are evident when the issues are politically tainted. These issues are said to yield polarized opinions given that these are highly controversial issues that concern the whole nation and have direct impact on its citizens. The use of such strategies can be seen also as a means to articulate grievances as well as discontentment on how certain issues are being addressed on a national scale. Such expressions contribute to the notion of media being the watchdogs of society, with its primary goal of creating informed and sensitive readers.

## ***The Significant Difference in the Politeness and Impoliteness Strategies***

Table 3. Significant Difference in the Politeness/Impoliteness Strategies Used

	Frequency	Mean	t-test	Sig
Politeness Strategies				
Claiming Common Ground	27	15.0		
Expressing Cooperation	4			
Total	31		7.00	0.90
Impoliteness Strategies				
Bald on Record	23			
Positive Impoliteness	1	12.0		
Negative Impoliteness	3			
Total	27			
TOTAL	58			

With thirty-one (31) politeness strategies and twenty-seven (27) impoliteness strategies used in the newspaper editorials, it shows that both strategies were used almost equally implying that there is a balance in the way opinions were presented. The t-test result is 7.00 and p-value is 0.90 so, it can be concluded that there is no significant difference in the strategies used.

## **CONCLUSION AND RECOMMENDATION**

The three leading newspapers based on the result of the study utilized both politeness and impoliteness strategies of Brown and Levinson (1999) and Culpeper (2005) in their editorials. Manila Bulletin and Philippine Star mostly used positive politeness, while Philippine Daily Inquirer's most frequently used strategy is Bald on Record Impoliteness. However, positive and negative impoliteness strategies could be noticed in the editorials of Philippine Star in minimal occurrences.

This paper shed light on politeness and impoliteness strategies used by editorial writers of leading newspapers of the country for language teachers to observe when asking their students to write editorials or opinion paper. This also has implication to the writers and adviser of the school organ, Magdalo, to strike a balance between the use of positive politeness and bald on record impoliteness in presenting their opinion on a wide array of issues. This is suggestive of the possible training or lessons that can be given to student-writers which focus on employing positive politeness and bald on record impoliteness. However, there

should be guidance on how bald on record impoliteness strategy is to be applied because it is too direct, that is why training is necessary in this case.

This study has its limitation particularly on the size and representativeness of sample. It is suggested for future studies to ensure random selection of news articles and increased sample size to further accomplish the assumptions of the statistical analysis to be used. These considerations will also enable the researchers to make generalized conclusions.

For future studies, it is also recommended to have a comparative analysis of newspaper editorials on a given, specific issue, and see how they vary in tone which is suggestive of their politeness strategy. Considering similar issues with different approach which are published within a specific time frame will enable future researchers to have a more comprehensive analysis. Moreover, a more empirical investigation on how strategies are employed on issues with varying nature (political, economic, social, cultural, etc.) is also recommended to assess whether the issue being discussed determines the manner on how it is being presented. Hence, the link between such variables can further be examined.

As this study attempts to present the current trend in mass media discourse particularly the manner on how issues are presented in terms of politeness and impoliteness strategies, it is also recommended that the results of the study be presented to the top circulated broadsheets in the country to serve as empirical basis of evaluation and intervention.

## References

- Abdulrahman, B.S. (2012). *Effects and implications of pragmatic competence for enhancing EFL university students written performance*. UK: AuthorHouse UK Ltd.
- Bethan, D., Haugh, M., & Merrison, A. eds. (2011). *Situated politeness*. USA: Continuum International Publishing Group.
- Boncea, I.J. (2013). Hedging patterns used as mitigation and politeness strategies. Retrieved on 16 February 2018 from [http://cis01.central.ucv.ro/litere/activ\\_st/anale\\_engleza/Annals\\_vo2\\_2013\\_Limba.pdf](http://cis01.central.ucv.ro/litere/activ_st/anale_engleza/Annals_vo2_2013_Limba.pdf)
- Brown, P. (2015). Politeness and language. Retrieved on 12 February 2018 from

[http://pubman.mpdl.mpg.de/pubman/item/escidoc:1719314:10/component/escidoc:2152013/Brown\\_Politeness\\_2015.pdf](http://pubman.mpdl.mpg.de/pubman/item/escidoc:1719314:10/component/escidoc:2152013/Brown_Politeness_2015.pdf)

- Burke, M. & Kraut, R. (2008). Mind your ps and qs: the impact of politeness and rudeness in online communities. <http://kraut.hciresearch.org/sites/kraut.hciresearch.org/files/articles/burke08-MindYourPs%26Qs-PolitenessInOnlineCommunities.pdf>
- Davies, G. (2000). Grice's cooperative principles: getting the meaning across. Retrieved on 16 February 2018 from <file:///C:/Users/CHRISTLIKE/Downloads/Davies2000.pdf>
- El-Samir, S.F. (n.d.). Politeness: a socio-pragmatic study. Retrieved on 14 March 2018 from <https://www.iasj.net/iasj?func=fulltext&ald=81619>
- Elo, S. & Kyngas, H. (2008). The qualitative content analysis process. *Journal of advanced nursing* 62(1), 107-115. doi: 10.1111/j.1365-2648.2007.04569.x
- Franzosi, R. (14 Nov. 2007). Content analysis: objective, systematic and quantitative description of content.
- Fraser, B. (2010). Pragmatic competence: the case of hedging. Retrieved on January 9, 2018 from <http://www.bu.edu/sed/files/2010/10/2010-Pragmatic-Competence-The-Case-of-Hedging.pdf>
- Gamble, T.K. & Gamble, M.W. (2014). *Interpersonal communication: building connections together*. USA: SAGE Publications, Inc.
- Gilks, K. (2009). Brown and Levinson (1987) model of politeness as useful and influential as originally claimed? An assessment of the revised brown and levinson (1987) model. *INNERVATE*, vol. 2, 2009. <https://www.nottingham.ac.uk/english/documents/innervate/09-10/0910gilksbrownlevinson.pdf>
- Nakayasu, M. (2009). The pragmatics of modals in shakespeare. Germany: Peter Lang GmbH International Verlag der Wissenschaften
- Hart, C., Cap, P. & contributors (2014). *Contemporary critical discourse studies*. UK: Bloomsbury Academics.
- Hiba, N.M. & Nawar, F.A. (December 2015). Pragmatics of Impoliteness and Rudeness. *American International Journal of Social Sciences*, vol. 4, No. 6. Retrieved on October 1, 2018 from



[http://www.aijssnet.com/journals/Vol\\_4\\_No\\_6\\_December\\_2015/24.pdf](http://www.aijssnet.com/journals/Vol_4_No_6_December_2015/24.pdf).

Hyland, K. (1998). *Hedging in scientific research articles*. USA: John Benjamins Publishing Company.

Kurdghelashvili, T. (2015). Speech acts and politeness strategies in an efl classroom in Georgina. International science index and language sciences, vol. 9 No. 1, 2015.  
<http://waset.org/publications/10000518/speech-acts-and-politeness-strategies-in-an-efl-classroom-in-georgia>

Mara, E. (n.d.). Modality in English language and everyday communication. <http://www.upm.ro/ldmd/LDMD-02/Lds/Lds%2002%2034.pdf>

Murphy, B. (2010). *Corpus and sociolinguistics: investigating age and gender in female talk*. USA: John Benjamins B.V.

Pariera, K. (2006). The use of politeness strategies in email discussions about taboo topics. PSU McNair Scholars Online Journal, vol. 2, issue 1.  
<http://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1099&context=mcnair>

Sifianou, M. (December 2017). The impact of globalization on politeness and impoliteness. Retrieved from  
<http://www.researchgate.net/publication/322086925>.

Song, S. (2012). *Politeness and Culture in second language acquisition*. USA: Palgrave Macmillan

Terkourafi, M. (2015). The pragmatics of politeness. Retrieved on February 16, 2018 from  
[https://www.linguisticsociety.org/sites/default/files/09\\_91.4Terkourafi.pdf](https://www.linguisticsociety.org/sites/default/files/09_91.4Terkourafi.pdf)

Vilkki, L. (n.d.). Politeness, face and facework: current issues  
[http://www.linguistics.fi/julkaisut/SKY2006\\_1/1.4.7.%20VILKKI.pdf](http://www.linguistics.fi/julkaisut/SKY2006_1/1.4.7.%20VILKKI.pdf)

# Coaching Styles of Coaches and Level of Motivation of Para athletes in selected institutions for persons with disabilities: an enhancement program

Juno C. Bautista , Zharmine D. Agravante and Darwin R. Palado

School of Arts and Sciences, School of Physical Therapy

\*corresponding author: [junocbautista@gmail.com](mailto:junocbautista@gmail.com)  
contact number: 09556674461

## KEYWORDS:

Paraathletes  
, Coaching  
Style,  
Motivation,  
Philippine  
Paralympic  
Committee

**Abstract.** One of the most critical factors of motivating athletes is coaching. Thus, this study mainly focused on the relationship between the coaching styles of coaches who cater paraathletes and their corresponding motivation and use the data as reference/bases for enhancement program for improvement of the PWD's. The study used a Descriptive-Correlational research design to 115 participants catered by the Philippine Paralympic Committee. The participants were selected through purposive sampling. Coaching style inventory and Sport Motivation Scale II was adapted and implemented to obtain different scores for the coaching style and motivation. The data gathered were statistically analyzed. The study revealed that the coaches preferred "expert and developer coaching" most of the time and Paraathletes) showed intrinsically motivated. Thus, it is recommended that the paraathletes to understand more about the factors that motivate them. Furthermore continue the coaching used, and if possible be exploring the catalyst coaching style.

© 2019 Emilio Aguinaldo College-Cavite. All Rights reserved.

---

# **Coaching Styles of Coaches and Level of Motivation of Para athletes in selected institutions for persons with disabilities: an enhancement program**

## **INTRODUCTION**

“Coach” and “leader” may not be entirely synonymous, but their roles are related. Both manage and improve their teams and act as examples for others to follow. Their position and influence are vital to building team relationships, reaching goals, and providing a healthy environment for constructive growth. Coaches are leaders within the field of athletics (Andersen, 2015).

In sports, athlete’s motivation can be the key to success. Of the various outside influences that have an effect on athletes throughout their sport experience, the coach-athlete relationship is one of the most important influences on athlete motivation and performance (Mageau & Vallerand, 2003). Throughout the United States, tens of millions of young athletes participate in competitive sports every year on a weekly, and in many cases, daily basis. If there are tens of millions of young athletes participating in athletics throughout the year, this means that they are interacting with millions of different coaches who are also involved in athletics (Britton, Hill & Ward, 2017). Coaches, athletes, parents, and league administrators have the responsibility of gaining knowledge to better understand the impact that these coaches and their coaching styles have on the athletes with whom they associate. The coaching style that a coach develops or adopts can have a positive or a negative effect on his or her athletes, and it is important to understand the impact that attitude, demeanour, personality, and overall leadership style has on athletes.

Furthermore, in the Philippines there is The Philippine Paralympic Committee (PPC), formerly known as Philippine Sports Association for the Differently Abled—National Paralympic Committee of the Philippines, which is the national sports association for physically impaired athletes, they tasked to spearhead developing sport competency for Filipino persons with disabilities. It is the Philippine National Paralympic Committee which is duly recognized by the International Paralympic Committee (PPC, 2019)

As part of sports history, There formation of the national sports association that focuses on sports played for Persons with Disabilities or

PWDs started as an idea by Michael Barredo, history then-former board member of the National Council for the Welfare of Disabled Persons (NCWDP) appointed by former President, Fidel V. Ramos in December 1996, after the series of consultations between stakeholders of the sport together with the Philippine Sports Commission and the national strategic planning workshops through the help of then-PSC chairman Philip Ella Juico, NCWDP, and the consultants of Australian Sports Commission who involved in the development and promotion of Olympic and paralympic sports in Australia. In 1997, the PHILSPADA was formed and registered with the Securities and Exchange Commission. Three (3) years later, PHILSPADA was one of the pioneer accredited members of the International Paralympic Committee. During the time when Butch Tuazon was appointed as PSC Chairman, Philspada inaugurated its main office in the Building E of the Philsports Complex in Pasig. Under the administration of Joseph Estrada, the President allocated funds for the promotion of paralympic sports in the country, including the formation of Philspada chapters across the 17 regions and established relationships with Deped, DILG, PSC, POC, other government agencies and the private sector. In 2002, PHILSPADA became the founding member of the Asean Parasport Federation. In circa 2006–07, due to IPC requirement for those who considered as National Paralympic Committees, the name National Paralympic Committee of the Philippines was included in the organization's name. (PPC, 2019)

On the other hand, Athletes' motivation affects on performance. The coach-athlete relationship is not simply one of the most important influences on athlete motivation, but it is also one of the most important influences on athlete's performance as well (Mageau & Vallerand, 2003).

Because coaches play such a vital role in team sports due to the fact that they are responsible for creating and maintaining an ideal condition for players to fulfil their fullest potential, if a coach does not develop a coaching style that is capable of gaining the attention, respect, and will to improve from his or her athletes, it is likely that he or she will not be able to motivate them in any form, which leads to a lack of success. Thus, the researchers saw that their growing needs to study the relationship between the coaching styles of coaches who cater persons with disability specifically the paraathletes and their corresponding motivation and use the data as reference/bases for enhancement program for improvement of the PWD's.

## METHODOLOGY

### *Study Design*

This study utilized a descriptive-correlational method. Descriptive design was used to determine if two or more variables are associated with each other. The descriptive-correlational design method was used in this study to determine the coaching style of the coach and the level of motivation of the paraathletes and its relationship.

### *Participants of the Study*

The participants of the study were coaches and paraathletes of The **Philippine Paralympic Committee (PPC)**, formerly known as **Philippine Sports Association for the Differently Abled—National Paralympic Committee of the Philippines** under the Philippine Sport Commission in Pasig City, a letter of request was to the Committee. Purposive sampling was employed. A total of 115 participants were gathered, 31 for coaches and 84 for the paraathletes

### *The Subjects*

The participants were chosen based on the following criteria for coaches who cater paraathletes (a) must 2 or more years of experience in coaching para athletes or person; (b) With the age range of 23 to 60 (c) Currently employed in the selected institutions. For paraathletes, the following criteria were used: (a) a certified person with disability who is physically disabled that includes the Orthopaedic impairments, limb deficiency, and talipes (medical certificates, ID, etc); (b) With the age range of maturity that begins at 18 years old and above; (c) Able to participate in an event on para Olympics at least once; (d) Currently enroll/living in the selected institutions.

### *Procedure*

To obtain the data, **coaching style inventory** (Creative Commons Attribution, Version 2.1 Jan 2008) and **Sport Motivation Scale II** was implemented to obtain different scores for the coaching style such as Expert, Guide, Developer, and Catalyst; and Motivation such as Intrinsic, Integrated, Identified, Introjected, External, and motivated.

The data gathering was conducted with supervision of a licensed psychometrician.

The data gathered were analyzed using statistical treatment such as frequency distribution, percentage, general weighted mean and person

**Ethical Consideration**

The precedence of this study is not to cause any harm and give discomforting emotion on the part of the respondents during data gathering. The researchers made sure the safety of the respondents. Also, informed consent forms were given before each survey. These forms contained the ethical considerations and the purpose of the study.

Another priority is building rapport between the researchers and the respondents for them to have a spontaneous survey. The purpose of the survey was explained to the respondents and they were be free to withdraw anytime during the course of the research process if they feel that the research cause some harm to them. The informed consent and the minor assent served as an agreement between the researchers and the respondents. These forms will also serve as a proof that they agreed on the regulations and they were willing to share their experiences.

**RESULTS**

Table 1*The Weighted Mean of coaching styles of the participants (Coaches)*

Coaching Style	Weighted Mean	Interpretation
Expert	25	High
Guide	37	Mid-Range
Developer	40	High
Catalyst	18	Low

Table 1 shows the distribution of responses and weighted mean score per Coaching Style. Expert style has the mean score of 25 with equivalent of High Style preference, likewise by Developer style with the mean score of 40 with equivalent of High Style preference, Guide style with the mean score of 37 with equivalent of Mid-Range Style preference, and lastly, Catalyst style has the mean score of 18 with equivalent of Low Style preference.

Kendall (2008) Coach with expert style tends to get the job done by achieving tasks efficiently and effectively. Based on the Performance, technique, methods and tactics. Agenda or goal of the activity is determined by the coach. In addition, coach with developer style tend to enlarging capability of the athlete by agreeing with them and setting goals, creating future paths and objectives for the athletes.

Table 2.

*Weighted Mean of Motivation of the participants (Paraathletes)*

Motivation	Weighted Mean	Rank
Intrinsic	63	1
Integrated	38	2
Identified	21	3
Introjected	9	4
External	18	3.5
Amotivated	18	3.5

Table 2 shows the distribution of responses and weighted mean score per Motivation. Intrinsic Motivation has the mean score of 63, followed by Integrated Motivation with the mean score of 38, next Identified Motivation has the mean score of 21, tied are External Motivation and Amotivated has the mean score of and lastly, Introjected Motivation has the mean score of 9.

It shows that Intrinsic Motivation appeared as the leading in Motivation as affirmed by the participants. Likewise, on the Introjected Motivation is the least Motivation.

According to Deci (1985) and Ryan (200) Self-Determination Theory (SDT), the reasons why individuals choose to participate, exert effort, and persist in an activity can be classified along a continuum of self-determined behavior. This, along with intrinsic motivation, can be classified in the same areas. Simply, this means if one is extrinsically motivated, the individual would need an outside force or extrinsic motivation to get them going. If an individual is intrinsically motivated, they have what is called intrinsic motivation. They do not need an outside force to get going. To go along with this is extrinsic and intrinsic motivation.

Table 3.

*The relationship between the coaching style and the level of motivation of the participants*

Coaching Style	Expert		Guide		Developer		Catalyst	
Sport Motivation	P Value	R Value	P Value	R Value	P Value	R Value	P Value	R Value
Intrinsic	.0017	.789	.029	.514	.001	0.824	.288	.378
Integrated	.036	.421	0.17	.654	.029	.514	.333	.412
Identified	.044	.412	.048	.401	.030	.590	.251	.352
Introjected	.056	.192	.888	.095	.941	.021	.860	.110
External	.065	.185	.331	.229	.557	.165	.242	.301
Amotivated	.084	.174	.193	.304	.154	.387	.159	.221

Alpha level 0.05

Regarding the **expert coaching style**, the P – Value was .0017 for Intrinsic motivation, .036 for Integrated motivation, and .044 for identified, at .05 level of significance, showing there were significant relationship between the said variables. However, the P – Value was .056 for introjected motivation, .065 External motivation, .084 for Amotivated motivation at .05 level of significance showing there were no significant relationship between these variables.

Andrew's (2004) concluded that a coach who provides the desired level of positive feedback behavior, has the capability to influence a tennis player's desire to continue or resolve sport participation.

In addition, Berestetska (2016) perceived coaching behaviors (with exclusion of autocratic behavior) were predictors of an athlete's sport commitment and sport enjoyment levels. Nevertheless, coaching behaviors were not associated with an athlete's feelings of obligation to remain in sport due to outside influence (e.g., parents, friends, cultural norms).

For the **guide coaching style**, the P – Value was .029 for Intrinsic motivation, .017 for Integrated motivation, and .048 for identified, at .05 level of significance, showing there were significant relationship between the said variables. However, the P – Value was .888 for introjected motivation, .331 External motivation, .193 for Amotivated motivation at .05



level of significance showing there were no significant relationship between these variables.

Furthermore, athletes who are awarded with financial support less frequently (such as in wrestling, tennis, golf), exhibit significantly higher levels of self-motivation to continue and enjoy sport participation (Medic et al., 2007), than athletes who receive scholarships more often (such as in football and basketball).

In **developer coaching style**, the P – Value was .001 for Intrinsic motivation, .029 for Integrated motivation, and .030 for identified, at .05 level of significance, showing there were significant relationship between the said variables. However, the P – Value was .941 for introjected motivation, .557 External motivation, .154 for Amotivated motivation at .05 level of significance showing there were no significant relationship between these variables.

According to Berestetska (2016) It indicated that a coach is capable of positively influencing a Division I tennis player's desire to continue or resolve sport participation (sport commitment), by providing them with sufficient social support, training and instruction, positive feedback, situational consideration, and democratic behaviors.

In terms of **catalyst coaching style**, the P – Value was .288 for Intrinsic motivation, .333 for Integrated motivation, and .251 for identified, .860 for introjected motivation, .242 External motivation, and .159 for Amotivated motivation at .05 level of significance showing there were no significant relationship between these variables. According to Berestetska (2016) it could not be determined that an athlete's intrinsic motivation level was a stronger predictor of their sport commitment than perceived coaching behaviors.

## Conclusion

Based on the above results, the following conclusions were drawn:

Most participants (coaches) preferred expert and developer coaching most of the time and use guide coaching style on an average account. In contrast, the Catalyst coaching style is not use often.

Most participants (Paraathletes) were regarded as Intrinsically Motivated followed by Integrated motivation and Identified motivation. External and Amotivated motivation were related the same with the participant. Introjected motivation was used by the participants the least.

There were relationships among **expert coaching style** and the following types of motivation; Intrinsic motivation, Integrated motivation, and Identified. However, there were no relationship between **expert coaching style** and the following motivation; introjected motivation, external motivation, and amotivated motivation

There were relationships among **guide coaching style** and the following types of motivation; Intrinsic motivation, Integrated motivation, and Identified. However, there were no relationship between **guide coaching style** and the following motivation; introjected motivation, external motivation, and amotivated motivation

There were relationships among **developer coaching style** and the following types of motivation; Intrinsic motivation, Integrated motivation, and Identified. However, there were no relationship between **developer coaching style** and the following motivation; introjected motivation, external motivation, and amotivated motivation

There were no relationships among **catalyst coaching and the following motivation**; for Intrinsic motivation, Integrated motivation, Identified motivation, Introjected motivation, External motivation, and Amotivated motivation.

## **Recommendations**

Based on the above conclusions, the following recommendations were drawn:

1. The researchers recommend participants (paraathletes) to understand more about what motivate them. Furthermore, continue the coaching used, and if possible to explore the catalyst coaching style.
2. The researchers recommend the institution to continue the coaching style used.

3. The National and Local Government should improve more the already existing program for the persons with disability by having more trained coaches.
5. The researchers of this study recommend the future researchers to explore other factors, such as gender difference, other disabilities, other research design and instruments, or they could conduct a follow - up study to test the reliability and validity of the research.

## **Acknowledgement**

The researchers sincerely want to give thanks to the School of Arts and Science especially it's Dean Dr. Jeanneath D. Velarde for unwavering support to conduct this study. The researchers would like to extend their gratitude to Office of **Philippine Paralympic Committee** (PPC) for granting the request to conduct the said study, likewise the researchers want to express their gratitude to the coaches and the paraathletes who supported our study. Lastly to Dr. Georgina Palmario, Vice-President for Academic Affairs and Dr. Jose Paulo Campos, EAC President for the never-ending support to the faculty researchers.

## References

- Abbott, M., Bourne, C., Eriksson, P., Higgs, C., Lagace, G., Sawiki, O., & Marion, A. (2005). *Coaching athletes with a disability*. Ottawa: Coaching Association of Canada.
- Banack, H. R., Sabiston, C. M., & Bloom, G. A. (2011). *Coach autonomy support, basic need satisfaction, and intrinsic motivation of Paralympic athletes*. *Research Quarterly for Exercise and Sport*, 82, 722-730.
- Bastos, T., Correadeira, R., Probst, M., & Fonseca, A. M. (2014). *Elite disability sport coaches' views on sport psychology*. *International Journal of Psychological Studies*, 6, 33-44.
- Bredahl, A. M. (2011). Coaching ethics and Paralympic sports. In A.R. Hardman and C. Jones (Eds.), *The ethics of sport coaching* (1st ed.) (pp. 135-146). New York: Routledge.
- Goosey-Tolfrey, V. (Eds.). (2010). *Wheelchair sports: A complete guide for athletes, coaches, and teachers*. Champaign, IL: Human Kinetics.
- Martin, J. J. & Wheeler, G. (2011). *Sport Psychology*. In Y. Vanlandewijck, & W. Thompson. *The Paralympic Athlete*. (pp. 113-136). London, England: International Olympic Committee.
- Cregan, K, (2007). *Career Evolutio and Knowledge of elite Coaches of Swimmer with a Physical Disability*. *Research Quarterly for Exercise and Sport*
- Hailey Banack (2009) *Coaching Behaviours and the Motivation of Paralympic Athlete*. McGill University, Montreal
- McMaster, S., Culver, K., & Werthner, P. (2012). *Coaching of athletes with a physical disability: a look at their learning experiences*. *Qualitative Research in Sport, Exercise, and Health*, 4, 226-243. DOI: 10.1080/2159676X.2012.686060  
Paralympic Committee of the Philippines (2019)

**Coaching style inventory** (Creative Commons Attribution, Version 2.1 Jan 2008)

## Sport Motivation Scale

### Appendix

#### Characteristics of each Coaching Style

	Focus	Impact	Risk and control
<b>Expert</b>	Getting the job done – achieving tasks efficiently and effectively. Performance, technique, methods and tactics.	Physical, intellectual and interpersonal. Acquiring and applying knowledge	Risk is low and control is high – agenda is determined by the coach
<b>Guide</b>	Skill building – increasing capacity in the role. How to move towards agreed goals and objectives	Intellectual and interpersonal. Accumulating, applying and refining knowledge, solving problems	Risk is still low, control still high; coach is mostly on comfortable ground, but needs to create a working relationship
<b>Developer</b>	Enlarging capability - agreeing and setting goals, creating future paths and objectives	Interpersonal and emotional: influencing self and others, creating new opportunities	Risk is medium to high – personal involvement is integral to the working relationship
<b>Catalyst</b>	Values and perspectives - creating an agenda for change via developing awareness, sense of personal vision and purpose	Emotional and interpersonal: integrating relationships with personal values	Risk is high, control is low – limits are tested and new territory is explored by both participants

---

# Analysis of the Three-Year Exit Survey Data as Basis for Institutional Development Plan of EAC-Cavite

Herman L. Briñas, Ericka R. Riano, and Marny C. Batusin

Center for Counseling, Career and Student Development

\*corresponding author: [heman.brinas@eac.edu.ph](mailto:heman.brinas@eac.edu.ph)  
contact number: 09173831907

## KEYWORDS:

educational  
program,  
strength and  
weaknesses  
needs

---

**Abstract.** This survey study objective is to identify the strengths and weaknesses of school programs to enhance the school services. Furthermore, it also identifies needs that were not met by the respondents. The respondents are the 750 graduated students from academic year 2015-2016, 2016-2017, and 2017-2018. Using the coding, word cloud, and textual analysis approach, this qualitative study found that the strength of different programs is associated to qualities of the heads, faculty and non-teaching staff. On the other hand, physical facilities and services are found to be its apparent weakness. Concerns on facilities, professors, lack of socialization activities, laboratory, equipment, internet, service emerged as the needs that were not met by batch of students from the three academic years. Further investigation for future researchers related to needs was recommended to address both the existing and the emerging concerns of the students.

---

© 2019 Emilio Aguinaldo College-Cavite. All Rights reserved.

---

# **Analysis of the Three-Year Exit Survey Data as Basis for Institutional Development Plan of EAC-Cavite**

## **INTRODUCTION**

The experience of student in school could be one of the most valid sources of information to address and to improve different aspects of school programs and services, whether it is academic or non-academic. The survey data is a form of feedback that would lead the administration to its better direction in delivering the right service to the students. This is crucial because they are considered ultimate beneficiary of the school. Using surveys help in understanding and improving school's educational programs. It further helps to better understand student learning in the curricular level to develop or improve a course, program, learning materials or a learning technology.

According to De Franzo (2012) surveys can be extensive, wherein they are useful in describing the characteristics of a large population. Moreover, in the aspect of continuous quality improvement, surveys help to identify students' expectations, measure satisfaction levels, and determine specific areas for improvement (Innovation Insights, 2006). The conduct of this study is anchored to the institutional research agenda of Emilio Aguinaldo College-Cavite focused on: 1) Institutional Service Development, and 2) Educational Development. It aims to assess and analyze the needs that should be met for continuous growth and improvement. According to Bashir, Kabir and Rahman (2016), the analysis of student opinion is important to improve the student self-growth, employee performance, faculty performance, school performance, responsiveness of school to students' need and recognition or dismissal of employees or school functions. It is further helpful in maintaining the standards of implementation of school policies and procedures as well as it is useful for marketing purposes. In addition, Glenn and de Groof (2005) emphasized that analyzing student opinions about their experiences in school will help create an effective teaching and learning environments that will be eventually parents' school of choice for their children.

Through this study, problem areas are expected to be addressed by the school and the respective offices or department involved. It will also contribute in student retention and to better understand the degree to which students learn from their schooling for the purpose of course or curricular improvements. Lastly, it evaluated the quality of educational

programs offered by the school, help them make request for the resources needed and assist in meeting institutional and accreditation requirements.

The study was also designed to have a contribution in the developmental and institutional planning of the school. It was expected to emphasize areas for improvement in both academic and non-academic programs. Administrators of both academic and non-academic departments could possibly reflect on areas for improvement and that can be considered as basis of action planning. It will help in improving different offices in delivering services dedicated specially for students. The study can contribute to employee's professional development through practicing improved services based on the results. Students will benefit to the improvement of services and will perform better in academic and non-academic aspects. Lastly, the school will be acquainted with high performing services and qualify for different types of accreditations.

## **METHODOLOGY**

### ***Study Design***

The study utilizes coding and textual summary to get the common responses of the respondents. Also, it will utilize coding analysis in identifying the results from the qualitative data. The design is *qualitative*, and the approach is *comparative textual analysis* of the existing exit survey data of the Center for Counseling, Career and Student Development. It also uses the coding and wordcloud technique to summarize the qualitative data.

### ***Participants of the Study***

The paper is focused on the analysis of three-year survey data from the Center of Counseling, Career, and Student Development. Every year, an exit survey is being conducted to identify areas to improve in the school. To create a wider view of the exit data, the researchers will analyze the three-year consecutive survey. The participants are composed of graduating students from three batches from academic years 2015-2016, 2016-2017, and 2017-2018 with 266, 230, with 254 population respectively. The survey is administered in the second semester of every academic year.



**Procedure**

The study started with consolidation of the data files from the Center for Counseling, Career and Student Development. It was followed by encoding and coding of the responses according to programs. After the coding, the data was analyzed through word cloud technique. It was followed by tabulation and getting the most common responses. Finally, summarizing the commonality of the responses and writing the initial results of the study was done.

**Ethical Consideration**

The participants initially informed during the exit survey on the confidentiality of their responses. Their names were not revealed in any part of the write-up of the study. They were also informed that the exit survey maybe consolidated for research purposes and in order to improve the school services, operations and existing procedures. The survey form itself did not require the respondents to indicate their name.

**RESULTS**

*What are the strengths and weaknesses of different programs?*

*Table 1. The Strengths and Weaknesses of Different Program*

Program	Strength	Weaknesses
Communication	Approachable, accommodating, friendly, understanding, professional	Needs, lack, professionalism, inconsistent, improvement, curriculum, facilities, redundant, friendly, lacking
Accountancy		Lacking, subjects, subjects, need, performance, facilities, teaching, program, updated, duties, rooms, time

Business Administration Programs	Accommodating, approachable, professional, good, kind, understanding, knowledgeable, supportive, excellent, improving, friendly, patient	Lacking, sometimes, strict, inconsistent, improvement, facilities, subjects, enough, poor, rooms, accommodating, approachable, classroom, properly, needs, late, lock, time
Criminology	Good, approachable, skilled, friendly, helpful, smart, kind, effective, efficient, hardworking, respectful, accessible, complete, patient, disciplinarian, respectful	Students, improvement, time, presentable, management, tardiness, schedule, lack, poor, busy
Customs administration	Good, helpful, nice, approachable, supportive, helpful	Strict, subjects, late, slow, processing, good, lack, approachable
Education Programs	Friendly, accommodating, approachable, kind, knowledgeable, professional, passionate, mastery, good, hardworking, effective, conducive, excellent, fair	Faculty, lack, appropriate, management, favoritism, subjects, time, approachable, inconsistent, available, permanent, manners

Engineering Programs	Approachable, good, organized, kind, knowledgeable, professional, accommodating	Lack, subject, equipment, enough, needed, moody, late, approachable, laboratory, facilities, tempered, hands-on, numbers, strict, busy, low, many
Hotel and Restaurant	Approachable, good, knowledgeable, supportive, friendly, improving, updated, professional, accommodating, hardworking, dedicated	Lack, sometimes, faculty, improvement, needs, time, accommodating, unorganized, equipment, service
Medical Technology	Competitive, friendly, knowledgeable, accommodating, approachable, supportive, excellent, complete, updated, considerate	Students, lack, competitive, compressed, internship, facilities, favoritism, classroom, facility, needs, time, less, lab
Midwifery	Good, knowledgeable, friendly, approachable	Sickness, improvement, needs
Nursing	Good, approachable, friendly, accommodating, intelligent, knowledgeable, kind, conducive, punctual	Lack, well, students, teaching, can't, lack, professionalism, accommodating, insufficient, cooperation, classrooms, facilities, learning, properly, service, enough, less, slow

Physical Therapy	Good, approachable, accommodating, professional, hardworking, improving, optimistic, accessible, improving, complete, knowledgeable	Lack, Facilities, schedule, time
Psychology	Approachable, friendly, accommodating, knowledgeable, nice, good, professional, responsible, understanding, approachable, accessible, kind	Lack, time, subjects, inconsistent, improvement, needs, unprofessional, accommodating, approachable, curriculum, aircon, rooms
Radiologic Technology	Good, accommodating, professional, understanding, knowledgeable, hospitable, supportive, improving, friendly, advanced, nice	Faculty, lack, need, improvement, high, availability, moody, tardy
<b>Summary</b>	Knowledgeable	Time
	Approachable	Improvement
	Accommodating	Lack
	Friendly	Facilities
	Professional	Subjects
	Good	Approachable
	Kind	Needs
	Supporting	Lack
	Improving	Accommodating
	Understanding	Inconsistent
	Hardworking	

Using the word cloud technique, the strengths and weaknesses are shown in Table 1 across the three academic years (2015-2016, 2016-2017 and 2017-2018). The strength of the Communication Arts program focuses on being “approachable” of the working team of the school namely: dean, faculty and non-teaching employees. The weakness is more on “needs” which can be related to fulfilling the needs of the respondents in different areas such as facilities which also appeared as one of the highlights of the word cloud summary result. Being *approachable* of the people inside the school as a strength is the same with the Engineering, HRM, and Psychology programs.

Being “good” as in good services, good curriculum, good leadership are the strengths of the Criminology, Customs Administration, Midwifery, Nursing and Physical Therapy and Radiologic Technology programs. The remaining programs had different strengths highlighted. For instance, Education programs strength is “friendly” (referring to the Dean, Faculty and Non-teaching employees as friendly individuals) while the Medical Technology program is “competitive” for both the Dean and the faculty members.

In terms of weakness, the most common word to most programs such as: Accountancy, Business Administration, Engineering, HRM, Nursing and Physical Therapy is focused on the word “lacking”. Lacking is more on lack of facilities pertaining to use of laboratories and/or lacking equipment, material or delay of delivery of materials in the laboratory. There are also responses pertaining to lack of books and space of the library. The remaining programs’ weaknesses are: a.) Criminology, Medical Technology; *students*, b.) Customs Administration; *strict*, c.) Midwifery; *Sickness*, d.) Radiologic Technology; *faculty*. For “students”, the response is associated to too much closeness to students, late submission of grades of students, and not approachable to students. While for Medical Technology are to compensate the needs of students, equality to other students and pressure to students. With Radiologic Technology, faculty is associated with “more faculty,” “faculty availability”, and “lack of faculty.” Customs Administration result (strict) is associated to strict dean, faculty and non-teaching employees.

When summarized, the combined strengths were *knowledgeable*, *approachable* and *accommodating*, while the weaknesses are *time*, *improvement* and *lack of facilities*. Knowledgeable, approachable and accommodating are referred to the management, faculty members and to the non-teaching employees. Time is associated to time management as a result of the overall demands of both academic and non-academic pressures. Improvement is more of improvement of facilities and some aspects of the curriculum such as redundant subjects and its logical arrangements.

## What are the needs that are not met?

Table 2. The Needs that are not met

ACADEMIC YEAR		
2015-2016	2016-2017	2017-2018
Facilities	Facilities	Lack
Internet	Activities	Facilities
Professors	Concerns	Internet
Contented	Quality	Rooms
Equipment	Extra-curricular	Connectivity
Socialization	Professors	Equipment
Laboratory	Education	Books
Connection	Accreditation	Laboratory
Materials	Practical	Hands-on
Research	Software	Seminars
Varsity	Counting	Updated
Service	Service	Comfort
Process	Student	Professors
Access	Lister	Socialization
	School	Exposure
	Needs	
	Tour	
<b>Summary:</b> Facilities, Professors, Socialization, Laboratory, Equipment, Internet, Service		

The respondents who graduated in the academic year 2015-2016, their problems that were not met are focused on *facilities*, *internet* and *professors*. Academic 2016-2017 results are *facilities*, *activities*, and *concerns* while academic year 2017-2018 are *lack*, *facilities*, and *internet*. Facilities is associated to its maintenance, cleanliness and renovations. It is also related to the use of the laboratories in terms of accessibility or availability of necessary equipment of laboratory materials. Internet refers to the connectivity power as it is a necessary support to educational activities inside the school such as research and in doing different projects. For professors, it can be associated to lack of faculty which was mentioned many times across the different programs. It can also be related to teaching performance and demand for more competent professors. The academic year 2016-2017, has the same result as academic year 2015-2016, "*facilities*". Another result of the academic year 2016-2017 are *activities* and *concern*. Activities are associated with the demands of having more student activities such as tours, seminars and socialization night while concerns are more on academic and other student concern for

instance enrolment process, updated books, clean facilities. “*Lack*” as a result of the academic year 2017-2018 is more on lack of facilities, faculty members, lack of student activities and lack of research materials. In summary, the needs that are not met are *Facilities, Professors, Socialization, Laboratory, Equipment, Internet, Service*.

## DISCUSSION

Strengths of the programs have common results for instance “good” is the same strength word result of Criminology, Customs Administration, Midwifery, Nursing, Physical Therapy and Radiologic Technology. On the other hand, “approachable” is the same strengths among Communication, Engineering, HRM, and Psychology programs while Accountancy and Business Administration programs got “accommodating” similarly. However, in the summary, Knowledgeable, Approachable, Accommodating emerged as the most appearing responses. Knowledgeable became the highlight of the strength because it appeared in most of the programs although, it was not the highlight of the individual program results. The strength got twelve (12) noteworthy words for this study while the weakness got ten (10) words. The students perceived that the qualities of the deans and the faculty members are important and the strength of Emilio Aguinaldo College- Cavite. For instance, approachable also appeared in the weakness category in the perception that the faculty and the people inside the school shall be student-friendly.

While the *strength* was focused on the qualities of the individuals inside the school, the *weakness* of the programs was focused on services and physical development aspects such as *time, improvement* and *lack*. This means that the physical developmental aspects can be addressed by the respective offices and the management, in general.

In terms of the needs that were not met in academic years 2015-2016 and 2016-2017 obtain the same result as “facilities” while 2017-2018 got “lack” as the highlight, however, in the table of data, “lack” was actually associated to facilities many times across programs and academic years. Facilities has the second most appearing word in the results suggest that the academic year 2017-2018 graduates had complained more in terms of lack of facilities and lack of other aspects such as internet connection and of classrooms. This was the stage where the school acquired a bigger population of students, specifically, the senior high school level. With the bigger population, there could be some measures to apply to satisfy the existing and emerging needs. This area could be investigated further in studies.

## Recommendations

Facilities, professors, socialization, laboratory, equipment, internet, service are the noteworthy highlights of the needs that were not met by batch of students from the three academic years. The result can be addressed by considering and including them in the next management planning. Those findings can be included in the existing developmental framework of the institution. The management may be doing some measures on the concerns presented but there could be some details that need to look into. By doing so, it will serve the stakeholders of the school and the students better. Based on the results of the study, maintaining of the good qualities of the heads, faculty and staff shall is necessary while improving further the physical development and facilities of the institution.

## References

Bashir, M., Kabir, R. Rahman, I (2016) The value and effectiveness of feedback in improving students' learning and professionalizing teaching in the higher education. Journal of education and practice. 7(16) Retrieved from [www.iiste.org](http://www.iiste.org)

DeFranzo S. E. (2012). 4 Main benefits of Survey Research. Retrieved from <https://www.snapsurveys.com/blog/4-main-benefits-survey-research/>

Estevez M. (2014). Importance of Surveys. Retrieved from <https://www.foliomag.com/importance-surveys/>.

Etcuban, J., Jereza, J., Bulanon, M., Montecillo, L., Olvido, I., & Melicor, S. (2016). Satisfaction of Graduating Students during Exit Interviews in University of Cebu, Philippines. *JPAIR Institutional Research*, 8(1), 55-71. doi:10.7719/irj. v8i1.424

Glenn, C. and de J. Groof. (2005), *Balancing Freedom, Autonomy and Accountability in Education*, Wolf Legal Publishers, Nijmegen, Netherlands.

Kamenopoulou, L. (2016). 'Ecological Systems Theory: A valuable framework for research on Inclusion and Special Educational Needs/Disabilities', Volume 88, Number 4, 2016. Retrieved from [http://www.globi-observatory.org/wp-content/uploads/2016/04/Pedagogy\\_Leda\\_4\\_2016.pdf](http://www.globi-observatory.org/wp-content/uploads/2016/04/Pedagogy_Leda_4_2016.pdf)

Paquette, D., & Ryan, J. (2001). Bronfenbrenner's ecological systems theory. Retrieved on April 9, 2013.



National Business Research Institute (2018). Importance of Customer Surveys. Retrieved from <https://www.nbrii.com/customer-survey-white-papers/the-importance-of-customer-surveys/>.

Innovation Insights (2006). Using Surveys for Data Collection in Continuous Improvement. (14). Retrieved from <http://www.virginia.edu/processsimplification/resources/PennState%20Surveys.pdf>

International Survey Associates (2016). Top Fifteenth Reasons to survey. Retrieved from <https://www.pridesurveys.com/index.php/blog/top-five-reasons-to-survey-your-students/>.

Klemenčič, M. (2015). What is student agency? An ontological exploration in the context of research on student engagement. In M. Klemenčič, S. Bergan, & R. Primožič (Eds.), *Student engagement in Europe: Society, higher education and student governance* (pp. 11–29). Strasbourg: Council of Europe Publishing. Google Scholar

Richardson, J. T. E. (2013). The national student survey and its impact on UK higher education. In M. Shah & C. Nair (Eds.), *Enhancing student feedback and improvement systems in tertiary education*. Abu Dhabi: Commission for Academic Accreditation, UAE.

Williams, J. (2014). Student feedback on the experience of higher education. A significant component of institutional research data. In M. E. Menon & et al. (Eds.), *Using data to improve higher education* (pp. 67–80). Dordrecht: Sense Publishers. Retrieved from DOI 10.007/978-9-319-20877-0\_24



Gov. D. Mangubat Avenue, Burol Main,  
City of Dasmariñas, Cavite 4114, Philippines  
<http://www.eac.edu.ph/cavite> / (046) 416-4341 to 42

Research and Development Office  
Local 7139